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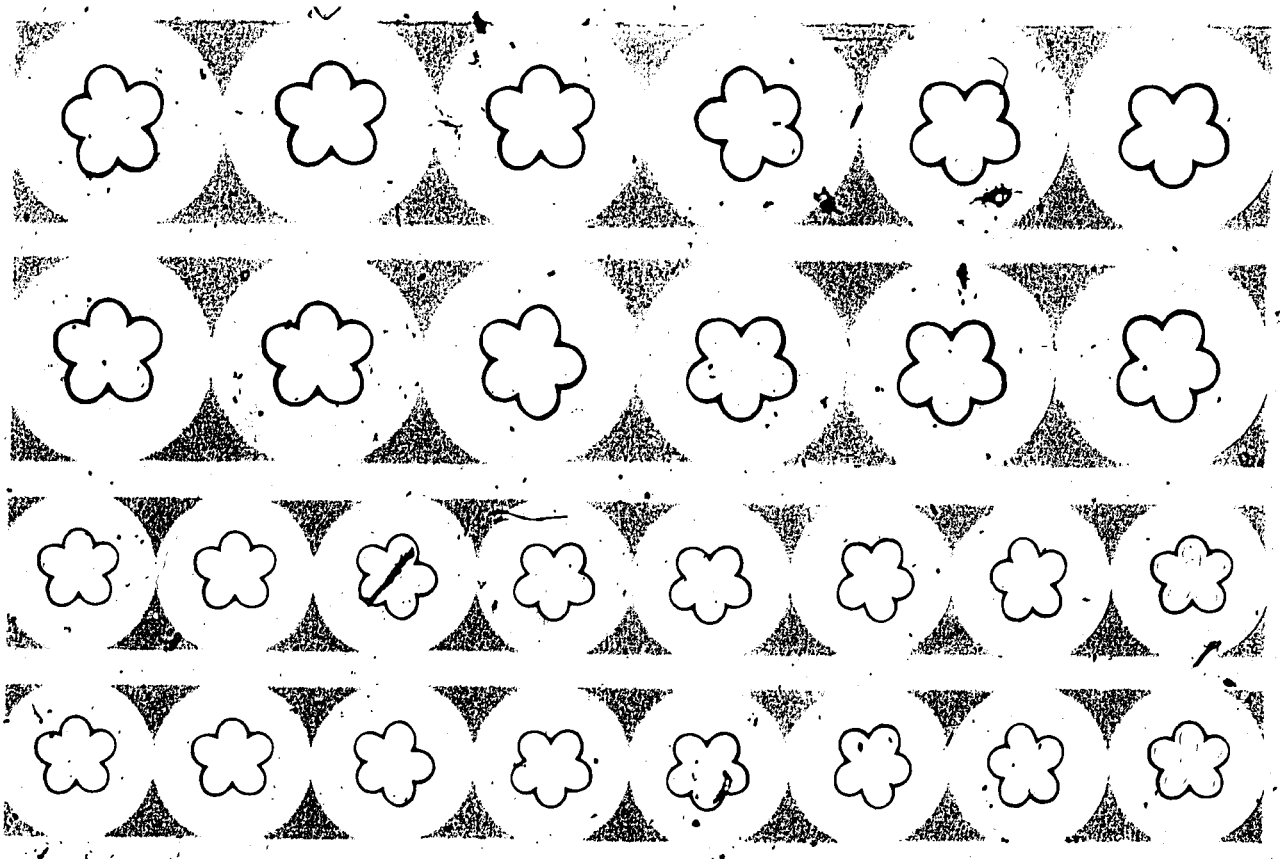
A decade of achievement



Edited by Marilyn E. Schima and Ira Lubell

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Library of Congress Catalog Card Number 80-67722

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ISBN: 0-9604536-0-1

Voluntary Sterilization: A Decade of Achievement

Proceedings of the 4th International Conference on Voluntary Sterilization
May 7-10, 1979, Seoul, Korea

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Publisher
The Association for Voluntary Sterilization, Inc.
708 Third Avenue, New York, NY 10017, U.S.

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Hugh Moore Memorial Award

The Hugh Moore Award was established in 1973 by the Population Crisis Committee, the Association for Voluntary Sterilization, the International Planned Parenthood Federation and the Population Institute, to honor the memory of one of the world's foremost pioneers in population and family planning. Hugh Moore was among the first to endorse voluntary sterilization for family planning purposes. He was one of the first to buy national advertising space to present population issues and ideas about fertility control. He was among the first to support organizations seeking to change government policies that affected family planning and fertility management, and he was one of the first to link environmental and ecological problems to population growth.

Each year, the Hugh Moore Award is presented to a distinguished leader in the field who possesses the same qualities of foresight, courage, willingness to experiment, to innovate, and to provoke action. Such a description fits no one quite so well as Dr. Fernando Tamayo of Colombia. As president of IPPF, he urged its member organizations to include sterilization in their roster of family planning services around the world and his untiring efforts to promote surgical contraception on many fronts has been instrumental in making it the world's foremost contraceptive method. In Colombia, Dr. Tamayo, working as a volunteer, battled formidable opposition to make this "radical" service acceptable and available. Today, as president of the Colombian Family Planning Association (ProFamilia), he can look back on a decade in which he helped to move the world. In his own country, family planning is now universally accepted, and voluntary sterilization has become one of its leading methods of fertility control. Colombia is, in fact, a microcosm reflecting similar progress internationally. Dr. Tamayo symbolizes the kind of leadership that has made the voluntary sterilization movement so enormously successful.

Acknowledgments

The editors wish to express their appreciation to the many friends and colleagues who helped to make a tremendously successful Fourth International Conference. For their invaluable support and assistance, we thank our fine professional staff and consultants, our conference committees, our many friends in the family planning field, and all who participated in the development of the conference program.

We also want to thank the Korean Ministry of Health and Social Affairs, the Korean Association for Voluntary Sterilization, the National Tourism Corporation, the Tourist Bureau, and the Korean Institute for Family Planning. Their gracious hospitality coupled with superb efficiency and great good cheer in handling our multitude of needs were memorable and major contributions to the success of the conference.

We especially want to acknowledge with deepest appreciation the continuing support of the U.S.A.I.D. and the many dedicated people in that agency who have long been so generous with their assistance and encouragement. The entire staff of the Office of Population have given us invaluable counsel and friendship. They have been a major supporter of and participator in our triennial conferences and have helped us make these proceedings possible.

Finally, our warmest thanks go to Dr. John C. Cutler, President, AVS, and to the AVS Executive Committee and International Committee who have provided unflagging support for our efforts and whose dedication to the voluntary sterilization movement has been an inspiration to all of us.

Marilyn E. Schima
Ira Lubell

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Introduction

Perhaps no previous conference has so keenly limned the shape of the past nor offered such provocative insights into the future. At Seoul, we beheld at once where we had been and sensed anew where we shall go. We looked, in fact, at an evolution—"not a force but a process"—and saw that the decade of the 70's was a period of beginnings, of growth and maturation, of joining together for collective action to accomplish common goals. We found that so much had been accomplished so quickly that we were not simply moving, but were propelled into the decade of the 80's by the very process we had only recently set in motion.

Joined by new friends from an everwidening circle of committed and concerned professionals from allied fields, we found that success itself had generated new and often more sophisticated issues, posed new problems, and stimulated responsive action.

Like all evolutions, ours was in various stages of development. Some of us were well down the road while others had only started the journey, yet common linkages of concern for the quality of life for all the world's people sounded the basic theme of the conference.

Education as commitment emerged as the nucleus of a shared concern about the provision of sensitive, culture-specific counseling, especially for preliterates whose rights to full information that provides for informed consent must be as carefully guaranteed as the rights of literate acceptors.

In a movement rapidly coming of age, education and the use of sophisticated communication techniques, appropriately applied with sensitivity and candor, will be as important to our progress in the next decade as new technological advancements. It will not be enough—once initial demand for services has been met—that we make surgical contraception universally available; we must also make it universally acceptable as the logical choice at the appropriate time. That is the core commitment.

As expected, the participants continued their epic quest for ways to bring sterilization services and fertility management education to the people who need it most, whether urban or rural. Although faced with seemingly insurmountable odds such as the universal shortage of trained manpower, lack of funds, lack of health infrastructures, and frequently the hazards of uncertain or non-existent transportion systems, the conferees nevertheless reported innovative solutions through non-traditional linkages. Sterilization services were seen as an important point of contact between the health care system and the individual, often providing the first exposure to preventive care.

Troubled over the health hazards of grand multiparity—widespread in many countries—the conferees sought to define it at Para IV where it would be recognized as a medical indication for sterilization. They urged that multiparas be considered at high risk and be given top priority, especially in beginning programs, as a matter of public health policy.

There was continued deep concern for legal changes and clarifications where restrictions exist. Although enormous attitudinal changes and practices have occurred over the past decade, the legal climate has been slower to reflect these realities in many areas. Much work remains before voluntary sterilization will be clearly and definitively legal in every country. Lack of clear definition creates a chilling effect at the outset, particularly among physicians who are the mainstay of service programs. In this respect, the problem is first a political one needing political support for change. Concerted efforts will be made to enlist this support in the 80's.

The technological search continues for new and simpler techniques that are reversible, lower in cost, easily deliverable to remote areas, and relatively independent of the need for expensive, sophisticated equipment. Reversibility continues to be hotly discussed, with advocates championing the need for improved methods as soon as possible while others urge caution and see permanency as the proper objective for fertility termination.

It is clear now that voluntary sterilization offers a genuine demographic potential, given the continued rate of growth in acceptance, and the rapid spread of service availability. Most countries of the developing world have come to recognize the inevitable link between economic development (with all of its potential for betterment of the human condition) and population problems. Some have not yet taken the positive actions that will be needed to meet the challenges of the 1980's and we hope that initiatives for change will come soon.

Our triennial conference continues to be a leadership forum, providing policy- and decision-makers with a valuable top level information exchange to keep our international communications network vital and active. It is with pride and pleasure that we publish this record of the proceedings, the *chanson des gestes* of the voluntary sterilization movement.

Marilyn E. Schima
Ira Lubell
June 1980

Opening Ceremonies and Keynote Address

Mahmoud F. Fathalla	President's Introduction
The Honorable H.E. Shin Hyon Hwack **Deputy Prime Minister** **Minister of Economic Planning Board, Korea**	Korea's Experience with Population Growth
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Jae-Mo Yang	An Overview of Family Planning in Korea

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President's Introduction

Mahmoud F. Fathalla, Conference President

The Fourth International Conference gathers top leaders from various disciplines and from various walks of life to discuss a world phenomenon of our time, the increasing use of voluntary sterilization for fertility control.

People participate in international conferences to exchange scientific information and to learn from each other. This conference is different in that participants have come here because they are also deeply concerned, not because they are merely interested.

Our concerns may vary in emphasis but at least we have three main areas of agreement. We are concerned about unlimited and unchecked population growth. We are concerned about the human right to regulate reproduction. We are concerned about individual and community health.

Population awareness is recent in human history. I do not want to be an alarmist. I also cannot be complacent. The statistical exercises of demographers have shown dramatically what would happen if people continued indefinitely to reproduce at the present rate. At some future date there simply would not be room enough for the projected astronomical numbers of people to survive on this planet.

The world population is now showing unmistakable trends to decreased growth. The starting rate of fertility decline and the speed of decline, consequently, the point in time when fertility levels approximating replacement are reached, will be crucial in determining the final size of the population of our world and of our countries. The world population may stabilize at 8 billion or at 15 billion, depending on how we behave in this century. Throughout the few million years of human life on earth, probably no single century ever had or will have such an influence on human destiny.

This epoch in world history will be critically and harshly judged. There will be a general judgment on how responsibly we have all behaved in reproducing ourselves, and there will be a special judgment on how we facilitated or hindered the unmistakable trend to decreased population growth. And there is no question about it. We are not doing our best to help people limit their fertility. The sooner the better is probably more valid here than in any other field. All that can be done should be done.

I will be more specific about the subject of this conference by mentioning two facts. First, the increasing acceptance and use of voluntary sterilization has been a phenomenon of our time. More than any other contraceptive method available today, voluntary sterilization is gaining in popularity. Second, voluntary sterilization is the most demographically effective method of contraception.

Voluntary sterilization services are not available in a large part of our world, whether because of government policies or because of lack of material and personnel resources.

The topics we will be discussing over these three days are far from a philosophical exercise and are not just fields of scientific research. They are some of the strings on which hang the destiny of mankind.

We are concerned about population. We are also concerned about human rights. We cannot sit back in comfort when women are being used as baby factories in a large part of our world and are not given the right, the basic human right, to say: we've had enough.

We are celebrating the year of the child, and people are discussing the right of the child for care, education and play. The basic right of the child to be born when wanted and to be born healthy does not seem to be called for loudly enough.

We are concerned about health. We cannot sit back in comfort when mothers are dying or suffering because of unwanted pregnancies while they are denied the information and means to limit their fertility. A large precentage of the maternal mortality, so high in developing countries, could be prevented if women were allowed to stop childbearing after having the desired number of children.

Ladies and gentlemen, we are here because we are concerned about the quality of human life for the present and for the future. The challenge is great and time is short. May God bless your work.

Korea's Experience with Population Growth

Honorable H.E. Shin Hyon Hwack, Deputy Prime Minister
Minister of Economic Planning Board, Korea

Mr. President, Distinguished Guests, Ladies and Gentlemen: I am pleased to extend the warmest welcome to you on behalf of the government and the people of Korea. There exists here in Korea a deep appreciation and respect for your work, and we are proud that you have chosen Seoul for your conference.

Perhaps you will forgive me if I digress a bit. Many years ago when I was a young vice minister, a report found its way to my desk. I was shocked by its content which claimed that one of the most urgent policy tasks facing the government was population and family planning. The idea of family planning was still very alien in Korea in those days. I for one thought that the subject was unfit even for private gentlemanly discourse, let alone for open discussion in an official memorandum.

The point of my story is, of course, that it was not so long ago that even the most enlightened in Korea were sometimes less than fully aware of the vital importance of the work being carried out by your profession. Furthermore, it is perhaps easier today than it was a generation ago to see with clarity the principal issue involved, namely how the whole question of economic development and improvement in the standards of living are inextricably bound up with enlightened attitudes and approaches toward population growth. I am sure at least that this has been true here in Korea.

In the late 1950's, however, Korea was still a country steeped in tradition, especially in family matters. Over 70% of the population was agricultural, and the population growth rate was over 3% per year. A change came in the early 1960's when under new political leadership, the economy, long stagnant, began to develop. The formidable problem, however, was how any general improvement in living standards could take place when the population was growing at such an alarming rate.

In 1962 the nation began its first serious efforts to stem population growth through family planning. With the help of concerned individuals, the medical profession, and numerous voluntary organizations, the government launched a number of programs designed to reduce birth rates. Thanks in large measure to these programs, the nation's birth rate dropped from 43 to 27 per 1,000 in the 1962-1978 period. These results actually fell short of the original target, but in comparison with the results achieved elsewhere, they were a considerable success.

In my opinion there were two major factors responsible for the success of our efforts. In the early 1960's, Korea enjoyed an unusually high educational level for a developing country. The literacy rate in 1962 was over 80%, so it was relatively easy for people to understand the purpose of the program. I believe our programs also yielded results precisely because they parallelled the nation's earnest efforts to develop economically. As some of you may know already, Korea launched its First Five Year Economic Development Plan in 1962, and the development strategy followed ever since has been an outward-looking, export-oriented one. This strategy has created maximum employment opportunities in a very short time, which, in turn, have resulted in limiting the size of families, especially among young people.

In looking back on our entire experience in family planning, I am certain about two things. First, without the reduction in the growth of population from 2.9% to 1.6% per annum between 1962 and 1978, the more than threefold increase in real GNP per capita would not have occurred. Second, although technical advances are highly important, we will not achieve much unless we continue to use imaginative approaches to economic incentives and cultural values. I have little doubt that you will be devoting a great deal of your time to exploring precisely these approaches during the next few days.

In closing, let me congratulate you for having chosen the most beautiful month of the Korean year for your conference. I hope you will have opportunities to visit our farms, villages and burgeoning industrial towns and cities. I hope you will enjoy meeting our people and you will want to come back to Korea and see us again.

The Challenge and Response: Family Planning in Mexico

Jorge Martínez Manautou

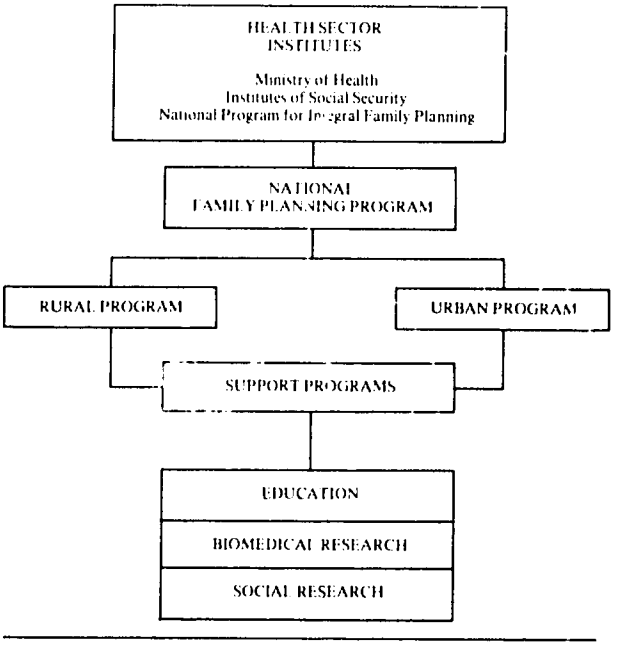
Until recent years, the political and cultural environment in Mexico encouraged high fertility. This was reflected in the Federal Sanitary Laws in force before the year 1973, which prohibited the advertising and sale of products for fertility control, and in the 1947 General Population Law which favored population growth.

In 1973, the Sanitary Laws were modified, eliminating restrictions concerning contraceptive products, and in 1974, a new General Population Law was issued as follows:

> Man and woman are equal before the law. The law shall protect the family organization and development.
>
> Every person has the right to be properly informed in order to freely and responsibly decide the number and spacing of his children.

Family planning activities were initiated in private institutions during the second half of the 1960s and, in a very limited way, in official institutions where such activities started in 1974.

Figure 1.



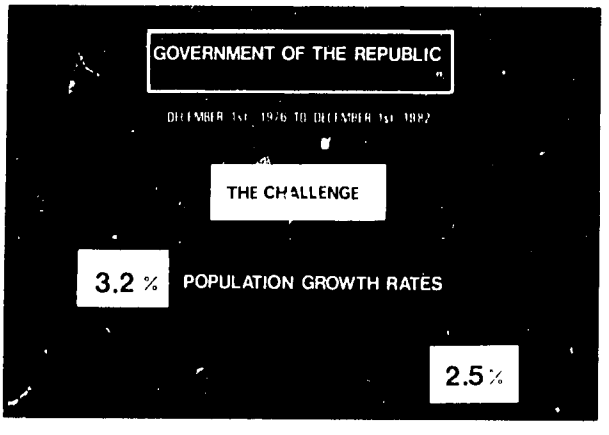
Thus, when early in 1977 we were entrusted with the responsibility of coordinating the official activities on this subject—after almost two decades of striving to establish a family planning program—we were also given the opportunity to develop a national plan. This plan would enable us not only to comply with the difficult demographic goal the government had indicated (to reduce the population growth rate from 3.2% to 2.5% by 1982), but also to structure the plan in such a way that it could be successfully continued after the current presidential term.

MECHANISMS DEVELOPED TO FACE THE FAMILY PLANNING CHALLENGE

In order to meet the fascinating challenge, several mechanisms and factors were considered. We wanted to select the best people to direct the key program in the official sector, and we sought to create a coordinating organization to diagnose the situation so we could design a nationally integrated program that would incorporate the related activities.

We defined priorities to help us to decentralize the program. We had to motivate the population towards the use of family planning services. And, finally, we had to develop a permanent evaluation system.

Figure 2.



We selected the most capable persons to continue the previously initiated official programs and to take part in the development process of the new national plan.

COORDINACION DEL PROGRAMA NACIONAL DE PLANIFICACION FAMILIAR

A coordinating office was created, *Coordinación del Programa Nacional de Planificación Familiar,* to unify criteria and coordinate the family planning program activities of the different government health institutions, as well as those of some decentralized concerns and private institutions participating in the programs.

The *Coordinación* established contact with other national and foreign technical, scientific and financial institutions in order to exchange experiences and information and to obtain the necessary support for the development of activities.

Some of the *Coordinación's* main objectives were:

- To develop the national family planning program and to organize, standardize and evaluate family planning activities.
- To collaborate with the National Population Council for the fulfillment of the demographic goals.
- The *Coordinación* encouraged the decentralization of the national program and provided technical support to the programs developed in the government institutions.

The *Coordinación* takes maximum advantage of the existing structures and resources in order to render more efficient services and to extend coverage to population groups previously neglected. The office also promotes the development of nationally manufactured contraceptive products and conducts investigations of a biomedical nature on the use of such products.

The organizational structure of the *Coordinación* includes:

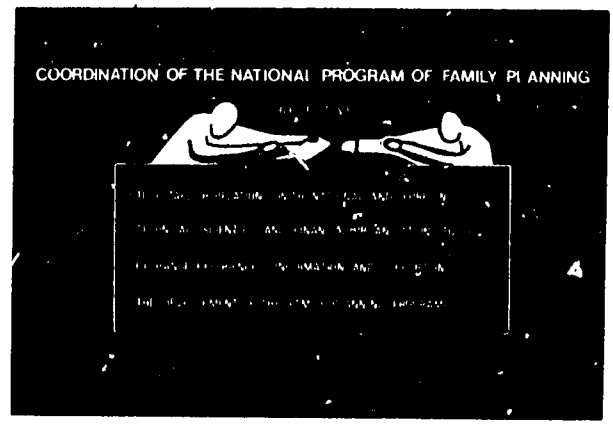
- Clinical services,
- Rural services,
- Information and education,
- Planning,
- Administration and financing.

THE NATIONAL FAMILY PLANNING PROGRAM

The *Coordinacion,* jointly with the health and social security institutions, developed a national family planning program whose demographic goal was to reduce the Mexican population growth rate from almost 3.2% in 1976 to 2.5% by 1982, and to further reduce the rate to 1% by the year 2000.

The plan's rural and urban programs are integrated with the sub-programs of each of the health sector's and social

Figure 3.



security's institutions. In addition, the programs of other official and private institutions are progressively added.

Education, biomedical research and social investigation are supporting programs, each with various sub-programs.

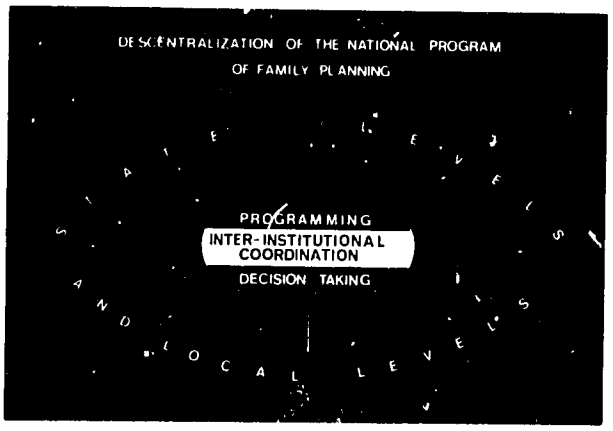
It is worth mentioning that, within the family planning services, priority has been given to rural programs which are integrated into primary health care. Further, decentralizing the programs, motivating the population to use family planning services, and establishing a permanent evaluation system have been considered fundamental strategies in program development.

THE PROCESS OF PROGRAM DECENTRALIZATION

Within Mexico's 31 states, the family planning program is basically carried out by the national health and social security institutions whose national management levels are stationed in the capital of the Republic. Nevertheless, in view of the magnitude and increasing range of the network of services and of the great variety of economic, social, political and cultural characteristics which are observed within the different states, it has become necessary to promote the program's decentralization as a part of an administrative reform favored by the federal government. This reform allows the state governments to take greater responsibility in the programming, execution and control of the public sector's activities in each state.

The decentralization of the family planning program and the programming process have been implemented simultaneously. This, aside from fostering the coordination of the institutions among themselves, has emphasized the responsibility of state and local levels for both programming and decision-making.

Figure 4.



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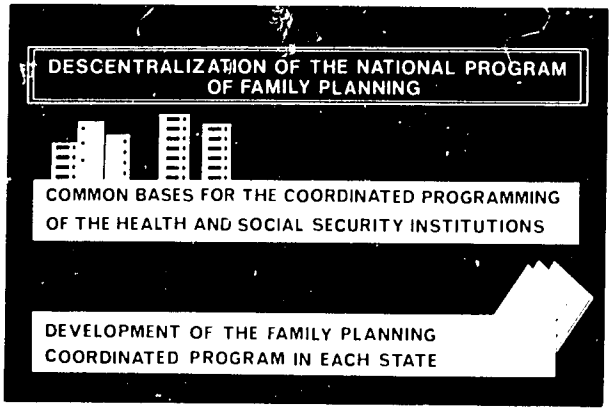

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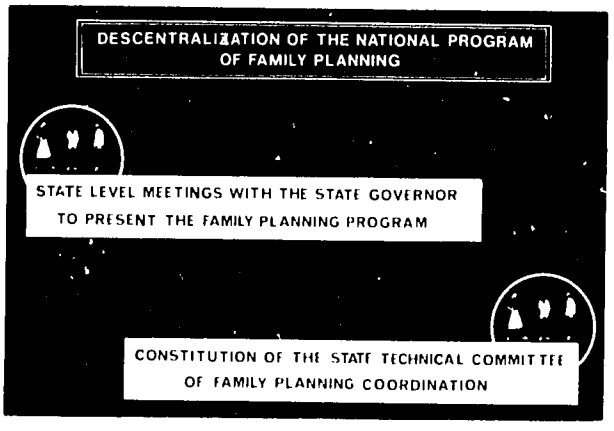


ACHIEVEMENTS OF THE NATIONAL FAMILY PLANNING PROGRAM

One of the basic charters of the national family planning program is a permanent evaluation system. The evaluation activities have been carried out through two main procedures which complement each other, i.e., institutional information systems and a national prevalence survey on the use of contraceptive methods.

Information Systems

Based on the data furnished by the information systems of the government institutions that are providing family planning services, it has been possible to record the number of new users during the years 1977-1978, as well as the number of active users; these are the women who have continued using contraception since they joined the program.

As for new users, the established goal in the health sector's and social security's institutions was 2,062,700 women for the years 1977-1978. Of this target 92.1% was reached, including a total of 1,898,400 new users.

In the urban program, during this same period, 94.4% of the goal was reached while in the rural program the target covered was 86.9 percent.

Adding the contribution of other official and private institutions to the above figures, the program achieved 99.8% of the goal established for the two years previously mentioned.

It is important to point out that in 1978 the new users who joined the program represented a 25.4% gain over the previous year.

Figure 7.

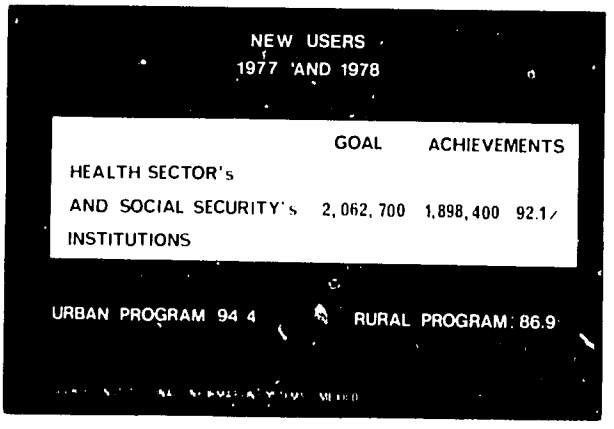


Figure 8.

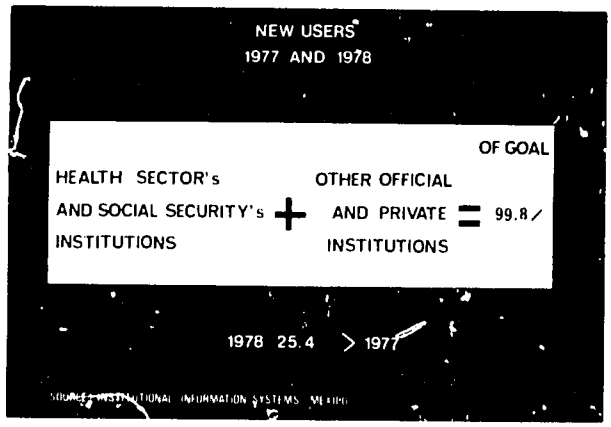


Figure 9.

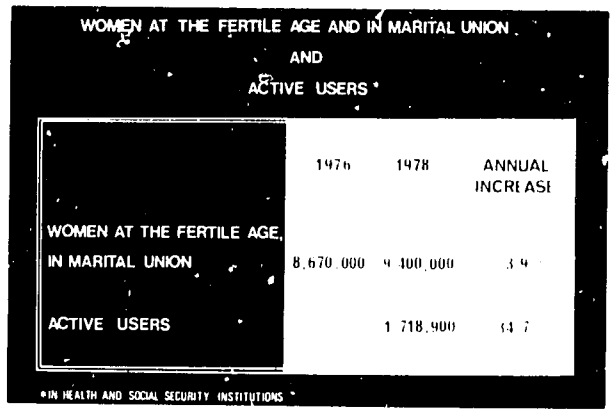
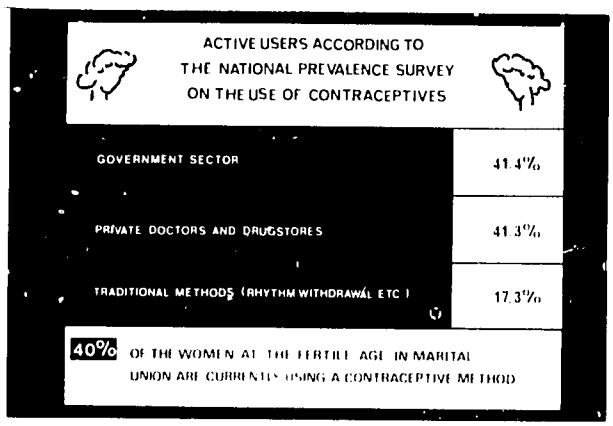


Figure 10.



According to the number of new users and the continuity observed in each one of the contraceptive methods provided by the program, the health sector's and the social security's institutions had served a total of 1,718,900 active users at the end of 1978.

The estimated number of women who had reached fertile age and were leading marital lives during the period 1976-1978 showed an annual increase of 3.9%—from 8,670,000 to 9,400,000—while the annual increase of active women during the same period was 34.7%, that is, almost nine times higher than the increase of the population represented by women in marital union.

National Prevalence Survey on the Use of Contraceptives

During the months of July through October, 1978 a national survey was conducted in order to study the female population between 15 to 49 years of age, as well as women's knowledge about family planning and the use and non use of contraceptives; these data were related to selected socio-economic characteristics. In addition, the survey provided important elements needed to establish the demographic impact of family planning.

Some relevant data obtained from the survey were: The active users among the government sector represent 41.4% of the total. Of those, 41.3% resort to drugstores or private doctors to obtain contraceptives, and 17.3% use traditional methods such as rhythm or withdrawal.

As a whole, 40% of the sexually active married women are currently using a method, representing a total of over 3.8 million women.

It was also found that 67.5% of the present users selected the most effective methods for fertility control, such as: hormonal, 34.0%, surgical methods, 17.4% and intrauterine devices, 16.1 percent.

Of the total number of women using a method, 64% did so with the purpose of limiting their family size. The women had an average of 4.8 living children. A total of 95.3% stated that they had their husband's or partner's approval to use contraception, which is a very significant fact.

The users' average age is 30.7 years, which shows the inclusion of younger women as compared to former years. It is necessary to point out that the national average age for the first marital union of women is 19 years. This means that they continue to marry at an early age.

Regarding the application of surgical contraceptive methods, the main data obtained in the survey can be summarized as follows:

- *Women's Age.* 81.3% of the women who used this method were 30 or more years of age, with an average age of 35.3 years.

Figure 11.

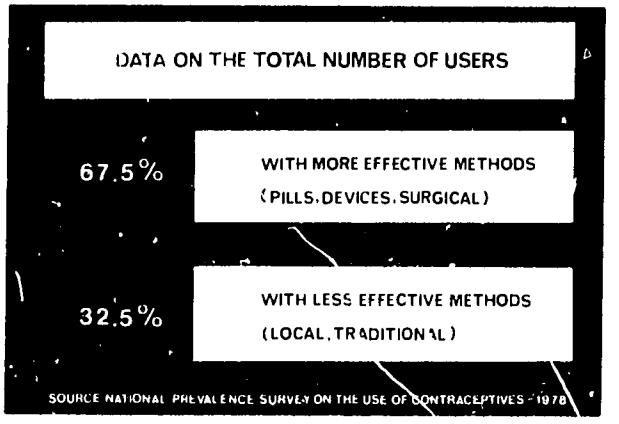


Figure 12.

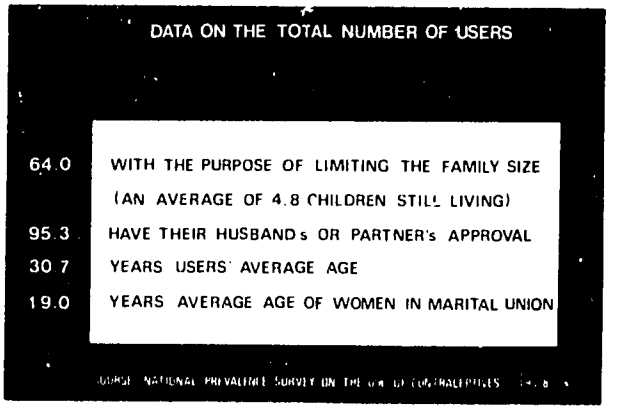
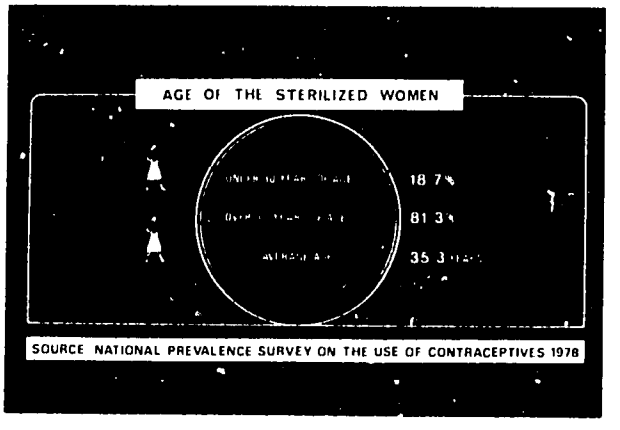


Figure 13.



- *Marital Status.* It is often mentioned that one of the things of which persons are afraid, when it comes to permanent contraceptive methods, is the eventual change in their marital status (separation, divorce, abandonment or partner's death) and, consequently, the necessity or desire for more children in the future. Nevertheless, as can be observed in other countries, most sterilized women in Mexico remain married; only 4.8% become divorced or separated, and 0.5% are single women.

- *Number of Children and Pregnancies.* The women who use permanent contraception show, in general, a high fertility pattern, especially the rural and suburban women whose pregnancy average goes up to 8.1, with an average of 7.2 children still living. In the metropolitan areas the average is 6.7 pregnancies and 5.3 children living.

- *Contraception Usage History Prior to Sterilization.* 68.6% of the women using surgical contraception had been using contraception prior to being sterilized. The methods used, by frequency order, were the following: pills 26.8%, intrauterine device 10.5%, rhythm and withdrawal 7.6%, injections 6.7%, condom 2.4% and other 3.3 percent.

- *Number of Sterilized Women.* The estimated total of Mexican women who chose surgical contraception to the date of the survey was 700,000.

- *Surgical Services Rendered.* A study of the distribution of services rendered shows that 47.8% of the sterilizations (335,000) were provided by the *Instituto Mexicano del Seguro Social,* 12.2% (85,000) by the *Secretaria de Salubridad y Asistencia;* 4.9% (34,000) by the *Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado* and 4.4% (31,000) by other official institutions. Hence, 69.3% of the total corresponds to the public sector and 30.7% to the private sector.

Figure 14.

FERTILITY HISTORY OF THE STERILIZED WOMEN ACCORDING TO THEIR ENVIRONMENT: RURAL, SUBURBAN, URBAN AND METROPOLITAN AREAS

TYPE OF WOMEN's LOCALITY OF RESIDENCE	PREGNANCY AVERAGE	CHILDREN STILL LIVING
LESS THAN 2,500 INHABITANTS	7.0	6.0
FROM 2,500 TO 14,999 INHABITANTS	8.1	7.2
15,000 OR MORE INHABITANTS	6.6	5.3
METROPOLITAN AREAS	6.7	5.3
NATIONAL AVERAGE	6.8	5.5

SOURCE. National Prevalence Survey on the use of Contraceptives 1978

Figure 15.

HISTORY OF CONTRACEPTION USAGE AMONG STERILIZED WOMEN

CONTRACEPTIVE METHOD	PERCENTAGE
PILLS	26 8
UTERINE DEVICE	10 5
RHYTHM AND WITHDRAWAL	7 6
INJECTIONS	6 7
CONDOM	2 4
OTHER	3 3
	68 6
NONE	31 4

SOURCE NATIONAL PREVALENCE SURVEY ON THE USE OF CONTRACEPTIVES 1978

This important participation of private medical care in the provision of surgical contraception and the total figures reached in the country indicate the population's increasing acceptance and need for surgical methods which, in turn, show the importance of the personal communication to motivate people to choose these methods. In Mexico, no special programs to promote surgical contraceptions have been conducted; rather, surgical contraceptions have been the result of the general contraceptive practices which lead people to choose safer methods.

Therefore, at the present stage, experience indicates that the best strategy is to ensure the availability of surgical contraceptive services to satisfy the population's spontaneous requirements, especially in the suburban and rural environment.

Our program was initiated in 1977 when our population growth was 3.2 percent. We were able to reduce it to 2.9% by the end of 1978. We feel we are on our way to reaching our target of 2.5% by 1982, and that we shall leave a solid framework so as to further reduce the rate to only 1% by the year 2000.

Thus far, this has been our answer to the fascinating challenge of family planning in Mexico.

Conference Goals and Direction

Elizabeth Connell

It is a privilege to be holding the Fourth International Conference on Voluntary Sterilization in Korea, a country that has had such outstanding success in the field of family planning, especially in sterilization. During the past 15 years Korea's birth rate has dropped from 43 live births per 1,000 to 27 per 1,000. This means the population growth rate has been reduced from almost 3 to 1.6%, a truly remarkable example of what can be accomplished with determination and know-how.

It is exciting to look back and review the changes that have marked the three previous conferences. In 1964 when the first conference was held, the concept of voluntary sterilization was still fairly new. Few people were involved in promoting it, and techniques—especially for female surgical contraception—were complicated, costly, and time-consuming for physicians and patient.

When we met in Geneva in 1973, voluntary sterilization was just coming of age. The laparoscope was new, and owning a laparoscope was an international status symbol. At that meeting, emphasis was on the status of voluntary sterilization and its medical aspects.

At the 1976 conference in Tunis we found that tremendous changes had occurred in three years. Voluntary sterilization was becoming more generally accepted; and while the laparoscope was still widely used, new and simpler methods such as minilaparotomy were assuming increasing importance. We talked less about medicine and more about the socioeconomic, political, and religious factors surrounding the use or non-use of surgical contraception.

Now, three years later, again we find tremendous changes. Voluntary sterilization has become the foremost contraceptive method, moving ahead of the pill worldwide. While we still consider medical technology important, it has been given less emphasis in the conference program than other aspects of sterilization.

As we were planning this meeting, we decided upon two primary conference goals:

1. To stimulate the inclusion of voluntary sterilization in national health programs;
2. To do so by identifying those factors that will increase the availability, acceptability, accessibility, and utilization of voluntary sterilization.

As you can see, the program has been designed to meet these goals:

- The first plenary session will set the stage;
- The second stresses social, cultural, political, religious and economic factors influencing surgical contraceptive programs;
- The third focuses on issues on policy and program development and implementation;
- The fourth deals with information and education;
- The fifth looks at surgical techniques and their program implications;
- The sixth emphasizes legal and ethical aspects;
- The seventh includes reports from task forces.

In addition, a special evening session will be devoted to an area of major interest today: the restoration of fertility after sterilization. Participants will discuss the medical feasibility of reversals for males and females, and the implications of the expanding acceptance of surgical contraception.

Task force sessions paralleling the plenary sessions were designed with three interdisciplinary goals in mind:

1. To share knowledge and experience;
2. To identify important policy and program concerns;
3. To lead to recommendations and guidelines for future programs, research, and exchange of information.

So this promises to be an exciting program. After every conference we have always said the next one could not possibly be better. However, in every case it always has been!

The Role of AVS in the Growing Acceptance of Voluntary Sterilization in the United States

John C. Cutler

In the United States, as in almost every other country in which voluntary sterilization is an increasingly important component of population/family planning programs, the voluntary sector, as represented in the United States by the Association for Voluntary Sterilization, has played an important role in bringing this about. We expect to continue to work to assure increasing access to and utilization of voluntary sterilization, changing program emphasis and orientation as necessary to respond to changes in public and professional perceptions of the need for and appropriate utilization of the procedure.

I should like to report upon our experience in the United States with the hope that there may be some information of value to other associations.

Now in its 42nd year, with several changes in name during that period, the Association for Voluntary Sterilization continues a priority program to educate the public and the health, legal, and social work professions with respect to voluntary sterilization through a variety of different methods. It is my personal opinion that this sustained effort, with strategy and tactics changing to meet the climate of the time, has played a major role in the growing use of voluntary sterilization in the United States.

This can be summarized simply by stating that voluntary sterilization has become the number one choice for married couples where the wife is 30 years or older, and the number sterilized has increased by about one million per year since 1970. You will receive statistical information in greater detail from others, so I shall not dwell further upon it.

In addition to the educational-motivational program, A.V.S., upon request, provides consultation and counseling services to hospitals and family planning clinics which want to enlarge their programs with respect to voluntary sterilization.

The Association for Voluntary Sterilization provides referral services to individuals throughout the nation who request assistance in securing professional services for male or female sterilization. The Association has a nation-wide roster of about 2,000 cooperating physicians who accept referrals made in response to these requests.

As the needs arise, the Association joins in legal actions in cases in which the sterilization procedure is alleged to have been involuntary—an increasingly rare occurrence in the United States. In contrast, the need seems to be increasing for assistance to the individual whose right to voluntary sterilization has been denied.

The Association supports and promotes fact-finding studies on medical, public-health, legal, psychological, ethical, and socio-economic aspects of voluntary sterilization and collects and disseminates statistical data with respect to the procedure.

Finally, and of particular significance to this meeting, I should mention the International Project of the Association for Voluntary Sterilization, which is made possible by both private and A.I.D. funding. It is my feeling that in addition to stimulating the growing use of the procedure worldwide, the knowledge and experiences gained by you in your programs have served us in the United States by permitting us to draw upon the professional and technical developments and program experiences in other countries to enrich our own national program.

Before moving on to the discussion of the future, I would like to formally acknowledge once again the generous grant from the International Foundation of the United States which made possible the development of the international activities of A.V.S. which have since been increasingly funded by other private donors and by A.I.D. whose support is gratefully acknowledged.

I should mention, incidentally, that we in the United States depend upon private donors for our continued existence and growth, and should suggest that other national associations might well begin to look for non-governmental support, particularly from industry and the socially responsible wealthy sector of the population.

As we review the state of family planning programs and activities involving voluntary sterilization in the United States today, there are several trends that are highly significant to the Association for Voluntary Sterilization which should be brought to your attention. For I feel that these trends may have a significant impact on programs in other countries, just as in the United States.

The very success of the efforts to increase family planning service utilization in the United States has resulted in public (and political) feeling that the population/family-planning programs have been so successful that the vol-

untary agency and governmental programs no longer need the same level of financial support. Thus, priorities are shifting and adequate funding for programs, services, training, and research is becoming increasingly difficult to secure.

As we public health workers know from our United States experience, this reaction on the part of the public and legislative bodies is the usual reaction to the success of a public health program and to scientific developments which simplify the prevention or treatment of disease. This has been observed in the United States in the dangerous rise in the level of children unprotected by immunization against polio and other communicable diseases. In similar fashion, the gonorrhea rates in the population are at an all-time high in spite of the existence of specific, highly effective therapy. The reason for this has been the loss of public and health professional concern and resultant cutback in public health programs which followed the successful development of vaccines and of simplified penicillin therapy.

We are witnessing a similar reaction in the very success of our family planning programs in which voluntary sterilization plays such an important role. Thus, we in the Association for Voluntary Sterilization, and you in other countries in possession of equipment, professional skills, and demonstrated ability to provide service to large segments of the population seeking voluntary sterilization must be prepared to deal with a similar public reaction to success.

There is no simple solution, but each of our associations will have to develop and carry out programs which will counter the trend to cutback on funding of services, training, and research.

Furthermore, as is common with respect to any new, innovative medical or surgical developments, there is a growing undercurrent of concern over possible undesirable side effects of sterilization. In the United States, a small group of professionals, drawing upon small scale animal studies or what I consider poorly designed human studies, has come up with statements questioning the long term safety and health risks of the procedure.

The publicity given to these "scare statements" attracts far more attention than reports on the safety of the procedure. This is always the case with respect to safety of procedures or drugs, and we have been working to allay the charges so as to permit continual increases in utilization of the procedure. This type of "scare" news spreads, and you may well be able to draw upon our experience as this happens in other nations.

We are experiencing increasing governmental regulation of the procedure, as with the 30-day waiting period between signing of the consent form and performance of the procedure whenever federal funding is involved in delivery of this service. Along with this are requirements for counseling, and for use of the language understood by the person seeking service. This is all being required in the interest of assuring truly informed consent. Certain aspects of this type of regulation are finding their way into international programs and activities supported by U.S. funds. It is to be hoped that, just as is being done in the U.S., the planning for and delivery of services can be carried out so that the requirements are met, yet in such a way that services will not be denied.

Finally, we are observing in the United States determined efforts on the part of various conservative groups in particular to restrict access to family planning services, including voluntary sterilization. I know full well that in many other countries you are facing similar types of organized opposition.

In the United States, the Association for Voluntary Sterilization is attempting to deal with the problems and opposition that I have mentioned. We are working actively to assure that the rights of the individual to access to voluntary sterilization, and to other means of birth planning not be denied to any citizen.

We trust that our experiences may be of some value to you, and we look forward to learning from your experiences and achievements. Meetings such as this offer an ideal opportunity to share experiences and to learn so that all of us in our programs may be able to respond most effectively to the needs and changing perceptions of our nations in terms of population and family planning.

Dr. Cutler is the President of the Association for Voluntary Sterilization, Inc.

The International Status of Voluntary Surgical Contraception and Its Implications for National Health Programs

Ira Lubell and Ruth Frischer

It gives me great pleasure to be here this morning among an audience where I recognize a great many of the faces that have helped create "the contraceptive phenomenon of the seventies"(1).

Table 1. Worldwide Estimate of the Number of Couples Controlling Their Fertility by Family Planning Methods (in Millions)

Method	1970	1978
Sterilization	20	90
Pill	30	55
IUD	12	50
Condom	25	35
Other	60	30
Total	147	260

The number of couples using sterilization to prevent any further pregnancy presently exceeds the number using any other form of contraception. Worldwide, of an estimated 260 million couples using some method of contraception, 90 million have opted for voluntary sterilization.

The upsurge in the worldwide prevalence of voluntary sterilization in family planning programs has been so rapid as to suggest that major alterations in religious, legal, social, and political attitudes have taken place and have combined to create a favorable climate for the growing utilization of surgical contraception.

RELIGIOUS AND LEGAL ASPECTS INFLUENCING THE ACCEPTANCE OF VOLUNTARY STERILIZATION

Religious proscriptions were once thought to be strong deterrents to the acceptance of contraceptive sterilization. However, in many countries, religion has not proven to be a barrier. Sterilization has gained acceptance in many Moslem countries, and nearly all Hindu and Buddhist countries have family planning programs which include voluntary sterilization. Even steadfast Catholic doctrines are changing. As recently as 1977, the Vatican annulled any marriage entered into where a man had been surgically sterilized. Now, according to a new decree, men who have undergone vasectomies before marriage, whether for medical reasons or not, are allowed to enter into a valid marriage contract. Therefore, it is not surprising to find that Colombia and El Salvador, though predominantly Catholic or India, though largely Hindu, or Bangladesh and Pakistan, though Islamic, are but a few examples of countries which now permit voluntary sterilization despite traditional religious constraints.

Worldwide, there has been a notable liberalization in the legal status of voluntary sterilization in recent years (2). In many countries where there are no specific laws prohibiting surgical contraception, the procedure is considered permissible. Afghanistan, Mexico, Nepal, the Netherlands, Saudi Arabia, and Sri Lanka, for example, have no legal provisions pertaining to sterilization.

Where legal status is unclear, as in Argentina, Brazil, Bulgaria, Paraguay, Peru, and Uruguay, outdated laws are not enforced. Burma, Greece, Portugal, Somalia, and Spain specifically prohibit surgical contraception. However, sterilizations, where otherwise illegal, can always be performed for medical reasons. In Turkey for example, even though illegal, sterilizations are permitted for medical reasons. Physicians in many areas of the world are increasingly performing sterilizations for socio-medical as well as strictly medical reasons, thus encouraging a more lenient interpretation of the laws. Also, many countries have passed legislation either specifically authorizing voluntary sterilization or modifying present restrictive statutes. In January 1976, Sweden enacted a new law permitting persons over 25 years of age to be sterilized on request. Singapore's 1975 law allows the sterilization of married persons over 21 years of age. Since 1974, Chile has permitted sterilizations on socio-economic grounds. And in 1975, Austria's new legislation made it clear that voluntary sterilization was not "mayhem." In 1978, Italy made sterilization legal. In addition to direct legislative action, some countries, such as El Salvador, have established new rules and operating procedures through the Ministry of Health to permit performance of sterilization and have even undertaken to provide sterilization equipment for clinics. As a result of increased popular and medical acceptance, many countries have taken legal steps to assure the availability of sterilization.

CULTURAL FACTORS

Cultural factors are not easily measured, yet they play a vital role in the attitudes that prevail towards sterilization

as well as whether male or female procedures will predominate.

For example, in Latin America, *machismo,* or male pride in his sexual and procreative ability, has always been considered an established facet of the culture. Experts knowing this cultural trait predicted that vasectomy would never be opted for. But successful vasectomy programs such as those in Colombia and El Salvador clearly show that Latin American men, in spite of their *macho* attitudes, will choose vasectomy once they understand its benefits and once services are made available to them.

However, in the balance between male and female sterilizations, female sterilization procedures now surpass vasectomies in popularity in many countries. This may reflect the growing concern over the reported adverse effects of oral contraceptives and IUDs or it may be the observed results of the Feminist Movement. Women whose traditional basic responsibility was that of child rearing now have the possibility not only to space their family but to terminate their fertility once the desired family size has been achieved. The ability to control their fertility, therefore, implies more power to women. And, we can surmise that the improvements in the status and position of women coupled with the very notable, almost revolutionary, improvements in female sterilization techniques have greatly influenced and promoted a demand for female sterilization.

But perhaps the strongest endorsement, the one most likely to reach across cultural barriers, is word-of-mouth advertising by satisfied users. The satisfied users have been our greatest boosters and together with good information and education programs, have helped tremendously in furthering the use of surgical contraception at the grass roots level in country after country.

Table 2. Estimated Number of Couples Controlling Their Fertility by Voluntary Sterilization by Country or Continent and Year (in Millions)

Country or Continent	1970	1978
China	4	36
India	7	22
Asia (excluding China, India)	1	4
United States	3	12
Europe	3	10
Latin America	0.5	4
Canada	0.5	1
Africa	0.5	1
Estimated World Total	20	90

Notice, if you will, on this table the worldwide usage of surgical contraception and how that use has so dramatically risen in the past 8 years. Especially note the spectacular increase during this decade and the universal shift to the Pill, IUDs and surgical contraception.

PROGRAM STATUS

Asia

A brief summary of the worldwide program status of voluntary sterilization shows that a great number of the world's sterilizations have been performed in Asia, with the majority of procedures performed in the People's Republic of China and India. Programs in Bangladesh, Korea, Nepal, Pakistan, Philippines, Singapore, and Thailand have been successfully in progress for several years and are expanding. Other countries such as Indonesia have already recently developed, organized, and are promoting sterilization services outside of and in their national family planning programs.

Iran performed a small number of postpartum and internal sterilizations. With the liberalization of its law in 1976, married persons over 25 years of age and unmarried persons over 30 are now permitted sterilizations on request.

India was among the first countries to incorporate voluntary sterilization into a national family planning program in the 1950's. Its intensified family planning program offered high incentive payments for sterilization and implemented a system of disincentives, applied unless a sterilization certificate was produced. During 1976, some states considered statutes requiring compulsory sterilization under certain circumstances. Public animosity toward involuntary sterilization contributed to the downfall of the Congress Party, and the government elected in 1977 has rejected any policy of coercion in family planning. However, financial compensation for sterilization users continues. In addition, free reversal operations may be offered to individuals requesting them. Approximately 22 million Indian couples are estimated to be relying on voluntary sterilization.

In China, an estimated 36 million couples have opted for surgical sterilization to control their fertility.

EUROPE AND THE U.S.S.R.

Approximately 10 million couples in Europe control their fertility with voluntary sterilization, and throughout Western Europe, voluntary sterilization is now becoming increasingly popular. In Great Britain and Scandinavia, sterilization services are provided through government supported health services.

Sterilization is permitted in: Austria, Denmark, Finland, Germany, Italy, Great Britain, Sweden, and Iceland. Countries without laws governing the performance of sterilization are: Poland, Belgium, Bulgaria, France, Luxembourg, Netherlands, Romania, and Switzerland. Greece, Portugal, and Spain legally forbid sterilization.

In Eastern Europe and the U.S.S.R., sterilization procedures remain rare events.

LATIN AMERICA

Although its legal status is unclear in many Latin American countries, voluntary sterilizations performed by private physicians are becoming increasingly available.

In Brazil, Chile, Ecuador, Peru, and Venezuela, private physicians perform female sterilizations and justify their performance for health reasons.

In Argentina, Paraguay and Uruguay, sterilizations are illegal and difficult to obtain.

In Colombia, voluntary sterilizations are available and have become a popular mode of contraception.

In Central America, both male and female sterilizations have become very popular especially in El Salvador, Guatemala, Costa Rica, and Panama. Female sterilization methods predominate in Puerto Rico, the Dominican Republic, and some Caribbean islands such as Cuba, Dominica, Grenada, Haiti, Jamaica, St. Lucia, Trinidad, and Tobago.

MIDDLE EAST AND NORTH AFRICA

In the Middle East, female sterilizations are primarily performed in Egypt and Tunisia. Female sterilizations are also available in Jordan, Lebanon and on a small basis in Turkey. The performance of vasectomy generally appears to be a rare event, except in Yemen.

NORTH AMERICA

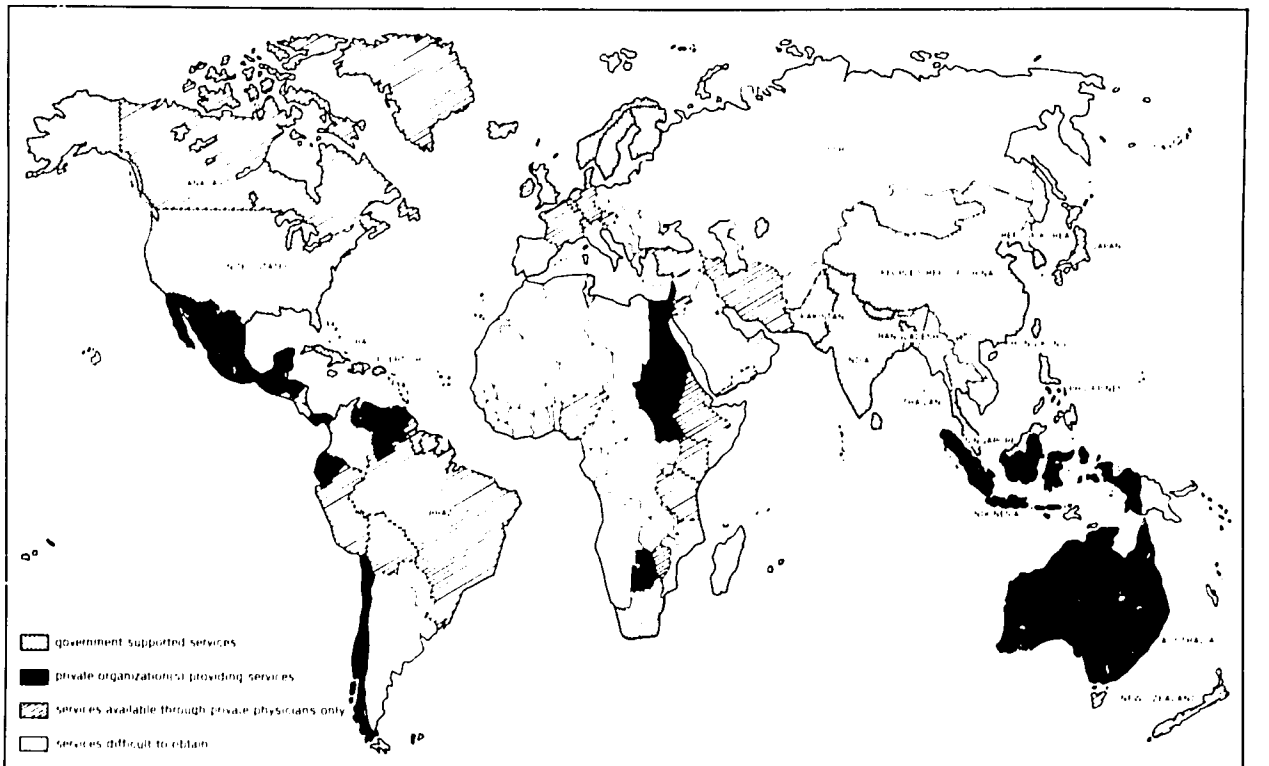
Voluntary sterilization is very popular in the United States and almost as widely used in Canada. In the United States, 12 million couples have opted for surgical contraception, with the number being increased by an additional one million a year.

OCEANIA

In Australia and New Zealand, male and female sterilization procedures are available primarily in urban locations. It has been estimated that approximately 4% of women in urban areas use sterilization.

In Fiji, 42% of all contraceptive users chose sterilization, and Western Samoa provides female sterilization in its family planning services.

World Map. Availability of Sterilization Services—1978



Source: Green, C.P. 1978. Voluntary sterilization: world's leading contraceptive method. Population Reports Special Topic Monographs, no. 2, March, pp. M 54-55. Washington DC: George Washington University.

SUB-SAHARAN AFRICA

The use of voluntary sterilization in Africa is the lowest worldwide. However, female procedures are performed for medical indications in some African countries.

Recently a small number of female procedures have been reported performed in Botswana, Ethiopia, Ghana, Kenya, Mauritius, Nigeria, Senegal, the Sudan, Uganda, Tanzania, and Zambia. It is most encouraging to report that female sterilization services are being expanded in Kenya, Mauritius, Nigeria, Senegal and the Sudan.

DEMAND FOR VOLUNTARY STERILIZATION

Our experience thus far shows that the longer surgical contraception is made available as a contraceptive alternative, the better the performance record of a sterilization program.

We know that prior to this decade, legal, socio-economic, religious and administrative barriers limited the use of sterilization. Now the primary obstacle is providing sufficient services to meet the existing demand. This demand for sterilization services currently exceeds any predicted projection. And demand can only be met if services are expanded. This calls for more staff, more training of personnel and the provision of dedicated facilities. Efforts must now address the broader delivery of family planning services including surgical contraception into rural regions, along with the maintenance of efficient and effective programs that are already in existence.

You can see on the world map the availability of voluntary sterilization as of 1978. It is interesting to note that in general the public finds voluntary sterilization an acceptable method of contraception. However, what we all too often find is that the use of sterilization service is contingent upon changing the attitudes of public officials, government administrators and policy makers.

Governments are more likely to reflect change than to initiate it. To be sure, the source of many governments' interest in family planning can be found in their rapidly growing populations and the increased difficulty in providing for the basic human needs such as adequate food, health care, jobs, education, and housing. It is all too evident that population growth often outstrips hard-won economic gains. However, governments are coming to realize that family planning must be an essential element of any economic development and social improvement program.

It is only if government-supported family planning programs continue to develop and if programs are initiated and expanded in intensity and geographic scope that the supply can ever hope to meet the demand.

The time is now. Vigorous programmatic efforts must be launched not only to stimulate the diffusion of family planning among reproductive age couples but also to favorably influence the attitudes of the rising generation towards the use of family planning methods.

UNMET NEED OF FAMILY PLANNING SERVICES

Currently an estimated six out of ten women of reproductive age (that is, aged 15-44) are at risk of an unwanted pregnancy.

Table 3. World's Women of Reproductive Age (15-44) at Risk of Unwanted Pregnancy in 1971 and 1976 (in Millions)

	1971		1976	
	No.	%	No.	%
Women of Reproductive Age (15-44) at Risk	350		399	
Women of Reproductive Age (15-44) at Risk Using Contraception	101	29	136	34
Using Most Effective Methods	44	44	77	57
Using no Contraception	249	71	263	66

Adapted from IPPF Survey of Unmet Needs in Family Planning 1971-1976, London 1977.

In fact, during the years 1971 to 1976, the number of women at risk not protected against unwanted pregnancies rose from 249 million to 263 million, demonstrating an unprecedented unmet need for family planning services. However, during the same time period, the number of women in the world using contraception to prevent an unwanted pregnancy rose from 101 million to 136 million. As you can see, the use of highly effective methods such as surgical contraception also increased (3).

Since a high proportion of those choosing surgical contraception are women (over half of sterilization acceptors now are women), these findings also have significant implications for the future in terms of maternal and child health.

The importance of family planning in terms of the health benefits to be reaped by women (of reproductive age) and by children is still not widely acknowledged. This being the Year of the Child presents an ideal opportunity to stress this fact.

IMPACT OF VOLUNTARY STERILIZATION ON MATERNAL AND CHILD HEALTH

It is hoped that in the long run, the impact of all family planning methods including voluntary sterilization will be felt in reducing the high rates of maternal mortality and infant mortality and improving the chances of survival of all children.

We are all too familiar with the statistics citing the distressingly high rates of infant and maternal mortality and morbidity in the developing nations. That this is a grave concern need not be underscored.

Table 4. Maternal Mortality Due to Pregnancy and Childbirth, by Maternal Age and Country Development (per 100,000 Live Births)

Maternal Age	Developed Countries	Developing Countries (Advanced)	Developing Countries (Less Advanced)
15-19	11	20	700
20-24	10	20	400
25-29	12.5	25	500
30-34	25	50	500
35-39	44	100	500
40-44	71	150	800

Adapted from Green, C.P. Voluntary Sterilization: World's Leading Contraceptive Method. Population Reports, 1978. p. 57.

Table 4 shows maternal mortality by age groups. As you can see, in some of the lesser developed countries, there is a shockingly high mortality rate associated with pregnancy and childbirth.

Maternal health is also adversely affected by certain patterns of childbearing such as short intervals between pregnancies that not only affect maternal health but also cause high levels of infant mortality. Other contributory factors are the age of the mother at her first and last pregnancies and the total number of her pregnancies. The risks to both mother and infant are generally high in the first pregnancy, greatly decline in the second and third pregnancy but begin to increase again with increasing age and parity.

It has been calculated from a study of data from around the world, that prevention of births in the high risk periods of female fertility would reflect enormous health benefits for women in these groups. The report states that if women had children only in the optimal age intervals of 20-34, maternal mortality would decrease by 19% in Mexico, Thailand, Venezuela, and the United States, by 23% in Colombia and France, and by 25% in the Philippines (4).

It should be kept in mind that sterilization is a method most appropriate for men and women who have achieved their desired family size. It is these same women, who tend to be aged 30 or more and who may have already had several children, for whom the risks of pregnancy are greater. Sterilization then plays an extremely important public health role by preventing these high risk pregnancies.

If one thing is clear, it is that a two-way interaction exists between family planning including surgical contraception and its influence on improving maternal and child health, and conversely, maternal and child health facilitates the practice of family planning. Therefore, the best means of reducing high rates of maternal and infant mortality is to provide a means of fertility management within an infrastructure of total health service.

The promotion of maternal health and the survival of children ought to be recognized as an intrinsic good. If it receives the programmatic attention it deserves, tangible benefits could be derived to improve the health status of mothers and infants, which in turn could significantly contribute to the quality of life as a whole.

CONCLUSION

Many factors have influenced and further generated the acceptance and incorporation of voluntary sterilization in family planning programs throughout the world. Improved surgical techniques, the growing recognition of women's rights, new cultural attitudes and the easing of religious and legal barriers are but a few of the component parts that have combined and culminated in the meteoric rise and success of voluntary sterilization.

Perhaps the most important impetus to the popularity of voluntary sterilization has been the recognition by millions of individuals of their basic human right to regulate their own fertility.

When sterilization services have been made available and when an individual is given the freedom to choose or not to choose sterilization, increases in demand have followed. It is "volunteerism" that unlocks the door to acceptance.

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An Overview of Family Planning in Korea

Jae-Mo Yang

In order not to duplicate what has already been covered in the welcoming address of His Excellency, Deputy Prime Minister Shin, I would like to confine my presentation to the non-governmental volunteer's viewpoint, although it is merely another side of the coin, inseparable from the governmental program.

BACKGROUND: THE PROBLEM IN EARLY 1960's

In 1960, the Republic of Korea had a population of 25 million in a small area of slightly under 99,000 square kilometers, a density of 270 persons per square kilometer. Since only 21% of the land was arable, and over 70% of the people were engaged in farming, our major industry at that time, it meant that more than 1,200 persons lived on the harvest produced on 1 square kilometer of land. The average size of farms in Korea is about 2 acres. More than 42% of the farmers, however, tried to make a living on less than 1.2 acres apiece. This caused an overall national annual food deficit of 4.5 million Suks, or 650,000 tons of grain.

Korea, with an annul per capita income of between $70 and $80, was the poorest country in the temperate zone and perhaps among the most crowded in terms of housing. In urban areas the majority of families, which averaged five members, lived in one or two rooms. The most popular ideal family was 3 sons and two daughters (1). In rural areas the average family of six was also crowded into a one-or-two-room dwelling. It was estimated that 2 million houses were required to shelter adequately the population in 1960.

The problem of excessive growth was likewise reflected in a shortage of educational facilities for children. In 1960, there were 4,358,000 children in Korea between the ages of six and eleven for whom elementary education was compulsory. This resulted in classes containing 80 to 100 children on morning and afternoon shifts.

Perhaps of even greater concern was the increasing number of children found abandoned on the streets, the reason for which was usually said to be poverty rather than illegitimate birth. In the city of Seoul alone, six or seven abandoned children were picked up daily.

According to the census data, the estimated population growth rate in 1960 was 30 per thousand per year with a crude birth rate of 43 and a crude death rate of thirteen. Four to nine percent of Korean couples practiced family planning with relatively ineffective conventional methods (2).

To achieve Korea's Five Year Economic Development Plan, begun in 1961, for a 5% growth rate, a sharp reduction in the birth rate was needed. For example, in 1962 the economic growth rate was 2.6%, as compared to an estimated 3% population increase.

ORIGIN OF ORGANIZED EFFORT

The Planned Parenthood Federation of Korea (PPFK)

The Planned Parenthood Federation was organized in April, 1961 at the Korean Red Cross auditorium at a time when production and import of contraceptives was taboo under the law. It began without paid staff, with one full-time volunteer secretary, Dr. Yong-Wan Kim, sharing my office room in Yonsei University, and $3,000 as the first year's budget. It grew to 350 paid staff, 50,000 memberships, 750,000 women enrolled in the Family Planning Mother's Club and an annual budget of about US $2.5 million. The PPFK moved its office seven times until it got its own building in 1977.

The Government's Policy Adoption

The PPFK had to suspend its activities for about five months due to the military revolution on May 16, 1961. A few of PPFK's leading members were fortunate enough to be involved in the process of formulating the new government's policy in favor of family planning. General Chung-Hee Park, Chairman of the Supreme Council in late November, 1961, announced his public support of voluntary family planning. Since then, as the head of the Korean Government, he has continued strong support for the program despite some objection from the Catholic hierarchy. So the Republic of Korea became the 3rd among developing countries in Asia to have a national family planning program.

Recognizing that gains made in improving our standard of living were being offset by rapid population growth, the national government included family planning in its Five Year Plan (1962-67). Thus, prohibitive regulations were repealed, domestic production of contraceptives was encouraged, a family planning advisory committee was established, and about $336,000 was appropriated

for 1962 to initiate the program by the Ministry of Health and Social Affairs. Based on these actions and policies, in 1962, 366 family planning workers were trained and were assigned to each family planning clinic in 183 county health centers. A nation-wide information program, including the production and distribution of printed materials and visual aids, was carried out. Vasectomy operations were performed on 3,400 persons. And 230,000 couples were registered in the program and given a choice of four contraceptive methods: foam tablet, jelly, condom and diaphragm.

Two University Family Planning Research Teams

Yonsei University Team. With a Population Council grant, Drs. Jae-Mo Yang and Sook Bang undertook a two-year family planning action research project in the rural area of Koyang County. The findings served as a guideline for national program planning and future research. In the same rural area they began field research on the most efficient method of IUD service, comparing mobile service versus stationary service, and insertion by medical doctors versus nurses. A study on the use of the oral pill was also begun, as was a study on the effectiveness of mothers' classes, which led to the organization of 17,000 family planning village-level mothers' clubs all over the country in 1968. The team started an inter-disciplinary research institute—Yonsei University Center for Population and Family Planning—in 1968.

Seoul National University. With a Population Council grant, Dr. Ee-Hyok Kwon launched a large scale family planning action research project in urban Sungdong, Seoul City, in 1964 to compare the efficiency of several methods of family planning communication. Later, this study was expanded to cover the entire city of Seoul. Dr. Han-Soo Shin, who served as the Chairman of the PPFK's Medical Committee for many years, pioneered in clinical trials of IUD at the University Clinic. Dr. Hee-Yong Lee has been a pioneer in research and training in male sterilization, and the famous analogy of a vasectomized male as a sweeter seedless watermelon orginated with him. Under Dr. Kwon's leadership, the Reproductive Medicine and Population Institute was established in the University in 1972 with WHO's support.

The Two-Children Club

The PPFK is the foster parent of this club. It was organized in 1970 with about 200 young elite couples with two or less children. One partner of each couple was sterilized. The members have been the most powerful volunteer lecturers for vasectomy campaigns at reserve army group education sessions.

Korea Institute for Family Planning (KIFP)

A generous donation from the SIDA enabled establishment of governmental institute, KIFP, in 1970, to take over the important burden of training and evaluation from the Ministry of Health and the PPFK. It was purposely organized as non-governmental so that it would have flexibility, objectivity, and continuity of leadership, but also designed to be semi-governmental to guarantee financial support and some partial authority over local units in relation to the program evaluation.

The Korean Association for Voluntary Sterilization (KAVS)

Both the Health Ministry and the PPFK strongly endorsed the establishment of KAVS in 1975 to strengthen the sterilization program. Most of the core members of KAVS had been veteran family planners of PPFK for many years.

In-Country Technical Assistance Mission for Family Planning in Korea (ICTAM)

Recognizing the existence of abundant domestic resources available for technical advice on family planning programs of the Health Ministry, this mission team was organized in 1974 with UNFPA's support. The members are mostly university professors of sociology, communications, psychology, education, or health statistics.

GOAL, TARGET, AND ACHIEVEMENT

The national demographic goal was to reduce the growth rate to 25, 20, 15, and 13 by the end of each Five Years' Development Planning Period (1966, 1971, 1976, and 1981). In order to achieve such a goal, targets for family planning practice were set, for instance, 45% of eligible couples (32% through government-backed services, 13% by own means) by 1971. Such an overall national target was divided into annual targets by specific control methods which were followed by further detailed allocations to infra-structures of local government units. The goal and target have been readjusted from time to time to reflect demographic reality, development of contraceptive technology, and budget appropriations.

The government program was primarily directed toward rural population and poor urban so that, in 1964, it recruited 1,473 female family planning workers and assigned one to each township. This was the first time in the history of Korean bureaucracy that every township level government unit had ever had at least one full-time person in the whole field of health and welfare. I underscore the significance of the event by indicating that "family planning" played a starter's role in the national program for maternal and child health and general public health. Family planning enabled the Health Ministry, suffering from a very low status in general, to find an important role with which to participate in the national economic development program, and to justify a little more budget, which was otherwise impossible without some epidemic outbreak. Therefore, family planning in Korea has made an enormous contribution to social and economic development in addition to its other accomplishments.

Family planning workers issue coupons to those couples motivated to get free supplies and service at nearby clinics

Table 1. The Population, Target, and Achievement for Family Planning Programs in Korea (1962-1978)

	Population (thousand)	No. of women age 15-49	No. of eligible couples 15-44	Target (achievement in parentheses)					
							Sterilization		
				IUD	Pill[a]	Condom[a]	Male	Female	M.R.
1962	26,513	6,086	NA						
1963	27,262	6,235	NA	1,493		129,804	19,866		
				(1,493)		(129,800)	(23,000)		
1964	27,984	6,372	NA	106,397		156,301	25,256		
				(105,640)		(156,300)	(28,296)		
1965	28,705	6,504	NA	225,951		191,706			
				(228,333)		(248,000)	(15,000)		
1966	29,438	6,646	4,227	391,687		168,868	19,942		
				(400,000)		(150,000)	(20,000)		
1967	30,331	6,810	NA	323,457		137,427	19,677		
				(325,377)		(150,000)	(30,370)		
1968	30,838	6,990	NA	263,132	26,264	133,943	15,987		
				(277,400)	(171,000)	(150,000)	(18,000)		
1969	31,544	7,199	NA	281,642	91,175	147,774	15,314		
				(300,000)	(320,000)	(150,000)	(20,000)		
1970	32,241	7,437	4,586	295,100	170,513	162,823	17,317		
				(311,800)	(320,000)	(150,000)	(20,000)		
1971	32,883	7,647	NA	293,792	199,276	161,340	16,422		
				(300,000)	(320,000)	(150,000)	(20,000)		
1972	33,505	7,897	NA	300,309	213,928	155,604	16,454		
				(300,000)	(250,000)	(150,000)	(20,000)	(3,242)	
1973	34,103	8,155	NA	325,935	234,699	176,032	19,695		
				(338,600)	(250,000)	(150,000)	(28,300)	(4,797)	
1974	34,692	8,422	NA	350,764	241,979	172,685	29,913		
				(380,000)	(250,000)	(150,000)	(37,000)	(5,358)	(2,195)
1975	35,281	8,719	5,123	348,858	240,183	196,736	42,747		
				(350,000)	(250,000)	(200,000)	(56,500)	(14,841)	(3,746)
1976	35,860	9,002	NA	310,000	250,000	150,000	50,900	35,720	8,690
				(297,872)	(203,402)	(158,070)	(44,881)	(35,545)	(8,482)
1977	36,436	9,269	NA	290,000	200,000	100,000	54,400	181,000	23,000
				(281,568)	(178,783)	(103,107)	(53,735)	(181,427)	(22,032)
1978	37,019	9,532	NA	240,980	94,796	126,834	36,992	193,398	60,797
				(250,000)	(100,000)	(130,000)	(45,000)	(200,000)	(59,000)
Cumulative Total				(4,349,492)	(1,962,813)	(2,467,377)	(413,737)	(438,356)	(98,428)

[a] Couple Years Protection

of health centers, hospitals, or designated private practitioners (1,000 doctors for IUD, 600 doctors for vasectomy were trained between 1963-64). By 1968, the cumulative total of national family planning services delivered were, as shown in Table 1, approximately 4,350,000 IUD insertions, 2,000,000 CYP by oral pills, 2,500,000 CYP by condoms, 850,000 sterilizations, and 100,000 cases of menstrual regulation. Estimated number of births averted by such achievement is about 2 million as shown in Table 2. In the meantime Korea has spent about 41,333 million won (equivalent of US $100 million) for family planning programs which include wages for personnel, training, expenditures for information and education, supplies and services, and administration and evaluation of the program. The cost per birth averted is about US $50.

Korea is no exception to the general trend of higher rural fertility rates in comparison to rates in urban centers. However, as seen in Table 2, the gaps have been greatly reduced.

This reduction could be the combined results of success in the family planning program and the Saemaul movement (page 24).

An encouraging sign is the substantial increase of those practicing family planning by their own means. For instance, according to the 1978 KAP study by KIFP, 21% of eligible couples were currently practicing by their own means while 28% were practicing through use of government services, making a total practice rate of 49 percent.

Table 2. Number of Births Averted by Method and Year, 1962-1978

Year	IUD	Oral Pill	Condom	Sterilization Male	Sterilization Female	Menstrual Regulation	Total
1962			15,010	328 (3,823)			15,338 (18,833)
1963	79		31,532	2,512 (22,253)			34,123 (53,864)
1964	8,514		35,700	6,589 (29,415)			50,803 (73,629)
1965	27,900		39,637	9,742 (18,543)			77,279 (86,080)
1966	59,862		37,949	12,329 (28,737)			110,140 (126,548)
1967	71,521		30,028	15,366 (28,355)			116,915 (129,904)
1968	79,964	5,145	28,159	17,884 (28,240)			131,152 (141,508)
1969	74,810	17,450	31,324	20,012 (30,477)			143,596 (154,061)
1970	65,001	29,289	30,636	21,958 (24,765)			146,884 (149,691)
1971	69,843	31,683	34,510	13,825 (17,843)			149,861 (153,879)
1972	61,295	39,039	31,322	14,708 (19,154)	263 (3,109)		146,627 (152,919)
1973	56,866	39,033	32,603	15,726 (21,860)	852 (4,516)		145,080 (154,878)
1974	54,172	36,705	29,493	18,417 (44,415)	1,582 (6,042)	1,185	141,554 (172,012)
1975	52,664	32,709	30,392	23,363 (58,812)	3,200 (16,957)	2,023	144,351 (193,557)
1976	85,078	31,550	33,624	16,653 (33,743)	4,409 (42,958)	4,580	175,894 (231,553)
1977	78,189	29,858	21,817	20,299 (41,064)	17,097 (240,321)	11,897	179,157 (423,146)
1978	66,300	21,870	23,003	20,465 (28,262)	25,150 (256,252)	32,830	189,618 (428,517)
Total	912,058	314,331	516,739	250,176 (479,761)	52,553 (570,155)	52,515	2,098,372 (2,845,559)

Figures in parentheses are the number of births averted through acceptors' life time. KIFP unpublished data.

Tremendous increases in sterilization, particularly female, in the past few years are encouraging in terms of improvement in the use-effectiveness of our program.

STRONG POINTS

A. Consistent Government Policy Support. For example, besides the inclusion of demographic targets in every Five Year Economic Development Plan:

- In September, 1963, the Prime Minister asked all government ministries to extend full cooperation, by every means, to strengthen the national program.
- In 1965, the Deputy Prime Minister again stressed the importance of family planning. Achievement in family planning services was included in the assessment credit of local government units.
- Family Planning is given the highest priority in budget appropriations.
- In December, 1976, the Population Policy Deliberation Committee strengthened the family planning program during the Fifth Planning Year (1971-81) and introduced several incentive and disincentive approaches for small family norm.
  - Priority in alloting public housing for sterilizaiton acceptors with two or fewer children.
  - Provision of 3,000 won (US $6.37) was made to the low-income people undergoing sterilization to compensate them for lost wages incurred by the sterilization procedure.
  - The Income Tax Law was revised in 1977 to exempt from income tax only the first two children (instead of three as in 1976).
  - The Corporation Tax Law was revised to allow deductions for expenditures for family planning services to employees.
  - The Family Law was revised to give women greater rights in inheriting family property.
- As an implementation of the policy decision that social development will be emphasized in the Fifth Year Plan, the Government started free health care service for about 2 million indigent, low income population in January, 1977. A social health insurance scheme for about 3 million industrial employees and their families was begun in 1977, and extended coverage was given to another 3 million civil servants, school teachers and their families in January 1979. These provisions facilitated family planning services for poor and middle class people.

B. Quick Feed-back and Prompt Action. The national program has never been hampered by hesitation or meekness of top administrators in policy revision in responding to recommendations or constructive criticism. For example:

- Responding to the preliminary report of the Koyang study that the condom has the highest rate of acceptance and effectiveness over other conventional contraceptive methods, the government increased the condom supply instead of omitting the others.

- The PPFK's clinical study on the IUD was scheduled to run for two years from 1963, but the government decided to manufacture 80,000 IUDs locally for extensive use in 1964.

C. Supplementary Role of Voluntary Organization. Until 1964 the PPFK carried out most of the activities on behalf of the government. Training of family planning workers, doctors, nurse-midwives, and national reconstruction movement leaders was a most important task.

"Happy Family" is the PPFK's monthly publication, started in 1964. It has about 50,000 circulation so that each village Mothers' Club can get at least two copies free of charge. The contents include family planning, maternal and child health, nutrition, home economics, and sanitation.

Since 1968 the PPFK has had great faith in its nation-wide network of "Family Planning Mothers' Clubs" which make the voluntary family planning movement a grass-roots program.

D. Saemaul Movement. One of the most successful innovative projects introduced by President Park in 1971 was the new village movement. The slogan is "diligence, self-help, and cooperation" in the spirit of love of one's family, community, and country. Though the movement was designed by the top levels of government, every decision at the planning stage was made by the villagers. Absorption of the Family Planning Mothers' Club into the movement in 1977 was an important development in the integration of the family planning movement into the overall socio-economic community development program.

Though the average income of farmers is still a little bit less than that of urban wage earners, it has been improving rapidly (about $3,500 per family in 1978). By 1978, 100% of rural villages had electricity. According to the survey data of the Korean Broadcasting Corporation, 71 percent of 7,256,000 Korean households had one or more television sets as of December 31, 1978. These TV channels will facilitate communication activities.

E. University Participation. The training, trial, and screening of new contraceptive devices, the improvement of communication strategies, and the campaign for legal revision would not have been possible without the active participation and cooperation of the professors.

PROBLEMS

Perhaps there is no program without problems. The family planning program has had its share, but they have only served to strengthen our resolve and we have redoubled our efforts.

PROSPECTS

The Republic of Korea has been fairly successful in achieving its demographic objectives by reducing the total fertility rates from 6.0 in 1960 to 2.7 in 1978, and by increasing the rate of family planning practice from the 1964 level of 9% to 49% in 1978. However, these are far from satisfactory. The current ideal family size of 2.7 is still too high. Meanwhile, our population has increased by 50% during the last 18 years. And it will continue to increase for at least 60 years to come. One demographic reality, we know, is that the sooner we achieve replacement level fertility, the sooner and the smaller stationary population we will have. Therefore, we must do our best to reach replacement level fertility as soon as possible by having over 65% of fertile couples practicing family planning effectively.

The Republic of Korea is poor in her natural resources and suffers from Iron Curtain tensions between the South and North. However, we are now accomplishing rapid economic and social development. Last year's per capita income exceeded $1,000. We hope such a trend will continue and incomes will rise quickly.

The government's plan is to extend compulsory education to 9 years from the current 6 years by 1986. Realizing that socio-economic development and family planning are complementary to each other, our future seems to be brighter. Even though our next generation is destined to have a frugal life in a much over-crowded environment, I sincerely hope that they need family planning services neither from the government nor from the association, because everybody will have sufficient knowledge through formal education, and every couple can practice family planning effectively with dignity.

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Socio-Cultural, Political, Religious and Economic Factors That Influence Surgical Contraception Programs

Susan Scrimshaw	Chairperson
Abdel Omran	Acceptability Dynamics of Male and Female Sterilization
Haryono Suyono	Political Climate
Kee Chun Han	Economic Perspectives
Melanio Gabriel	Religious Factors That Influence Voluntary Sterilization Programs
Mufeweza Khan	Acceptability in Bangladesh
Mahmoud F. Fathalla	Professional Attitudes
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Summary	*Task Force* 1: Cultural, Social, Political and Religious Factors: Regional Variations

Acceptability Dynamics of Male and Female Sterilization

Abdel Omran

During the last few decades, sterilization has emerged as a significant method of permanent fertility control in many countries. Although no accurate figures are available, it has been estimated that, on a global basis, some 80 million or more individuals have undergone sterilization. That is quite an increase from the 3 or 4 million in 1950, the 20 million in 1970, and the 65 million in 1976 (1). The relative distribution of male and female sterilization has varied over time and space and according to the state of technology and relative availability of services.

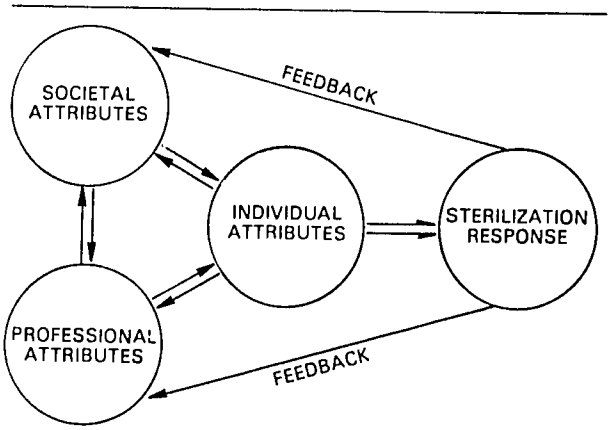
It can be predicted also that sterilization will become more popular as more individuals and couples who have achieved their desired family size become increasingly disenchanted with the prospect of having to depend on temporary methods of contraception for the rest of their reproductive lives. With norms favoring smaller family size and increased child survival, many couples will achieve their desired number of children at relatively young ages. They then look forward to 10 or more years of temporary contraception with the calculated risks of occasional unwanted pregnancies making it necessary to resort to abortion or the risk of side effects of methods like the pill (whose side effects increase with age and smoking) or the IUD. Sterilization under these circumstances becomes an attractive alternative. The availability and use-prevalence of sterilization may also increase as policy makers become more aware of its cost-efficiency and the superiority of its demographic effectiveness.

Despite the rapid growth in use of sterilization over a relatively short period of time, there remain many areas of grave concern. A few examples follow.

- The spread in the use of sterilization across cultures and geography has been highly selective, if not erratic. Its use has risen very rapidly in certain areas and not at all in others. Sizable pockets of resistance still remain in Africa, the Middle East, Asia, Latin America and Eastern Europe.
- Sterilization has not yet achieved its demographic potential since the majority of operations are performed on people with high parity and age or on those who are probably subfecund.
- The medical profession is lagging behind in accepting and providing surgical sterilization for demographic reasons. At the same time, medical training is inadequate in this area. Only a few gynecologists are involved in the sterilization movement, and urologists and general practitioners are yet to be in any significant number. Nevertheless, the medical profession is resisting the performance of selected procedures of surgical sterilization by trained paramedical personnel in areas where trained doctors are in short supply.

Because of such variation in acceptability, use-prevalence and technology, it is necessary to review the dynamics of acceptability in various settings based on accumulating world experience. Therefore, this paper identifies the factors involved in acceptability dynamics and characterizes them into three levels: 1) societal, 2) professional, and 3) individual. This is done with full recognition of the multiway interactions among factors present in each level and between levels. The simplified relationships are presented in Figure 1. Experiences in several regions and cultures are discussed in an effort to single out the most workable approach to enhancing the acceptability of sterilization.

Figure 1. Acceptability of Sterilization: A Microcosm



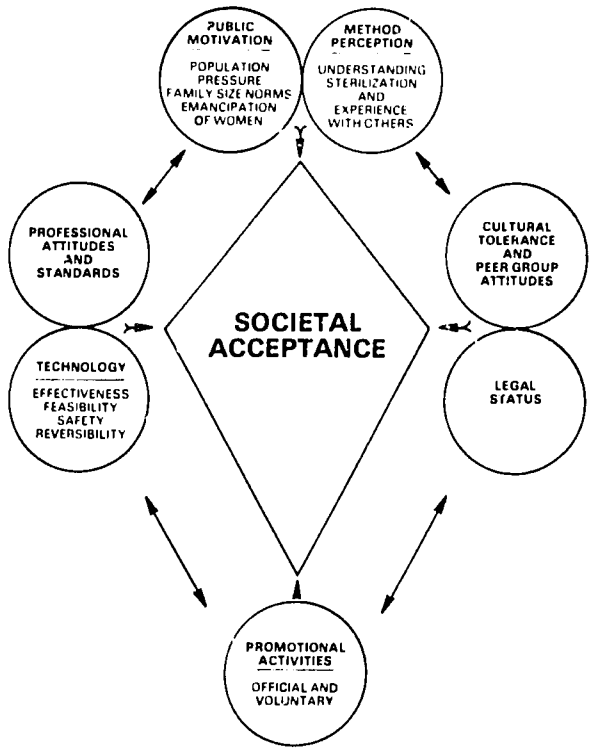
SOCIETAL ACCEPTABILITY OF STERILIZATION

Societal acceptability of sterilization depends on several complex factors summarized simplistically in Figure 2.

Religious and Political Factors

Most religious and many cultural attitudes tend to discourage the termination of a person's ability to procreate.

Figure 2. Factors Affecting Societal Acceptance



Where sterilization is confused with castration or impairment (or mutilation) of reproductive organs, opinions become frankly hostile. In recent years, however, tolerance of sterilization has increased, especially when justified on health or psychological grounds.

In Islam, there is virtually no explicit prohibition of sterilization as we know it today; hence some scholars (Ulamaa) have assumed its permissibility. This was affirmed by Sheikh Muhammad Ibrahim of the Sunni sects in 1936 when he stated, "I can see no legal objection to the adoption of the sterilization method, or of temporary contraception, in the interest of those concerned, if in the first instance, the need for such measures has been fully investigated and vindicated, and proved to be necessary" (2). Sheikh Muhammad Shamsuddin of the Shiite sect further supports the acceptability of sterilization in Islam by writing that "...there is nothing preventing the husband and the wife from undergoing such operations, because the preservation of the power to procreate is not a duty prescribed by Muslim Law, and it is not a marital right. Hence, it is legally permissible to undergo a surgical operation to sterilize both men and women whether or not it will be possible in the future for both of them to regain their procreation state." (3)

Nevertheless, negative attitudes still prevail in most of the Muslim world due to conservative interpretations. Only in cases where further pregnancy endangers the health of the mother, and in cases of transmissible and hereditary diseases, is sterilization not only permissible but required. This gives hope that it may be possible to make a case for sterilization based on potential health hazards associated with high parity and pregnancy at late maternal age. This requires further documentation through collection of data on family formation and health in Muslim communities which this author is undertaking.

The Canon Law of the Roman Catholic Church has no explicit prohibition of voluntary sterilization, "but there is a body of official ecclesiastical documents, including the 1968 'Humanae Vitae' encyclical, which are contrary to the practice." (4)

The *Protestant denominations* are, in most cases, more liberal in their attitudes toward sterilization. In a recent statement, the United Methodist Church asked "that church-related hospitals take the lead in eliminating those hospital administrative restrictions on voluntary sterilization and abortion which exceed the legal requirements in their respective political jurisdiction and which frustrate the intent of the law where the law is designed to make the decision for sterilization or abortion largely or solely the responsibility of the person most concerned." (5)

Jewish law prohibits impairment of reproductive organs as explicitly stated in the Shulchan Aruch, Eben Haezer, Laws of Piryah, 5:11 (4). Liberal views in support of voluntary sterilization are held by some Jewish groups, and many Jewish physicians and hospitals perform the operation. Rabbi Balfour Brickner states that "voluntary sterilization is a significant and valuable method of birth control for those couples who have completed their families and are sure they want no more children." (5)

In *Hinduism and Buddhism,* no explicit teachings deal with sterilization. Both religions are opposed to "injury" and to "upsetting the cycle of Karma, the law of cause and effect, or sowing and reaping, in human existence." Fagley believes, however, that "there is enough flexibility in the Eastern faiths for modern reformers to put forward the case for scientific methods of family planning." (6) Ghandi himself preferred continence to artificial methods of fertility control. This was based on his personal interpretation and did not refer to the *Gita* or the *Vedas* to support his stand. Being a value judgment means that it can be replaced by another value when justifications exist. Thus, a vasectomized Hindu may believe that Ghandi's counsel was the most perfect, but he was unable to act on it when he chose vasectomy of sheer necessity (7).

Socialist ideology is unclear with regard to sterilization. From the few reports available, the acceptance of sterilization in the socialist countries of Eastern Europe and in Russia is very low (4). The operation for men in particular is used only sparingly and in exceptional circumstances. In the People's Republic of China, the situation is different. Sterilization is gaining societal acceptance as "a

major method of fertility control within the scheme of population control in China." (8)

Cultural Factors

As already stated, sterilization is often confused with castration and may, at least, be thought to affect man's sexual drive or virility. Virility is highly valued in all cultures. Consider, for instance, the concept of *machismo* in Latin America. Virility can be proven by the ability to impregnate, an ability that is halted by sterilization. Because of the lack of understanding of the sterilization procedures and no reassurance that it would not impair sexual performance, misconceptions will continue to exist.

The term *sterilization* is also unfortunate in relation to women. It invokes negative attitudes inherent in many cultures toward a "sterile" woman. In certain African cultures, a sterile woman is almost an outcast; and, in the Middle East she is unduly disfavored and has low chances of remarriage once divorced or widowed. The term "fertility termination" or some other euphemism is therefore preferred.

There is also the misconception in developing societies that the family planning campaign, particularly sterilization, is a form of "genocide" endorsed predominantly by western powers. This is easily rebutted by demonstrating that sterilization is widely used in several western countries where millions of males and females have been electing sterilization to terminate their fertility at relatively low ages and parities.

Legal Codes Governing Sterilization

The legislative process in most countries is apparently too slow to keep pace with the changing public and professional opinion regarding sterilization. Fortunately, very few countries have specific legislation prohibiting sterilization. In most countries, no specific provisions on sterilization are made, and its legality may be assumed under the axiom reiterated by the IPPF Legal Panel, that "what is not prohibited is permitted."

There may be, however, certain regulations in regard to sterilization of minors and the mentally retarded, or in regard to consent and waiting period between adoption and the actual operation. The Department of Health, Education and Welfare in the U.S. extended the waiting period in 1978 from 72 hours to 30 days in facilities supported by federal funds. Furthermore, the medical community may impose certain restrictions in regard to age and parity.

Promotional Activities for Sterilization

There is unmistakable positive correlation between the acceptance of sterilization and the vigor of organized promotional activities for sterilization by voluntary and/or official organizations. In countries where the acceptance of sterilization is low, there is a virtual absence or lack of emphasis on this method in the family planning efforts. The populace may even be unaware of the availability of this service. Under such circumstances the cultural, professional, and individual biases go unchallenged.

On the other hand, in the countries where sterilization is widely accepted, one can identify specific promotional activities that have made acceptance possible. Examples are readily available. The pioneers in this regard are the AVS in the U.S. and the Simon Trust in England, the government in Puerto Rico and the National Family Planning Program in India. Following suit, several voluntary and official organizations for voluntary sterilization became active in many countries. These included a) a national AVS in Bangladesh, Pakistan, Indonesia, Thailand, Korea, the Philippines, Sri Lanka; b) the Fertility Control Societies (a prototype of AVS) in Egypt and Sudan; c) voluntary and official programs in Latin America, such as ProFamilia in Colombia, APROFA in Chile, APROFAM in Guatemala, and d) sterilization programs introduced by official agencies in China, Tunisia, El Salvador, Panama, and, most recently, Mexico.

The promotional activities in these and other countries were able to offset cultural biases and religious restrictions, professional apathy, or limitations of the health infrastructure. Thus, despite implicit or explicit restrictions, millions of males and females of various religious affiliations were sterilized. These included, for example, over 10 million Hindus in India and Sri Lanka, 2-3 million Muslims in Bangladesh, Pakistan, Indonesia, Malaysia, and India, and several million Buddhists in Japan, Korea and Thailand. In Latin America, where the Catholic Church opposes artificial methods of fertility control, including sterilization, the percentage of women in reproductive age protected by sterilization (being themselves sterilized or living with vasectomized partners) ranged from 2.9% in Paraguay (1977), to 6.3% in El Salvador (1975), 8% in Costa Rica (1975), 25% in Panama (1975-76), and 35% in Puerto Rico (1970) (9). A survey in Puerto Rico revealed that 85% of the sterilized females were Catholic. It should also be remembered that thousands of men in Latin America were vasectomized despite the prevailing concept of *machismo*. The 10 million in the United States and the 5 million in Europe who were sterilized belong to various religious sects and ethnic backgrounds. This bears witness to the effectiveness of promotional activities against all odds, both cultural and administrative. The steps in the evolution of these promotional activities is given later.

International Support

A related factor enhancing societal acceptance is the international collaboration between and endorsement of the sterilization campaigns in various countries. Full recognition is made of the efforts of such organizations as the International Project of AVS, the World Federation of AVS, the IPPF, WHO, UNFPA, AID, IFRP, IPHS, and many others.

Population Pressure

While sterilization may be used sporadically for medical or eugenic reasons, the major justification for its use today is demographic. The potential superiority of its effectiveness in reducing fertility levels has been well recognized and is ever increasing with its adoption at lower age and parity. In most countries one sterilization may avert 1.5 to 2.5 births on the average. This will increase with lower age and parity at the time of sterilization.

For the developing countries, in particular, sterilization seems to be invaluable in accelerating their demographic transition. Population pressure in most developing countries is all too obvious. What is disquieting is the recent and premature enchantment with initial fertility decline on the assumption that the population problem is on its way to extinction. This near-sighted contention can be dismissed by considering the following sobering facts:

- Along with the fertility decline experienced by certain countries, there has been a parallel decline in mortality in such a way that the reduction in the rate of natural increase has lagged behind.
- Even if we assume a slowing in the rate of population growth, the actual number of people added has increased in many countries, since the population base from which the rates are calculated is now much larger than in earlier decades. On a global basis, for example, from July 1976 to July 1977, 80 million persons were added to the world, as opposed to 68 million that were added during a comparable period 10 years earlier when the growth rate was higher.
- Population increase does not in itself constitute a problem until it exerts pressure on resources. Such pressure is now taking two forms: increased per capita consumption; and increased social expectations. Even if population growth declines, the pressure on resources will continue as long as the two factors continue to increase. The problem is that in all countries these factors are compounding one another.
- Furthermore, the resources themselves are becoming more difficult to obtain due to inflation, maldistribution of wealth and the slow rate of replacement.

Appreciation of population pressure is therefore an important factor in societal acceptance of sterilization.

Figure 3. The Malthusian Equation of Population vs. Resources is Getting More Complicated

Population		Resources
• Wider base for population increase. • Increased rate of per capita consumption. • Increased social expectations. • Increased demand on public services.	➡ ⬅	• Inflation. • Relative unavailability to the poor masses. • Slow rate of replacement. • Depletion of finite resources (e.g. oil).

Norms Supporting Smaller Family Sizes

A related issue is the norm for a smaller family size. This may be a function of improved child survival, increased social aspirations, or the limitation of resources. The published results of the World Fertility Surveys indicate that the means for the number of children wanted in ten developing countries are generally low (10). (Table 1).

It is speculated that these means will continue to decrease and become more widespread in developing regions. With the assistance of effective educational programs, the merits of a smaller family size might aid in popularizing sterilization.

Availability of Services

The power of availability of sterilization services at a reasonable cost or at no cost cannot be overemphasized. This is especially true when accompanied with well-organized communication, education, and motivation programs. Not only the quantity but also the quality of

Table 1. Mean Number of Children Wanted, by Women's Age: World Fertility Survey (10)

Country	All Ages	20	20-24	25-29	30-34	35-39	40-44	45+
Colombia (1976)	4.1	2.7	3.2	3.7	4.2	4.6	4.9	5.8
Dominican Republic (1975)	4.8	3.4	3.9	4.3	4.9	5.7	5.8	6.4
Fiji (1974)	4.2	3.0		3.6	4.5	5.0	5.7	
Korea, South (1974)	3.2	2.8	2.8	2.8	3.1	3.4	3.6	3.8
Malaysia (1974)	4.4	3.9	4.0	4.2	4.4	4.6	4.6	4.7
Nepal (1976)	4.0	3.6	3.7	3.9	4.2	4.3	4.3	4.3
Pakistan (1975)	4.2	4.1	4.0	4.2	4.2	4.3	4.4	4.3
Panama (1976)	4.3	*	3.4	3.8	4.4	4.6	5.2	5.4
Sri Lanka (1975)	3.8	2.6	2.8	3.2	3.8	4.4	4.5	4.8
Thailand (1975)	3.7	2.9	3.1	3.4	3.9	4.0	4.1	4.6

*In Panama, women under age 20 were excluded from the survey

services is important. The impact of sterilization reaches a zenith when it is integrated into health and family planning services.

Feedback from Users and the Halo Effect

One of the most pervasive influences on societal acceptance is the positive feedback from satisfied users. Many programs have used vasectomized men to recruit other men for the services. The same occurs with sterilized women. It may also be profitable to publicize (with permission, of course) the acceptance of sterilization by community figures and leaders. In the U.S., a boost to the vasectomy program resulted when such prominent figures as Arthur Godfrey and Paul Ehrlich publicized that they had been vasectomized with satisfactory results. This is known as the "halo effect."

Incentive Systems

Incentives have been used in many countries (India, Pakistan, Bangladesh, South Korea, Taiwan, Indonesia, Turkey, Egypt, Ghana, Mauritius, Japan, and other countries) for the purpose of increasing the adoption of family planning. In spite of some questions about its ethical correctness, the incentive system became so central to the family planning program in India that about 22% of the family planning budget in India's 1969-74 five-year plan was designated for incentives (11). Such incentives may be given to adopters, motivators, personnel providing the service, or to groups and communities to which the adopters belong. (*Editor's Note:* In general, IPAVS does not endorse or promote the concept of incentives for sterilization.)

Despite the widespread use of incentives, the careful evaluation of the effectiveness of the various systems is still lacking or incomplete. What are their dynamics (especially the psychological component)? What is their relationship to user satisfaction or dissatisfaction with permanent sterilization? How feasible are the various schemes and what is the best mix of schemes, as well as the ethical correctness of the whole approach?

Finally, it must be emphasized that the incentive system may work well in some countries and not in others. Hence, it should be considered within the perspectives of each individual country. Actually, some countries, like Taiwan and Singapore, found it proper to have the applicants pay for the operation rather than receive an incentive. This is one way to ascertain consent, but then again, it may not be a viable approach for other countries.

Motivation but not Coercion

One of the most valuable approaches to enhance societal and individual acceptance is motivation through a well-coordinated communication and education program. By no means should the voluntary character of sterilization be compromised. The systems of harsh disincentives and specified quotas for workers are coercive and should be avoided.

Cost-efficiency of Sterilization

One of the factors to be considered is the relative cost-efficiency of sterilization. It seems obvious that sterilization, especially at low age and parity is much more cost-effective than temporary contraception. The benefits go beyond the monetary savings. They may include the following:

- Sterilization is one event that does not require continued organizational input in the form of motivational campaigns and follow-up visits by family planning workers;
- The cost of the operation, whether born out by the individual and/or organization is less than the cost of 10-20+ years of contraceptive use except when withdrawal or other conventional methods are used. This means fewer clinical visits and transportation needs, lower cost of supplies, and less time required for visits;
- There is also the risk of one or more pregnancies with temporary contraception, which should be included in the monetary and psychological cost to the individual;
- There are the possible side effects and their monetary and health costs. The pill stands out as the least cost-effective method after age 30, especially when the desired family size has been already achieved.

This area should be carefully researched by experts in cost-efficiency with the objective of estimating, in monetary terms, the possible savings of different methods.

PROFESSIONAL ACCEPTABILITY

Societal and individual acceptance is greatly sensitive to the attitudes and standards of the medical profession. The factors related to professional acceptance are summarized in Figure 4.

A few concerns will be discussed in some detail.

Professional Attitudes and Standards

Besides legal provisions, the medical profession may impose certain standards of minimum age, number of children, consent of individual and/or spouse, and emotional stability which must be met before a sterilization can be performed, especially in hospitals.

In the U.S., as recently as 1969, many hospitals were still observing the guidelines set forth by the American College of Obstetrics and Gynecologists (ACOG) which became known as the "rule of 120." This rule applied specifically to women and stated that when the age of the applicant is multiplied by number of living children, the result should be no less than 120. Thus, the number of living children should be at least five for a woman 25 years old, four for a woman aged 30, and three for one aged 40. The rule was dropped from the 1969 guidelines. For vasectomy, however, the rules were somewhat re-

Figure 4. Factors Affecting Professional Acceptance

laxed, especially when the operation was done on an outpatient basis.

The sterilization movement in the United States was greatly enhanced by certain professional endorsements. In addition to the elimination of the restrictive requirements for vasectomy from the ACOG guidelines, the American Medical Association came out very strongly in favor of vasectomy in 1968. An editorial in its journal of May 27, 1968, reminded physicians of the legality of the operation in fifty states, its simplicity, safety, and high satisfaction rate among the clients. The American Public Health Association followed suit in 1972.

Even India which leads the developing world in the prevalence of sterilization, has restrictive regulations, at least on paper. The rules are not uniform, differing among states and probably among hospitals. The minimum age requirements range from 30 years in Maharashtra (12) and Uttar Pradesh (13) to 35 years in Madya Pradesh (14) and just under 50 in Tamil Nadu (15). The number of living children is usually three or more; however, some states require only two children, provided one of them is a son who has survived the risks of childhood mortality (defined as surviving to age five in Uttar Pradesh and eight in Maharashtra). Additional requirements may be emotional stability, understanding irreversibility, and reasonable expectation of permanence of marital union. Such regulations are hardly observed in large programs such as the vasectomy camps. The rules are more liberal in some areas of Bangladesh where only two living children are required with no age specification (16).

In Singapore, female sterilization is the method adopted, although only for women with six or more children. In Colombia, the conditions are that the applicant should be 35 years of age or over, with three or more children (both sexes) and psychologically stable. Both partners should sign authorization forms, and two weeks should elapse between scheduling and performing the operation(17,18).

In 1976, The Fertility Control Society of Egypt ruled that sterilization is preferred only for those with three living children (at least one of them male), and the women should not be less than 30 years of age. A waiting period of two weeks after consent is mandatory.

Legal Consideration

The legal status of sterilization in a particular setting influences professional attitudes and practices. Malpractice suits, in particular, would have negative effects, especially with regard to minors and people who are mentally defective.

Personal and Other Characteristics

Physicians are influenced by their personal attitudes, religion, peer pressure, and professional background. They are also influenced by the state of technology and their personal competence. Physicians who are not professionally knowledgeable about sterilization may express ideas closer to the layman's attitude than the professional's because they, too, are uninformed.

Clinical Compassion

The compassion of physicians for people under their care is an important factor in promoting sterilization. Such compassion is enhanced when the basic facts about the health aspects of family formation, contraception, and sterilization are compared and duly recognized by physicians as important to human well-being.

The World Medical Society endorsed in 1974 a recommendation by this author that: "The prescription of family planning will reduce substantial health risks to mothers and children and hence should become a part of routine patient care for responsible health professionals everywhere in the world."(19)

Health risks definitely increase with pregnancies occurring after a certain age (usually 35) and certain parity (usually 3). At the same time, risks associated with contraception, particularly the pill, also increase with age after 30. The answer in these cases is, of course, sterilization. Thus, physicians should give counsel to that effect.

Concern for the Communities

The medical profession cannot isolate itself from community concerns. The health, social, and economic consequences of unduly rapid population growth should be addressed and the demographic superiority of sterilization considered.

INDIVIDUAL ACCEPTANCE

Individual acceptance of voluntary sterilization is influenced by a variety of factors, which may be personal, societal, or professional, as illustrated in Figure 5.

It is contended that an individual goes through three main phases of acceptance: a primary phase when he or she resolves not to have any more children, an intermediate stage of consideration and/or experimentation with other methods of fertility control, and a final stage when sterilization is accepted. The decision usually includes consideration of which partner should undergo the operation, the male or female. Several studies point out that the post-partum period is a most convenient time for motivation for contraception and sterilization. During the period the level of motivation for fertility regulation greatly increases.

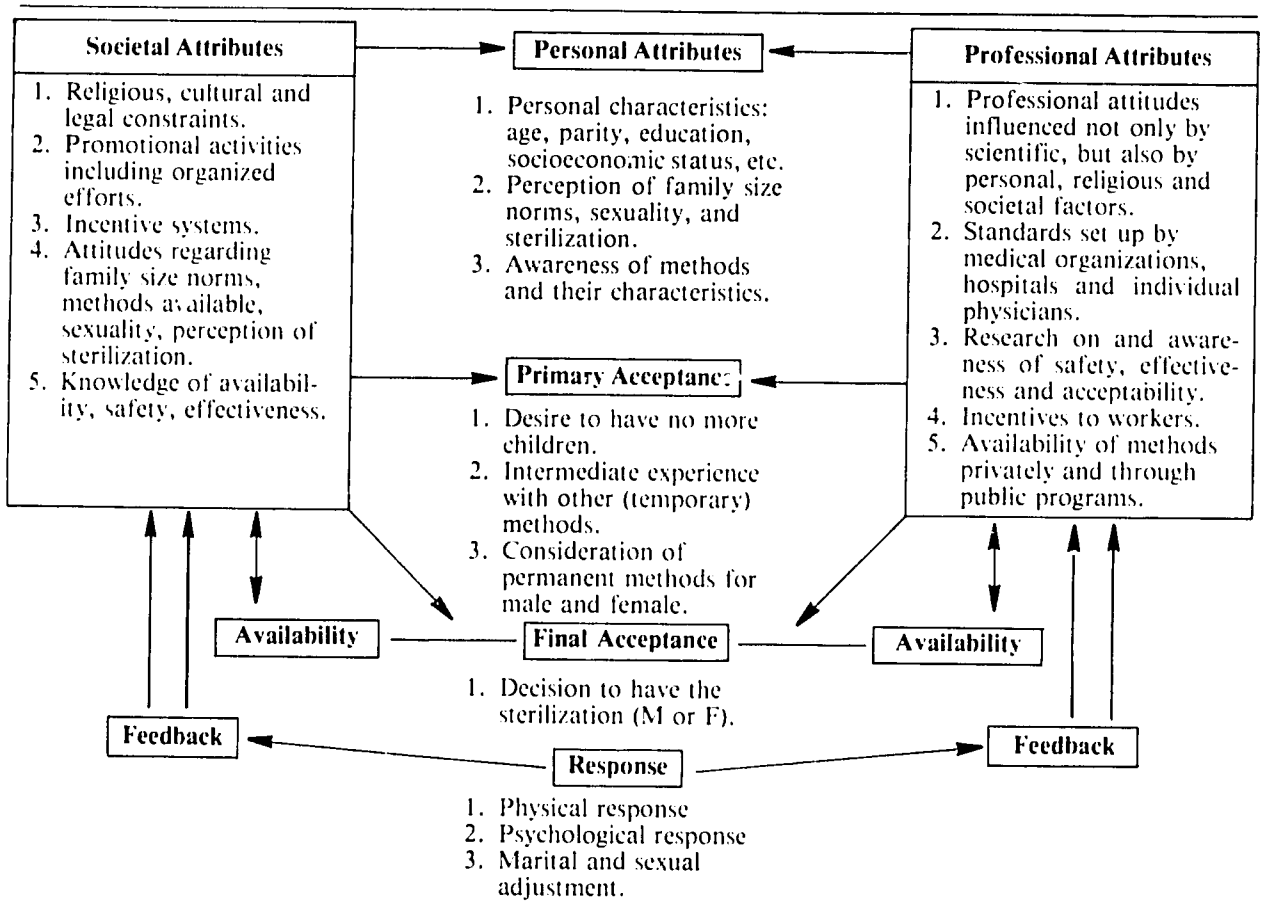
Primary acceptance is influenced by personal attributes, group affiliation, social aspirations, societal values and awareness, and perception of methods of contraception and their availability. This stage may be followed by an interim period of screening available methods and their effectiveness during which the spouse, relatives, friends, physicians and other counselors may be consulted. Incentives and other motivational systems may have an effect at this point.

Final acceptance of sterilization may still be affected by availability, awareness of the meaning of the procedure, and feedback from satisfied or dissatisfied men and women. After the operation, the response of the sterilized person becomes an integral part of its acceptability to others.

Choice Between Male and Female Sterilization

In the preceding discussion, in the conceptual framework below, and in the following paragraphs, we make the risky assumption that every decision in the choice of male versus female sterilization is made rationally. Indications are, however, that some such decisions may not be as rational as we assume. In a vasectomy or tubectomy camp in an Indian village or railway station or at a festival and in secluded discussions of the "vasectomy agent" with clients in remote villages of Bangladesh, the decision may be so hasty that one is inclined to doubt rationality. The

Figure 5. Individual Acceptance of Sterilization: A Conceptual Framework



incredibly small incentive or the temptation to accept what others have accepted may be the major factor which makes the operation attractive. One even suspects that a number of acceptors may be utterly ignorant of what they are undergoing. Furthermore, some acceptors in the developing world may have their own system of rationalization which is not amenable to western methods of interpretation.

Assuming rationality of the decision, which is apparently more applicable to the better informed individuals, a complexity of factors may be involved in a couple's decision as to which partner will undergo the operation. Such factors include: availability; simplicity of procedure and type of anesthesia; need for hospitalization and time lost for the procedure; reliability and safety of the methods or rumors thereabout; feedback from those who have used the method; perception of sexual effects; male and female roles; comparative health status of husband and wife; motivation and acceptability to the spouse; and reversibility (a possibility which may become important in the future).

A Philippine and an Indian example will be used to shed some light on this complex issue. In a WHO collaborative study, samples from Philippine and Indian women answered questions regarding their perference for male or female sterilization and stated their reasons for selecting one over the other (20). In both samples, women elected sterilization as a contraceptive method, and indicated a preference for female sterilization (85% in the Philippine survey and 80% in the Indian survey). However, the primary reasons for this selection varied. (Table 2).

The majority of the women in the Philippine survey stated that the woman is the childbearer and therefore should assume the role of the sterilized person in the marriage unit. In the Indian survey, the majority of the Hindu and Muslim women stated that the operation would make the husband weak, and in the scheduled castes and Vellalah groups, a higher percentage of the women responded that the husband was the wage earner and, therefore, should not be sterilized.

The above variations indicate that different value systems were operating in the rationalizations of the women for their preferences. Further intensive and controlled sociological, psychological, and anthropological research is needed in areas where both male and female sterilizations are readily available.

Individual Characteristics of Acceptors

These characteristics vary over place, time, state of development, legal status and availability of sterilization. Some of these characteristics are listed below:

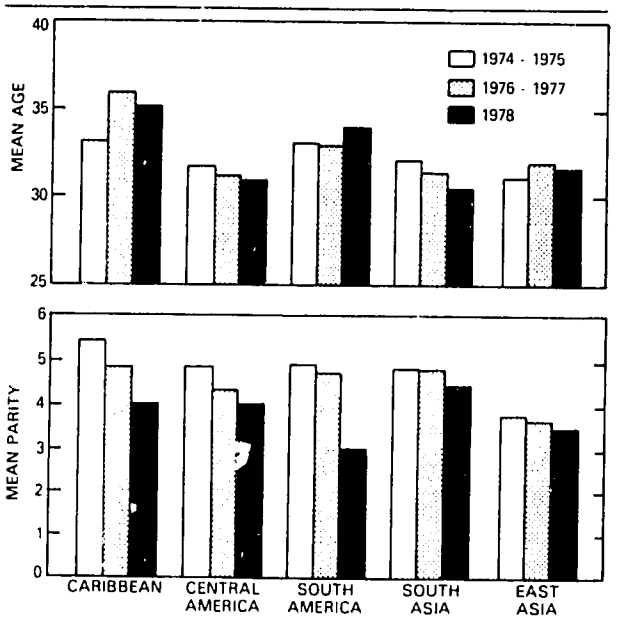
- Age, parity, and number of living children differ among the less developed regions of the world. In Central America and South and East Asia, men and women seeking sterilization are younger (in their early thirties, on the average). (Figure 6).

  In the Caribbean, the age of acceptance is still quite high (close to 35). The mean parity at which sterilization is adopted also varies among developing regions with the lowest in South America (about 3 children) and highest in South Asia (4-5 children). In all developing regions, the mean age and parity of the acceptors have been on the decline since 1974-75.

Table 2. Reason Given for Women Preferring Female Sterilization in the Philippine and Indian Surveys for a WHO Collaborative Study

	Philippine Survey		Indian Survey			
Reasons	Rural	Urban	Vellalah Hindu	Scheduled Castes	Other Hindu	Muslim
Husband refused	10.7%	2.5%	10.6%	10.8%	5.0%	7.9%
Operation will reduce the sexual activity of husband	2.5	2.0	1.4	5.4	5.9	2.2
Operation will make the husband weak	2.1	2.7	39.0	35.8	52.0	51.1
Women are the child-bearers and should be the one to be sterilized	72.0	87.3	1.4	4.1	1.6	1.7
The operation is ineffective for the male	—	—	0.7	4.1	4.0	1.7
The male is the wage earner	11.8	5.0	46.8	39.9	31.5	35.4
Total	100.0	100.0	100.0	100.0	100.00	100.0

Figure 6. Female Sterilization Acceptors by Region and Year



Source: IPAVS, Annual Report, 1978

- Education and social status: Men and women undergoing sterilization in the developed countries have more years of education and are probably drawn largely from the middle class. In the less developed countries, the acceptors are usually of low educational status and are probably drawn largely from the lower class and only occasionally from the middle class.
- Previous contraceptive experience: Men and women seeking sterilization in the developed countries typically report 80 to 100% previous experience with contraception. With a few exceptions, their counterparts in the less developed countries have either no experience or modest experience with contraception.
- Religious affiliation: In countries of mixed religious composition, acceptance may differ among groups. Unfortunately, however, most of the data available on sterilization by religion are descriptive data.

In Table 3, acceptance of sterilization is expressed as a rate of the population belonging to a specific faith. Looking at this data, it is contended that the Catholics are less inclined toward the acceptance of sterilization, especially for Catholic males as opposed to Protestant males. The rate of acceptance when both members of the couple are Protestant is two to three times as high as the rate when both are Catholic.

MODELS OF STERILIZATION ACCEPTANCE

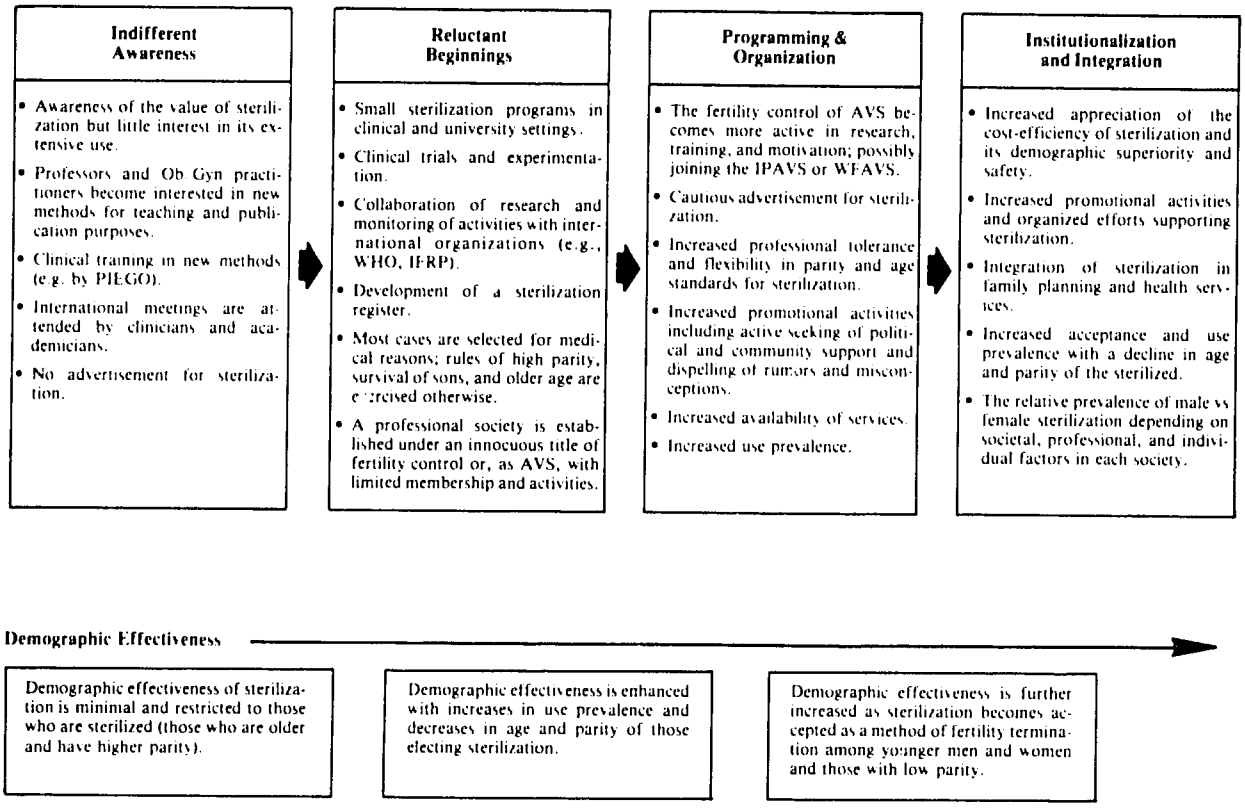
There are several models of acceptance that vary from one country to another with regard to pace, form, and succession. In some countries, acceptance was relatively rapid and cumulative. In others, it was slow and fluctuating. In regard to countries in Africa, Asia and Middle East where sterilization is yet to be institutionalized, we can identify several sequential stages in the evolution of sterilization acceptance. This is illustrated in some detail in Figure 7.

In essence, the activities in support of sterilization commence very slowly. There is usually great reluctance and hesitation to accept sterilization. The first two stages, indifferent awareness and reluctant beginning, may take several years or be telescoped in a shorter time. How-

Table 3. Percent of Population with Contraceptive Sterilization by Couple's Religion, for Women Under 45 Years of Age, Currently Married, Husband Present: 1965 and 1970 (21)

	Percent with Contraceptive Sterilization						
	Risk Population					Total Population	
Couple's Religion	Vasectomy	Tubal Ligation	Other	All Operations Percent	All Operations Number	All Operations Percent	All Operations Number
1965							
Both Protestant	7	7	2	16	1,967	10	3,006
Mixed Protestant and Catholic	3	5	1	9	235	6	342
Both Catholic	2	3	1	6	508	4	906
Other	5	6	1	13	253	8	346
1970							
Both Protestant	10	9	3	22	2,174	13	3,513
Mixed Protestant and Catholic	4	4	1	9	184	5	362
Both Catholic	4	5	1	10	596	5	1,099
Other	11	5	2	18	473	10	783

Figure 7. Phases in the Evolution of Sterilization Acceptance



ever, these stages are important foundations just the same. Even in the U.S., sterilization activity was slow in developing, and the first American organization for sterilization ran its activities under the innocuous name of the Human Betterment Association. It was not until 1964 that the name was changed to the Association for Voluntary Sterilization. Prior to 1964, the AVS was cautious, yet determined. After 1964, a vigorous campaign was launched which influenced and encouraged increased societal and professional acceptance of sterilization.

It is anticipated that many countries in the third world who now have little or no organized activities for sterilization will soon emerge into the third phase of organizing their efforts in that regard. Eventually, or hopefully, sterilization will be institutionalized and integrated into health and family planning services.

As to demographic effectiveness, sterilization will exert its highest influence on fertility when, first, the use-prevalence significantly increases to 10 to 20% among the couples in reproductive age; and, second, where younger and low-parity couples elect sterilization in large numbers. This is currently happening in many countries; for example, Puerto Rico, Taiwan, Panama and India.

CONCLUSION

The preceding discussions of societal, professional, and individual acceptability of sterilization bring to the forefront many of the important topics to consider in attempts to increase the popularity of sterilization as a fertility regulating method. These issues need to be addressed by the agencies sponsoring sterilization as a fertility regulating mechanism as well as by the governments currently advocating or contemplating its implementation. The factors linked with acceptability of sterilization are so intertwined with a people's cultural beliefs, their social interactions, and way of life that one is drawn to argue that unless these factors are drastically changed, sterilization is not a viable approach. However, the evidence presented in this paper clearly indicates that sterilization has been accepted alike by rural people of different religious affiliation in India and in different religious groups in the U.S.

Among all factors presented in this paper, there is one that seems more applicable and effective in enhancing the acceptability of sterilization against formidable odds, and this is an organized, locally-oriented promotional campaign. Promotional activities have influenced societal,

professional, and individual acceptability in the more and less developed regions of the world by diminishing the number of misconceptions people had toward sterilization.

Of course, there will always be pockets of resistance to sterilization. The impact of such opposition will be a function not only of their magnitude but also of how planners and policy makers perceive the inevitability of acceptance of sterilization. Time and time again, resistance is more in the minds of the family planning administrators than in the people the program is attempting to serve. Hopefully, models of acceptance will assist in understanding how this resistance can be diminished and a more positive approach adopted.

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Political Factors

Haryono Suyono

In many countries where government-supported family planning programs are already well established, sterilization remains a somewhat sensitive political issue. The recent experience of India during the emergency stands out as an extreme example. In Indonesia, where a majority of the population professes adherence to Islam, sterilization as a government-supported method of contraception faces potential religious, and therefore political, opposition. For this reason the National Family Planning Coordinating Board (BKKBN) of Indonesia has confined its endorsement to "sterilization as an experimental new method." The BKKBN provides financial support for training, research and limited resources. Until now sterilization services have been made available primarily through the private sector, including the well known Bathesda Hospital in Yogyakarta, the Indonesian Planned Parenthood Association, the Pathfinder Fund, and PUSSI (the Indonesian Association for Voluntary Sterilization) all of which have provided services and are training and equipping an increasing number of private physicians throughout the country.

Although the demand for sterilization services in Indonesia is growing, the absence of official government endorsement creates an obstacle to more widespread acceptance and prevents the satisfaction of an already existing popular demand. Our Indonesian experience is discussed below and may offer a possible solution to the impasse.

Perhaps the major psychological and moral block to acceptance of sterilization in Indonesia stems in large part from its almost permanent and irreversible nature. No other contraceptive method is quite so dramatic and complete in its effect, a fact which can create possible political questions or issues.

For this reason, considerable research funds are being spent to develop viable reanastomosis techniques, in itself an indicator of the awareness and concern with the psychological drawbacks of the method. It is now possible that a major breakthrough in techniques of reversibility will be forthcoming in the near future. Such a possibility has not been brought to the attention of our political leaders.

The great concern over the issue of reversibility points to a fundamental drawback in the approach to the use of sterilization itself as well as to other methods of contraception. Frequently, family planning programs tend to evaluate (and inform political leaders about) the usefulness of contraceptive methods in limited medical terms, separate from broader progam objectives. The Pill, the IUD, or sterilization tend to be seen as ends in themselves rather than as means toward other more important goals such as fertility limitation and acceptance of small family norms.

Against this background and with this narrow viewpoint and limited knowledge about family planning, Indonesia's political elite were asked to participate in an open debate with the medical community. The doctors asked for more support while the politicans asked for more information about possible future effects. Neither could really understand the other.

The issue is not whether the Pill, the IUD, or sterilization should be officially endorsed as program methods. The issue is whether or not individuals desiring to limit their fertility and to accept a small family norm are, in fact, able to obtain from either the public or private sector a complete range of services that let them achieve their desired fertility objectives. For this reason, the present focus on the inherent advantages/disadvantages of available specific methods of contraception might better be directed toward a greater concern with the nature and degree of commitment—program and political—to the idea of fertility limitation and the small family norm.

Taking this kind of focus enabled us to mount a more active drive to provide voluntary sterilization services. For example, in 1974/1975 there were less than 10,000 sterilizations performed, a figure representing only 5% of all new family planning acceptors for the year.

In 1978/1979 we raised the acceptance level to 38,000 cases. Private clinics represented 3.2% of all new acceptors for the year.

These figures were only reported cases, so there may be several thousand more performed by private physicians not covered by our reporting system.

In all, for the last five years we have recorded more than 120,000 cases out of 10.2 million new family planning acceptors.

As can be seen from this experience, there is often a greater commitment by the populace to fertility limitation by

Table 1. Number of New Family Planning Acceptors

Fiscal Year	Total Number of New Acceptors by Method							
	Pill	IUD	Condom	Vag. Tab.	Injectable	Male Sterilization	Female Sterilization	Total
First 5 Year Plan	2,823,990	991,505	338,667	30,432	-	-	-	4,184,594
Second 5 Year Plan								
1974/75	1,0[illegible]	187,153	301,094	2,918	4,283	1,959	7,724	1,592,891
1975/76	1,3[illegible]	251,994	356,282	1,955	11,451	2,115	12,519	1,966,585
1976/77	1,481,703	400,234	279,080	1,730	27,536	3,487	19,020	2,212,790
1977/78	1,593,508	366,489	200,870	1,172	48,435	9,556	26,063	2,2[illegible]6,093
1978/79*	1,472,137	404,499	166,191	1,290	67,472	6,890	30,670	2,149,149
Total 2nd 5 Year Plan	6,965,377	1,610,369	1,303,517	9,065	159,177	24,007	95,996	10,167,508
Total	9,789,367	2,601,874	1,642,184	39,497	159,177	24,007	95,996	14,[illegible]52,102

*Data up to February 1979 projected to March 1979.

Sources: National Family Planning Coordinating Board, Indonesia

whatever means than there is within the government itself or within the national family planning program. It can be clearly observed that demand is and will be growing, eventually reaching a stage where sterilization will become one of the most popular methods in Indonesia.

What is suggested here is the need for a fresh campaign directed at national policy and decision makers to reaffirm their commitment, not to any particular contraceptive device or method, but rather to the *voluntary* acceptance of fertility limitation and a small family norm. These are, ultimately, decisions of the individual. As such, it is the responsibility of family planning programs with similar objectives to provide, directly or indirectly, any and all safe and reliable means, *on demand*. Without providing access to such means, a national commitment to fertility control and to popular acceptance of a small family norm is hollow and verges on hypocrisy.

It is not advocated here that any specific fertility regulation method, including sterilization, necessarily become officially endorsed and promoted. Instead I suggest that any individual who voluntarily decides to avoid future childbearing, either temporarily or permanently, be provided, without fear of legal reprisals and without great personal inconvenience, any medically sound method or service. That can only be achieved if and when governments themselves fully support and are committed to the notion of fertility limitation and acceptance of a small family norm.

The inherent risks in such an approach are fully recognized. It is understood that this proposal calls into question the stated commitment. If it is to be more real than rhetorical, then means to achieve the desired ends must also be made available.

Economic Perspectives

Kee Chun Han

In reviewing the past 17 years of the Korean Family Planning Program, it is clear that sterilization has never been as fully appreciated as it is now.

1976-77 was the turning point in acceptance of female sterilization. The number of acceptors increased over 500%, rising from 35,563 acceptors in 1976 to 181,445 the next year. By 1978, there were 193,398 acceptors, making tubal ligation the most preferred method.

The vasectomy program, by comparison, averaged approximately 24,920 annually between 1962 and 1975. It, too, showed a sudden surge in new acceptors in 1976 to 40,711, rising to 53,746 in 1977, then declining to 36,922 in 1978.

Viewing these acceptance figures with an eye to future patterns, we can assume that female sterilization promises to rejuvenate Korea's family planning program. I offer the following analysis in support.

PERSPECTIVES IN PROBLEM ANALYSIS

An explanation of the economic benefits and motivation for sterilization can be approached from three points of view, that of individual acceptors, medical doctors, and the national economy.

The Economics of Sterilization at the Level of Acceptors

The economic justification for limiting the size of one's family in Korea, as in any country, is well evident, and is manifested by the steadily increasing proportion of reproduction age women interested in family planning. The family planning practice rate increased to 44% in 1976 from 24% in 1971. Through a rapid process of modernization, attitudes and values about childbirth and birth control have changed radically. A 1976 two-month survey of 6,020 married women from 151 regions established the following (1):

- 80.9% of the total married women favored the national campaign for a two child limit.
- The average age at first marriage is rising:

	Years of Age	
	1955	1976
Male	24.5	27.2
Female	20.5	23.5

- The mean ideal number of children desired by women (15-44 years old) declined to 2.8 in 1976 from 3.7 in 1971, whereas the actual number of living children remained at 3.0 from 1971 through 1976.

With such attitudinal changes, more females are motivated candidates for surgical sterilization. The former preference for the IUD in the Korean family planning program is now shifting to voluntary sterilization, 84.0% of which have been female procedures. By contrast, in 1972, of the 19,696 users of sterilization, only 16.5% were female.

The upsurge of female sterilization in Korea can be attributed to various causes. With modernization, the economic benefit parents have traditionally attached to children has diminished while the economic burden of having them has increased. Economic development has improved education, reduced the agricultural population, and increased the general standard of living. As a logical result, parents have become less dependent upon their children.

Another factor contributing to the popularity of sterilization is the development of efficient and economical surgical techniques such as laparoscopy and minilaparotomy. These new techniques take only 10-15 minutes and require only local anesthesia in contrast to the time when female sterilization meant major abdominal surgery with general anesthesia and several days hospitalization. In addition, these new techniques can be performed on rurual acceptors within their own villages, not necessarily in large urban hospitals.

The efficacy of sterilization is self-evident. Compared to other contraceptive methods, such as oral pills and condoms, it requires only a one time use. Also, unlike the IUD, sterilization does not lose its effectiveness; there is rare incidence of contraceptive failure with sterilization, in contrast to the IUD, whose efficacy is limited due to pregnancy, expulsion or removal. In Korea, it has been estimated that the effectiveness of sterilization is four times that of an IUD; 10 times more effective than the Pill, and 1,600 times more effective than the condom (2).

Another significant factor contributing to the increase in voluntary sterilization among females is the philosophy of male sovereignty prevalent in Korean society. The fear that vasectomy may lead to castration has encouraged more females to undergo sterilization operations.

Economic Incentives for Designated Medical Doctors

As of the end of 1978, 2,146 designated physicians were authorized to perform voluntary sterilization in Korea. In addition, there were 782 leaders at the local health centers, and 1,627 field workers at the levels of Eup and Myun. In Korea, all sterilization operations are performed by physicians. Non-physicians in the program recruit eligible couples, maintain equipment and assist physicians in surgical procedures.

The success of voluntary sterilization services in Korea is attributable to the enthusiastic participation of medical doctors. No other contraceptive method requires the physician's cooperative efforts in both persuasion and in performing the surgical operation as does sterilization. The role of physicians in promoting sterilization as an effective contraceptive method is vital in persuading potential acceptors.

Most eligible couples are not aware of the nature and consequences of the surgical contraception. The majority of adults worry about castration as the consequence of sterilization. Often it will take more time to reassure patients that manliness or womanliness will remain unchanged than to perform the surgical operation itself. The physician's preliminary explanation is, then, imperative for both wife and husband.

It is noted that the Korean family planning program provided 15,000 Won (equivalent to US 30 dollars) per case to physicians for female sterilization while 6,000 Won (US 12 dollars) was given to support the direct cost of each male sterilization. Four hundred Won per case of either male and female sterilization (US 80 cents) is awarded to those field workers who recruited the acceptors. Three thousand Won (US 6 dollars) is provided as a subsidy to those female acceptors whose income status qualified them for the poor and relief program, although these are few.

Although US 30 dollars per female sterilization cannot be considered sufficient, the incentive has made the program attractive to physicians. A 200% increase in the payment per case of female sterilization has resulted in the dramatic increase in female sterilizations, from 35,563 cases in 1976 to 181,445 cases in 1977 to 193,398 cases in 1978. Such incentives appear to work very well in recruiting acceptors and thereby promoting sterilization in Korea.

Finally, a word is due here about the other coincidental happening in 1977 in Korea, when for the first time in the Republic's history, a new medicare system was launched. Under that program, 2,095,000 beneficiaries were provided health care services and the medical insurance system was mandatory for companies employing more than 500 people. This covered approximately 10% of the Korean population, including employees and their families. These two new medicare systems enabled the designated physicians to have easier access to a larger body of voluntary acceptors of sterilization.

Economic Factors Influencing National Policy on Sterilization

Sterilization programs are similar to other economic projects. They require scarce economic resources, but differ from other economic projects on the output side. Sterilization programs are designed to prevent pregnancy or to avert childbirth, the economic benefits being negative and indirect.

The very basic estimate in deriving the demographic impact of a sterilization program is the number of births averted by the sterilization program. In Korea, as mentioned earlier, the number of births averted by sterilization was estimated to be 2.9. During the period from 1962 to 1973 the sterilization program in Korea achieved 210,524 male and female acceptors and the estimated number of births averted were 304,188, distributing the number of births averted by year.

Various economic effects of the family planning program can be obtained by comparing the births averted under the sterilization program with the number of children who would have remained alive without the program. Important is the fact that if the program had not been implemented a greater population would be inhabiting this land, consuming more resources, slowing down economic growth, and accordingly reducing the annual increase in per capita income.

For the period 1962-1973 under consideration, the cost of the sterilization program, considering only direct costs, is estimated as 1.9 million US dollars. On the other hand, the benefits arising from the foregoing number of births averted by sterilization programs are calculated as 358.7 million US dollars. Thus, the benefit ratio for sterilization can be calculated as 187.8, namely 188 times the cost.

In short, the sterilization program has a very high benefit ratio and the government should endeavor to provide more financial support for the sterilization program.

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Religious Factors That Influence Voluntary Sterilization Programs

Melanio Gabriel

Aldous Huxley once said that "facts do not cease to exist because they are ignored." This quotation is incontestable and it holds true even with voluntary sterilization. Not a few family planning program leaders discount or ignore the positive and negative influences which religious beliefs exert on voluntary surgical contraception programs. Many do not recognize the profound impact of religious factors in the acceptance or rejection of voluntary sterilization—but rather put too much confidence in so-called research studies and surveys. They minimize, if not totally ignore, the silent, yet tremendous effects of religious factors on family planning programs, particularly sterilization programs. Although I cannot support my opinion with highly-engineered research, I maintain the view that religious factors exert tremendous influence in impeding or accelerating the progress of voluntary sterilization programs. It is wisely said that "opinions cannot survive if one has no chance to fight for them." This conference is no small opportunity for me to fight for my opinion.

In the *Week's Events* (1) a special information service of the Population Center Foundation, it was said,

> ...factors such as religion, income, education, occupation, information average of male living children and mental states do not influence either the acceptance or rejection of sterilization in the Philippines. But dissatisfaction with other contraceptive methods—specifically, the pill and the condom—is a significant factor.

These were the main findings of a research study, and it is a gargantuan task for me to disagree with a study like this, but I believe that the psychological nature of man is almost impossible to catalogue. I maintain the viewpoint that religious factors exert tremendous effects on the acceptance or rejection of voluntary sterilization for the following reasons:

- Since time immemorial, a great majority of humankind have cherished beliefs in a powerful supreme being—or even in nature—so that religion in one form or another fulfilled spiritual needs. The psychological needs that are often referred to in books are mainly spiritual. These are needs of the highest order and cannot simply be ignored. Among Christians, the words of Jesus Christ that man does not live by bread alone but by God's word are a deeply imbedded teaching which negates the appeal of socio-economic benefits offered as factors to motivate people to practice family planning.
- A great majority of church leaders are still very credible even in these times when it is claimed that there is a crisis of faith, and they exert no little influence on those who hear or read their preachings or exhortations.
- "The appearances of the 'moral manuals' intended primarily for the training of confessors and focusing heavily on sin, further confirmed the negative approach to sexual matters. Since these manuals served as the almost exclusive source of moral teaching, they had a particularly profound impact on the formation of values and attitudes regarding human sexuality."(2)
- The sad experience in many countries wherein religions have exerted a powerful influence in government family planning policies attest to the fact that negative religious factors heavily impede family planning programs, especially sterilization programs.
- I'm not an armchair administrator, and I get first-hand experiences in the field. I have had occasions to ask people why they do not want sterilization or even just the pill. At first, they say that they are afraid of the side-effects; but when you dig deeper, you find out that they were told by a religious leader to abhor such methods because they will be punished by God in the form of side-effects. A careful scrutiny of their claims leads you to conclude that a feeling of guilt follows and then all other possible complaints are blamed on the method.
- I and my wife are living witnesses of religious influences. We would not have involved ourselves actively in sterilizations had not the church hierarchy sanctioned our involvement in this endeavor for humankind. Our project has performed about 30,000 sterilizations in 4 years, 4 months time and we can see that religious factors have a lot to do with the success of our program.
- The research studies mentioned may not have been in-depth (this is just a conjecture and is in no way intended to assail the accuracy or practicability of the study) so that only the question of religious affiliation may have been asked.

The INC itinerant teams have had many experiences. On one occasion, Popcom Provincial Population Officers invited our teams in and informed us that there would be no less than 50 sterilizations in a certain area. A few days before the team arrived, religious leaders preached that "the devils will be coming on invitation from devils of higher order (referring to Popcom Officers) and these devils will deceive the flock with promises of a brighter future." The teams were able to do only 8 sterilizations out of the more than 50 candidates.

In another place, another team headed by Dra. Carolina Gabriel was supposed to do about 50 or so sterilizations. However, the archbishop, together with some priests and nuns, held a demonstration in front of the clinic where our team was supposed to perform. Many people crowded around and witnessed the demonstration. It was fortunate that my wife was given radio and TV time so she explained to the people what sterilization is all about. She said that if these religious leaders preach that God said, "Go forth and multiply," the verse does not stop there but continues to say "...and replenish the earth, and subdue it." She thanked the religious leaders for making the people aware that they will be doing sterilizations. The team did 110 voluntary sterilizations in two days. (The second day was by request of the residents for an extension.) This could mean that religious influences could work like a double-edged blade. They may impede or they may accelerate, but the influences are there. They are real, not imagined.

What I am driving at is this: We should recognize that there is a growing and concerted effort—led by some church leaders—to discredit family planning, mostly sterilization. We have to recognize this problem lest the time comes that the problem cannot be contained anymore, when all the efforts and sacrifices of those involved in population control have been nullified because we failed to take cognizance of the problem and refused to begin resolving it. We may be exuding too much confidence that our programs are faring well and that religious factors bear no influence. I say that it is high time that we recognize the problems.

In a workshop last March 28-30 that I participated in, with the theme: "Working Towards Higher Continuance Rates," I said that there is a growing effort to discredit family planning. Many participants shared the same opinion; and I advocated that we adopt the strategy of including the scriptural bases of family planning and sterilization in our I & E efforts. It is only through the gospel truth that we may be able to combat erroneous teachings which people believe in and will continue to believe until such time that the truth enlightens them.

In conclusion, take note of these verses from the Bible:

> "For, behold, the days are coming in which they shall say, Blessed are the barren, and the wombs that never bare, and the paps which never gave suck." (Luke 23:29)

> "But if any provide not for his own, and specially for those of his own house, he hath denied the faith, and is worse than an infidel." (I Tim. 5:8)

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Acceptability in Bangladesh

Mufeweza Khan

Because of its high degree of effectiveness and one-time application, sterilization can contribute significantly to reduction of excess fertility in Bangladesh, if it can be applied on mass scale. Widescale application of sterilization in the family planning program, however, would depend first on the program's ability to make necessary arrangement for the required services, and secondly, on the acceptability of the methods in the social, cultural and economic environment of Bangladesh. While provision of service facilities is dependent primarily on the availability of medical manpower, supplies, and institutional facilities, the acceptability of the method may turn out to be a more complex social phenomenon determined by factors independent of the availability of service. It is, therefore, necessary to understand the phenomenon of acceptability of sterilization in relation to the existing social, psychological and cultural environment.

HISTORY OF STERILIZATION IN BANGLADESH

A large scale use of sterilization in the family planning program in Bangladesh (formerly East Pakistan) dates back to the late sixties, when male sterilization unexpectedly became a popular method of clinical contraception (1). The first major effort in the family planning program under the 3rd Five Year Plan of Pakistan, launched in 1965, did not anticipate that sterilization would comprise a substantial part of the family planning program's achievement (2). The program in this phase envisaged use of IUDs as the major spearhead of the technological front, to be supplemented by the condom and foam tablet. But, primarily because of the narrow range of contraceptive provision in the program limiting the scope of the individual's contraceptive choice, and more particularly, because of inadequate service infrastructure available for IUD insertion, the program had to look for alternate methods. Male sterilization was considered a suitable and acceptable alternative for the program, which could lead to a demonstrably good program accomplishment. Soon after this realization, the program re-oriented its emphasis and re-directed its effort toward recruitment of male sterilization acceptors. Consequently, acceptance of male sterilization rose very sharply over the next few years (3).

Table 1 presents the number of vasectomies performed as compared to IUD's during the 1965-70 period. During the same period tubal ligations were performed only in the obstetrics/gynecology units of the major hospitals, and their number was insignificant. The major factors which were considered to have contributed towards this high rate of vasectomy acceptance were:

1. Provision of cash incentive on the spot to the acceptors and the recruiters, and professional fees to the doctors.
2. Imposition of specific numerical targets on all functional units of the program for all methods, including vasectomy, which put the units under pressure to recruit a minimum number of vasectomy cases every month.
3. Participation of an unofficial cadre of self-styled vasectomy recruiters or agents who made referral of vasectomy acceptors their part time job, and thrived on the referral fee and a part of the acceptors' incentive money.

Table 1. The Number of Contraceptive Acceptors of Vasectomy as Compared to IUD During the Periods 1965-1970

Year	Vasectomy	IUD
1965-66	5,000	96,000
1966-67	46,000	250,000
1967-68	253,000	350,000
1968-69	389,000	397,000
1969-70	314,000	272,000

Later on, all the above three aspects of the program became very controversial and were thought to have led to a considerable amount of inflated reporting (4, 5). In the immediate post-liberation period when the incentive money was stopped and the pressure of targets was relaxed, the acceptance of vasectomy seriously declined.

Table 2 presents the numerical performance of the program in terms of acceptance of vasectomy and tubectomy, as compared to IUD (6). Re-institution of financial incentives temporarily increased the performance. During the period, tubal ligation demonstrated a slow but steady rise.

Table 2. Number of Contraceptive Acceptors of Vasectomy and Tubectomy as Compared to IUD During the Period 1971-1978

Year	Vasectomy	Tubectomy	IUD
1971-72	139	151	1,597
1972-73	242	129	15,785
1973-74	446	1,015	27,592
1974-75	14,469	4,707	48,776
1975-76	37,839	11,076	77,840
1976-77	75,066	41,246	59,421
1977-78	33,143	44,722	40,564

CURRENT STATUS OF ACCEPTABILITY OF STERILIZATION

Currently, vasectomy is widely unpopular, with only a few cases attending the major clinics. Conversely, tubectomy is very popular. The question arises why there was this rise and fall of vasectomy acceptance, and if this has any bearing upon the future trend of tubectomy acceptance. The impromptu introduction of vasectomy in the family planning program in the sixties was too hasty to consider the needed social, cultural and psychological factors relevant to a social acceptance of a hitherto unknown and permanent method of contraception which has the potential of giving rise to serious doubts, such as the loss of manliness or libido. Large numbers of vasectomies were performed without any supporting educational campaign to dispel the possible doubts and misconceptions about vasectomy. The untrained vasectomy agents' only concern was to see that the acceptor reached the surgical table to earn them the referral fee. They did not properly inform the acceptors about the nature of the procedure, possible consequences, and the required precautions to be taken. In order to make their job easy, quite frequently they told the acceptors that the procedure was something like a simple injection. In many instances, ineligible couples past their reproductivity, were recruited. As a motivational strategy, the agents laid more emphasis and focus on the provision of incentive money rather than on the value of the procedure as a contraceptive. All this led to a mounting dissatisfaction among the sterilized men, and brought the method into general disrepute (7). A survey conducted by the Johns Hopkins Fertility Research Program revealed that among a sample of vasectomy acceptors, 50 to 55% were dissatisfied with the procedure about a year later (8).

The post-liberation period, as mentioned earlier, has already demonstrated a steady and gradual rise in acceptance of tubectomy. A comparison between the circumstances that led to the rise and fall in the acceptability of vasectomy and the related programmatic and non-programmatic inputs, with those that led to the rising popularity of tubectomy, may have important bearing upon the prospect for a long term trend of tubectomy acceptance. The major factors which can be considered to have led to the rising popularity of tubectomy are as follows:

- Technological advancement in female sterilization with promotion of the minilaparotomy procedure made it possible to offer the method on an outpatient basis, without the hazards of general anesthesia and a prolonged hospital stay. This development is particularly crucial in the cultural context of Bangladesh where women are not used to going to hospitals except in case of medical emergencies. The sophisticated surgical facilities of a well-equipped hospital can easily alienate Bengali women. Thus, availability of tubectomy by minilaparotomy procedure in peripheral health centers brought the method within reach of a larger number of women.

- Unlike acceptance of vasectomy in the mid and late sixties, which was promoted primarily by means of payment of incentives and the administrative pressure of targets, the initial acceptance of tubectomy was relatively spontaneous and unaided by financial incentives. It was observed that any change in the amount of financial incentive always resulted in a corresponding change in the rate of vasectomy acceptance, and on occasions when there was no financial incentive, there was practically no case of vasectomy in the clinics. But these changes in the amount of incentive money had relatively less influence on the rate of tubectomy acceptance. This indicates that the demand for tubectomy in our society is much more likely to be sustained over time than is vasectomy.

SOCIAL FACTORS RELATED TO ACCEPTABILITY OF STERILIZATION

The future trend of acceptability of a method would depend to a great extent on the level of satisfaction among those who accepted the method in the past, because, if an acceptor is satisfied with the method, he/she is more likely to recommend the same to others. A survey conducted by the Johns Hopkins Fertility Research Project in 1977, revealed expressed satisfaction among about 98% of tubectomy acceptors about a year after the procedure, as compared to only 50-55% among vasectomy acceptors (9).

A similar survey among tubectomy acceptors of Concerned Women for Family Planning (CWFP) in 1979 also revealed expressed satisfaction among 95% of the clients. It is, therefore, possible to predict that tubectomy will continue to rise in its popularity in the future.

The recently conducted Bangladesh Fertility Survey (BFS) indicates that about 61% of married fecund women do not want any more children (10). Theoretically speaking, this figure should represent the ultimate maximum demand for sterilization. However, the program experience and the expressed intention to practice contraception as revealed in the above survey, indicate differently. Some of the best isolated family planning programs have been able to achieve a contraceptive practice rate of about 36% of the couples of reproductive age of which sterilization contributed about 6% (11). Nationwide,

Table 3. Level of Satisfaction Among Tubectomy Acceptors of JH-FRP Survey and CWFP Program

	JH-FRP (1977)		CWFP (1979)	
	No.	%	No.	%
Satisfied	509	97.7	1,166	94.9
Unsatisfied	12	2.3	14	1.2
Not Sure	-	-	48	3.9
Total	521	100.0	1,228	100.0

those who are currently practicing contraception, together with those who have expressed intention to practice contraception in the future, as found in the BFS survey, together add up to about 24% of the couples of reproductive age (10). The above gaps between the potential need for sterilization and the actual practice and demand for future practice of contraception indicate the existence of physical, social, cultural and economic barriers inhibiting acceptance of sterilization. Some selected factors relevant to sterilization acceptance are discussed below:

- Physical barriers: Obtaining sterilization services would cost the potential acceptors in terms of travel, loss of time and physical hardship. It was a revealing experience of the CWFP program to find that most women do not undertake any travel equivalent to that required to obtain a sterilization service, even over a period of years. Besides communication problems, women seldom travel alone without an escort. A program which can adequately and efficiently solve these programs can contribute towards increase in sterilization acceptability. CWFP's fundamental pattern is designed in this direction.
- Social and cultural barriers: Low educational attainment and low social status of women in our tradition-bound, superstitious society, pose many obstacles to sterilization acceptance. Low education is a barrier to receiving full particulars of the services, and low status of women is a potential barrier in their decision making process. Our women must undergo a tough ordeal at the family level before a final decision can be made about sterilization. Permissions are obligatory not only from the husband but also from the in-laws. In many cases, the husband's directive is the determining factor in the process.

As shown in Table 4, about 44% obtained sterilizations under positive instruction of the husband and about 52% sought the husband's permission. Only 3.4% obtained tubectomy without the husband's permission.

Table 5 shows that among the tubectomy and vasectomy acceptors of the nationwide sterilization campaign of 1977, about 94% of tubectomy acceptors consulted their spouses, as compared to 69% of the vasectomy acceptors.

Table 6 shows that most of the tubectomy acceptors of the CWFP program (95.3%] discussed the issue with their husbands many times before they finally decided to undergo tubectomies. Our experience suggests that quite frequently, even after a positive consensus is reached at the family level, the final visit to the clinic does not take place. It is common to hear, "We have been talking about sterilization for the last two to three years, but did not have the courage to go to the clinic." Under these circumstances, the friendly reassurance of our workers is all that is necessary to persuade the client.

Table 4. Husband's Influence in Tubectomy Acceptance Among CWFP Acceptors

	No.	%
Husband asked for tubectomy	545	44.4
Wife sought husband's permission	632	51.5
Tubectomy without husband's permission	42	3.4
Husband did not know	9	0.7
Total	1,228	100.0

Table 5. Distribution of a Sample of Acceptors of Tubectomy and Vasectomy of 1977 Nationwide Sterilization Campaign According to Spousal Consultation

	Tubectomy		Vasectomy	
	No.	%	No.	%
Consulted spouse	391	93.8	278	69.2
Did not consult	26	6.7	124	30.8
Total	417	100.0	402	100.0

Table 6. Distribution of a Sample of Tubectomy Acceptors of CWFP Program According to the Number of Times They Discussed Issue With Their Husband's Before Operation

	No.	%
No discussion	14	1.1
Once	43	3.5
Many times	1,171	95.3

- Socio-economic barriers: The agrarian economic pattern in our country is primarily responsible for a relatively large family size ideal. Because of the economic value of children (particularly sons) and the need to have sons to inherit the deceased husband's property, our women desire a larger family size. Because of the relatively low survival rate of our youngsters, women tend to have additional babies not only to replace the dying children, but also as a kind of insurance against future child death. As a result, women accept sterilization only when they already have a family size larger than they desire. The average desired family size (according to BFS survey) is 4.1 children, whereas the average number of living children of the tubectomy acceptors is about five (9, 10).
- Women's problems: The women become pregnant, suffer from the hazards of pregnancy and child birth, rear the children, and therefore, they directly feel the impact of a large family size, poverty and hunger, while their husbands remain mostly out of doors. Therefore, the women logically become more desperate about limiting their family size, and despite the inhibiting influence of the above mentioned social, cultural and economic barriers, show greater interest in the concept of family limitation. A program strategy using a "women to women" approach can help in appropriately focusing on their needs and can help them to make a rational decision to accept sterilization.
- CWFP program strategy: As a routine prerequisite for recruitment of women for tubal ligation, a CWFP outreach worker explains every aspect of the procedure and clarifies all doubts and questions. In this discussion she tries also to include the husband and mother-in-law. The motivational clients are transported in groups of 4-5 under direct escort of the worker in the CWFP vehicle. While being transported, the prospective clients get a further opportunity to discuss with each other and draw moral support from each other. A final round of counseling is carried out in the clinic to ensure that the woman is psychologically prepared for the procedure. Occasionally it happens that a client changes her mind on arrival at the clinic, because the clinic atmosphere scares her. When this happens the woman is sent back home to further think about the matter. After the procedure, the client stays in the clinic overnight and goes back home the next morning in the CWFP vehicle. The outreach worker of the area keeps in regular contact with the sterilized client at frequent intervals, to ensure that she does not develop any negative feeling.

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Professional Attitudes

Mahmoud F. Fathalla

Physicians play an important role in the overall acceptance of family planning and voluntary sterilization. This role is exercised by the individual physician on individual patients, i.e., on individual acceptance, as well as collectively by the medical community on societal acceptance.

There are two simple reasons why physicians can have such influence. They are the deliverers of the service, and their advice, justifiable or unjustifiable, carries much weight in health matters with the individual patient and with the community at large.

The role of the physician in family planning in general and in sterilization in particular is the result of the multiplication of the physician knowledge and skill by the physician's attitude. If the physician's attitude is zero, then whatever the skills and knowledge are, the physician's role will be zero.

It is not enough to supply physicians with the necessary skills or techniques. It is also necessary to preach humanitarian, sociological and health rationales. In many areas of the world, as a medical specialty, family planning still carries a low prestige. The area is often religiously controversial, largely ambiguous, sometimes considered morally dubious and, economically unrewarding.

The variation in physician's attitudes from one country to another seems to be unbelievable among members of the same scientific community. These attitudes fall within a wide spectrum. On the one extreme, there are physicians—certainly fewer nowadays than decades ago—who maintain an attitude against birth control. Next in the spectrum are physicians who have a favorable attitude towards family planning in general but who maintain negative attitudes towards certain family planning methods, on medical or non-medical grounds. Practically all family planning methods have suffered somewhere, sometime and somehow from the physician's negative attitude. Coitus interruptus is still considered unfavorable in many medical texts that claim alleged but unproven side effects. The pill has been and is still being denied to people in some countries. Intra-uterine devices are still not allowed in some countries because of physicians' resistance, and they have fallen in disrepute unjustifiably for a number of decades. Abortion services are still not widely available, but even when they are available, physicians have sometimes been conscientious objectors. Sterilization services are still unavailable to a large segment of the world's population.

Next along the spectrum of professional attitudes is a favorable one towards family planning and family planning methods but a restrictive attitude towards the delivery of family planning services. Examples of such attitudes are physician requirement for pill prescription, physician requirements for IUD insertion and formulae for eligibility for sterilization such as age or parity.

Next along the spectrum is the positive attitude with no commitment to family planning. This is, unfortunately, a commonly prevailing attitude.

Next on the spectrum of professional attitudes is the liberal and positive attitude of physicians for family planning, family planning methods, and family planning services.

On the extreme left of professional attitudes is the overly enthusiastic promotion of family planning. Such an attitude in the case of sterilization may result in neglect for proper informed consent practices and may do harm to the family planning movement.

Professional attitudes can have their impact at three levels: patient counseling, availability of service, and government policy making.

In patient counseling, it is high time to consider it a professional error not to mention sterilization among family planning methods offered to a patient who wants to terminate his or her fertility. It is recommended, and in some countries is obligatory, that patients requesting sterilization be fully informed of other alternative methods. To play fair, one must say that patients offered other methods should be informed about sterilization.

The physician's attitude in patient counseling is very important. The patient who requests sterilization deserves special treatment. She or he is not a patient in need of a surgical procedure as any other patient, but one who has made a serious and noble decision, to elect a surgical procedure for the welfare of the family. I would class such a person, from the point of view of the medical profession, as nearer to the patient who voluntarily undergoes surgery to give up his or her kidney for the sake of another individual.

At the level of service availability, professional attitudes have played and still play an important role. Service availability can be affected in a number of ways. One is restric-

tive regulations imposed by the profession, such as the requirement of special age parity formulas, limiting the procedure to medical indications or requiring a waiting period before granting sterilization. A waiting period has the effect of limiting post partum sterilization and access to the service by the rural population who nearly always have inadequate means of transportation. Another professional attitude affecting service availability is the limitation on who can perform the procedure. This results from rules on qualifications and training of personnel to perform sterilization i.e., should a general surgeon or general practitioner be trained and allowed to perform mini-lap? Should paramedical personnel or medical students perform vasectomies? Should operating room nurses or trained midwives be trained to perform mini-lap or postpartum sterilization? Where sterilization is performed can limit accessibility also. Only in a hospital set-up? Or can other set-ups be equipped and adapted for safe performance of the procedure?

In view of the scarcity of qualified physicians, especially in rural areas, and in view of a general lack of medical infrastructure in the developing world, professional attitudes on these issues can be critical to the availability of service. Availability is a major factor that cannot be separated from acceptability since one can hardly accept that which is unavailable.

Apart from their influence in patient counseling and availability of the services, attitudes play important roles at the community level and at the policy making level in the government. Physicians are looked upon as the people who should know.

But physicians have often been taken for granted in the family planning movement. They have been taught the knowledge and trained in the skills, yet comparatively little attention has been paid to their motivations. Physicians can be a positive force. Physicians can be a negative force or physicians can play a passive role.

Physicians have to be well oriented to the social aspects of their calling. In the words of John Knowles, "The medical ostrich has buried its head in the sands of biology and has turned its backside to the major social issues of medical care today. That must change."

We physicians have a responsibility in the world's population problem. Our efforts to improve individual and community health have largely contributed to the present population overgrowth by reducing mortality and extending life expectancy at a time when socio-economic development cannot keep pace with the burdens imposed by high birth rates. We owe it to the world today to help those who want to limit their fertility.

An Acceptor

Yung Koo Park

It is my greatest honor to have this opportunity to introduce myself and share my own experiences and opinions of family planning with you.

I was born in a small village, an only son, last among 9 children, on August 17, 1942. In Korea, as you may know, a son means so much more to the parents than a daughter, so parents continue having children until a male child arrives. My father also was an only son to my grandparents. I was born when my father was 47 years old and my mother was forty-two. Now I have only 2 surviving sisters among eight. The other 6 passed away in their childhood.

As a young man, I decided to move to Seoul in order to attend high school and complete all the courses of schooling in Seoul. My wife and I married when I was 27 years old. After one year of marriage, God gave me a son and as a second present later, a daughter.

Being a 32-year-old father, I went to a hospital for an operation to avoid having further children. It took me a long time to decide to have the operation. I had a number of discussions with doctors whose opinions were very helpful to me in understanding and becoming convinced that the operation would not cause any physical ill-effects afterwards. "If there is anything," they said, "it can be a mental thing which raises or provokes the discouragement of sexual relationship." For this reason, the decision should be made personally to avoid any psychological ill-effects afterwards. However, I lingered over the decision because I am the only son like my own son now, but I finally decided to go have the vasectomy. Once my mind was made up, I found myself less reluctant, and of course, my wife gave me great support. The operation was much simpler and took less time than I expected.

Since that experience, I have been quite normal both physically and psychologically. The happiness in living with my wife is really a tribute to the operation. As for my prior knowledge of family planning, it was only what I heard in a few lectures by family planning authorities during my high school days. By the way, I think family planning has been one of the most successful projects in Korea.

Nowadays there is a story among my friends that "The man in his forties wants 3 children, in his thirties wants 2 children, and twenties wants only one child these days." Such a trend will be very helpful in backing up the government policy toward the settlement of population problems.

Again I am going to refer to the difficulties of my decision for the operation. Because my mother, who passed away 2 years ago, wanted so much to see as many grandsons as possible, I had to conceal the operation. Even on the verge of her death, she had no idea of what I had done. My old friends also found it very hard to believe because of my situation as an only son.

Since the operation, I have really found many conveniences in my married life. For example, when my wife relied on contraceptive pills or instruments or her period, we made several mistakes which caused my wife to be ill, so we could never relax. I loved my wife so much that I had to have the operation, but I must admit, after a little bit of hesitation. Because I was an only son in a last ditch effort of my parents, what I have done would be almost impossible for someone else in a similar position. Since the operation is available to the public, I am going to recommend others to do it. We are one couple who has used surgical contraception and we can fully enjoy our life with no strings, free from worry and unrest.

I thank you very much for your attention.

Cultural, Social, Political, and Religious Factors: Regional Variations

Chairperson: Dr. O.A. Ojo, Nigeria
Co-chairperson: Dr. Abdel Omran, U.S.
Rapporteur: Mrs. Betty Gonzales, U.S.

What are the reasons for acceptance or rejection of voluntary sterilization? Although the prevalence of use and the characteristics of acceptors vary from culture to culture, some of the influencing factors appear to be universal. Task Force 1 sought to identify the commonalities as well as the distinctions among political and economic factors, ethnic and minority group attitudes, male/female roles within cultures, and professional attitudes.

The Major Influences

Economic pressure, or the need to limit family size to a manageable number, together with failure of other contraceptives and consequent dissatisfaction, were thought to be foremost influences on a couple's decision to seek surgical contraception. A higher educational level, a working wife, religious approval, and political endorsement were identified as contributing factors that favorably influence the decision.

Mitigating against adoption of surgical contraception were: a pronatalistic national policy (although political systems per se were thought to be irrelevant as long as political rejection was not overt); religious proscriptions; cost; misconceptions about sterilization; fear of surgery; hesitancy to adopt an irreversible method; and peer group pressures.

The Task Force indicated that there was a need for reliable statistical and demographic data on the prevalence and use of the characteristics of acceptors. Data on the demographic impact of sterilization use is also needed, along with follow-up studies of beneficial and negative sequelae of surgical contraception.

Political Factors

Political attitudes range from indifferent awareness to reluctant beginnings, to programming and organization, and finally to the integration of sterilization services as a part of general health services. Political acceptance begins with concern for excess population growth and appreciation of the problems generated by these pressures. Demands from established power bases within the national structure help to spur action, and previous acceptance by similar cultures offer role models.

Economic Factors

The group discussed the cost-per-acceptor and per birth averted by use of voluntary sterilization. One yardstick of cost-effectiveness was identified as the earlier age-lower parity ratio. The group discouraged the unnecessary use of high-cost procedures, although no corollary was drawn as to the relationship of cost to volume of services provided. The Task Force suggested that further cost-effectiveness studies were needed.

Ethnic/Minority Group Acceptance

There are wide variations among different groups in acceptance of surgical contraception. The Task Force strongly recommended that socio-culture specific counseling be provided in an effort to address and dispel misconceptions such as fear of mutilation, fear of surgery, fear of genocide or numerical decline of the group (equating numbers with power).

The Task Force felt that planning for a voluntary sterilization program should include careful attention to the problems of adequate and positive communication with the prospective users of services. Each media should be analyzed or evaluated for its appropriateness in reaching the target audiences, and information and education programs should be media/audience specific. Although resistance and hostility may exist among certain groups—whether from misconceptions or otherwise—confrontation should be avoided where possible, but the Task Force urged that service programs not be compromised. Often the answer lies in a sensitive presentation. In every culture, where there is an area that can generate positive, beneficial responses, it should be used to the fullest extent in efforts to gain acceptance.

De-emphasis of cultural biases for male children was thought to be an important educational objective in many countries.

Professional Attitudes

In examining the role and impact of the physician in provision of voluntary sterilization services, the group concluded that, notwithstanding his skill and expertise, the physician's attitude has a far reaching effect on acceptability of sterilization. The three main areas of impact occur in patient counseling, service availability, and policy making.

Social vs. Medical Indications for Sterilization

A major recommendation of Task Force 1 was that grand multiparity should be considered a socio-medical indication for sterilization. The group urged that para-IV be a starting point for grand multiparity.

Terminology

The unacceptability of the word "sterilization" in many cultures is a constant source of concern among professionals in the field. A unanimous feeling seems to exist that, for worldwide use, "sterilization" is an unsuitable and inappropriate word. Task Force 1, noting that the term too often evokes negative connotations, urged that it be replaced. No substitute term was suggested.

RESOURCE PERSONS

Dr. Jorge Bustamante, El Salvador
Dr. Haryono Suyono, Indonesia
Dr. Zein El-Abidin Khairullah, Syria
Mrs. Mufeweza Khan, Bangladesh
Dr. Sung Gun Lee, Korea
Dr. Boonlert Leoprapai, Thailand
Dr. Fakhar un-Nisa, Pakistan
Dr. Dattatraya Pai, India
Dr. Susan Scrimshaw, U.S.

SELECTED PAPERS SUBMITTED TO TASK FORCE 1 (for texts, see page 175)

Trends in the acceptance of sterilization in Thailand. Boonlert Leoprapai.
Stages in women's lives and reproductive decision-making in Latin America. Susan C.M. Scrimshaw.
Cultural, social, political and religious factors affecting voluntary sterilization in Pakistan. Fakhar un-Nisa.

Development and Implementation: From Policy to Program

Malcolm Potts	Chairperson
Benjamin Viel	The Health Implications of Voluntary Sterilization
Vitoon Osathanondh	Linking Voluntary Sterilization, Family Planning, and Health Services
Allan Rosenfield	Training and Manpower Development in Surgical Contraception Programs
Dennis Hapugalle	Role of the Non-Governmental Sector in Program Development and Implementation
Vilma Hercules de Aparicio	Policy for the Implementation and Execution of the Official Program of Voluntary Surgical Sterilization in El Salvador
Summaries	*Task Force* 2: Health Care and Voluntary Sterilization
	Task Force 3: Resources, Strategies and Programs for Voluntary Sterilization
	Task Force 4: The Non-Governmental Sector in Developing Voluntary Sterilization Programs
	Task Force 5: Utilizing Evaluation in Program Development
	Task Force 11: Decision-Making and Policy-Making for Voluntary Sterilization

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The Health Implications of Voluntary Sterilization

Benjamin Viel

Those who have not analysed the problem that statistics have been demonstrating to us for some time past, tend to believe that the renunciation of the reproductive function is an act of selfishness on the part of those who put their personal welfare above all else. For those who are endeavoring to reduce not only maternal and infant mortality, but also a variety of gynecological illnesses, and further to reduce the adverse effects resulting from the births of unwanted children, voluntary sterilization is a powerful and indispensable weapon, above all in the underdeveloped . orld.

Just as it has long been known that there are illnesses that are incompatible with pregnancy, as well as others that become seriously aggravated during its course, it is also known that maternal mortality is greater at ages that are adverse to pregnancy, i.e. in women under 20 and over 35 years of age. The risk tends to increase as parity increases. These facts are already so well known that it is unnecessary to substantiate them with statistical evidence. It is sufficient to say that the supporting figures originate from developed countries; they must therefore show an even worse picture in countries without adequate medical facilities.

Probably owing to the adequate and easily accessible medical attention available in the developed world, there is no evidence to show that infant mortality is also seriously affected by maternal age and parity. In the underdeveloped world, however, so much of this type of evidence exists that it is difficult to believe that infant mortality can be reduced without supplementing the conventional contraceptive methods with a special campaign against multiparity and pregnancy at adverse ages.

In Chile, where the birth rate is relatively low by Latin American standards, Dr. Rene Cabrera (1) has compared infant mortality according to maternal age and parity in all births and deaths of infants under 1 year during the years 1969 and 1974. Table 1 from Dr. Cabrera's paper, covering 1969, shows infant mortality in Chile grouped according to maternal age and parity in each group.

Infant mortality according to maternal age clearly shows the typical U-curve also shown by maternal mortality. The total figures, as well as those for each age group, demonstrate that infant mortality tends to increase as the number of previous births increases. This phenomenon is undoubtedly especially serious among infants born to mothers under 20, who represent only 15% of total births; however, it does not reduce the importance of the very serious problem of the grand multipara of 4 and over, which constitutes 26% of the total births and in which infant mortality is always double that observed at first birth.

It may be thought that the high mortality observed in those born to mothers under 20 and to grand multiparas is the consequence of traumas occurring during birth, known to be more difficult in mothers in both categories. If this were so, the rate in the first 4 weeks of life (neonatal mortality) would be higher than that in the fol-

Table 1. Infant Mortality According to Maternal Age and Parity, Chile, 1969

Birth Order	Maternal Age						
	-20	20-24	25-29	30-34	35-39	40 +	Total
1	100.8	62.4	49.8	52.2	64.2	53.8	71.4
2	121.8	78.4	54.0	60.0	68.8	52.4	75.6
3	135.0	101.2	67.6	69.5	91.6	72.1	86.3
4	157.3	104.6	91.3	72.7	87.9	84.0	92.2
5	191.7	125.2	97.2	84.3	98.2	91.4	99.8
6	-	138.9	104.9	94.8	96.0	106.0	103.6
7 and over	-	-	113.4	97.2	112.4	123.3	110.2
Total	111.9	81.6	72.6	77.6	97.0	104.5	85.3

lowing 11 months (later infant mortality). The figures compiled by Dr. Cabrera for 1974 do not support this interpretation, as Table 2 shows.

The Table clearly demonstrates that later infant mortality is higher than neonatal mortality and that the greater risks associated with birth cannot explain why infant mortality increases as parity increases. Does the phenomenon occur because the newly born is valued less after the third birth? Is it because mothers who already have three children pay less attention to those who come afterwards, and these children do not receive the same care as the first ones? Is it because the number of unwanted children whose death the mother unconsciously desires, tends to increase with parity? Such questions can only be answered by far more elaborate studies than this present one. What does emerge clearly is the fact that *infant mortality increasing with parity creates an important problem of public health.* It seems unlikely that a substantial reduction in infant mortality can be achieved without adding to the methods used to decrease early mortality a corresponding effort to decrease high multiparity.

Dr. Cabrera's Chilean findings must be even more marked in countries with higher birth rates and a larger proportion of rural population. Observation of the experience in rural and urban areas of Chile itself is sufficient to verify this. Table 3 demonstrates the phenomenon in two highly urbanized and four predominantly rural areas in the year 1974.

The Table shows how the phenomenon is aggravated in rural life, where medical care is usually inferior to that obtainable in an urban environment, and furthermore, it shows the greater frequency of multiparity above three in the rural environment: 18.6% in urban and 36.8% in rural areas.

If the logical conclusion is drawn that maternal mortality and gynecological illnesses increase with high multiparity, and to this is added the fact that a similar rise can be observed in infant mortality, the attempt to reduce multiparity is not just an aspect of individual medicine designed to protect from pregnancy those women suffering from specific illnesses. *It is also a public health problem, and protection should be extended to all women of fertile age.*

Using only the reversible contraceptive methods available at present, attempts to reduce high multiparity rapidly lead us to the conclusion that we are fighting with weapons that are too weak to solve the problem.

For women who already have three children and do not wish to have more, and who are around 35 years of age—conditions which apply to most women in the developing world—what can medicine offer to protect them from the dangers of high multiparity in countries where abortion is illegal?

Apart from a certain proportion of failures, the use of the condom, has proved highly suitable for young couples, but it tends to be less used with increasing age.

The use of barrier methods, with or without the addition of spermicides, is only indicated for those couples who live in conditions where the woman has a reasonable amount of privacy and toilet facilities are available. For most of those in the developing world such conditions do not exist.

The contraceptive pill (hormonal method administered orally), requires a discipline that is not common among women of a low educational standard. To believe that any woman, whether educated or not, wishes permanently to interrupt her fertility at the age of 25 by using pills, is an

Table 2. Neonatal and Later Infant Mortality According to Parity, Chile 1974

Birth Order	Live Births	Deaths Before 28 Days	Rate	Deaths Between 29 Days and 11 Months	Rate
1-3	181,252	4,667	25.7	6,341	35.0
4 and over	62,875	2,236	35.6	3,707	58.9
Total	244,127	6,903	28.3	10,048	41.1

Table 3. Infant Mortality According to Parity in Predominantly Rural Zones in Chile, 1974

Birth Order	Live Births	Deaths Under 1 Year	Rate	Live Births	Deaths Under 1 Year	Rate
1-3	87,833	3,703	42.2	21,364	1,927	90.2
4 and over	20,061	1,251	62.4	12,414	1,460	117.6
Total	107,894	4,954	45.9	33,778	3,387	100.3

illusion. It is certain that no woman will take a pill every single morning of the 20 years of fertile life that remain to her. In the underdeveloped world, 50% of those who adopt the oral method abandon it within the first year. Furthermore, the growing evidence that the use of orally administered hormones give rise to serious complications after the age of 35 (2) limits the use of this method in the final years of fertile life, just when pregnancy is least desirable.

Nor can the intra-uterine device be expected to stay in place without complications or expulsions for the long periods necessary for permanent protection, even though it has the enormous advantage of not depending upon the discipline of the user and is tolerated in situ for a longer period of time than is common among pill users.

Such methods can only be considered useful in the spacing of pregnancies and even when employed for this purpose it is often necessary to resort to induced abortion in order to terminate accidental, unwanted pregnancies. In the underdeveloped countries it has been demonstrated that reversible methods can reduce the birth rate, but none of them, in the absence of legal abortion, can protect the woman from the risks of high multiparity.

The protection of those for whom it is medically advisable and who themselves desire the permanent interruption of their fertile life, make it imperative that we provide education and facilities so that at least one member of the couple can obtain sterilization. Not to do this is to expose women to the serious risks of high multiparity or induced abortion, the dangers of which, when it is performed illegally, are very well-known.

Surgical sterilization methods have progressed so much that nowadays it can be said it has changed from a major operation requiring specialized surgery and hospitalization, to a minor procedure performed in an outpatient department by any suitably trained doctor. There is already evidence that it can be carried out by trained non-medical personnel.

Apart from religious or ethical considerations which I am not competent to analyse, the argument most used by the opponents of surgical contraception is its irreversibility. To validate their argument it would be necessary to know the percentage of people who, having renounced their fertility, have changed their minds and would like to regain it. There are already millions of people in the world today who have been surgically sterilized. I know of no statistical evidence giving the percentage of those who have regretted their decision and seek recanalization of the interrupted tubes. Doubtless such an attitude does exist, but if it is not on a very large scale, it does not seem logical to use this as an argument against a technique which can solve problems that produce high maternal and infant mortality.

For those who have changed their minds, it is well known that there are techniques which can produce the resumption of fertility, although they are still difficult and their outcome is not always certain. Doubtless they can be improved upon. It is also known that it is possible to establish a by-pass to female sterilization by means of the "test tube baby," nowadays still expensive and difficult to achieve without specialized services, but there is nothing to indicate that in the future it will not be possible to carry out the procedure on a large scale.

There is no doubt that it is a desirable thing to seek reversibility, and it is important that advances be made in this area. No one has the right to think that human ideas are unalterable and that there is no possibility of a change of mind. It appears to me, however, that it is more important to discover how many wish to take advantage of surgical sterilization and cannot find the means, by comparison to those who have undergone this procedure and wish to recover their fertility. It is, after all, the *permanency* of surgical contraception that is its *raison d'etre.*

Restricting our analysis to Latin America, where I can claim to have some experience, it can be stated that the lack of sterilization services, a lack which is largely due to the negative attitude of the governments of the continent, has given rise to a deplorable economic injustice. The wealthier classes, who have access to private, direct payment medicine, can obtain sterilization without any difficulty, while the less favored ones are condemned to high multiparity or exposed to the dangers of illegal abortions performed by unskilled people, the only method they can afford with their limited resources.

While in the developed world an estimated 35% of all fertile couples are protected by sterilization, in Latin America this percentage does not even reach 10%, even though that 10% includes women who were sterilized in the course of treatment for illnesses that required hysterectomy. This low figure is not the result of a lack of demand; there is more demand, at least for female sterilization, than for the reversible contraceptives that are often accepted by women because the medical services fail to provide the sterilization they really want.

It seems necessary to confess that between the facts known to medicine and the services that the medical profession is prepared to provide, there exists a discriminatory gap which affects mainly the poorer among our populations. This difference between what is done and what is known often stems from negative attitudes on the part of governments which are out of touch with reality. This problem can only be solved if the medical profession of today takes the time to analyze what is known and what is practiced.

We know very well that it is the duty of the medical profession to strive for the maximum number of children who are born healthy, as well as to ensure that their health is maintained. We know that in order to achieve this goal, it is imperative to promote an attitude of *preventive gynecology.* Together with the diagnosis and treatment of gynecological illnesses, venereal infections, uterine cancer and so on, should go the attempt to reduce pregnancy at adverse ages, the proper spacing of pregnan-

cies at favorable ages, and an effort to reduce high multiparity. Surgical contraception is a very high priority part of this attitude of preventive gynecology.

To persuade those with the power of decision to help us in this task, we must compile evidence that is not difficult to obtain. In Latin America at least, we need statistical evidence on the extent of the demand for sterilization among those who have been properly informed about it, on the proportion of persons sterilized in each socioeconomic level, on how many, if any, wish to recover their fertility. Such data would enable the medical profession to demonstrate to governments that there is an extensive demand for sterilization, that it is the most economical of contraceptive methods, and that the use of it would contribute to the maintenance of the health of the mother and the survival of healthier children.

I will finish by recounting a personal ancedote which tells the story of thousands, if not millions, of families in the underdeveloped world. It happened in a very remote village in southern Chile, where we were experimenting by using police officers as promoters and advisers in family planning. A police officer requested that sterilization, which at that time was not accepted by Health Service, be provided for a 26-year-old woman with ten children and an unemployed, alcoholic husband. Her latest pregnancy had occurred while she was using an intra-uterine device. The woman accepted sterilization and, on filling out and supporting the request form, the officer stated, "The eldest son is 12 and is becoming a delinquent." I quote this case to point out that multiparity in wretched conditions can be the cause not only of higher maternal and infant mortality but also of social demoralization leading to violence and crime.

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Linking Voluntary Sterilization, Family Planning Services, and Health Services

Vitoon Osathanondh

For the past ten years there have been many advances in various aspects of voluntary sterilization. Simplification of surgical techniques for female sterilization has made integration of a large-scale voluntary sterilization program into the national health services more feasible, especially in less developed countries (1,2,3,4).

ADVANTAGES OF LINKING LARGE-SCALE VOLUNTARY STERILIZATION AND HEALTH SERVICES

Sterilization for medical reasons has been part of medical care since the beginning of modern medicine. The service has been done on a small scale because the demand was small. In recent years due to a rapid decline of the death rate which has caused rapid population growth, the demand for voluntary sterilization on socio-economic ground has increased tremendously. Consequently, a question may arise as to what organization should be responsible to serve the new coming demand. Is a new organization needed or is the existing health care system sufficient to meet the demand?

This may not be a problem for advanced countries because health manpower, money and management technology are adequate, but for the less developed countries it is a serious matter. To create a new, large-scale organization to serve the great demand for the voluntary sterilization which is scattered throughout the country means that a large number of qualified health manpower, a large amount of money and an appropriate management technology are required. These three essential components are severely limited in the less developed nations. Consequently, the creation of a new organization is far from a reality. The only alternative, therefore, is to increase the service capability of the existing health care system by manpower development.

Linking large-scale voluntary sterilization services with the health services will result not only in a low cost for the program operation but also in a high demographic effectiveness and health benefit.

Low Cost for the Program Operation

The existing health care system already has the availability of health manpower and facilities such as hospitals, health centers, surgical instruments and others. The major need is, therefore, the training of the manpower. In Thailand during 1973 to 1975, the total expenses for setting up the interval female sterilization service by minilaparotomy technique (1) throughout the country cost about 200 U.S. dollars per hospital (5).

High Demographic Effectiveness

Linking the sterilization program to the national health care system will provide a nationwide availability of the sterilization services to rural people. This will result in a high demographic effectiveness.

In less developed countries, due to the inadequate number of rural hospitals, many health care delivery systems have been developed. The systems which can be used for sterilization may be summarized as follows:

- *Satellite Delivery System.* This is a basic system. The health service stations in less developed nations are organized in a satellite pattern. That is, the large hospitals are located in the urban areas or cities, the small hospitals in the surrounding rural or semi-rural areas. There is no hospital in the further remote rural areas, but there are scattered small health centers with no physician in charge. There is a referral system among these hospitals and health centers.

  The sterilization service can be delivered through the satellite system. The non-physician health personnel at the small health centers are capable of giving grassroots voluntary sterilization education to the people. The local physicians then deliver the service either at the rural hospitals or at the satellite health centers.

- *Mobile Delivery System.* This is a mobile medical care service. For sterilization, one has to remember that this is only a temporary visit, and therefore follow-up together with a referral system for post-operative complications has to be organized.

- *Community Organization Delivery System.* This system has been developed recently and has been used in many health programs especially in rural primary health care. The principle of the system is to utilize the specially trained village people to deliver basic health and family planning education and basic health care services under the supervision of local physicians. This system can be implemented for sterilization programs quite well.

Health Benefit

Combining the sterilization program with health services will increase the efficiency of the health services. For example, materials input of the program such as vehicles, slide projectors, movie projectors, surgical instruments and other can also be used for health service purposes. These will result in a health benefit for the people.

INTEGRATION OF THE STERILIZATION PROGRAM INTO THE NATIONAL HEALTH SERVICES

What Categories of the Health Services Can Be Linked?

Administratively speaking, the total health services are divided into three categories, namely, the curative, the promotive and the preventive. The sterilization service can be linked with the curative and the promotive, especially the maternal and child health (MCH). Since the administration of the national health care services varies from country to country, the administrative department to be linked with the program will depend on the administrative structure of the country.

Generally speaking, the urban general hospitals, maternity hospitals, health centers and clinics where medical care services are available are suitable for sterilization services. However, for the rural program the service place is greatly variable depending on the delivery and referral systems.

How to Integrate the Sterilization Program into the National Health Services

Effective educational inputs or so-called health manpower development is of prime importance.

Population dynamics, family planning, including sterilization and program management, should be taught to students of health professions, especially the medical students (6). Future health manpower should know that family planning services including sterilization are a part of the total health care system.

For the existing health manpower who are working in the field, educational programs and training as well as further encouragement for program operation are essential. When the program is in operation, a full utilization of the health manpower is the first step to be implemented. However, if the demand cannot be met, the utilization of upgraded non-physician health manpower to assist the physicians will be a further step (7,8,9). Evaluation of the health and demographic impacts of the program will be the final step in combining sterilization within health services (10,11). Once the health manpower has developed the concept that family planning is not only a part of total health care, but also a contributing factor for socioeconomic development, the integration of sterilization into the health services is complete.

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Training and Manpower Development in Surgical Contraception Programs

Allan Rosenfield

During the past decade there have been significant advances in sterilization techniques and procedures, together with major increases in the number of men and women choosing sterilization as their method of family planning. Until only a few years ago, essentially the only procedure available for women was postpartum sterilization if a woman happened to deliver in a hospital in a country which allowed sterilization, and if she met rather strict guidelines as to age and number of children. In most developing countries, however, postpartum sterilization was (and is) not a viable option for the majority of women who deliver at home. In general, during that same period, interval female sterilization procedures were not available at least for purposes of sterilization alone. While constraints on men wishing vasectomy were fewer, the procedure also was not widely available and/or accepted outside of the vasectomy programs attempted on the Indian subcontinent.

The 1970s have seen dramatic changes in this situation, in which new or refined procedures have become available for interval sterilization procedures, new understanding of and approaches to vasectomy have been developed and, most important, a change in guidelines and regulations has occurred, so that the decision to have a sterilization becomes basically a decision of the individual or couple. More and more countries have accepted the concept that voluntary sterilization is a basic right and individuals must be able to make the decision without others setting conditions as to when that right may be exercised. Issues still under debate include those relating to possible coercion, informed consent, and problems of the mentally retarded. Unfortunately, however, there still remain some areas of the world where this individual right does not, as yet, exist.

As the concept of sterilization as a legitimate means of fertility control is being accepted, and as demand for services has increased, a number of key issues have surfaced. These include such questions as what are the most effective ways to provide the services, which approaches are the most appropriate, who can provide them, and how these providers can best be trained.

Postpartum sterilization remains an important approach for those women who do deliver in an institutional setting and who have already made the decision during the antenatal period. However, in many countries, the majority of women continue to deliver at home, particularly women who live in rural settings. Further, there are many women who may wish to wait after their last birth to ensure the normal development of the child prior to making what should be interpreted as an essentially irreversible step. For such women, there are now two major approaches, namely laparoscopy and minilaparotomy. Both approaches have their advocates, and both are being widely utilized in countries throughout the world. In large urban centers, the case can quite effectively be made that laparoscopy has advantages, but I believe that the advantages of the minilap procedures in upcountry clinic and hospital settings make it by far the more preferable choice for national family planning programs. And one could make an argument that minilap is the preferred approach for many women even in the large medical center. This debate, however, is a longstanding one and one that will be discussed elsewhere in this conference.

A more important issue, in relation to my assignment today, relates to who can carry out the procedure and how the training to do this should be undertaken. For this discussion, I will only discuss laparoscopy briefly. I believe that the training requirements for this procedure have been well defined in the formal training programs that have been initiated at the Johns Hopkins University and in a number of countries with active laparoscopy programs. The training is highly technical and I will not attempt to outline the details in this talk. Suffice it to say, it is a potentially hazardous procedure which should be performed in a hospital, or hospital-like, setting by a specialist who is properly trained in abdominal surgical techniques and able to undertake emergency measures for possible bowel or vascular complications. Even though the trainee may be an obstetrician-gynecologist, unless he or she has already had training in endoscopy, the training should last a sufficiently long period of time for the trainee to have an opportunity to carry out the procedure repeatedly under the direct supervision of the teacher.

I would like to focus attention on the three procedures which I believe are of greatest importance in national family planning programs and are ones in which present standards should be reviewed and changed where appropriate. These are postpartum tubal ligation, interval minilaparotomy, and vasectomy. All three are relatively sim-

ple procedures in most cases, all can be carried out in less than 30 minutes and all can be done under local anesthesia, although some elect to do the female procedures under regional or general anesthesia.

Before discussing training strategies, it is important to consider the type of personnel to be used to carry out such procedures. All three procedures, as mentioned, are quite simple, and there is little variation from case to case. Only in women who are quite obese are problems apt to be encountered in either minilap or postpartum procedures. In recent years, pilot studies in a few countries have demonstrated that nursing and other paramedical personnel can be taught quite effectively to carry out such procedures. The most dramatic example, often quoted, is the experience in Bangladesh in which village women (some of whom were illiterate) were trained to perform the minilap procedure and did so with very little morbidity. In fact, when the rates of complications noted with this group of personnel and with a comparable series carried out by physicians in the same setting were compared, the rates in the lay personnel series were slightly lower.

A number of interesting studies are presently underway in several different settings in which the use of various categories of nursing and other health personnel are being trained to carry out postpartum, minilap and/or vasectomy procedures, *after* careful training. This is, in my opinion, a most appropriate step to be taking. There are shortages of physicians in most developing countries, shortages which often are acute in all but the largest cities of any given country. While capital cities of some countries have ratios of physician to people as high as 1:1,000, in many of the rural areas of these same countries, where the majority of these people live, the ratios may be as adverse as 1:100,000. The range between these extremes is great, but the problem a significant one everywhere. Given such shortages of physicians, we must attempt to use these scarce numbers of doctors more efficiently, utilizing them primarily for complex diagnostic problems, complicated surgical procedures, and consultation. It behooves us not to assign them routine functions that could be carried out by less well-trained people.

In the family planning field such routine functions would include the prescription of oral contraceptives, the insertion of IUDs and the performance of postpartum, minilap and vasectomy procedures. The key to success is careful and well-supervised training. Physicians should be available to provide help with difficult cases and to manage complications. In regard to the prescription of the pill and the insertion of IUDs, we now have extensive experience, in multiple settings, as to the safety and effectiveness of the use of a variety of categories of personnel to provide these services. In the case of the pill, there are most convincing arguments that the benfits of the pill in reducing maternal and infant morbidity and mortality significantly offset the stated potential risks of the use of both paramedical and lay personnel to prescribe them. And to date I know of no data which suggests a higher rate of complication with paramedical versus physician management.

Similarly, I have reviewed a large number of studies, both in the United States and in several developing countries, in which complication and continuation rates have been compared between groups of women who had IUDs inserted by either physicians or paramedics. Invariably, in these studies, the complication rates are similar, as are the continuation rates, although in the latter case, women who receive services from a paramedic seem to do slightly better. Various explanations for the small difference in continuation rates have been attempted, the most common being that the paramedic, usually a nurse or nurse-midwife, spends more time with the patient giving information and support than is the case with physicians.

While one cannot yet draw conclusions from the small number of studies with the use of the same number of types of personnel to carry out sterilization procedures, it is my belief that the results will be the same. The key is carefully planned and supervised training. I wrote a paper a few years ago on the training requirements for a program in which paramedical personnel were to be used to insert IUDs. In that paper I stressed that the key factor was supervised experience doing pelvic examination and actual IUD insertion. I emphasized that didactic lectures were of far less importance than actual practice at the procedure. This was not meant to suggest that lectures and reading materials are not necessary, as a part of such a course, but only to suggest that the didactic component of training is often overemphasized at the expense of the practical.

In training personnel in simple surgical techniques, the same theory holds. The basic anatomy of the region involved must be understood, as must basic principles of surgical technique. But primary emphasis must be placed on learning operating room procedures and surgical techniques by actual operating room experience. After an appropriate period of observation and assisting, the trainee must perform the procedure repeatedly under the close supervision of a surgically trained physician or paramedic. I will not attempt to set guidelines as to the numbers of procedures that must be done nor as to the minimal amount of time that should be required before the trainee is allowed to do the procedure without constant and direct supervision. Such guidelines should be set locally. I wish simply to stress the role of preceptor-type training; one cannot overemphasize the importance of on-the-job practical training.

Simple procedures which essentially are repetitive in nature are best learned through repetitive training. It has been my experience that paramedical personnel so trained are often more conscientious in following instructions and procedures to the letter than are most broadly trained physicians. If the training is carried out conscientiously and efficiently, and the capabilities of the trainee are carefully assessed at varying points during and after the training period (including dropping from the program those participants who are not performing adequately), these personnel can assist in major ways in making needed services more readily available, while at the same time freeing up scarce physician resources

Using such personnel does not mean that procedures should be carried out in the village or in small one room health centers. Interval and postpartum sterilization procedures for women should be performed in hospital or hospital-like surroundings, with sterile operating room facilities and procedures. The use of allied health personnel such as those described above will help to make the limited number of physicians more available to provide the more complex care for which he or she is trained and prepared.

It is worth mentioning, while discussing training, that the period of training needed in the technique of minilap for a physician who already has abdominal surgical experience is very short indeed—perhaps only a day or two to see, assist and perform a small number of procedures. If the physician is familiar with abdominal surgery, he will be able to learn this new procedure without difficulty. The same, however, cannot be said for the laparoscopic approach. Even the skilled abdominal surgeon will need longer, carefully supervised training if he is not familiar with endoscopic procedures. For a national training program for sterilization, this too is a very important factor in attempting to decide between two procedures.

Once a country has accepted sterilization as a method of family planning to be made available, then the country needs to embark on the development of an effective overall training plan starting with the future trainers. In the past, many obstetricians have come to the United States for one of the training courses offered here. More recently, however, emphasis has been placed on developing in-country training capabilities. A good example is the work of one medical school group in Thailand which developed, in conjunction with the Ministry of Public Health, a plan to train surgeons from the many provincial hospitals throughout the country, stressing laparoscopy for the larger regional hospitals and minilap for the smaller provincial and district hospitals. Partly as a result of this program, sterilization procedures in Thailand have become a very significant factor in their National Family Planning Program, with approximately 120,000 female and 40,000 male procedures during 1978.

Whenever possible, stress in such training programs should be given to the use of local expertise. Training abroad may be necessary for a small cadre of trainers, but the remainder of training should be carried out in-country. Where the local government will permit, it is preferable if the training program(s) can be developed by, or in close conjunction and cooperation with, the Ministry of Health, utilizing specialists from the local medical school(s). Where there is opposition to the use of paramedical personnel, pilot training and study programs should be encouraged in order to allow demonstration locally for the effectiveness, safety and acceptance of the use of such personnel.

The Role of the Non-Government Sector in Program Development and Implementation

Dennis Hapugalle

Mr. Chairman, ladies and gentlemen, I would like to begin by thanking IPAVS for inviting me to this conference.

It was my privilege to serve for several years as Director of the IPPF Community Based Distribution Programme for the distribution of condoms and oral contraceptives over the entire island of Sri Lanka. This program involved many innovations, primarily in the field of marketing. For example, market surveys were conducted to determine what price people were willing to pay and what packages were most appealing. This program was primarily non-medical and non-governmental, and judging by the number of projects seeking to replicate the Sri Lanka experience, it appears to have been quite successful. It is in this context of non-medical, non-governmental services that I wish to talk with you today.

The role of the non-governmental or private sector services will of course be dependent on the types of health care delivery service which exist in each country, the unmet needs of the people with regard to the delivery of services, and the necessity for training medics/paramedics to perform sterilizations.

I will focus on one type of non-governmental organization, namely one that is marketing oriented, offers competent and flexible management, and can interact and harmonize with the government sector.

THE POLICY MAKERS AND INNOVATIVE PROGRAMS

Policy makers at the highest level are essentially politicians who are influenced by a variety of pressure groups attempting to push their claims. Program officers, including donors, have often failed to realize the importance of local politicians, who are closest to those who will be recipients of the program—in this case a sterilization program. It is mandatory that any program involving sterilization, ensure that the "product" is acceptable to the "constituency." Hence, any sterilization program must start at this point. I think we have a good opportunity to set the record right, if we can participate meaningfully at the International Conference of Parliamentarians on Population and Development to be held in Sri Lanka in August this year.

An essential first step in program development is to select promotional officers who are socially acceptable to the community. Thereafter, they must be trained to function effectively in:

- all technical aspects of sterilization;
- overcoming social, economic, moral, and ethnic community based biases to sterilization;
- counseling procedures for fertile couples who are in good health, to accept sterilization;
- organizational aspects of marrying up acceptors with medical teams at the right place and at the right time;
- documentation for purposes of evaluation;
- proper follow up care.

In order to prevent backlash, promotional officers must respond promptly and effectively to any misconceptions about the program that are community based.

To assist these promotional officers, the media must "set the agenda." This means, in communication jargon, to create an awareness of the sterilization services and the benefits that accrue therefrom.

Selling sterilization is not as easy as selling non-clinical methods of contraception. Governments tend to be more cautious in terms of innovations in the delivery of services as sensitive as sterilization. The non-government organization can be more entrepreneural in approach.

THE SRI LANKA SCENARIO—THE NEED IS NOW

The World Fertility Survey findings in Sri Lanka state that there appears to be great potential for decline in Sri Lankan fertility because women are having an average of one child more than they want. Six out of ten wives at risk of pregnancy want no more children. The pattern of contraceptive use among married women in the W.F.S. sample, indicates that the Sri Lankan women are unable to realize their fertility intentions essentially due to poor delivery service.

Dr. Malcolm Potts in his "Review of Population and Family Planning Activities in Sri Lanka" highlights the fact that in the area of sterilization, the unmet need has surpassed available services. Under the caption "The People are Ahead of the Services" he states:

> The first priority must be to supply the current UNMET DEMAND for family planning services, especially in the area of male (vasectomy) and female (tubal ligation) voluntary sterilization services.

Dr. Potts goes on to state:

> To catch up on the backlog and to meet current demand, up to 100,000 sterilizations a year will be needed in Sri Lanka.

CONSTRAINTS AND TECHNOLOGY VACUUM

A major constraint is the growing shortage of qualified Ob/Gyn personnel and other professionals due to a continuing "brain drain." A tubectomy, or even a simple gynecological examination, is an intensely personal experience from the point of view of the patient. The recent outcry at Heathrow Airport serves as a humorous if rude reminder. Naturally only wealthy patients could pay premium prices to private practitioners who could offer them quality "personalized" services.

If there is a shortage of qualified doctors, it becomes necessary to "import" medical skills from overseas. Sri Lanka today imports doctors via UN Agencies to meet the curative needs of the population. NGO's in Sri Lanka will certainly welcome overseas doctors to work together with local medical personnel and share experiences and knowledge when participating in sterilization programs. Dr. Malcolm Potts has stated that if 300 doctors are trained, and they perform three sterilizations a day in Sri Lanka, the target of 100,000 sterilizations a year could be achieved without difficulty.

Large numbers of rural families, often in poor socioeconomic situations, will not seek sterilization if it entails hospitalization for long periods followed by convalescence. We need to train medical teams with the ability to perform a sterilization procedure which is safe and efficient on a day-care basis. Such a procedure has significant advantage in terms of the patient's convenience and acceptance, as well as in reduction in hospitalization.

NGO's in developing countries also need communicators (mass media) who are conversant with the technical aspects of sterilizations. Due to a shortage in this area, they are unable to translate key information to local target groups in local languages. This results in a breakdown in communications and in the transfer of information on technology.

INNOVATIONS

What types of programs are appropriate and acceptable? Many progams give incentives to those who wish to be sterilized. In this area, I strongly urge that consideration be given to using incentives that have nutritional value and are renewable resources for the rural areas whose populations suffer from malnutrition. These renewable resources incentives may take the form of farm animals such as cattle, goats, pigs or chickens. Such incentives will have many spin off benefits such as proteins, eggs, milk, and their by-products, including manure for fertilizing fields.

Appropriate incentives should also be set for surgical "teams" involved in male and female sterilization, in order to involve them in their spare time. To attract medical practitioners to the area of voluntary sterilization necessitates paying the market price for their services. Similarly, in order to attract acceptors for sterilization, particularly to attract men for vasectomy, it is necessary to conduct surveys of satisfied acceptors to determine and assess the types of incentives that would attract greater numbers to the program from each strata of society. Such surveys would also help to determine appropriate promotional campaigns.

Finally, one comment concerning follow-up care. Among rural people, fears of being isolated from medical services after an operation are real. At this point, the promotional officers could be used as home visitors to those receiving the operation.Early contact by these people after the operation ensures the patient that, though somewhat removed, contact still exists between the physician and the patient. The promotional officers could be assisted by area midwives and ayurvedics who could be trained to treat minor problems associated with the procedure. This would allay fears of isolation after the operation.

PROGRAM EVALUATION

Program evaluation is most important. It should aim at providing management with a facility to gather and analyze data and provide regular feedback so that program changes can be made, as needed, on a continuing basis.

In addition to the formative evaluation just described, the program should ensure that summative evaluation is undertaken by an independent research group at the end of each major pr period. This provides project management, donc. gencies, and researchers with valuable information with regard to the following:

- quantitative analysis of project achievements;
- qualitative analysis of project achievements;
- degree of success of method;
- cost-effectiveness;
- guidelines for follow-up for the future.

CONCLUSION

Recently, a wombless sterilized English woman demonstrated that no human agency can refuse admission to a baby who is destined to be born. Nevertheless, all of us gathered here today are crusading against unwanted pregnancies.

While government agencies continue to provide routine services amid increasing demands for curative health needs, NGO's can implement exciting service delivery programs, in a dignified manner, at the doorstep of the consumer.

NGO programs must design campaigns to create a new image of a sterilization acceptor as a person who, having achieved the desired family size, joins an exclusive group of well informed, modern people. People using spacing

methods could be weaned to a terminal method by inserting sterilization coupons with condom and pill packaging materials. These coupons could be given a trade value for low cost sterilizations.

NGO programs can uplift the lives of rural people by providing incentives such as farm seed, farm feed, fertilizers and the like, to those who opt for a terminal method. Such an arrangement would facilitate follow-up, as the acceptor would periodically call back to collect such items.

Programs so designed will most certainly win greater acceptance. In addition, they will give meaning and purpose to the lofty ideal of all fertility programs—to improve the quality of life of the people.

Policy for the Implementation and Execution of the Official Program of Voluntary Surgical Sterilization in El Salvador

Vilma Hercules de Aparicio

BACKGROUND

Family planning was initiated in El Salvador in the 60's when the Salvador Demographic Association (A.D.S.) began the difficult task of revealing the population problem, and opened the door for family planning services to the lower income population. Prior to this, family planning was a privilege of the wealthy, regardless of their religious creeds.

The official sector did not remain indifferent to the problem. Thus, in 1968, the Ministry of Public Health and Social Assistance, conscious of its responsibility to preserve the physical, mental and social welfare of the population, particularly the disadvantaged groups, initiated the family planning program. It was complementary to the services provided to the nuclear family and was based on the activities performed through the program of Maternal Infant Care. Its objective was to orient and assist the family unit in order to raise family consciousness and responsibility to use their fertility rationally and to decide on:

- The number of children in the household;
- The most appropriate time to have them.

In this framework, the program began in one region of the country and then covered the entire nation by 1971. It promoted the temporary methods primarily considering that:

- Since the young population has a precocious sex life, they first needed methods about which they had little or no knowledge, particularly the rural area population; and
- The female surgical method was already known although on a small scale; it was practiced in the postpartum period.

IMPLEMENTATION OF A PROGRAM OF VOLUNTARY SURGICAL STERILIZATION

Three years after the temporary methods were offered in all the official health establishments, it was decided to create a consistent program of voluntary surgical sterilization with the purpose of offering sterilization services appropriately and efficiently to couples who decide not to have any more children.

This transitional step was taken in 1974 which is the year the central government, during the meeting of the ministers, approved the Integral Population Policy, defined as follows: "The Integral Population Policy is considered as the integrated activities determined and coordinated by the State, and its objective is to achieve the full growth of the human being, as well as his or her greater participation in the responsibilities and benefits of progress, through the harmonious adaptation of the quality, distribution and magnitude of the population with the resources of the country in economic and social development." Among its 8 specific objectives, No. 6 states: "To modify the population dynamics," and to carry this out, it supports the family planning activities and establishes that "The programs of Integral Medical Care will be founded on the respect of individual freedom and the dignity of the family" and the programs will provide information, counseling and assistance to the couples who wish to space their children or limit their reproduction.

PLAN OF ACTION

To implement these activities rationally and to achieve greater effectiveness and less resistence, it was necessary to cover the following phases:

- To examine and evaluate the appropriateness and efficiency of the existing services offered.
- To modify and develop the rationale for the existing regulations with regard to the requirements to be met by the requestors of these services.
- First, to implement the female techniques of interval sterilization.
- To implement vasectomy services.
- To encourage postpartum sterilization.
- To evaluate the program after 2 years of functioning.

Regarding the evaluation, it was found that female sterilization services were offered in large and small hospitals only during the immediate postpartum period and in a limited and inappropriate manner because of multiple factors such as: the lack of human resources; the lack of a better organization and the ability of the existing human resources; and the lack of equipment, medication and surgical materials. In addition, the requirements were not very logical for the requestors of these services and were a product of the lack of official norms and of opposition

from some medical sectors regarding the method. This was due to a misinterpretation of the role of sterilization services in family planning.

In order to overcome the situation, a long and short term operational program was designed, consisting of reinforcing and preparing the human resources plus equipping and providing medication and surgical materials according to the established surgical techniques.

We collected and analyzed the range of existing requirements and administrative procedures for the requestors of this service.

Based on the results of this analysis, an integrated medical team of specialists in obstetrics and gynecology, pediatry, public health, psychiatry, internal and surgical medicine, and supported by the opinions of judicial counselors of the corresponding official sector, prepared an intermediate phase norm to arrive at the present norm which is in agreement with the existing legislation and the individual's freedom as promulgated in the Integral Population Policy. Thus, in its general guidelines, it established that:

Surgical sterilization will be performed on any person of fertile age who:

- Requests it voluntarily for reasons of personal or family well-being, or as a method to permanently limit the number of children.

  Given that the right to procreate is personal and since there is no legal decree which authorizes or limits the use of this right, the voluntary request of the patient is sufficient for performing surgical contraception, after making sure that the person has received sufficient information and education in order that he or she might be fully conscious of his or her decision.

- If the procedure is indicated for clinical reasons, when the person has problems of a surgical, obstetric or medical nature which could endanger her health or that of the conceived off-spring in future pregnancies.

Table 1 synthesizes the evolution of the norm before and after the Integral Population Policy.

Once the general regulations were concluded and became official, we proceeded to implement interval surgical techniques for which there was a great demand by a population that had completed its desired childbearing and did not wish to resort to another pregnancy to benefit from a postpartum sterilization.

Table 1. Comparison of the Norms of the Program of Voluntary Surgical Sterilization Before and After the Integral Population Policy

Regular Aspects	Before the Integral Population Policy	After the Approval of the Integral Population Policy Phase I (1974)	Phase II Beginning 1978
Existence of an official norm	No	Yes	Yes
Age of the requestor	Yes (30-35 years old)	Yes Any age, with 3 children alive. 25 years, with 2 children alive. 30 years, with 1 child alive.	No
No. of children alive	Yes (3-6 children)	Yes 3 at any age 2 = 25 yrs. old 1 = 30 yrs. old	No
Authorization of spouse	Yes	No Authorization of the person who will undergo the surgical procedure	No Authorization of the person who will undergo the surgical procedure
Presentation of proof of birth of children alive	Yes	No	No
Social-economic study	Yes	No	No
Approval of the request for sterilization by a medical committee	Yes	No	No
Time for performing the procedure	Postpartum only	At any time it is requested	At any time it is requested
Donation of blood obligatory	Yes. 200-300 gr	No	No
To enter the request	30 days before delivery	If possible, the same day of the intervention	If possible, the same day of the intervention
Educative work to make the patient conscious of his decision	No	Yes	Yes

This program was brought to large hospitals first and a year later to small hospitals or health centers. This was because we wanted to get some experience in the new surgical techniques in hospitals with maximum facilities that could solve problems arising from the implementation of a new technique.

Once the implementation of interval surgical techniques was firmly established, we introduced vasectomy in both small and large hospitals simultaneously, as well as in some peripheral dispensaries.

The implementation of the interval surgical techniques as well as vasectomy was accompanied by an intensive program of promotion on a one to one basis. Mass communication was not used because it was not convenient at the time.

To reinforce the execution of the interval surgical techniques and vasectomy, a plan was devised to satisfy the greater demand for immediate postpartum sterilization. This consisted of training personnel, simplifying the surgical procedures, and providing needed supplies and medications in all the hosptials where services are offered at delivery.

Once the program reached this stage, mass communications brought I & E to the public.

Table 2. Preview of the Results of the Evaluation of the Voluntary Surgical Sterilization Program, Program of Family Planning, Ministry of Public Health and Social Assistance, El Salvador 1979

Aspects to be Investigated	Information Obtained According to Sex	
	Female	Male
No. of people investigated	24,267	234
Background:		
Urban	48.5%	32.3%
Rural	49.1%	67.7%
Average age	28 yrs old	36 yrs old
Education	65% from 0-3rd grade	70% from 0-3rd grade
Occupation	63.8% are housewives or servants	74% agriculture
Marital status	70% live together 24% are married	72% are married
Economic aid from consort	Less than $40/m. 56.6% $40-80/m 27.3%	No help. 84.6%
Children alive:		
Urban	4	4
Rural	5	5
Average of pregnancies:		
Urban	5	-
Rural	6	-
Average abortion	0.5 per person	-
Procreation	68% with only one man 27% with 2 men	71.1% with one woman 19.1% with two women
Reason for the sterilization	Do not want any more children: 80.6%	Economic: 68.2%
Previous use of contraceptives:		
Urban	63.7% used it	37.5% used it
Rural	46% used it	
Repercussions of the sterilization: Psychological condition	86% got better or remained the same	98.8% got better or remained the same
Family life	97.5% better or remained the same	98.1% got better or remained the same
Working conditions	97.5% better or remained the same	100% got better or remained the same
Extraction of the information and recommendation of the operation	Personnel of the health establishment	Personnel of the health establishment
Multiplying factor	125%	100%

After three years and 24,523 voluntary surgical sterilizations, 24,267 female sterilizations and 234 male sterilizations during the period July 1, 1975 to June 30, 1977, and with the technical assistance of national and international organizations, we continued to design and carry out the evaluation in order to have some sound elements for adjusting the program as needed.

Three strata to be investigated were defined:

1. Analysis of the request applications of the 24,523 cases to find the common characteristics of this group.
2. Revision of clinical records: 10% of the female sterilization and 10% of the male sterilization, in order to investigate:

   Characteristics of the users
   Quality of the services offered
   Complications
   Fallacies of the method
   Follow-up.

3. Home visits for 25% of the female records which were analyzed and for 100% of the male ones, in order to investigate:

   The use of contraceptives
   Attitude pre- and post-sterilization
   Information about the method
   Characteristics of the procedure.

Once the data collection was concluded we continued the analysis. Table 2 shows the outcome of this analysis and is a preview of the final report presently in preparation.

ACHIEVEMENTS

In the four years of carrying out the Ministry of Health and Social Assistance Program, sterilization services have been extended to 21 health establishments. Although the program began in 1974, voluntary surgical sterilization was identified as such in the statistical records starting in 1975. Prior to this date it was registered as major surgery.

Table 3. Voluntary Surgical Sterilization Performed According to Sex. Program of Family Planning Department of Public Health and Social Assistance, El Salvador 1975-1978

Sterilizations	1975	1976	1977	1978	Total
Female	9,185	12,047	15,792	18,585	55,619 (98.3%)
Male	127	260	267	277	931 (1.7%)
Total	9,322	12,307	16,059	18,862	56,550 (100%)

Source: Annual reports, Department of Health Statistics, Ministry of Public Health and Social Assistance.

Table 4. Voluntary Female Surgical Sterilization According to Period. Family Planning Program, Department of Public Health and Social Assistance, El Salvador 1975-1978

Period	1975	1976	1977	1978	Total
Postpartum	7,429	8,416	9,704	11,398	36,317 (65.3%)
Interval	1,766	3,631	6,718	7,187	19,302 (34.7%)
Total	9,195	12,047	15,792	18,585	55,619 (100%)

Source: Annual reports of the Department of Health Statistics, Ministry of Public Health and Social Assistance.

In the four years of the period under study, a clear increase can be seen. The procedures performed in the first year doubled in the fourth year. This increase is more pronounced for female surgical sterilization which already existed. Female procedures represented 98.3% of the total for the period.

In the beginning of the program, female sterilization was decidedly encouraged in the interval period, and later in postpartum. In the data that are investigated, there is a predominance of the postpartum (65.3%) over the interval (34.7%) probably because the first one is better known: the mother is more responsive to the message and it is more convenient for her to have the procedure performed at this time.

In analyzing the figures registered in the Family Planning Program for the period studied, it can be seen that there

Table 5. Temporary and Surgical Methods Offered in the Family Planning Program, Ministry of Public Health and Social Assistance, El Salvador 1975-1978

Methods	1975	1976	1977	1978	Total
Temporary	23,972 (72.1%)	29,553	31,931	27,906 (59.8%)	113,362 (66.7%)
Surgical	9,322 (27.9%)	12,307	16,059	18,862 (40.4%)	56,550 (33.3%)
Total	33,294 (100%)	41,860	47,990	46,768 (100%)	169,912 (100%)

Source: Annual reports, Department of Health Statistics, Ministry of Public Health and Social Assistance.

is a predominance of temporary methods with a slight decrease in 1978. Temporary methods were 66.7% and surgical methods 33.3% for the period.

There is an obvious increase in acceptance of surgical methods which rise from 27.9% in the first year to 40.3% in the 4th year.

Based on the data registered for the Family Planning Program of the Ministry of Public Health and Social Assistance, in the National Investigation of Fecundity and Family Planning of El Salvador—1973 (FESAL—1973) carried out by the Salvadoran Demographic Association and, applying the index of desertion of the Program in regard to temporary methods, there is an estimated 1978 surgical method activity of 89,837 people with 46,517 for temporary methods. The latter is conditioned by the high index of desertion (56.4%).

The efforts of the Ministry of Public Health and Social Assistance Program are increased with the activities of the Salvadoran Demographic Association, as it can be seen in Table 7. In all the agencies there is a predominance of female sterilization, with a greater activity in male sterilization services by the Salvadoran Demographic Association.

Through the technical Population Committee, the coordination between the three agencies has entered a phase of consolidation.

According to the data registered, we estimate that the three agencies have a national coverage of activities in all the methods evaluated at 20.4% and 22.33% for 1977 and 1978 respectively.

PROBLEMS IN THE IMPLEMENTATION AND EXECUTION OF THE PROGRAM

A review of the difficulties in planning and carrying out the program gives the following summary:

- Indifference on the part of some professional levels closely related to the population problem;
- Misinterpretation by some doctors who think that since they have obtained a university degree, they have the right to decide the social and economic needs of the requestors of services and to impose their religious beliefs on them;
- Resistance by the executive, medical, paramedical and auxiliary personnel to the application of modified general regulations established for the voluntary sterilization program;
- Limitations in the training of medical personnel, particularly in the vasectomy technique;
- Limited availability of the operating room;
- Difficulties in maintenance of the laparoscopy equipment;
- Limitations of supporting equipment: autoclave, washing machine and dryers for the surgical liners;
- Limitation of expendable materials such as surgical linen and thread for suture;
- Difficulty in transporting rural acceptors of interval methods;
- Limitation of printed material for promotion;
- Limitation in the veracity and appropriateness of the statistical information;
- Some disagreements between the needs of the program and the cooperative policy of the funding organizations.

Table 6. Active Users of the Temporary and Surgical Methods. Family Planning Program, Department of Public Health and Social Assistance, El Salvador 1975-1978

Methods	1975	1976	1977	1978
Temporary	33,198	38,542	43,049	46,517
Surgical	44,575	56,374	71,788	89,837
Total	77,773	94,916	114,837	136,354

Source: Annual report of the Department of Health Statistics, Ministry of Public Health and Social Assistance.

Table 7. Voluntary Surgical Sterilization Performed According to Sex and Agency, National Family Planning Program I.S.S.S. - A.D.S. - M.S.P. and A.S., El Salvador 1977-78

	1977				1978			
Agency	ISSS	ADS	MSPAS	Total	ISS	ADS	MSPAS	Total
Female	2,348	1,718	15,792	19,858	2,048	2,364	14,169	18,581
Male	159	404	267	830	189	296	248	733
Total	2,507	2,122	16,059	20,688	2,237	2,660	14,417	19,314

Source: Statistical Reports of Salvadoran Institute of Social Security (ISSS) Jan-Oct.; Salvadoran Demographic Association (ADS); Ministry of Public Health and Social Assistance (MSPAS), Jan.-Sept.

Health Care and Voluntary Sterilization

Chairperson: **Dr. Vitoon Osathanondh, Thailand**
Co-chairperson: **Dr. Roger Bernard, Switzerland**
Rapporteur: **Dr. Marian Hamburg, U.S.**

What are the public health benefits of voluntary sterilization and how do we link sterilization, family planning, and health services to acceptors and their families? Task Force 2 identified possible ways of providing voluntary sterilization services as part of more comprehensive approaches.

Benefits of Voluntary Sterilization

Voluntary sterilization can have many health benefits for mothers and children. Using Nigeria as an example, it was pointed out that with a mortality rate of 8.4 deaths per 1,000 births (56 times that of a developed country), 23,500 maternal deaths occur annually. Sixty percent of these are associated with grand multiparity. If each such patient accepted postpartum tubal ligation after her ideal family size had been reached, then maternal deaths from childbirth would drop to 9,400 per annum. Grand multiparity, however, is not an easy term to define and the group felt that clarification is needed in order to reach important decisions about sterilization.

The Task Force felt that when a couple's ideal family size is reached and no more children are wanted, sterilization should be available regardless of the woman's age. The costs of temporary methods are high—both economically and in terms of the high health risks involved—particularly for those who have reached their desired family size. Surgical contraception has been shown to be at lower risk than temporary methods, so the long-term health benefits are attractive.

Linking Sterilization and Health Services: Is It Feasible?

Although integration of family planning and health services is feasible, health services generally are unavailable to the total population. Primary health care, therefore, could be the better linkage.

Task Force 2 thought that the linkage of obstetrics and gynecological services with pediatrics could be used to provide preventive health services. Maternity wards are also good settings for sterilization programs, but other types of delivery systems should be used as well. Rural patients, for instance, may desire fertility control but are often unwilling or unable to go out of their rural area. Consultants in obstetrics and pediatrics can visit primary health centers in rural areas and provide antinatal services for pregnant women and well-baby services for children. The team can also hold periodic sterilization camps in these areas.

Types of delivery systems depend on the country, culture, the geography, and many other factors. Some suggestions included sending medical teams to rural health centers to provide services; using community health aides or others to select and prepare patients; using midwives or local leaders to participate in service programs; and providing full time outreach workers for education and family planning, with vans for mobile primary health care. The major constraint in the linkage of family planning with general health care is that curative care always takes precedence over preventive care.

At basic primary health care levels, where government programs permit, local leaders and health workers can be used for family planning orientation and referral of high risk patients for sterilization. At higher levels, trained paramedics can be used in all phases of family planning from pill distribution to referrals of voluntary sterilization acceptors to support hospitals and clinics.

The use and/or combination of existing health care systems with family planning programs rather than the installation of independent projects is logical, more economic, more efficient and can be better controlled.

How Do We Provide the Services?

The most effective way to extend services to the largest number is to use the existing organized health infrastructure where time, space, budget, and personnel exist to make it work. This has the benefit of providing broad services such as screening, treatment, and follow-up so that maximum potential for health improvement is realized. In any such service, however, preventive education should always be included.

Information and Education

Throughout its discussions, the Task Force affirmed the need for education in connection with all aspects of service provision by whatever system. A resolution of importance for health education was that colleges and universities be encouraged to include in the curricula for *all students* information about the problems related to population growth. The recommendation was based on the need for policy level decisions and family planning program support in many countries. These decisions will be made by the educated leaders of the future who need to have a better understanding of the problem and of possible approaches to solutions.

Task Force 2 therefore asked the General Assembly of the conference to consider enlisting the support of Ministries

of Education and university authorities to include population dynamics and biology of reproduction in the curricula. Medical and nursing schools were urged to provide education in all methods of spacing including voluntary sterilization. Preparation of all public health educators and other helping professionals should include study of the role of population and family planning in total development. Broadening of the curriculum in these ways would constitute an important new health input around the world.

The Task Force also felt that educational programs are needed for those of high influence at the local level such as grandmothers, midwives, and community workers. To be effective, and to have political impact, the voluntary sterilization movement must communicate to all that the population problem is a health problem.

How Do We Determine the Proportion of Male to Female Sterilization Services in National Family Planning Programs?

Task Force 2 agreed that the optimal mix of contraceptive methods in a family planning program is a national matter that will vary among countries. There were differences of opinion as to whether voluntary sterilization should be the primary contraceptive method. Most agreed that all methods are needed, and that the chosen method depends on the needs and ages of the acceptors.

Terminology

Like Task Force 1, this group was also deeply concerned about the word "sterilization," pointing out that worldwide ethnographic data show that it almost always has a negative connotation. Because language has crucial impact on program effectiveness at every level, the group recommended that the term be modified.

RESOURCE PERSONS

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Dr. Mahmoud F. Fathalla, Egypt
Mrs. Polly Fortier-Harrison, U.S.
Dr. Dina Jarrett, Sierra Leone
Mrs. Zahiah Marzouk, Egypt
Dr. Hyung Jong Park, Korea
Dr. Morakinyo O. Sogbamnu, Nigeria
Dr. Benjamin Viel, England

SELECTED PAPER SUBMITTED TO TASK FORCE 2 (for text, see page 175)

Sterilization: A bridge to preventive health care for acceptors and their families. Polly F. Harrison.

Resources, Strategies and Programs for Voluntary Sterilization

Chairperson: **Dr. Nafis Sadik, U.S.**
Co-chairperson: **Dr. Malcolm Potts, U.S.**
Rapporteur: **Dr. Richard Derman, U.S.**

Task Force 3 considered the elements of a comprehensive program, including the financial, physical and manpower resources and how to assess them, and the strategies for including voluntary sterilization in broader development programs.

The Physician: Attitude and Response

The primary factors affecting acceptance of voluntary sterilization and, consequently, the development of a service program, is the attitude of the physician. Without positive, supportive, and informed response by physicians, programs cannot be successfully established. Task Force 3 thought that physicians as well as consumers require more education in understanding voluntary sterilization, especially vasectomy. There was consensus that a lack of knowledge about vasectomy coupled with the non-availability of service prevents an expanded rate of acceptance for voluntary sterilization.

Performance of vasectomy and postpartum sterilization should be required in basic medical training.

Strong emphasis was placed on avoidance of coercion in all programs, especially post-abortion, and the possibility of reversibility should not be used as inducement for sterilization. The group felt that reversibility centers should be established and the performance carefully monitored, but stressed that consumers must be warned that the procedure is considered permanent.

Resources

In considering the financial, physical and manpower resources needed, the Task Force felt that institutional subsidies should be expanded to keep up with increasing consumer demands for services. If such subsidies are provided, the entire team—nurses, counselors, field staff—should share the benefits.

It was suggested that governments consider "buying into" the private practitioner systems with subsidization of equipment, free access to contraceptives for sale or supply to consumers, and encouragement to banks to make low-cost loans available to young doctors.

Settings or Facilities for Voluntary Sterilization

The need now is to place priority on expansion of postpartum services without losing initiatives for interval sterilization or for vasectomy. Although demand for interval sterilization far outstrips available resources, postpartum sterilization—where there already exists an institutional base and available trained personnel—is a neglected area. It was agreed that facilities where deliveries occur are also ideal for provision of pre- and post-natal care. This concept fits well with the consensus that sterilization as part of family planning must be integrated into MCH or family health programs.

The Task Force also recommended that, given the proven acceptability and ease of performing vasectomy procedures, expansion of vasectomy services should be provided through the MCH infrastructure. In addition, the group recommended that maternal/child health considerations, including availability of immunization, be integrated into the voluntary sterilization effort.

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SELECTED PAPER SUBMITTED TO TASK FORCE 3 (for text, see page 175)

A strategy for the development of a national surgical sterilization program in Pakistan, 1976-1981. Fakhar un-Nisa.

The Non-Governmental Sector in Developing Voluntary Sterilization Programs

Chairperson: **Dr. Fernando Tamayo, Colombia**
Co-chairperson: **Dr. Chung-Tai Kim, Korea**
Rapporteur: **Mrs. Anne Howat, U.S.**

Although Task Force 4 shied away from making specific recommendations, provocative ideas and cautionary insights were plentiful in the group's discussions. In considering the role of a voluntary organization in national decision-making, the group agreed that the organization's primary role is to influence government policymaking by innovation (i.e., the development of new ideas, approaches, and programs) and through education and non-coercive advocacy. The latter was defined as continuing education of and communication with public officials, both elected and civil service. The goal of lobbying is an educated governing group, sensitive to the vital importance of family planning and aware of its linkage to national development. In many countries, non-coercive advocacy may be instrumental in creating demand leading to change in government policy.

Once favorable government policy and programs are established, the voluntary organization continues in a supplementary and advisory capacity to the main program. The continuing development of innovative approaches and alternate solutions is an important element in sustaining cooperative relationships. The advantages for the voluntary organization are the freedom from bureaucracy for local innovation and for administration of out-of-country grants. This may, in turn, further influence government policy.

Emphasis of the Task Force's discussion centered on maintaining cooperative and supportive relationships with the power structure, but it was noted that this might not be possible in all situations. It was suggested that *structured conflict* (e.g., a public campaign for legalization of voluntary sterilization) may be necessary.

Commercial and Private Approaches to Voluntary Sterilization

It was agreed that commercial marketing techniques could be usefully adapted in promotion of voluntary sterilization, if the idea of "getting something of value" was effectively communicated. In this case, "social marketing," where the reward is social rather than monetary, was seen as the proper adaptation of commercial techniques. The Hong Kong and Sri Lanka experiences were cited as successful examples of social marketing.

The industrial sector may be persuaded to include family planning information and services in company health programs if the company is convinced of its importance to workers' health and the health of the country's economy. The Task Force agreed that the key is education, communication, and lobbying, and they repeatedly stressed that successful persuasion lies in personal contact and good interpersonal relationships coupled with a general public awareness of the importance of voluntary sterilization in family planning.

Role of Religious Institutions

Again, the major theme in this discussion centered on personal communication. The group felt that one must not assume that the religious sector is permanently hostile; often a religious official may be simply uninformed and may equate sterilization with castration or mutilation. Since most religions are dedicated to the goals of social betterment and human dignity, they may be approached at this level, and may be willing to tacitly, if not openly, support the goals of family planning.

The group noted that the family planning movement in general has not paid as much friendly attention to religious groups as is desirable.

Where Sterilization is Unaccepted

In countries where voluntary sterilization is not accepted, it is first necessary to carefully review the situation to avoid duplication and conflict. The next step in starting an organization is to develop a dedicated core group with clearly defined objectives. Would-be organizers were cautioned to be tactful. Getting through with facts to the people in power is the most important step since government officials may be confused about the economic, social, and health benefits of family planning.

The Task Force emphasized that, at whatever level of involvement, the voluntary organization must be willing to share credit with the government to avoid counter-productive jealousy that may develop.

RESOURCE PERSONS

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Utilizing Evaluation in Program Development

Chairperson: **Dr. Does Sampoerno, Indonesia**
Co-chairperson: **Dr. Elton Kessel, U.S.**
Rapporteur: **Mrs. Dorothy Nortman, U.S.**

Is program evaluation really important? What are the scope, purpose, process, benefits, costs? How do we determine the needs and demands for program planning-needs assessment studies and what factors determine the feasibility of starting a program? Is the program operation in good health and how do we determine its success? How is evaluation used as a tool for program managers and decision-makers? Task Force 5 concluded that the subject matter was too broad and too complex for in-depth consideration in the time available.

Substantive discussions centered around the papers presented, but questions relating to the use of evaluation projects tended to elicit discussion of general management principles that apply to most programs and not uniquely to sterilization programs. Nevertheless, the Task Force felt that the following recommendations can serve as useful guidelines to indicate to program managers the kind of information they require, their role on the evaluation team, what to evaluate and when, skills needed for proper program and job performance, and the organizational aspects of their programs.

- Evaluation should be an on-going process, but its nature, purpose and design will vary with the stage of development of the program.
- Program administrators should be deeply committed to and involved in the efforts of the evaluation team so that evaluation results can be used, yet care must be exercised by the rest of the team to ensure that results are not biased.
- In addition to management skills, public health administrators of sterilization programs should have competent analytical and statistical skills for program operations.
- Evaluation should make proper use of relevant empirical data. Awareness of the data limitations and their relation to each other is essential for proper analysis and interpretation.
- Program administrators should pay attention to the quality of their service and administrative statistics which are the basic ingredients for evaluation of program performance.
- Although it is tempting to by-pass bureaucracies in order to get programs operational, this can be counter-productive because programs can fall apart without bureaucratic commitment.
- A rank ordering of program performance encourages administrators to improve their operations so that they can move higher up in the ranking.
- In rank ordering, identify the problems that account for low ranking programs and take indicated remedial action where possible (i.e., change leadership). Information and educational efforts might be called for.
- Evaluation projects should address specific questions and conclude with recommendations for remedial action.

RESOURCE PERSONS

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Dr. Jack Reynolds, U.S.

SELECTED PAPERS SUBMITTED TO TASK FORCE 5 (for texts, see page 175)

Feasibility studies regarding determinants of demand for voluntary sterilization. J.C. Baltazar and L.B. Valencia.
Promotion of postpartum contraception using MCM as a tool of management. Roger P. Bernard, Ellen M. Kendall and D.M. Potts.
The potential demand for voluntary sterilization: some findings from the world fertility survey. J.W. Brackett and R.T. Ravenholt.
The demographic impact of voluntary sterilization and its relation to other birth control methods. Dorothy L. Nortman.
Trends in the Indian sterilization program. Datta Pai.

Decision-Making and Policy-Making for Voluntary Sterilization

Chairperson: Dr. Somboon Vacharotai, Thailand
Rapporteur: Dr. Louise Tryer, U.S.

Discussions centered around the legality of sterilization, its acceptability to consumers, national leaders, and professional medical/health communities; policy development; recruitment and training personnel, establishment and equipping of facilities; and the role of non-governmental agencies.

Legality

The group recommended that concerted efforts be made to repeal laws declaring sterilization illegal. Where no law proscribes sterilization, it may be assumed that surgical contraception can be an integral service component of a family planning program.

In addition, legal restrictions need to be lifted regarding eligibility criteria for voluntary sterilization. Although decision-makers may wish to develop some guidelines as a model for eligibility criteria, such guidelines must be flexible enough to change as program goals are adjusted to meet changing situations and objectives over time.

Acceptance by Consumers

Acceptors need information and education about benefits of fertility termination. Once I & E is provided, the method is readily accepted by females, less so by males. Acceptance has clearly demonstrated rising demand for service, far exceeding capacity to meet the need in most countries.

Acceptance by National Leaders and Medical/Health Community

The medical establishment and other health professionals are vital to acceptance of voluntary sterilization programs by government decision-makers. Government leaders who are concerned about improving the quality of life for their people, who are educated in the benefits of population stabilization, who seek economic development, will want to incorporate voluntary sterilization as an integral part of health services.

Policy Development

All governments should be encouraged to establish a framework to coordinate and direct implementation of national family planning programs with surgical contraception as a key component. It is essential that country-specific, achievable family planning program goals be set which include specific demographic objectives over time. When access to services is limited, top priority should be given to older multiparas in poor health. As these high risks needs are met first, women of lower parity, lower age will spontaneously seek services.

Recruitment and Training

There was consensus that recruitment and training receive top priority, and that they precede or occur simultaneously with establishment and equipping of facilities. Training of most service providers should take place within the country. If this is not feasible, training should be regional, and the setting should be similar to the trainee's own country. Some highly specialized individuals requiring a high degree of expertise may be sent to a developed country for training where additional benefits may accrue from learning and sharing new technology.

Data Collection, Evaluation and Management Information Systems

These were viewed as integral to all voluntary sterilization programs. In establishing new programs, systems need to be installed simultaneously with program initiation to ensure availability of data necessary for future progammatic decisions.

Non-Governmental Agencies (NGO)

These agencies were seen as initiators and catalysts that move government into assuming responsibility for implementing national family planning programs which incorporate voluntary sterilization services. In addition, the NGO may press for rapid implementation of a new, high demand service such as sterilization by promoting the need for categorical funding for such programs. Once the structures are established to provide services with non-biased emphasis, non-governmental agencies maintain liaison and promote coordination.

Working with International Donors

The group recommended that policies of international donors be revised to allow greater flexibility in meeting recipients' needs for program development and implementation.

It was noted that donor restrictions can and do hamper or even immobilize development and implementation of certain voluntary sterilization programs, e.g., restrictive policies regarding purchasing of equipment manufactured in donor countries, restrictions on use of funds for vehicles to provide rural service, restrictions on use of funds for technical assistance, equipment maintenance, or purchase of necessary drugs.

RESOURCE PERSONS

Task Force 11 was unique in that its 22 participants were governmental ministers and senior government officials, all of whom served as resource persons for this high level meeting.

Information and Education Programs

Phyllis Piotrow	Chairperson
Manuel Urbina	Education for Family Planning in Mexico
Azizur Rahman	Planning an Information and Education Program
Emilia Dacalos	The Role of the Physician and Health Team Members in Information and Education Program: Philippine Setting
Peggy Lam	The Hong Kong Experience in Promoting Sterilization
Mechai Viravaidya	My Pigeon Flies High: Some Innovative Approaches to Promoting Voluntary Sterilization
Summary	*Task Force* 7: Organizing for Communication and Education Programs
Reimert T. Ravenholt	Prospects for Voluntary Sterilization (*Luncheon Address*)

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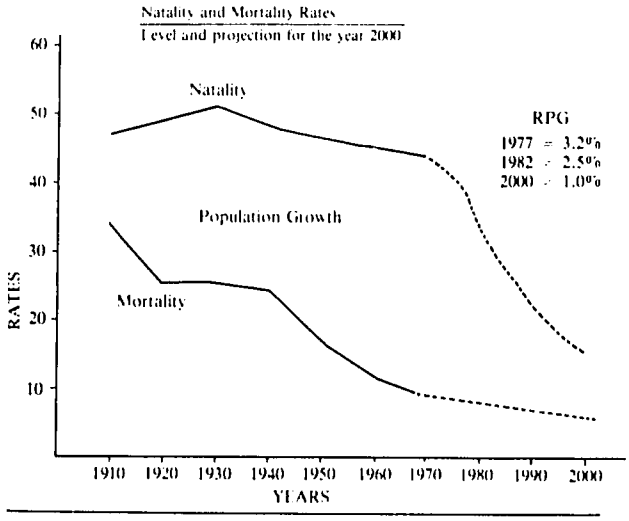
Education for Family Planning in Mexico

Manuel Urbina

As an element of population policy, an education component for family planning is a fundamental aspect of Mexico's development policy. In 1977, the Mexican government approved the National Family Planning Program for the institutions of the health sector: the Ministry of Health, the Institutes of Social Security, and the National Program for Integral Family Development.

Under this plan, family planning is an integral part of the health programs, especially those related to maternal and child care. The plan establishes demographic goals for the first time in order to reach a growth rate of 2.5% by 1982 and 1.0% by the year 2000.

Figure 1. Natality and Mortality Rates



Considering family planning as a responsible population attitude and action to improve the quality of life for all, the National Planning Program is integrated into the health sector via urban and rural programs which are recognized as a priority throughout the Mexican Republic. Both urban and rural programs are complemented systematically by other educational support programs and by social and biomedical research.

I will only mention the educational program, describing in general how it is integrated, its justification and objectives, the strategies used for the implementation, its main obstacles, its evaluation mechanisms and the results.

THE PROGRAM

The educational program takes as a general principle that the acceptance and practice of family planning implies changes in attitude and behavior which result from cultural and social factors. Therefore, the inclusion of formal and informal education strategies is required in family planning, to allow changes in behavior and traditional customs that are now obstacles.

The educational program is divided into three subprograms:

1. One designed for the health sector through schools and faculties of medicine, nursing and social work; and through service training for health personnel in the different health institutions; and through manpower development for family planning.
2. One designed for the educational sector, for student school teachers and teachers in service, and through them for students at different levels. This subprogram is especially oriented to the adolescent population. Also, there is a motivational program for the teacher to be a user of the family planning services.
3. Within the third subprogram, educational actions are taken in governmental agencies, in community programs, in specific contents oriented to special groups such as syndicates, technical and scientific trade unions, committees for youngsters, civil associations, social, official and private volunteers.

Each program was adapted to the rural or urban population to which it was directed.

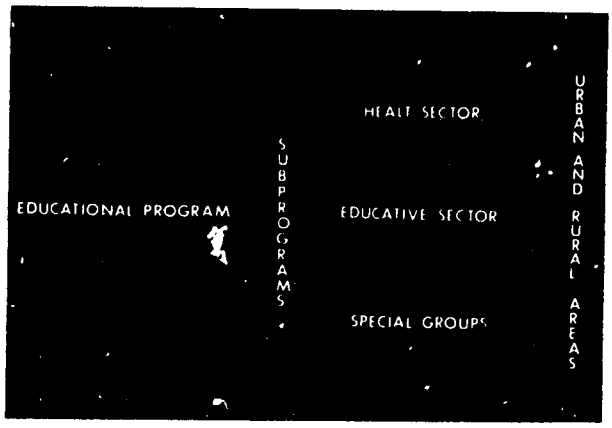
These subprograms intend to solve some problems:

A. The lack of topics on family planning and sex education as basic parts of the curricula of faculties and schools of medicine, nursing and social work.

B. The lack of collaboration between the health sector and the educational institutions for the dissemination of information, education and communication programs.

C. A lack of specific programs for training and in-service training in family planning.

Figure 2.



D. The unkown amount of manpower needed to train in family planning so that the needs of the rural and urban programs can be met.

E. There is no manpower to work as trainers in order to orient the existing didactic techniques towards a real integration of education with service.

F. Until now, knowledge and information about family planning has not been introduced into the educational sector in a systematic way via the study plans of their institutions.

G. The lack of didactic material for students and teachers.

H. The isolation and lack of participation of organized groups as agents of influence for the dissemination of family planning information.

I. The lack of informative material, according to the specific needs of urban or rural populations.

J. The lack of promotion of vasectomy and information about it for the male population.

K. The absence of evaluation of educational processes for the providers as well as users.

OBJECTIVES

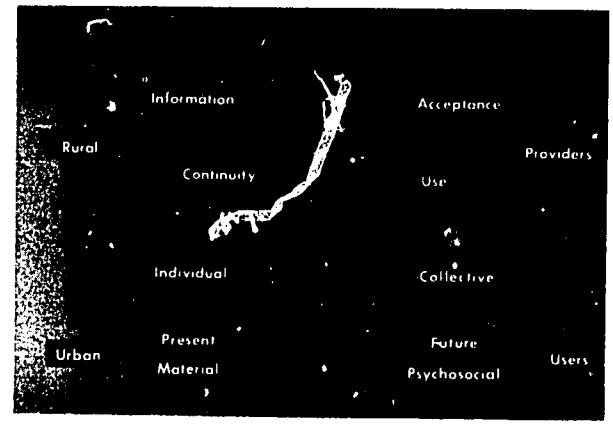
The objectives of this program tend to satisfy the aforementioned problems through strategies to allow participation of all elements of the health sector, through education and service, as well as formal dissemination within the educational sector and coordination with other related sectors. In order to systematize such strategies, the educational program was planned by the National Coordination of Family Planning. The strategies used direct information, education and communication to meet the needs of the population in 4 different areas: information; acceptance; use; and continuity.

STRATEGIES AND CONTENT

The strategies have a collective approach as well as an individual one in the urban and rural settlements for both the providers and the users through:

- Use of traditional medicine and its channels of communication;
- Use of social marketing for creation of demand;
- Population education;
- Use of mass media;
- Use of incentives, and
- Integration of planning of family planning with other development programs.

Figure 3.



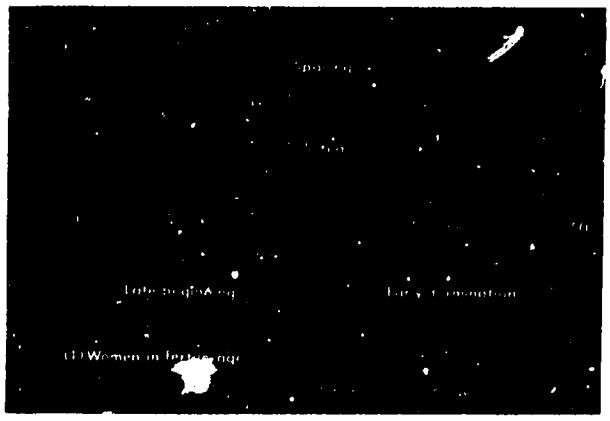
The basic contents of the IEC are always oriented to changing the attitude and behavior of the population towards:

1. Beginning childbearing at a later age, not necessarily within marriage. It is recommended between 23 and 25 years old. The age average in Mexico is 19 years old.
2. Spacing between pregnancies is promoted from 3 to 5 years after the first pregnancy.
3. Early termination of reproduction by insistence on no pregnancies after 35 years of age.

This orientation is always fundamental in its relation to effects on health.

As support for the above changes, the strategies tend to promote family planning methods. These are grouped by temporary or permanent methods. The term temporary allows us to clarify that, once the use of these methods is

Figure 4.



suspended, fecundity is resumed. These methods include pills, injectables, IUDs, foams, preservatives and rhythm method. Advantages and disadvantages are mentioned.

The term "definitive" (permanent) is understood and accepted in a sense of irreversible. It was found that the terms "sterilization" and "surgical" are not accepted, especially by the man, as they are interpreted as impotency or disease that requires a "surgical operation." This implies risk to health and vitality.

With the permanent methods, vasectomy and salpingoclasy are promoted. The last is known by most of the women as "ally."

The physical, human and financial resources to realize this program come from the health sector. Presently, strategies have been decentralized through interinstitutional committees in each state of the country. Committee responsibility is the program implementation.

RESULTS AND OBSTACLES

For the health sector subprogram, the study of family planning in 4th year gynecology and obstetrics was introduced as compulsory in the curricula of the Faculty of Medicine of the National University, the largest in the country. A specific and thematic unit was associated with practice during the development of the course, supported by another thematic unit on sex education.

For the internship (fifth year) a didactic monthly unit titled "Methods of Family Planning" was integrated, consisting of a description of current contraceptive methods, as well as the basic norms for adequate use that the doctor should follow.

For the sixth year medical student's program called "Social Service," two work areas are listed:

A. Preventive activities and clinics where the 6th year student provides orientation and assistance to women and children through pre-natal control, partum, puerperium, family plannning and child health control.
B. Self-teaching activities, where the student is specifically oriented to family planning through a manual.

The student population of the Faculty of Medicine that received information, orientation and training during 1978 was 8,103 students (2,137 in fourth year, 3,015 and 2,950 in fifth and sixth year respectively).

Other schools of medicine are implementing programs of motivation and information on family planning for teachers and students as a prior step in its integration into the curricula.

The health sector institutions proposed the project "Integration of Family Planning in the Present Curricula" of schools of nursing and social work.

The main obstacle is the great number of students all over the country. There are 86,000 students in the schools of medicine only but not enough resources, and there are many doubts as far as traditional teaching is concerned.

The strategies are introduced through groups of students and teachers, and through school associations, so that with collaboration and promotion, interested persons are motivated. Also, medical associations and academies are involved through up-dated special courses.

The National Coordination and health sector representatives responsible for teaching and training integrated a manpower development team in family planning. This team designed and printed audiovisual materials for information, orientation, and motivation of users.

Such materials are distributed and explained by volunteer and health personnel at exhibition stands located in clinics and work centers of urban and rural areas.

Pamphlets and manuals have also been produced. (See Figure 5.)

Figure 5.

Figure 6

We changed our delivery systems. Before, we delivered babies to every couple whether or not they had requested them.

But soon we saw the results, so we had to change our system.

Now we work only by request, in order to guarantee that each baby will be welcome and well-nourished and educated.

We put these elements together for an urban poster. The elements are quite different for use in rural areas.

As a result of a study, these materials were adapted to the rural area through the use of photographs and a special type of drawing. This situation is different from the urban area. Above are some examples of what I mean.

A study is underway to find channels and codes of communications in family planning for the rural area. This study will point to needed content for the elaboration of radionovels (soap opera).

For training purposes, we have developed manuals of human sexuality, family planning methods (manual for the promoter), a guide for the activities of the voluntary promoter on family planning and, a manual of family planning for the trained midwife.

According to the information obtained by the National Prevalence Study made by the National Coordination, 91.7% of women between 15 and 49 years know at least one contraceptive method; 43% of them try to get information on family planning through doctors and health personnel in general. Because of this important finding, a monthly publication containing recent national and international news about family planning and information about results of our program was begun in January 1979. It is sent to 25,000 doctors around the country.

In manpower development, a program was implemented based on the experience developed by the systems analysis model proposed by the WHO in the manual "Administration of Health Projects."(2) It was adapted to the needs and resources of our country. The document describes programs for preparation and training in family planning service for various health sector institutions as well as a trainee program of the institutional type. The manpower program will help to guarantee trained personnel so we can achieve our goal of reaching all active and new users of family planning.

The experience gained with this methodology will allow service providers—doctors, nurses, social workers—to enlarge their teaching programs and to take part in them. The main obstacles are the lack of motivation of health personnel, the concentration of resources in the tertiary care, and the lack of orientation to the theoretical contents. The main problem remains the delivery of services.

The most important strategy was to involve general practitioners as family planning deliverers and leave to the ob/gyns or surgeon specialists the most complex procedures such as vasectomy and salpingoclasy, for which specific centers of training have been created. In Mexico, the permanent methods are second in use to the pill.

In the education sector, we have campaigned for the teacher to use family planning services. There are 70,000 teachers, 60% of whom are women.

Special adult education courses on sex education and family planning for teachers and other adults were initiated including the introduction of the subject matter into text books.

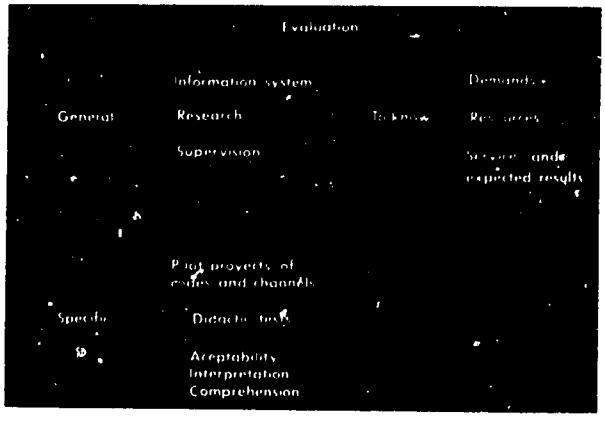
A book on sex education was published and an informative picture about the demographic situation in Mexico was produced.

The National Association of Family Planning developed an educational soap opera which was broadcast on national commercial television during a five month period. The Association has several other activities in conjunction with the health and other public administration institutions.

In April 1978, a center was created for orientation of adolescents from 12 to 19 years old. The center provides information on sex education and family planning services with the participation of the parents.

To accomplish this work, the center trained and prepared 80 doctors, 70 social workers and 62 "young animators" who have presented 284 orientation talks. By the end of 1978, 930 parents and 8,700 adolescents had attended.

Figure 7.



EVALUATION

The evaluation of the educational program is built into the national plan.

In general, as a result of the information, evaluation, research and supervision systems, we have come to know the demand, the resources, the services and the expected results.

Specifically, through our pilot projects and through the use of didactic training tests, we test for acceptance, interpretation and comprehension of information and promotion materials as a prerequisite to their production and distribution.

CONCLUSIONS

We do not know much about the nature of learning and perception of the population in the family planning area, but as far as our experience is concerned, we can identify:

- That both rational and emotional elements influence a favorable or unfavorable behavior towards family planning. They are present not only in the users, but also in the service personnel, and up to a certain point, they affect the integration of the cycle of information—acceptance—use—and continuity of the programs and specific methods.
- That the doctor plays an important role within the learning process of the users, and his attitude and behavior determine whether or not couples practice the strategies of delaying childbearing, spacing between pregnancies, and early termination of reproduction.
- That, in order to get the most efficient family planning services, we need more social research, the identification of problems, and the development of adequate solutions, all of which should be used as part of the preparation and training programs for service personnel and community health auxiliaries.
- That a knowledge of the characteristics of the audience for information and promotion efforts about family planning is so important that omission is the cause of IC failures.

REFERENCE

1. Bainbridge, J. and Sapiere, S. 1974. *Health project management, a manual of procedures for formulating and implementing health projects.* Geneva: WHO Publication No. 12.

Planning an Information and Education Program

Azizur Rahman

At the time of the establishment of a clinic, certain basic points of I & E should be considered. For whom is the clinic intended? Is it physically within easy reach of the target clients? In other words, will the clinic make its services available to the people? Family planning program managers generally agree that "availability of a method is the key to its use."

Indeed, in voluntary sterilization, supply creates its own demand. In planning proper accessibility to the service, the existing communication and other infrastructure facilities should be taken into account. If the target is made aware of the existence of a clinic that can be easily reached, the first phase of I & E has been accomplished. In Bengali there is a saying, "When you see a barber, you feel that you need a haircut."

After the location of a clinic comes the question of its service. In voluntary sterilization, quality and quantity are not in inverse relation but quantity (the flow) of patients is directly proportional to the quality of service. Quality of service does not mean only quality and safety of the surgical procedure; it also means patient handling, pre-operative and post-operative counseling, as well as all the other aspects of the human relationship experienced by the patient during the hospital/clinic stay. And quality also means that service should be broad-based enough to provide for all kinds of client needs. For example, a client with one child walks into a voluntary sterilization clinic. The clinic, finding him/her "ineligible" for voluntary sterilization, refuses to provide the service. For many years after, this person will nurse the feeling that his/her pursuit of family planning was a fruitless and wasteful exercise, and that fact will dampen future motivation. Therefore, the clinic should be in a position to provide alternative methods.

If the human approach of the clinic personnel attracts clients, they will not become hostile to the operation even if, as a rare misfortune, they develop complications. A satisfied client becomes a link in the interpersonal chain of future patient recruitment. Compassionate handling also helps to relieve their minds of the hidden fears and prejudices, the unanswered doubts. Hence, the paramount importance of counseling.

A clinic-based I & E will necessarily be a localized I & E drive or what may be called secondary stage motivation. Because of the national I & E campaign, it can be presumed that the target group has primary motivation, or it is aware of the population problem. Not only is awareness increasing, but also the value system of the rural population is slowly changing. But still there is a very wide gap between awareness and acceptance.

Ask a non-literate village woman of, say, thirty-five years how many children she has. She blushes, parries, and finally mumbles apologetically, "Eight children." This response is much unlike the old days when a mother in her position would have deemed it a matter of pride to declare that she had eight children. Let us probe further: "Why did you have to have eight children?" "Couldn't help it," she replies. "Are you not aware about family planning?" "Yes, but I didn't know exactly what to do and where to go."

Hence the role of a small, clinic-based I & E drive filling up the gap between awareness and practical acceptance. Since there is awareness, we will not say that all the multi-million dollar projects of mass publicity have been wasted. But the progammatic side is sadly neglected. Conferences are held, plans are formulated, eye-catching campaigns are launched, the people are saturated with expensive publicity, but the condition of the poor in rural Asia does not improve. The urgency of the situation calls for a more forceful and practical, rather than academic, program. The approach of a small service-oriented I & E program, therefore, has to be more localized, intensive and personal. It must also establish a two-way communication system with the target group. Any rumor and misinformation must be countered, not merely by word, but by physical and practical demonstration. Any nagging doubts and queries must be answered. For this the small, clinic-based I & E program should adopt a phased program.

The first phase—creating awareness—may have been accomplished by the national program. But how far has it gone and what relative emphasis should be given to the other methods? The program should include a survey of the target population, an assessment of its literacy level, a review of socio-economic conditions and other characteristics. Then, identify the prospective recruits and decide on the message and the media to communicate it. For intensive exposure of pre-determined targets the following methods have been tried with good success.

Dai or Traditional Midwife

The dai or traditional midwife provides an important interpersonal medium of communication with village women. Because of the nature of her work, the dai has influence with women of reproductive age. She is from the same village or area as the target women, so she knows who needs sterilization and how to approach them. She can easily build up a relationship of trust and confidence. She is the helper and sympathizer at the critical time, and she can visit women as often as necessary, at different periods in their childbearing lives.

The dais are required to remain in contact with the hospitals and medical personnel. The family planning organizations, therefore, find them an invaluable link in extension of their referral chain in the villages.

Client Demonstration

A concrete and visual message is more effective than an abstract one. By visual message I do not mean use of teaching aids only but also use of fellow human beings for demonstration purposes. Has the family next door accepted sterilization and benefited from it? This is a key question in the motivation of rural clients. A satisfied client is the best motivator.

To test this methodology, we launched a small pilot project. We selected 20 female and 10 male acceptors to work as patient recruiters. They were provided with all information and educational materials, but no extra incentive, so that the principle of voluntarism would not be compromised. At the time of selection, care was taken to ensure that the well-informed clients were indistinguishable from the ordinary acceptors at our clinic (poor, illiterate, rural), except that their level of motivation was higher and they had an interest in community work. These selected, well-informed clients were also followed up at their residences. All of them were supplied with identical sets of educational materials. At the end of the year, the flow of patients from the areas of the well-informed clients was found to be significantly higher than the flow from the areas of a control group.

Thus, having obtained positive results in our pilot venture, we sought to expand the program by establishing a Well-Informed Clients Club in certain interior areas. The WIC Clubs will be provided with the educational materials and certain basic facilities, for example, a sign board, a radio set if possible, but its members will work entirely on a voluntary basis. The club will be a rallying point for motivation and recruitment in the area.

Mixing

Instead of telling clients what we want them to know, we can create a situation to enable them to get the necessary knowledge without consciously seeking it. The clients who come to our clinic may or may not have met an acceptor. In our common dormitory, the new clients who arrive today, get an opportunity to discuss the operation with those who had the operation yesterday. Thus, they get first-hand information about the process and even see the size of the abdominal incision (we do mostly minilap). This flow of information is spontaneous and is apparently independent of the institutional media of the clinic, hence, it is all the more credible.

In the Khulna satellite clinic we have organized joint group meetings of ex-clients and prospective clients who do their own I & E work. Mass follow-up programs have also been used to help I & E work in a particular area.

Counseling and Informed Consent

Proper and elaborate counseling will not only ensure good service, but will also use clients in future client recruitment. It will make maximum use of the human potentials in I & E work. If a satisfied client is the best motivator, the well-counseled client is usually the satisfied client. Hence, there is a relationship between counseling and future client recruitment. The need for good counseling is being felt widely, especially for use in popularizing voluntary sterilization among non-literates. Good counseling is an essential component of quality service. Good counseling not only educates and motivates, but positively attracts people.

While counseling is thus broad-based, there are certain essential points which every client of voluntary sterilization must thoroughly understand. These essential points have been incorporated in an Informed Consent Form which every client has to sign after understanding its content.

In the light of past experiences, and in view of the existing gap between awareness and acceptance, between input in terms of resources and output in terms of numbers and percentage of couples continuously practicing contraception in the villages of Asia, the time has come when we should switch emphasis from macro projects to micro projects of I & E, from the massive national program to small, localized and intensive programs to be conducted in relation to availability of local service facilities.

The Role of the Physician and Health Team Members in an Information and Education Program: Philippine Setting

Emilia Dacalos

INTRODUCTION

In the Philippines, particularly in Cebu Province, the most common and unfounded physical, psychological, and social reactions to family planning, specifically to sterilization, are the following:

- Fear of impotence after vasectomy;
- Fear of increase and/or loss of libido after tubal ligation;
- Vasectomy is closely associated with castration, hence, bodily damage;
- Vasectomy may lead to "dryness" or may diminish secretion of seminal fluid;
- Ligation requires a longer time for recuperation and interferes with the regular role functions of the wife;
- These operations are expensive, painful and may lead to many physical complications like hemorrhage and irritability.

It is surprising and sad to note at this stage of the popularity and practicality of family planning that such unfounded misconceptions persist in the Philippines. This simply but strongly indicates that there is a need for continuous vigilance, and for extensive information and education programs that incorporate strategies to counteract misconceptions held by prospective acceptors in the rural areas of the Philippines.

This information and education program should be a formal and rational plan that educates physicians and health team members so that they can work to change the "negative germs" in the minds of the rural populace toward family planning, and particularly toward sterilization.

THE ROLES OF HEALTH PERSONNEL IN THIS PROGRAM

In the information and education programs, the physicians and health personnel, by virtue of their positions and training, have the greatest challenge. They have a herculean task and multiple roles to perform.

This paper is, therefore, an attempt to briefly describe the multiple roles of the physician and health personnel, and the experiences and problems encountered in the Department of Family Planning of SWU, Matias H. Aznar Memorial College of Medicine, Information and Education Program (IEP).

Southwestern University Family Planning Clinic was guided by the belief that, in the acceptance of what's rational, objectives, practicality and methods largely depended on the Information and Educational Program (IEP). In this program, the physician and health personnel such as nurses, medical technologists, medical student interns and social workers assumed major roles, namely: learner, salesperson, counselor, teacher, coordinator, medical practitioner and agent of change.

As learners. Prior to the launching of the information and education campaign for the rural sectors of the Philippines, particularly Cebu Province, the physician and other health personnel of the clinic undergo extensive training focused on the rationale of family planning. Family planning methods and strategies are studied, as are the socio-cultural values of the target group. Seminars, workshops, group discussions, conferences, and special schooling were the most common forms of in-service training provided for this personnel.

As multiple-personality. The physicians and health team members of the clinic, equipped with information on the intricacies of family planning, assumed the multiple roles of salesperson, counselor, teacher, coordinator, medical practitioner, and agent of change. During the actual information and education campaigns, they used such direct methods as person to person, house to house, and direct mass approach. They used scientific presentation to sell, teach, advise and persuade the prospective acceptors concerning the rationale, intricacies, and practicality of the different methods of family planning, and they allayed fears or apprehensions regarding family planning methods.

In the person to person approach, the physicians or the other members of the team talk personally with individuals. In the house to house technique, the staff visit the prospective acceptors in their homes so that they can talk directly with several members of the family, including the children and in-laws. The staff also conducts informational lectures to interested groups, which are followed by question and answer sessions. We call this the "direct mass approach."

The staff were also trained in the utilization of indirect approaches. These include use of media such as radio and television, brochures on family planning, pictorials, and motivational posters and films.

The clinic experienced more success, in terms of number of acceptors, from the direct approaches. This was particularly true of potential acceptors with low educational attainment who needed face to face clarification and personal assurance about the methods accepted.

OUTCOMES AND PROBLEMS ENCOUNTERED

Male

Results. Using the indirect approaches, reinforced by the direct approaches, the SWU Family Planning Clinic has vasectomized 2,622 acceptors from October, 1973 to December, 1977, and has performed 1,545 tubal ligations.

As summarized in Table 1, the biggest percentage of vasectomy acceptors were men with primary education (33.94) and secondary education (29.72). The smallest percentage were the group with no formal education. These results seem to indicate that the different levels of educational attainment influence the acceptance of vasectomy.

Of these 2,622 patients, 61%, or approximately two-thirds of the group, were laborers (Table 2). The smallest percentage of the group were army personnel, prisoners, and professionals. These results seem to indicate that economic pressure on the laborers was perhaps the effective motivation in the acceptance of vasectomy.

Female

Table 3 discloses the distribution of the 1,545 females in the different methods of sterilization with post-partum as the model method accepted by the larger portion of the group.

The problems encountered. The most pressing and common problems met by the physician and other personnel of the SWU Family Planning Clinic in the information and education program designed for the rural people of the Province of Cebu were as follows:

- Logistics, insufficient funds for full-time personnel (particularly motivators), lack of reading materials for distribution to the target groups, rising cost of mass media, lack of transportation facilities to reach the remote villages.
- Misconceptions and ignorance of target groups regarding family planning, communication barriers because of low educational attainment.
- Distance of prospective acceptors from the clinic or family planning center since many prospective acceptors live far from the center, many have financial problems, and problems with transportation facilities.

All these problems were partly solved, or to some extent diminished, with the following strategies:

- Standardization of salary and incentives of the full-time health personnel and motivators.
- Motivational seminars or workshops designed for the target group. In this particular campaign, the face to face interaction technique was very effective in motivating patients for vasectomy.

Table 1. The Educational Attainment of the Vasectomized Patients. (October, 1973 to December, 1977)

Education	Number	Percentage
No formal education	189	7.21
Primary grades only	890	33.94
Elementary grades	489	18.64
Secondary education	779	29.72
College	275	10.49
Total	2,622	100.00

Table 2. The Occupation of the Vasectomized Patients (October, 1973 to December, 1977)

Occupation	Number	Percentage
Laborers	1,500	57.21
Farmers	350	13.35
Employees	300	11.44
Fishermen	125	4.77
Professionals	75	2.86
Prisoners	50	1.91
Army personnel	30	1.14
Jobless	80	3.05
Others	112	4.27
Total	2,622	100.00

Table 3. Distribution of the Female Acceptors in the Different Methods of Sterilization

Methods	Number	Percentage
Culdoscopy	275	17.80
Laparoscopy	345	22.33
Post-partum (minilap)	475	30.74
Interval (minilap)	450	29.13
Total	1,545	100.00

- Use of mass media to disseminate information at regular periods. Sponsors were solicited to partially finance the cost of the programs.
- Raising funds for a mobile clinic equipped with materials and facilities. This will not only be for clinical services but also for follow-up and motivational campaigns.
- In-service training programs designed to enhance the positive attitudes and commitment of faculty, students, and other health team members toward the family planning programs.

IMPLICATIONS AND CONCLUSIONS

The information and education program is the life-blood of any system of organization like family planning in which the personnel assume varied and multiple roles. More particularly, the acceptance of the rationale for and methods of family planning largely depends on the extensiveness of the information and educational programs of the center.

However, we must be aware that there are no organizations and programs free from problems and needs. These are part and parcel of the roles of the physicians and health personnel of family planning. They cannot be solved if we disregard the individual person and especially the individual's conscience and commitment to the program. It is, then, the greatest task and role of the physician in the family planning clinics to start the reformation rather than to wait for others to make the first move.

The Hong Kong Experience in Promoting Sterilization

Peggy Lam

Hong Kong, a British Crown Colony about 400 square miles in area, consists of Hong Kong Island, the Kowloon Peninsula, the New Territories, and includes 235 islands of varying sizes. Roughly 55 square miles of the total land area is arable; another 25 square miles is used for urban development, while the remaining land area is hilly or rocky. Although we do not have much space, we do have a large population of approximately 4.6 million, not including the legal and illegal refugees who have been entering Hong Kong at the rate of over 100,000 per year.

The Family Planning Association of Hong Kong has been running birth control clinics and promoting the "Two is Enough" concept since 1950. Until 1974, the Association was the only organization in Hong Kong providing family planning services. During 1974 the Government agreed to absorb family planning services in the 32 Maternal and Child Health clinics where the Association had been providing services. The Government now operates over 40 such clinics, while the Association runs 30 as follows: 21 female birth control, 5 male, 1 vasectomy, 2 sub-fertility, 1 female sterilization. In addition, we run a youth advisory service, a help rape victim service, a pre-marital check-up service and a pregnancy termination service. Rather than compete with the Government services or duplicate areas where they are strong, the Association is always concerned with expanding its specialty services, and thus provide services and facilities which do not overlap with those being presented by the Government. This is particularly reflected in our sterilization services, as we are the only organization providing sterilization on an outpatient basis.

In 1974, after almost 25 years of promotion by the Association, the majority of Hong Kong's population accepted the concept of "Two is Enough." The Association was therefore concerned to present sterilization as the ideal choice for couples who had achieved their desired family size. To do so, it was necessary to educate the public, both males and females, with regard to the facts about sterilization, and thus clarify the misconceptions which surrounded the subject.

The Association started its vasectomy service in December 1973, and its female outpatient sterilization clinic in December 1976. We now offer both minilaparotomy and culdoscopy, with 4 female sterilization sessions in operation every week. In addition, 4 vasectomy sessions per week are also offered. It was felt that vasectomy had to be promoted as part of the overall concept of male responsibility in family planning.

THE MR. FAMILY PLANNING CAMPAIGN AND THE ASSOCIATION'S PROMOTION OF MALE RESPONSIBILITY IN FAMILY PLANNING

In 1977 the Association decided upon a novel approach to encourage male responsibility in family planning. This was christened the "Mr. Family Planning" campaign. Promotion of vasectomy was a keynote of the campaign. It emerged as a result of the Association's concern over the fact that many men held the view that family planning is the wife's responsibility. Statistics at the time showed that 94% of birth control acceptors were women; this very low male response to birth control methods prompted the campaign. Upon investigation, the Association found that the selfish attitude of birth control as the woman's responsibility was very prevalent among local males. Many had misconceptions about birth control which had to be dispelled.

Previous campaigns had been sporadic and provoked little concrete reaction. For example, about six years ago, the Association published a striking poster of a pregnant man with the caption "Would you be more careful if it was you that got pregnant?" This stirred up considerable interest for a time but had little result. Clearly something further than shock tactics was required if the campaign was to be a success.

MR. BIRTH CONTROL AND MR. VASECTOMY

With this background in mind, two characters were created—Mr. Birth Control and Mr. Vasectomy. The characters were called Ng Tsoi-San and Lai Chi-yuk. For Cantonese speakers, the names say everything, because phonetically, *Ng Tsoi-san* means "do not want any more children," while *Lai Chi-yuk* roughly translates into "come and practice birth control." The characters would give performances to workers, personifying the concept of male responsibility.

Two well-known Chinese television actors were recruited to portray the characters as responsible husbands willing to play their part in birth control. The campaign was launched by a press conference at which the actors gave a sneak preview of their roles, and answered questions from newsmen.

Open-air Performances

Their first full scale public appearance in these roles was in a Family Planning Gala at Ocean Park, a local pleasure park cum zoo, where they were the stars on a most diverse and colorful bill. This was followed by appearances in various parts of Hong Kong. Their first lunch time open air performance was a 1½ hour show in Central District, the busy commercial center of Hong Kong. It was aimed primarily at office workers. The message emphasized was "While we must depend on our wives to give us children, we can depend on ourselves not to have any." The performance attracted a crowd of over 1,000 who were treated to a lunchtime show of popular songs, sung to the accompaniment of a band, a humorous skit featuring Mr. Vasectomy and Mr. Birth Control, and a free gift. The schedule for the entertainment was as follows:

- Band
- Messages
- Distribution of matches, balloons, pamphlets
- Mr. Family Planning comedy
- Mr. Birth Control and Mr. Vasectomy distributed condoms, posters, while the Association's well known jingle, "Two is Enough" was played.
- Band, messages

After the entertainment, about 500 condoms and information on how to use them, messages on birth control, plus information on our clinics were distributed free to males over 21 years of age.

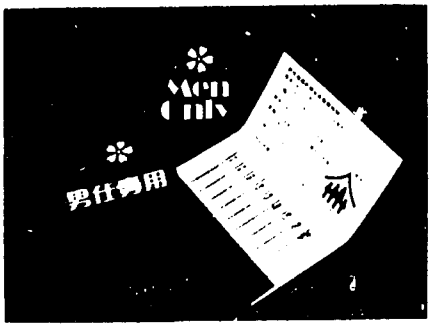
Further performances with largely the same format were held in different areas of Hong Kong. So as not to neglect the blue collar workers, a show was held in the industrial area of Hong Kong. A 1½ hour lunch time open air performance was put on for the factory workers and once again, a large crowd came to watch.

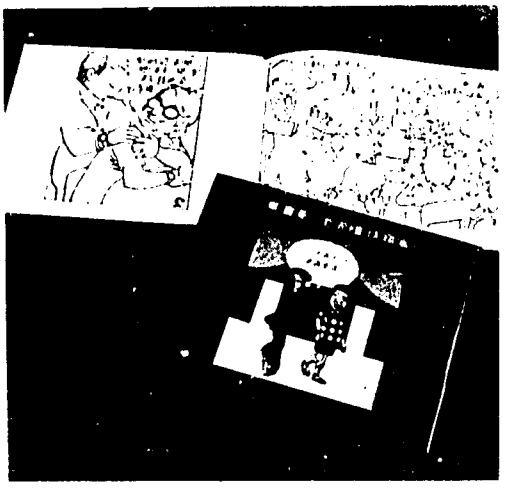
Cartoon Strip

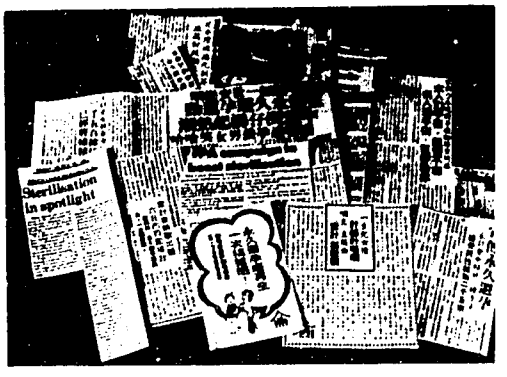
The characters also appeared every week as comic personalities in a cartoon strip of a popular newspaper. Generous support given by a satirist and a cartoonist who created the cartoons free of charge made this possible. The cartoons have since been collected and compiled into a comic book, which has proved to be very successful.

T-Shirts

Mr. Family Planning T-shirts were also a popular feature of the campaign and were attractively emblazoned with the message "Wear Me." The unusual aspect of the design lay in the fact that 3 "Mr. Condoms" were saying these words. These T-shirts have since been sold commercially with remarkable success. Stocks were sold out on the first day they appeared on the market. Overseas orders were received due to press coverage in other countries, and we let the Australian FPA have the copyright on the design, so that they could produce a similar product. Our T-shirt could now be called a collector's item. Other T-shirt designs were also very popular.







Reasons for Success of Approach

After the launching of the campaign, sales of condoms at clinics and the number of vasectomies increased significantly. The following reasons can be cited for this increase:

- Men must feel proud of their participation in family planning. The keynote slogan of the campaign—"While we must depend on our wives to give us children, we can depend on ourselves not to have any"—sufficiently satisfies this psychological need.
- The image of the middle-class, responsible husband projected by the Mr. Family Planning campaign appeals to the overall male population of Hong Kong.
- People do not like to be "preached" at or told what to do. They prefer to find out for themselves what suits them best. The campaign did not "preach," but worked around a gimmicky approach. People were naturally drawn to it.

Follow-up Activities

The Association produces booklets, pamphlets, articles, and other materials to inform the public about vasectomy. Public seminars and lectures are held to give further details. A television spot encouraging male responsibility in family planning was produced for the Association by a television station, and is broadcast frequently. It shows four "Model Men," all of whom are well-known and respected in Hong Kong: a senior police officer, a jockey, one of the "Mr. Family Planning" actors, and an international soccer player turned coach. They are shown marching towards one of our clinics, passing, on their way, a long line of women queueing outside a Government antenatal clinic. The slogan emphasizes "while we must depend on our wives to give us children, we can depend on ourselves not to have any." Another television spot to encourage male responsibility will be produced soon.

PROMOTION OF FEMALE STERILIZATION

In general, promotion of female sterilization so far has been done on a more personal one-to-one basis through discussion with an advisor. Informational and educational materials including pamphlets, posters, newspaper and magazine articles help to publicize our services. Public seminars for adults are also held frequently and deal extensively with the topic.

To give another detailed example of one of our sterilization promotion campaigns, I would like to offer you an insight into our current efforts, which are to continue throughout the year. The campaign is not intended solely

for women, it is directed towards couples. Through the campaign, we aim to heighten the public's awareness of the sterilization services provided by the Association.

Our overall objective is to encourage sterilization by emphasizing its effectiveness, reliability and convenience, and by counteracting misconceptions which are frequently held. Ultimately, we aim to encourage more couples who have reached their desired family size to accept sterilization as the ideal permanent method of birth control.

CAMPAIGN STRATEGIES

Parade and Distribution of "Lucky" Promotion Cards

The first function of the campaign was gimmicky, catching the public's attention and receiving very good press coverage. Specially decorated, colorful publicity vans went to over 20 districts throughout Hong Kong to distribute 10,000 "lucky cards" and broadcast messages on sterilization. The cards all carry information clarifying misconceptions concerning sterilization and bear a photograph of a family of four that has chosen sterilization. However, the vital factor involved is that 50 special cards entitle the holders to free sterilization at the Association's clinic, while another 500 special cards entitle the holders to 1 dozen free condoms each, to be collected at any of our clinics.

To enhance the campaign, a well-known lyricist, a top composer and a popular singer generously combined their talents to create a new jingle extolling the advantages of sterilization, which reads (translated from Chinese):

> Having too many children is like bearing a heavy
> debt, which is difficult to pay off;
> But bringing up two children,
> Makes life much easier and happier;
> You can really enjoy life,
> if "Stop at two" is the word;
> Permanent birth control
> Solving the problem once and for all.

The publicity cars were all equipped with broadcasting equipment so that the jingle could be relayed wherever the cars travelled. Two colloquial lines from the jingle with the meaning "Permanent Birth Control—solving the problem once and for all" were chosen as the main promotional slogan. It was printed on signs placed on top of the publicity vans so that it was impossible to miss. As the vans stopped at their assigned locations for distribution purposes, a mini-exhibition depicting the facts of sterilization was staged. Such a mobile information-giving unit was found to be very useful, as well as convenient. All the newspapers and TV stations gave a lot of coverage to the week's activities. The actual distribution and parade lasted for one week. Highlighting the week was the campaign's opening ceremony, held at a big public playground. A member of the Urban Council officiated the opening ceremony. Guests of honor included four well-known television artists and a famous football coach who in fact had had a vasectomy. Immediately after the ceremony the decorated vehicles set off simultaneously for their respective distribution points. The celebrities accompanied the publicity van to its destination, where they promptly distributed "lucky cards" during the afternoon. Their enthusiastic role in the distribution attracted big crowds to the scene.

Follow-up Activities

A full line of follow-up activities are already in full swing to reinforce the impact created by the parade and distribution campaign. Newspaper and magazine articles are to appear regularly, as will articles dealing with the personal experiences of sterilized clients. The jingle promoting sterilization is broadcast frequently by radio and television stations. A recent television program, "Spotlight," devoted an edition to the Association's sterilization services and promotion campaign. Other television and radio features will be made to clarify misconceptions about sterilization. Seminars will be conducted on the topic with opportunities for exchange of opinion. A joint project with a television station will result in an outdoor drama program based on the theme of sterilization. The Government public education section has tentatively agreed to devote an episode of a popular dramatic serial to the subject, to be shown on two television stations. In addition, posters promoting sterilization have been printed and will be distributed to all hospitals, family planning clinics, housing estates, welfare agencies, and community centers. Another outdoor adventure will be a show at Hong Kong's major pleasure park, Ocean Park.

Our multi-disciplinary efforts in the promotion of sterilization are not limited to those described above, but will continue to diversify as more new ideas emerge.

FUTURE DIRECTIONS

Surveys carried out by the Association and other bodies have suggested that sterilization is still a "taboo" subject. Periodic evaluations have been undertaken to ensure the services maintain their high standards. Clients who have received sterilization have been interviewed, and while it is clear that our service is widely regarded as excellent, clients are often reluctant to talk about their experiences, or the operation's advantages, with their friends. Relatively few clients recommend the operation to their friends. It is evident that intensive publicity is vital to ensure sterilization is accepted by the public. We believe that our promotion campaigns will go a long way towards breaking down the barriers.

My Pigeon Flies High: Some Innovative Approaches to Promoting Voluntary Sterilization

Mechai Viravaidya

Like many aspects of medicine, the promotion of sterilization has suffered much in a state of joyless, suspended animation at the hands of those charged with its execution. The resources invested and resourcefulness exhibited in its promotion have been grossly inadequate with no semblance of required optimum balance between demand creation and the supply of services. The predictable consequence of low-acceptance rates in most developing countries should, therefore, be no surprise. The only consolation is the knowledge that no other product or service, given similarly low-key promotion and pursued with such melancholy philosophy, has escaped this same fate.

In most cases, this lack of much success has been blamed on cultural, religious, economic, or ignorance factors and constraints when, in reality, it is due to the lack of promotional effort and investment coupled with conservatism of the medical professsion and the bureaucracy. International donor agencies, too, have contributed to this malaise. Often preoccupied with the obsession of keeping a low per-head cost of promotion against per-head surgical cost, they have exacerbated local belief in this false economy and further prevented the realization of immense potential long-term gains of sustained promotional investment. The yearly accumulation of income from interest rates lost as a result of the vast under-utilization of capital and human investment in clinical service provision could provide adequate resources for a handsome promotion campaign. Perhaps that kind of loss would entice both national and international agencies to employ more promotional staff to complement other types of personnel, many of whom are engaged in documenting missed opportunities.

While the lack of innovative approaches to promoting sterilization is abundantly clear, it should also be noted that, in most cases, the straight-forward and simple dissemination of information and promotion endeavors are still grossly inadequate. Information, when available, is often dull. The broadcast on radio or television, when used, is at a low-interest time which correlates perfectly with the low-investment input for media time. Community penetration and the vital inter-personal reinforcement are also generally lacking.

The inadequacies are innumerable, with the examples mentioned above being sufficient to conclude that our efforts to promote sterilization (and family planning) do not appear to reflect the need to reduce our population growth rate with the sense of urgency and determination that it deserves. So much more must be done in the limited time still available.

By virtue of its present-day close bondage to medical services, sterilization promotion cannot be successfully attempted without complementary adjustment and improvement within the medical service component. But, because of time constraint required for other activities, the proposed improvement will be limited to the context of better use of existing medical manpower to support the increased demand to be generated from the introduction of higher quality promotional inputs.

To achieve the desired and necessary levels of acceptance, sterilization must be promoted and marketed with a great deal more vigor and imagination. To overcome the barriers of uncertainty, rumors and fears normally held by people, there must be a constant and sustained flow of information and promotional activities. Conventional as well as unconventional methods, including acts which may appear to be humorous, comical, or outrageous to the conservatives, must be introduced so that sterilization will be viewed as normal, safe, and even attractive—a new set of values that ordinary people will discuss, evaluate, and even laugh about in their everyday life. This means that an investment must be made, policy makers and administrators must be more liberal, the medical profession must recruit promoters, and the bureaucracy must encourage and foster participation of the non-government sector.

There are two general areas where innovative or imaginative approaches to voluntary sterilization can be introduced: the first concentrates on the area of dissemination of information, while the second covers promotional activities more closely linked with community participation and service delivery. Much can be done to improve the dissemination of information and its impact. In many cases, a review of basic terminology, which often acts as a deterrent, must be corrected and a new or more attractive terminology added or substituted. This ranges from the word "sterilization" itself to the steps in the sterilization procedure by the physician. The connotation of these terms must be simple, lighthearted and in no way equate sterilization with major surgery or butchery. For example, in an attempt to make female sterilization more attractive, the new marketing terminiology, the "WED-

DING BAND" sterilization, is used for the sylastic band procedure. The "NINE MINUTE VASECTOMY," the "HOLIDAY VASECTOMY," the "YOUNG MAN VASECTOMY," or the "STRENGTH VASECTOMY" are terms which equate the procedure with simplicity and desirability, reducing the fear and harm by using simple marketing terminology.

Many unsuccessful products have become successful after review and name change or adaptation in packaging. Terminology review and adjustment should be made in all sterilization programs for the benefit of the common man.

The channels for dissemination of information are numerous, but most have not been sufficiently or correctly used. There are two major channels that can be explored: the mass media and the support media. Television and radio spots containing attractive short messages should be used during peak listening time. When used, radio information has been dull, unnecessarily long, and aired when most people are unable to listen. The advertising world has clearly demonstrated that short announcements and spots are more effective than lectures. Newspapers and magazines are under-utilized and also suffer from similar weaknesses. In all three media, audience participation through competition and prizes can further help to increase the popularity of sterilization.

While introducing new, attractive, and bold mass media messages on sterilization, it is important to simultaneously disseminate similar messages through such support media as handbills, consumer package inserts, billboards, and bus back signs. Many consumer products enjoy widespread distribution and through them lies the opportunity to penetrate large audiences efficiently. These consumer products range from cigarettes, soap, and matches, to sanitary napkins.

Messages on sterilization and special, limited-time offers of prizes can be printed on some packages as well as bus tickets. In Thailand, the manufacturer of motorcycles has offered to add special sterilization promotion materials and free service to every purchaser of the motorcycle. Children's piggy banks produced by a commercial bank now have messages promoting sterilization, and the message also urges children to encourage their parents to accept sterilization at the nearest health service facility. A variety of containers, greeting cards, and calendars are also useful channels to be considered. In cases where contraceptives are packaged, messages on sterilization can be inserted or printed inside. People who are already spacing or limiting births with a temporary method may be more easily convinced to accept sterilization when constantly exposed to its benefits. The ultimate aim is to print sterilization messages on all mass distribution consumer products and containers.

As these information channels are used to better inform the public, it is essential to further reinforce these messages with a second major set of activities which comprise a variety of promotional activities closely linked with community participation and service delivery. These efforts are necessary to capitalize on the general information disseminated through the mass and support media. Where possible, the two should be combined rather than implemented in isolation.

This set of reinforcement promotional or recruitment inputs requires the selection and training of individuals in communities to be sterilization communicators or agents of change. In addition to providing information through handbills, coupons, and other forms of personal contact, they would identify and offer more intensive personal guidance and counseling to people most likely to have sterilization. In many cases, these agents of change are already handling and distributing contraceptives in their communities. The trust and credibility already built up render them most effective in providing answers to the many questions which prospective sterilization clients demand prior to making their final decision. The acceptance of sterilization will be greater by having a person on the spot who can assist in the client's necessarily lengthy decision-making process, complemented by the provision of easy access to clinical service outlets, including transportation or mobile service for vasectomy. Campaigns of this type should also be as jovial as possible, assimilated with other popular activities or aspirations of the community.

This simple formula was adopted and tried in the northeastern province of Mahasarakham in Thailand for vasectomy, which was not popular relative to female sterilization. A mass media campaign through radio was launched simultaneously with a support media campaign of posters and handbills, half in areas with already sterilized communicators and agents of change and the other half without them. The promotion campaign lasted 30 days, and service with transportation to clinical service outlets provided for the last 14 days. The target set for the 14 days was 600 vasectomies as against the 52 yearly average for the previous three years. Prizes were offered as a reward in the form of a government lottery ticket (purchase value of U.S. $.50 with top prize being U.S. $50,000 for the lucky winner from among the 1,000,000 tickets normally sold) and a motorcycle each for the lucky customer and his motivation agent drawn by the governor at the end of the campaign.

When compared with the previous 52 vasectomies per year, the results of the campaign were most encouraging. In those 14 days of clinical service provision, 717 men had vasectomies, of which 45% had never practiced any form of contraception in the family. The other 55% were evenly distributed between men whose wives were users of pills and IUD's. Radio spots were cited to be the most informative, and the communicators who recruited 72% of the clients were the most credible in encouraging them through an average of five interpersonal contacts to make that final decision for vasectomy. The lottery and the motorcycle helped to make the atmosphere a more relaxed and jovial point of introduction to the subject of sterilization. These men had vasectomies because they wanted no more children, not because they were enticed

by other incentives or prizes. They had been given adequate information and reassurances about all their uncertainties and concerns by credible sources.

There are many other different ways of injecting imaginative or innovative elements into sterilization programs. They should all possess the common elements of light-hearted, non-clinical simplicity, generate community or public and media interest, humor, and curiosity linked with convenient sterilization services. Some examples and suggestions, with an emphasis on vasectomy, are offered in this paper:

- *The "Village Headman or Village Vasectomy Leader":* Many developing countries have villages or communities where, for each, there are elected or appointed heads who meet with each other in groups regularly in a central administrative point of the area. They can be encouraged to bring one or two vasectomy client(s) with them to each monthly meeting. A team of one or two doctor(s) with assistance can perform between 50-100 vasectomies while the headmen have their meeting. A mobile team can follow-up between each meeting to areas where the demand is greatest. A reward or community incentive for children, such as potable water, latrines, a new schoolhouse for the village, can be offered to the village(s) with the highest number of sterilizations.

- *The "Occupational Sterilization Promotion Campaign":* Groups of people in urban areas with a common occupation or interest can be identified and trained to provide and recruit sterilization clients. The groups can vary from taxi drivers, students, drug store employees to postmen. They begin their activities by giving out handbills and use personal contact to promote, recruit, and refer potential clients. To make it sufficiently interesting and attractive, there should be some reward (called by different names, depending on the degree of conservatism of the donor). In the case of students, scholarships for one year are awarded if they can refer 50 sterilizations a year. For the taxi driver, the insurance of their vehicles; for the postman, a bicycle or motorcycle. There are also rewards for the sterilization clients in the form of scholarships for one of their children drawn once a month from a list of their names.

- *The Third Type of Campaign can Perhaps be Called the "Piggyback Promotion Campaign":* In principle, this approach attempts to couple the promotion of sterilization to other events, occasions, or existing services. A recent example of this was in Thailand in early 1979, during the national election campaign, where the public was advised to vote only for candidates who had small families, practiced family planning and, in the event more than one candidate appeared to satisfy these conditions, people should decide by voting for the vasectomized candidate. On election day, special vasectomies were offered to voters near polling booths called the "Election Vasectomy." The numbers of vasectomies were not overwhelming, but the initial and subsequent public interest was substantial.

Other examples of this approach include: 1) offering special vasectomy tickets as door prizes at functions; 2) running advertisements and providing vasectomies at large newspaper offices; 3) getting local religious leaders to bless men before and after vasectomies; 4) vasectomy tour buses bringing rural people for procedures in the capital city while taking in some of the famous tourist attractions; 5) providing special cut-rate vasectomies to parents by giving special coupons to children in school at the time of the school's health examinations; 6) special reduced prices for consumer goods and services to sterilization card holders; 7) a lucky draw of monthly prizes for sterilization acceptors, including a holiday abroad and special high-yielding varieties of seeds; 8) special vasectomy home-delivery service where vasectomy can be performed right in the client's house.

It is important to inform the media of all these activties to gain maximum benefit.

This list could be much longer, but a final effort to demonstrate that whatever has been used to sell soap, cigarettes, motor cars, or chewing gum can be used to sell sterilization, is the "Ice Cream Vasectomy Van" to be launched in October 1979. Three quarters of the van's space will be utilized for performing vasectomies, while the other quarter will be used to sell ice cream. Both the vasectomy and ice cream staff will wear white, and men having vasectomies can bring their children who may eat as much ice cream as they wish during their fathers' procedure.

All the activities outlined in this paper represent only some of the possible innovative approaches. They attempt to desensitize and popularize sterilization by bringing it within reach of comprehension and acceptance by the common person through time-tested marketing and promotion strategies.

If we are determined to see a rapid rise in the rate of practice in our countries, we must recognize the urgent need to act with boldness now.

Organizing for Communication and Education Programs

Chairperson: **Mrs. Peggy Lam, Hong Kong**
Co-chairperson: **Dr. Phyllis Piotrow, U.S.**
Rapporteur: **Dr. Gordon Perkin, Mexico**

Task Force 7 considered a number of major areas ranging from why a program is needed to personnel training, program strategies, counseling, use of mass media, and program assessment. The ideal I & E program was described as flexible, honest, and responsive to changing needs. The Task Force stressed the importance of recognizing cultural and religious differences among groups and the need to tailor programs that are sensitive to these differences.

What Constitutes an Effective Program?

The Task Force defined an effective program as "anything that works in a given setting," but qualified it by adding certain requisite characteristics. First, services must be available to meet anticipated demand before efforts are launched to create widespread public awareness and acceptance. Second, the I & E program must reflect the stage of development of the service program, and third, its information should be appropriate to its intended audience. In countries where programs are only beginning, emphasis should be on creating a broad supportive constituency. In countries with well-established programs, the need may be to focus on correcting negative rumors and on reinforcing the decision to seek sterilization.

Recognizing that community leaders and satisfied acceptors are important to a successful program, an I & E effort must seek to involve the community and to reflect its aspirations. This requires advocacy political leadership. Satisfied clients and supportive leaders were seen as a major source of new client recruitment.

Training and Trainers and Who's Responsible?

Who takes on the job of I & E ? While it may be seen as everyone's "job," I & E planning, supervising, and implementation should be someone's specific responsibility, ideally, an I & E expert. The responsibility may be with government or non-government agencies, or it may be shared between the two.

Training personnel for I & E activities should include information about advantages and disadvantages of all contraceptive methods. It should equip service providers to respond to and understand fears and misunderstandings about sterilization with well-informed, non-judgmental approaches.

Non-formal education outside the clinic area can mobilize large numbers of supporters and community leaders. The best teacher for any group is a well-trained peer with a similar background and experience. Task Force 7 felt that was true for acceptors as well as community leaders and the various levels of service providers.

Counseling

Counseling was viewed as a cornerstone of a well-rounded I & E program. Because sterilization is a permanent method, all persons considering it should have sympathetic and well-informed counseling before and after the procedure. Illiterate couples have the same right to accurate, complete information as literate acceptors, and efforts must be made to ensure that they understand. The most effective counselor was seen as one who communicates warmly and directly with the potential acceptor.

Media

Use of mass media was discussed at length and the Task Force agreed that any such campaign should parallel availability of services and that a well-balanced I & E program will not rely exclusively on mass media, nor will it neglect to use it. The group recommended more frequent use of experience from the private/commercial sector such as the use of endorsements by celebrities and media personnel. Recommended also was the increased use of folk media.

How Do You Know the Program Works?

In the final analysis, a large number of well-informed, satisfied acceptors may be the best assessment of a successful program. The Task Force felt that, whenever possible, evaluation should be simple, direct and designed to influence future policy and priorities in selection of media, design of messages, and allocation of resources. Referring again to the private/commercial sector, Task Force 7 felt that methodologies employed in market research could be used more frequently in I & E evaluation.

Pretesting I & E materials was thought to be more important and useful than major emphasis on assessing the impact of individual components of an I & E program.

Program Strategies

Discussing males vs. females as targets for I & E appeals, the Task Force thought that, while some strategies could be successfully directed toward either, involving both would be an effective way of reaching either partner. Women should be encouraged, however, to make deci-

sions about reproduction, including decisions about which partner will choose sterilization.

In many countries, it was thought, economic factors and scarce human resources may warrant an emphasis on male sterilization since it is the cheapest and least complicated procedure and it can be more readily offered on a wide scale.

It was thought that organizing acceptor clubs in some countries could be an effective strategy, but the Task Force emphasized that individuals and countries differ; each must design its own unique strategies.

RESOURCE PERSONS

Ms. Cecilia Cadavid, Colombia
Dr. Emilia Dacalos, Philippines
Mrs. Maria Guadalupe de la Vega, Mexico
Mr. Hem Hamal, Nepal
Mrs. Genoveva Mora de Hamilton, Mexico
Dr. Chija (Cheong) Kim, Korea
Mr. Mechai Viravaidya, Thailand
Mrs. Najwa Rebaaoui, Tunisia
Dr. Manuel Urbina, Mexico

Prospects for Voluntary Sterilization

Reimert T. Ravenholt

During the last decade voluntary sterilization has moved from the "ugly duckling" status among contraceptive methods to which it was relegated during the sixties, to become the "lovely swan" or leading method of the seventies.

Despite opposition from many adversaries and the ongoing lack of adequate surgical services in most of the world, voluntary sterilization has amply demonstrated its staying power and growing popularity among couples of all races, religions and economic strata.

Its popularity provides additional irrefutable evidence of worldwide demand for reduced childbearing and indicates a bright future for voluntary sterilization.

Although the surging popularity of voluntary sterilization was evident at the time of the Third International Conference at Tunis three years ago, it was then such a recent phenomenon that it seemed hardly credible to many. But now with three years additional experience under the world's belt, a much-improved opportunity exists to study this worldwide phenomenon and learn how best to further strengthen action programs

EPIDEMIOLOGY OF VOLUNTARY STERILIZATION

At Tunis it was estimated that 65 million couples were depending on surgical sterilization for fertility control at the end of 1975 (1). Now, on the basis of latest data and discussions with colleagues, it is estimated that the number of couples depending upon surgical sterilization for fertility control had increased to about 90 million by the end of 1978. (See Table 2, page 16, Ed.)

Progress toward greater use of voluntary sterilization was a pervasive worldwide phenomenon during the last three years, including all continents and most countries, both more and less developed.

Patterns established during the early seventies continued, with the greatest number of new users of sterilization added in the most populous countries of China and India, and with the United States achieving the highest prevalence of use: more than 35% of Married Couples of Reproductive Age (MCRA) (2).

Overall, the approximate proportion of the world's MCRA using surgical sterilization for fertility control increased from 65 million (11.6%) of 560 million couples at the end of 1975 to 90 million (15.3%) of 590 million couples at the end of 1978.

(Estimates of the number of MCRA using each method of fertility control at the end of 1978 are presented in Table 1, page 15, Ed.)

In addition it is estimated that approximately 25 million abortions were performed during 1978, including 5 million in the People's Republic of China.

CHINA

During a visit to China in November 1978, the author obtained the following data on voluntary sterilization in China:

- Surgical services for voluntary sterilization are generally available through 50,000 commune hospitals and 2,000 county hospitals, with women eligible for three weeks paid work leave and men one week when undergoing surgical sterilization. With the intensified move toward the one-child family standard, voluntary sterilization is additionally attractive to many.
- In Guangdong Province (population 54 million) approximately 30% of MCRA were depending on surgical sterilization at the end of 1977, according to Comrade Li Mai Lin, Leading Member of the Provisional Planned Birth Group.
- In Shanghai (population 10.8 million), 480,000 couples (34%) of 1.4 million MCRA were using sterilization at the end of 1977, according to Dr. Li Chi, Office of Family Planning for Shanghai.
- In Wusih (population 650,000) approximately 20% of 75,000 MCRA were using sterilization for fertility control at the end of 1977, according to Yan Ke An, Leading Member of the Birth Planning Group.
- In Meishan Project Area, Jiangsu Province (population 24,000), 32% of the MCRA depended upon sterilization.
- In Chengtu, capital of Sichuan Province (population 3.7. million) 44% of MCRA were sterilized, according to Dr. Xhang, Provincial Director of Health.

On the basis of local and provincial data, the nature of China's planned birth program, and experience in many other countries, it is estimated that roughly 30% of China's MCRA—36 million couples—depended upon sterilization for fertility control at the end of 1978. Use of voluntary sterilization should increase substantially as China moves toward the one-child family standard.

INDIA

At the time of the Third International Conference, India was intensifying its national sterilization program and it appeared that it might within a few years become the world leader in the proportion of MCRA using this method of fertility control.

During the following fiscal year, April 1, 1976 to March 31, 1977, India performed more than 8 million sterilization procedures, which increased the prevalence of surgical sterilization to about 24% of MCRA.

But most unfortunately, by design or misdirection of program, a number of the Indian states engaged in coercive practices causing severe backlash against the sterilization program, and contributing to the downfall of Indira Ghandi's government. This has had unfortunate repercussions for voluntary sterilization programs in many other countries.

World reaction to the Indian incident vividly documents the fact that *the foremost threat to the further development and use of voluntary sterilization is coercion.*

We must do all in our power to protect individuals and programs from all attempts at coercion, no matter how enthusiastically well meaning the promoters may seem. The emphasis must always be upon education and services, education and services, education and services.

Since 1976, India's sterilization program has been hobbled and recent evidence indicates decreased prevalence of contraceptive use in 1978 compared with 1977.

Extensive unmet demand for female sterilization still exists in India, but success in raising voluntary sterilization levels depends upon large improvements in the availability and quality of sterilization services.

Unfortunately, India has failed to implement a well balanced family planning program. Oral contraceptives and lubricated condoms have not yet been made generally and appropriately available.

UNITED STATES

While China and India have continued to lead in the number of sterilizations performed, the United States has achieved the highest prevalance of sterilization use—by more than 35% of MCRA (2)—and has been particularly active in development and dissemination of improved surgical technology to trained surgeons and programs in developing countries (3).

An important advance during the last three years has been the development of simplified and less expensive laparoscopic equipment built around the Falope Ring and eliminating the hazards associated with use of electro-cautery within the abdomen.

A.I.D. purchased 1000 of these simplified laparoscopes during the fall of 1978, and many of you in the audience are now using this equipment. At this conference we seek feedback on your experience to guide us in further purchases.

Voluntary sterilization was an intensely sensitive issue in Washington and elsewhere during 1976 and 1977, as adversaries of family planning made repeated attempts to block assistance for voluntary sterilization.

Fortunately, with strong support from many of you, those adversary attacks were defeated and A.I.D. support for voluntary sterilization programs has been progressively strengthened.

During the last year and a half political resistance to voluntary sterilization has greatly subsided and we have been able to give this action additional priority within the A.I.D. budget.

EFFICIENCY OF VOLUNTARY STERILIZATION

The key reason for this rapid improvement in the political climate for voluntary sterilization in the United States and in many other countries is the rapidly growing understanding of the sheer efficiency of voluntary sterilization for control of fertility as a contributor to accelerated national development.

The fact that each sterilization (by average age and parity) prevents at least two births places voluntary sterilization in an efficiency class by itself among contraceptive methods. And the fact that this form of contraception has negligible side effects after the acute surgical effects have sudsided has gained it much additional favor as the side effects accompanying continued use of other contraceptives have been more fully measured and understood.

Calculations by the author and others (4) have indicated that Child Acquisition Costs (CAC) for each child *are roughly ten times the annual per capita Gross National Product in each country.*

In Bangladesh and many other poor countries with a per capita GNP of approximately $100 per annum, it costs the parents and/or the society roughly $1,000 per child for the food, shelter, clothing, health care, education and job creation activities needed to bring a child from birth to the age and work capability that the young person can become predominantly self-sufficient.

The approximate age at which self-sufficiency occurs varies by social pattern, being ordinarily at a lesser age in developing countries.

In the United States, with a per capita GNP of approximately $7,500, average Child Acquisition Costs are calculated as roughly $75,000 per child when educational costs during the many years preceding independent earning capability are included.

The potential of voluntary sterilization for economic and social development is indicated by the following calculation:

> Number sterilizations performed x 2 (births prevented by each sterilization) x per capita GNP x 10 (usual CAC factor) = the Child Acquisition Costs if these births were not prevented.

With the data available for 1978, when at least five million sterilizations were performed in developing countries (including China), and with the average per capita GNP about $250 for the developing world, one can calculate the Child Acquisition Cost savings of this action:

> 5,000,000 sterilizations performed in developing countries during 1978 x 2 (births averted per sterilization) x $250 (average per capita GNP in the developing world) x 10 (usual CAC factor) = *$25 billion* Child Acquisition Cost savings as a consequence of the 10 million unwanted births averted by performance of 5 million voluntary sterilizations in developing countries during 1978.

The potential of voluntary sterilization for improved development of families and societies is truly phenomenal. And as the developmental efficiency of voluntary sterilization becomes more generally realized, world appreciation for this means of contraception will increase.

REVERSIBILITY

Considerable progress has been made since the meeting at Tunis toward improved reversibility of surgical sterilization through meticulous reconstructive surgery of previously interrupted fallopian tubes and vas deferens (5).

In the best of circumstances surgical success rates for reversal of fertility now approximate 75 percent. Such reconstructive surgery in women is being facilitated by the shift from electrocautery to tubal rings and clips, and further improvements are anticipated.

When patients can be assured of a high probability of success should reversal of fertility subsequently be desired, it is likely that a considerable number of persons of lower age and parentage will avail themselves of the many advantages of voluntary sterilization.

The Office of Population of A.I.D. is supporting a research and training unit at the Johns Hopkins University aimed at perfecting and disseminating the requisite skills, equipment and support for reversal of sterilization.

We anticipate that each major country will need at least one Sterilization Reversal Center.

AVAILABILITY OF SURGICAL SERVICES

At Tunis three years ago I analyzed the numbers of trained personnel and surgical facilities needed to extend voluntary sterilization throughout the developing world, and concluded that approximately five surgical clinics were needed per million population to rapidly handle the backlog of demand.

Later, in a stable low birth rate population, less than half as many clinics would be needed.

During the last three years much has been done, but availability of quality surgical services still falls far short of what is needed in most countries and action toward creation of these services has only recently begun in Africa, for example.

The developing countries which have made the greatest progess in providing voluntary sterilization surgical services to their entire populations are China, Korea, Thailand, Tunisia, India, Colombia, Cuba, Singapore, Panama, and El Salvador. Other countries, such as Mexico, are now moving rapidly but have a considerable way to go before surgical services will be generally available.

Our emphasis must always be upon provision of adequate services, with the knowledge that if we accomplish that task well then the success of the voluntary sterilization movement will be assured.

We must emphasize service goals while eschewing acceptor targets.

PROSPECTS FOR THE 80's

At the time of the Third International Conference—with India and China intensifying their surgical sterilization programs and with the rapidly increasing popularity of voluntary sterilization in many countries—it seemed that the use of this method might double within five years, to about 130 million couples by the end of 1980.

But it is now clear that world performance will probably fall at least 20 million short of that estimate (Table 1). Most of this can be attributed to negative reaction to use of coercion in India which slowed implementation of service programs.

Not only did the negative reaction to coercion in India result in a shortfall of at least 10 million sterilizations there during these last several years, but negative reaction ripples in many other countries diminished the number of procedures performed in those countries by an estimated 10 million.

Also, the probable performance trajectory during the early 1980's has been lowered (Table 1) so that a special effort will be necessary to fully meet demand for sterilization by 1985, which, if rapidly and well done could increase the number of couples using voluntary sterilization to the level of about 150 million by the mid-eighties.

Table 1. Estimated Number Couples Depending Upon Surgical Sterilization for Control of Fertility

Year's End	World Population (billions)	Estimated No. of MCRA'S* (millions)	Estimated No. MCRA Using Surgical Sterilization (millions)	% MCRA Using Surgical Sterilization
1950	2.7	378	3	0.8
1960	3.0	420	5	1.2
1965	3.3	462	7	1.5
1970	3.6	504	15	3.0
1975	4.0	560	65	11.6
1980	4.3	602	105	17.4
1985	4.6	644	150	23.3

(Includes hysterectomies)

**For simplicity, the calculations are based upon the assumption that one-seventh (14%) of the general world population are married women of reproductive age (MCRA).*

With full availability of quality surgical services and optimal educational activities it is likely that prevalence of use of voluntary sterilization for fertility control will greatly increase in virtually all countries though the levels attained will naturally vary considerably.

Because the use of surgical sterilization interplays so greatly with the use of other methods and the changing duration of marriage, one cannot calculate the precise impact of this method upon fertility. But because the greater dependability of voluntary sterilization to some extent balances the lower age and parity of couples using other methods, one may perhaps best assume that each method will have an impact on fertility roughly proportionate to its prevalence.

As indicated in Table 2, the world birth rate was estimated at 27.4 for 1977. Based on the proportion of couples using voluntary sterilization, it appears that roughly one third of the decreased birth rate from the traditional level of 50 was due to voluntary sterilization. Approximately 30 million fewer births occurred in 1977 because of the 80 + million couples using voluntary sterilization.

Clearly, voluntary sterilization is already making a great contribution to the solution of excess fertility problems.

Table 2. 1978 Mid Year Population, 1965 and 1977 Crude Birth Rates, Percentage Decline and Data Sources for World, Regions and Countries or Territories (Preliminary)

Region and Country	1978 Population (in 000)	Crude Birth Rate 1965	Crude Birth Rate 1977	% Decline in CBR 1965-77
World Total	4,232,084	34.6	27.4	-20.8
Less Developed Regions	3,112,375	40.3	31.6	-21.6
More Developed Regions	1,119,709	18.7	15.7	-16.0

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Surgical Techniques and Their Program Implications

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Rustom Soonawala	The Evolution of Female Sterilization
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Gloria T. Aragon	The Role and Challenge of Female Voluntary Sterilization in Family Planning Programs
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	Task Force 9: Current and Future Female Sterilization Technology

The Evolution of Female Sterilization

Rustom Soonawala

Sterilization is a method of contraception which is permanent or long term. Its history began nearly a hundred years ago when in 1880, the first sterilization was performed in a patient delivered by caesarian section by ligating the fallopian tubes. By 1897, interval sterilization by colpotomy and by the abdominal approach were described and performed primarily for eugenics in mentally retarded individuals. In the 1920's, the increasing safety of surgical procedures encouraged gynecologists to perform sterilization more frequently in the post-partum period. It was only after 1950, however, that tubectomy became known as a highly satisfactory method for permanent control of fertility.

Sterilization for contraception, as one of the best methods of protection against unwanted pregnancies, did not become popular in Western countries and developed societies as it did in Asian countries where the increasing pressure of population growth necessitated introduction of the procedure in national programs. India has been in the forefront, having introduced and maintained both male and female sterilization in national programs for 25 years.

In the 1950's, the demand for sterilization was limited. Since most cases were puerpural, the abdominal approach was found to be ideal. The procedure was performed between 24 to 72 hours after delivery through a small 2 cm. subumbilical incision. The fundus, being high in the abdomen, made delivery of the tubes easy. The rest period after a sterilization conveniently coincided with the usual hospital stay of 5 to 10 days. Enhanced motivation during pregnancy and post-partum made puerpural sterilization a well accepted procedure. Nevertheless, the small but significant incidence of incisional hernia resulting from lax abdominal muscles did create a fear of the procedure generally among grand multiparas with 6 to 10 living children.

After 1960, the trend in higher parity and age of acceptors began to change and younger women with 2 to 3 living children volunteered for sterilization. Because of a high infant mortality, it was often thought advisable to delay the operation a few months or years, to evaluate the chances of survival of the mother's living children before resorting to a permanent procedure.

At the same time, women dissatisfied with the available alternative contraceptive methods such as the Pill and IUD became receptive to sterilization. With liberalization of abortion in many countries, the demand for interval sterilization further increased as women seeking abortion became motivated to accept a permanent method of contraception. This stimulated development of interval sterilization, first by the vaginal route—colpotomy—and later by a modification of the abdominal route, popularly called "minilap."

The last decade has produced rapid advances in technology of medical endoscopy: the introduction of the Hopkins rod lens system and fibre light illumination; sterilization by laparoscopy; culdoscopy; and most recently, hysteroscopy.

The period from 1950 to the present has witnessed a rapidly rising tide in the demand for female sterilization. The figures for acceptance rose from the hundreds in the fifties to the thousands in the sixties and became millions in the seventies. Throughout this period efforts have been directed to make each method of sterilization:

- Safe for the individual.
- Simple, enabling operators with minimal training to be employed.
- Reversible, to permit restoration of fertility if necessary.
- Economical, to allow maximum participation by developing countries with limited financial resources.

It is best to discuss sterilization procedures under two categories: 1) approach to the fallopian tube; and 2) method of tubal occlusion. The fallopian tubes could be reached per abdomen by laparotomy, per vaginum by colpotomy or by using one of three available endoscopes: laparoscope, culdoscope, or hysteroscope.

The two most popular methods are minilap and laparoscopic falope ring application. Other methods are used according to local needs, available equipment, and expertise.

TECHNIQUES OF TUBAL OCCLUSION

The fact that over 30 techniques for a simple procedure like occlusion of the fallopian tubes have been described reflects the need for an ideal method. The point is always to make the occlusion simple, effective, yet reversible.

Pomeroy's technique has withstood the test of time. Ligation with absorbable suture material followed by excision of the loop results in separation of the cut ends after the ligature dissolves and minimizes the incidence of failure. Excision of the loop in this classic method, however, results in loss of a large segment of the tube making reconstruction difficult as the two ends become of unequal diameter. To overcome this, I have devised this modification: the tube is picked up with a hemostat instead of a Babcock forceps, a small segment is tied across with an absorbable ligature and then cut at the crushed portion to create a discontinuity without excising any segment of the tube. The length of the tube sacrificed by this method is half of that lost in other methods. In the four years that I have practiced this technique, there has been no difference in the failure rate compared to traditional methods.

The modifications described by Lapharts and Uchidas, of subperitoneal dissection and occlusion of the tube without disturbing the blood supply in the mesentary, are excellent but cannot be applied universally since it is difficult to use such techniques in large numbers with surgeons of varying experience.

A variety of non-ligation methods such as silastic bands, various kinds of clips, fulguration, necrosis by cold or chemicals, solid plugs and laser have been used with the advantages and drawbacks particular to each. Despite this effort, a method of tubal occlusion which is simple, safe, effective and easily reversible is yet to be developed.

ANESTHESIA

A decade ago, general or spinal was the anesthesia of choice. At times side effects created greater morbidity than the sterilization operation itself. With improvement in surgical technique, it was now possible to perform most sterilizations under local infiltration with some degree of sedation. A long lasting local anesthetic agent which could alleviate pain for 36 to 48 hours needs to be developed. A totally pain-free operation and recovery would provide a strong incentive to acceptance of sterilization since most people avoid surgery for fear of pain.

THE SURGEON

In all countries where population pressures are maximum, there is a shortage of qualified doctors. To avoid diverting highly trained personnel to implement family planning procedures, paramedics well-trained in the delivery of fertility control services could be used, particularly in countries and areas where physicians are not available or will not go. This concept is a bold step in a new direction, but if taken and properly implanted, would provide family planning services where they are most needed.

CONCLUSION

Presently, female sterilization is the backbone of fertility regulation programs and demand is steadily increasing. Among males, demand for sterilization fluctuates and requires persistent efforts at motivation.

Many promising methods have been developed but all have drawbacks. I am sure human ingenuity will find a breakthrough. Until then, let us make the best use of presently available methods by improving delivery services. The occasional mishap that may arise can be avoided by better patient care and follow-up.

The Evolution of Male Sterilization

Fardoon Soonawalla

If excessive population growth is the crisis of this century, successful use of sterilization for its control is certainly a major advance in measures for human welfare.

Male sterilization is reported to have been first performed in the 1890's by Lennander in Sweden and Anderson in Great Britain. It gained prominence as a eugenic measure in 1934 when a bill was introduced in the British Parliament for sterilization of males with mental disorders and certain transmissable diseases.

At the same time, sterilization by radiation was attempted but was unacceptable, since application of the correct sterilizing dosage was difficult and an insufficient dosage might result in injury to sperm or ovum. Fertilization, once accomplished, might produce a high incidence of congenital abnormalities in future generations.

In the two subsequent decades, the acceptance of vasectomy was restricted to that of an office procedure for contraception at individual request. During the war years it acquired disrepute from its use by Nazis for compulsory sterilization of males of "undesirable" groups. After the war the operation was included in surgical texts as an adjunct procedure during prostatectomy to prevent epididymitis from ascending infection (1).

VASECTOMY FOR POPULATION CONTROL

In the 1950's, measures for contraception such as the Pill, the IUD and sterilization were begun on mass scales. Among these, sterilization was directed primarily toward female acceptors who generally were naturally motivated towards family planning. During this period, India led the way in implementing government sponsored, national population policies and initiated mass sterilization campaigns such as the one in Madras State in 1958.

The 1960's saw a decline in the popularity of the Pill and the IUD. At the same time it was realized that these temporary methods for spacing were not demographically effective because of a high failure rate, high rates of discontinuance, and problems of sustained motivation. At the national level, vasectomy was viewed as an ideal method, being effective, safe, acceptable, economical and also easily implementable on a mass scale.

During this period when the demand for male sterilization rapidly increased, attention of researchers was directed towards simplifying the technique and reducing the morbidity of the operation. The technique of vasectomy described in surgical books at that time was meant for use in operation theatres on in-patients. It involved exteriorization of the cord through a scrotal incision and excision of long segments of the vas. This method, when used in the primitive facilities that existed in family planning clinics in developing countries, led to unacceptably high incidences of post-operative pain, hemorrhage and infection resulting in loss of working days.

Thus was evolved the technique of "mini-vasectomy" through two lateral incisions, which was further modified to the single incision method. The ease of operation was greatly facilitated by the introduction of a new vas forceps (2).

In the late 1960's, the acceptance of vasectomy in India was four times that of female sterilization. During this period, due to adverse publicity about oral contraceptives and campaigns to encourage greater male involvement in family planning, particularly through the efforts of the Association for Voluntary Sterilization, there was increased use of vasectomy in the United States and to some extent in Western Europe (3). It also emerged as a prominent component of national population programs in Bangladesh (then East Pakistan), South Korea, Nepal, Sri Lanka and People's Republic of China (4).

VASECTOMY CAMPS

In areas where lack of communication, transport and health services prevented motivation and implementation of family planning services, the facilities were extended to rural and remote areas by introduction of the camp approach. Personnel and equipment for motivation and service were temporarily provided where none existed earlier. The operations were carried out in village schools or even in the open. Such camps, first organized around Bombay and Madras, were for vasectomy only, but later the facilities were extended to provide all contraceptive procedures. This aspect of the service became a regular feature of family planning in India in following years.

The camp concept was modified to provide temporary sterilization services in large industrial establishments, for one to two days, and later extended to the slums through makeshift, roadside centers and also in mobile vans (5). These innovations brought sterilization to the

doorstep of the urban dweller and to the remote villager. It modified fear of surgery and made family planning a feature of daily life. Several countries of the Indian Ocean Region and South East Asia have used the concept of mobile and temporary surgical services in a highly successful manner.

TRAINING OF DOCTORS

It was realized that the success of sterilization programs depends on efficient implementation, the satisfied acceptor being the best motivator. Retrospective studies have also shown that good clinic management and a well-motivated staff are more important than costly equipment, as efforts put towards better performance by existing staff pay greater dividends. A dedicated doctor well trained in the performance of vasectomy is the best guarantee to the success of a clinic. At this stage, then, training of doctors became an important facet in the evolution of sterilization and the Family Planning Association of India has been one of the first agencies to organize a series of advanced training courses in family planning techniques in India and in other countries of the Indian Ocean Region.

The decade of intense activity in male sterilization created a generation of young doctors who were highly skilled operators, each having performed several hundred to a few thousand vasectomies. Many of them are non-surgical practitioners of medicine and a few are even paramedics. In Britain, the general practitioner rather than the surgical consultant has been found most suitable (6).

In the early 1970's, after more than ten million vasectomies had been performed all over the world, most retrospective surveys indicated a very low complication rate and a large majority of highly satisfied acceptors. Vasectomy, it seemed, had proved to be the most efficient, safe, and easily implemented method of contraception. This happy state had been reached following intense efforts at education of the male acceptor, removal of myths against vasectomy and creation of a large cadre of operators skilled in the standard technique of the operation.

THE UNDESIRABLE SEQUELAE

Long term follow-up of vasectomized men brought into prominence certain undesirable sequelae such as failure due to spontaneous recanalization, formation of antibodies, doubtful effects on libido and the need for reversal in some cases. The possibility of these sequelae, however remote, was a hinderance to motivation and prevented some from coming forward for sterilization. The last ten years have, therefore, seen research activity to locate the cause and consequences of the changes after vas occlusion with the idea of minimizing these adverse effects.

Reduction in incidence of late failures has been brought about by modifying methods of ligating vas ends, including overlapping, looping, and interposition of the sheath between the ends. In my experience, ligation of looped ends assures a most secure tie, with the least effort and the lowest incidence of spontaneous reunion.

Use of clips and silastic bands are still in the experimental stage and seem to offer no significant advantage over ligation. The cautery technique is reported to produce a lower incidence of complications with virtually no possibility of failure (7). It is rapidly gaining popularity.

An important consequence of vasectomy is appearance of sperm for up to fifteen or twenty ejaculations, which requires contraception for two or three months after sterilization. "Instant vasectomy" can be produced by flushing the abdominal segment with 3 ml. of 2% Furazone solution (8).

PERCUTANEOUS TECHNIQUES

Attempts have also been made to simplify vas occlusion by non-operative, percutaneous ligation or bipolar cautery fulguration without incising the skin and by injection of sclerosants. Among these, injection of a combination of 90% ethanol and 3.6% formaldehyde may find clinical acceptance (9). It may be possible in the future to use ultra sound as a quick and safe non-invasive method of vas occlusion.

INTRA-VASAL DEVICES

Subsequent to the first reports of experiments in occlusion of the vas by insertion of inert substances in the lumen (10, 11), several devices have been tried ranging from injected liquid silicone to insertion of nylon thread, copper wire, or rods of polythene, nylon or silastic. The tendency of the obstructed vas to dilate, however, led to leakage of sperm with an increasing rate of sperm appearance over a period of time. Besides, removal of the device did not secure restoration of fertility due to post inflammatory obstruction in 10 to 20% of animals. Clinical application did not, therefore, follow the experiments.

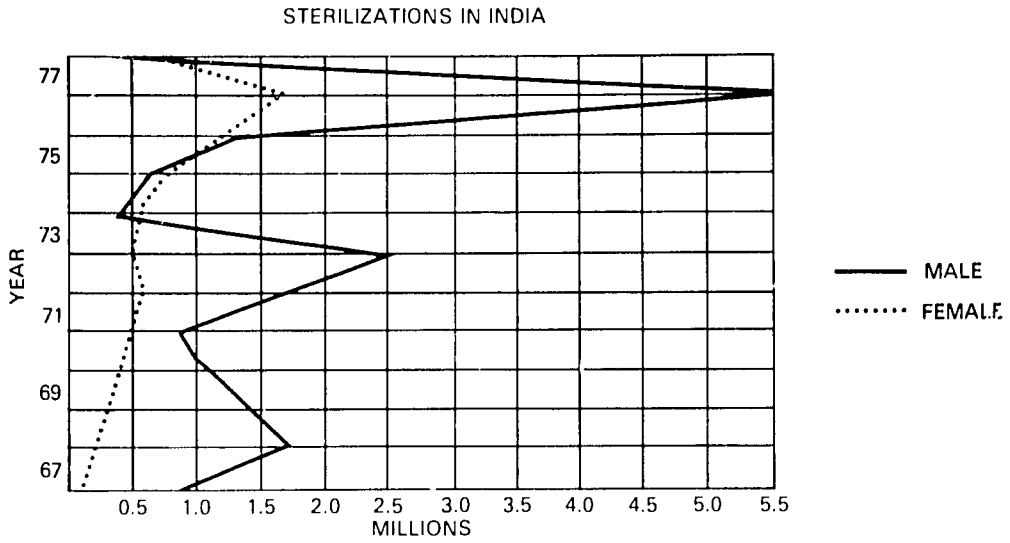
VALVULAR OCCLUSIVE DEVICES

Several types of implanted valvular devices which can be turned on or off have been tried (12). Of these, the rigid ones initially used have been replaced by flexible silastic devices. Occlusion of the canal has been achieved by a rigid shuttle stem or a screw or by application of a hemoclip. The RIOD described by Free (13) is a three-piece device wherein patency of the canal can be altered by interchanging the color coded connecting piece. At present there are too many uncertainties associated with their use, making clinical application unlikely.

CONCLUSION

Male sterilization in the foreseeable future will continue to depend on conventional surgical techniques. Its superiority in mass implementation over female sterilization is clearly brought out in Figure 1, which shows the number of male and female sterilizations done from 1966 through 1977 in India, a country where both sexes have accepted sterilization freely.

Figure 1. Male and Female Sterilizations in India



Throughout this period vasectomies outnumbered tubectomies and during periods of increased governmental pressure for better performance, the numbers have reached astronomical heights. This denotes the ease of implementation of vasectomy. However, under adverse conditions as in 1977-78, the period after the emergency, the fall in acceptance has been equally precipitous. Since females are generally self-motivated, tubectomies have, by contrast, maintained a steadily rising rate of acceptance. Proper implementation and sustained efforts evidently are the key to the success of male sterilization programs.

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The Role and Challenge of Female Voluntary Sterilization in Family Planning Programs

Gloria T. Aragon

WORLDWIDE GROWTH OF FEMALE STERILIZATION AS A CONTRACEPTIVE METHOD

The remarkable increase in the number of voluntary sterilizations, particularly in the last ten years, has been documented. The estimated global acceptance figures (Table 1) show an increase from three to four million in 1950 to 20 million in 1970, to 65 million in 1973, and to 80 million in 1977. Significantly, the Asian continent alone has three-fourths of the total voluntary sterilization acceptors the majority of whom are women. In the Philippines, for instance, nine out of ten voluntary sterilization acceptors are women.

Country data on voluntary surgical sterilization are generally limited, partial, or incomplete, and for a number of countries, are not readily available. Many experts believe that voluntary sterilization adopters are underreported because of people's sensitiveness to the procedure. Nevertheless, the existing available data indicate that the growth of female sterilization so far has been remarkable, particularly in developing countries, and specifically in the last five years.

Table 2 shows those countries with predominantly female acceptors of voluntary sterilization. A number of countries report over 10,000 Among them are Korea, Thailand, the Philippines, Sri Lanka, Pakistan, El Salvador and Singapore. The United States, on the other hand, shows that both male and female surgical contraception programs have made nearly equal progress. Table 3 shows the number and percentage of female/male acceptors of voluntary sterilizations, as compared to users of other contraceptive modalities in the Philippines.

FACTORS INFLUENCING ADOPTION OF FEMALE SURGICAL CONTRACEPTION

The growth of female sterilization, or any contraceptive method for that matter, is influenced by the political, legal and religious climate of the country, by the attitudes or cultural beliefs of potential acceptors, and by the system of providing the service.

Political-Legal Factors

A review of the legal status of voluntary sterilization gives three types of law related to voluntary sterilization: 1) laws authorizing voluntary sterilization which prescribe certain procedures or conditions for operations such as waiting periods between request and operation, minimum age, spouse's consent, facilities, and sex descrimination; 2) laws prohibiting sterilization under varying circumstances; and 3) a *lacuna* in statutory law where criminal statutes do not specifically prohibit or permit voluntary sterilization.

Table 1. Estimated Number (in millions) of Couples Controlling Fertility by Voluntary Surgical Sterilization, by Country, Continent, and Year (as of December 31 of given years) (1)

Country or Continent	Year					
	1950	1960	1970	1975	1976	1977
China	*	*	4	30	31	35
India	*	*	7	17	23	22
Asia (excluding China, India)	*	*	1	2	3	3.5
United States	1	2	3	8	9	9.5
Europe	*	*	3	4.5	5	5.5
Latin America	*	*	1	2	2.5	3
Canada	*	*	0.5	1	1	1
Africa	*	*	0.5	0.5	0.5	0.5
Estimated World Total	4	7	20	65	75	80

*Estimate unavailable

Table 2. A Summary of Voluntary Sterilization Users (1)

Country	Year	% of MWRA Protected by Sterilization	Sterilization Adopters as % of All Contraceptive Adopters	% of Adopters Female
Bangladesh	1976	2.2	39	28
Botswana	1976	0.2	NA	100
Dominican Republic	1975	11	NA	NA
El Salvador	1976	14.5	26	94
Fiji	1974	22	NA	100
Guatemala	1976	0.3	9	100
India	1976/77[a]	20.6	NA	25
Jamaica	1975	NA	12	100
Korea	1977	9.2	17[b]	77
Malaysia	1975	2.1	6	NA
Nepal	1976/77[a]	2.4[b]	12[b]	33
Pakistan	1976	0.4	2	87
Panama	1976	10.3	8	86
Philippines	1976	1.6	7	81
Singapore	1976	15.8	28	96
Sri Lanka	1974	9.1[c]	36	83
Tanzania	1976	-	NA	100
Thailand	1976	8.6	17	90
Tunisia	1976	4.9	9	100
United States	1976	29.0[c]	NA	51

a Data cover fiscal year (April to March).
b Data are for January to September 1977.
c Data are for 1975.

Table 3. Philippines: Percent and Number of Acceptors by Method, 1976 - 77 (2)

	1976		1977	
Method	Percent	Number	Percent	Number
Rhythm	7.2	46,651	5.9	30,417
Pill	43.9	283,907	41.5	211,353
IUD	6.7	43,253	8.2	41,529
Condom	31.5	203,726	29.8	151,686
Sterilization				
Male	1.6	10,296	1.5	7,416
Female	5.8	37,686	11.0	55,975
Other	3.3	21,264	2.1	10,716
Total	100.0	646,783	100.0	509,082

Many countries have no legal provisions regarding sterilization, and are the third type where voluntary sterilization is considered legal since it is not expressly prohibited. Only six countries have specific prohibitions on voluntary sterilization: Greece, Italy, Portugal, Spain, Somalia and Burma. In the Philippines, all acceptable methods of contraception, except abortion, have been authorized.

Interestingly, while there are countries which specifically prohibit male voluntary sterilization (such as the German Federal Republic and Panama), there are none which specifically prohibit female voluntary sterilization. Of course, this could be interpreted as merely a reflection of male chauvinism.

Sociodemographic Factors and Cultural Attitudes

A review of the limited literature on sociodemographic factors and cultural attitudes shows that female voluntary sterilization acceptors are generally in their early 30's, the range being from early 20's to late 40's, and have an average of five children, the range being two to 9 children. The concentration of acceptors in a certain age group and parity level may be a function of recruitment policies, rather than clients' preferences. A large number of acceptors are reported as not having used contraceptives before, suggesting that preference for sterilization has to do with family size limitation rather than childspacing.

There are even fewer studies on the motivational factors associated with the choice of sterilization as a contraceptive method. An apparently common concern of clients is the effect of sterilization on health and sexuality. Some of the literature cite clients' need to know the details of the operation and recovery.

An in-depth micro study (3) of female voluntary sterilization acceptors in the Philippines indicates that surgical contraception, because of its perceived permanence, seems to be the logical choice for those who have their desired number of children within their financial capabilities. The common attitude, however, seems to be that even though the desired number of children has been reached, the family is not complete unless there is at least one male and one female child. The study also noted that fear of surgery and its effect on health and on sexual life appeared to be important considerations for clients in submitting to female sterilization. Competence of the staff, more than its accessibility, seemed to be a primary concern in the choice of a service center.

SERVICE DELIVERY STRATEGIES

Voluntary sterilization, particularly female sterilization, has been promoted and delivered as a contraceptive method using various service strategies in diverse settings, and this has affected its growth and acceptance.

Government Support

In Asia, most countries provide government support to voluntary sterilization. In the Philippines, for example, government support is provided for training, equipment, subsidy, and for setting up of service centers.

In Latin America, by and large, female voluntary sterilization is available only through private physicians, and is mainly promoted by private institutions. Notable exceptions are El Salvador, Puerto Rico and, more recently, Mexico, where female voluntary sterilization is provided through government health centers.

In the Middle East, Tunisia is the only country where female sterilization services have been incorporated into the national family planning program. In Lebanon, Egypt and Jordan, it is available in a number of hospitals and/or through private physicians.

In the U.S. and Canada, female voluntary sterilization is widely available. Although male and female voluntary sterilization services are well received in the U.S., mostly female services are available in Canada.

As for the countries in Oceania, it seems only Western Samoa has made female sterilization services part of its family planning services. In Fiji, however, services are widely available and accepted. It is also readily available in the urban centers of Australia and New Zealand.

In Africa, sterilization is not commonly available as a contraceptive method. In fact, the continent has the lowest incidence of voluntary sterilization in the world. The only exception is South Africa where both male and female sterilization are available in government hospitals. However, female sterilization services are reportedly being expanded in Kenya, Mauritius, Nigeria, Senegal and the Sudan.

Recruitment Policies

Many countries have set an age requirement for applicants—ranging from the early 20's to the mid 30's; some have parity requirements of two to five children. In addition, many countries require the written consent of the spouse.

In the Philippines, written consent of the spouse is required, but there are no official criteria for female voluntary sterilization applicants. The lack of uniform recruitment criteria, and conversely, flexibility in recruitment, has been perceived both positively and negatively. On the one hand, lack of uniform criteria could result in waste of time, money and effort spent in motivation when those recruited are rejected by service centers which go by age, parity, and other requirements. On the other hand, absence of criteria allows for a lot of flexibility and opens a wide market for female surgical contraception.

Program Practitioners

Female voluntary sterilization procedures are usually performed by physicians. This, of course, constrains the growth of the program, especially in countries where there is shortage of medical personnel, and especially of doctors. There have been occasional experiments with the use of paramedics or nonprofessionals. In Thailand, trained operating theatre nurses have been found quite able in performing surgical contraception procedures. In Bangladesh, women with only 10 years of education, and with no professional training, were trained to perform mini-laparotomy in rural areas. Apparently local women prefer these para-professionals to physicians.

In the Philippines, paramedics have not yet been mobilized for performing surgical contraception. The present concern of the program is the development of surgical skills in sterilization among physicians whose number seems to be presently sufficient to meet existing demand.

Access to Services

Access to services is a major factor in the adoption of female voluntary sterilization. Services are usually provided in hospital-based health centers and clinics. Use of non-hospital settings, particularly the camp approach, has been widely undertaken only in India and Nepal, with very few reported cases of complications or failures.

In the Philippines, the use of itinerant teams has been a major strategy in expanding services to remote areas. These teams complement static service centers in various parts of the country. With a continuously expanding network of services, the itinerant teams could be mobilized to enhance the competence of existing static centers.

Program Incentives

The provision of incentives for female voluntary sterilization has helped to promote acceptance of the method, particularly in developing countries. The incentive to the client commonly takes the form of a subsidized or free operation. For the staff, provision of training and equipment may be viewed as incentives.

In the Philippines, a subsidy of ₱105.00 (US $13.75) is provided through Medicare or the Population Commission. This amount is divided between performing staff and the hospital for the cost of medicines. However, remuneration for performing female voluntary sterilization services is perceived by doctors as meager compared with that received for other services. Moreover, existing program staff complain of limited professional growth. These factors result in a fast turnover of program staff and decrease of personnel within the program.

DEMOGRAPHIC AND PUBLIC HEALTH ASPECTS

Demographic Impact

Female voluntary sterilization programs have made an impact on fertility trends. It is estimated that, based on a mean fertility of five children at an acceptance age in the early 30's, two to three births may be averted.

Concepcion and Laing, on the basis of age-specific marital fertility rates obtained from the 1973 Philippine National Demographic Survey and utilizing joint survival rates, assuming the husband's ages were 2½ years greater than the wife's, constructed the hypothetical model (Table 4) to assess the possible number of births averted by increased sterilization acceptance. Three levels of fertility (national mean, and those of regions representing the lowest and highest fertility rates) were assumed in the computation for births averted.

Table 4. Estimates of "Future Births Averted" (FBA) Among Sterilization Acceptors, by Age

Inputs: 1) Age-specific marital fertility rates (ASMFR) from 1973 NDS for Greater Manila, Total Philippines, N.E. Mindanao (representing minimum, mean, maximum levels).
2) Joint survival rates (SR) [from Engracia]—assuming husband's ages were 2½ years greater than wife's ages.

Formula: $FBA_i = 5\,[(ASMFR_i)/2 + (ASMFR_i + 5)(SR_i + 5) + (ASMFR_i + 10)(SR_i + 10) + \ldots + (ASMFR_i + 25)(SR_i + 25)]$

	Greater Manila (Minimum)			Total Philippines (Mean)			N.E. Mindanao (Maximum)		
Age (i)	$ASMFR_i$	SR_{i+5}	FBA	$ASMFR_i$	SR_{i+5}	FBA	$ASMFR_i$	SR_{i+5}	FBA
15-19	413	.971	6.9	450	.971	7.7	473	.971	8.4
20-24	459	.961	4.9	444	.961	5.7	465	.961	6.2
25-29	348	.952	3.0	378	.952	3.8	411	.952	4.3
30-34	246	.941	1.6	308	.941	2.3	334	.941	2.6
35-39	139	.928	0.7	218	.928	1.0	255	.928	1.2
40-44	85	-	0.2	108	-	0.3	121	-	0.3
45 +	0	-		0	-		0	-	

Computed by John E. Laing on the basis of age-specific marital fertility rates obtained from the 1973 National Demographic Survey and utilizing survival rates derived by Luisa Engracia of the National Census and Statistics Office.

Table 5. Sterilization Methods and Factors Affecting Their Utilization (1) (World Statistics)

	Male	Female				
	Vasectomy	Conventional Abdominal Laparotomy	Laparoscopy	Mini-Laparotomy	Colpotomy	Culdoscopy
Failure rate	0.15%	0 to 2%	0.2 to 2%	0.2 to 0.6%	0 to 0.55%	0 to 0.55%
Reversibility	5-70%	about 10-50%	about 10-50%	about 10-50%	about 10-50%	about 10-50%
Complications	5%	0 to 7.4%	0.1 to 7%	0 to 6.5%	1.6 to 13.3%	1.6 to 13.3%
Mortality	almost 0	low	low	low	low	low

Table 6. Overall Complication Rates—Study and Training Center of Surgical Sterilization November 1, 1974 to December 31, 1978

	Minilap 5,899		Laparoscopic 2,085		Culdoscopic 1,826		Vasectomy 725	
Complication	Points	Percent	Points	Percent	Points	Percent	Points	Percent
Minor*	125	8.17	149	22.71	10	1.64	34	11.45
Major*	29	1.79	14	0.69	32	2.92	4	0.88
Total	154	9.96	163	23.4	42	4.56	38	12.33

**Complications not requiring any additional surgical intervention nor hospitalization.*

From Table 4, it is clear that the greater demographic impact results from women who accept sterilization during the first 10 years of their reproductive life. For women who are sterilized in their early twenties, the number of births averted ranges from five to six births, depending on their marital fertility levels.

Health Aspects

Morbidity/mortality rates admittedly are higher with female sterilization than with vasectomy, as shown in Table 5 on world statistics.

Complication rates depend mainly on the procedure used, the competence of the surgeon, and the support facilities available. Our experience is that the vaginal methods have a higher complication rate.

Table 6 shows complication rates and Table 6A the failure rates at the Study and Training Center of Surgical Sterilization, Philippine General Hospital.

Maternal and infant mortality rates rise with increasing parity and maternal age. Pregnant women of 35 years or older, or those with more than four children, are considered at high risk. By preventing pregnancies in these women, voluntary sterilization plays a significant public health role.

*Table 6A. Rate of Pregnancy by Dates of Operations—Study and Training Center of Surgical Sterilization**

Year	Laparoscopy	Culdoscopy	Minilap
1973	-	1	-
1974	-	-	-
1975	2 (0.17%)	1 (0.11%)	-
1976	7 (0.95)	6 (0.75%)	1 (0.25%)
1977	-	-	2 (0.14%)
Total	9 (1.12%)	7 (0.86%)	3 (0.39%)

**Data taken up to December 1978.*

As shown in Table 7, the mortality risk from a pregnancy is many times over that of surgical sterilization. This is particularly true in developing countries with inadequate health services. There pregnancy mortality rates multiply several times over those from sterilization.

Table 7. Estimated Mortality Associated with Maternity and Use of Sterilization by Age, and Country Setting (1)

Country Setting	Age Group					
	15-19	20-24	25-29	30-34	35-39	40-44
Pregnancy and Childbirth (per 100,000 l.b.)						
Developed Countries	11.1	10.0	12.5	24.9	44.0	71.4
Developing Countries—advanced	20.0	20.0	25.0	50.0	100.0	150.0
Developing Countries—less advanced	700.0	400.0	500.0	500.0	500.0	800.0
Female Sterilization (per 100,000 operations)						
Developed Countries	10.0	10.0	10.0	10.0	15.0	20.0
Developing Countries—advanced	20.0	20.0	20.0	20.0	30.0	40.0
Developing Countries—less advanced	50.0	50.0	50.0	50.0	75.0	100.0

OUTLOOK/CHALLENGES FOR FEMALE VOLUNTARY STERILIZATION PROGRAMS

The remarkable growth of female voluntary sterilization as a contraceptive method, especially in Asia, is evident. As the Philippine experience attests, however, program managers of developing countries are now faced with the demand to recruit more acceptors on the one hand, and on the other, with the need to expand and deliver the services promptly, efficiently and satisfactorily. These challenges are tied up with the challenge of simpler female sterilization technology.

Strategies for Promotion and Motivation

In the area of promotional and motivational strategies, the general concerns are:

- Developing IEC/motivational strategies to 1) counteract misconceptions that female surgical contraception procedures may affect one's sexuality, 2) allay fears of pain, surgery and effects on health, and 3) develop in clients a better understanding of the procedure.
- More studies to be undertaken on decision factors and personal concerns associated with the choice of sterilization as a contraception method.
- Advantages and disadvantages to the growth and efficiency of the program of setting uniform recruitment criteria for acceptors.
- Efforts toward liberalization of existing policies and/or active government support for the program to promote female voluntary sterilization, particularly in Latin America, the Middle East and Africa.

Accessibility of Services

The extension of female voluntary sterilization programs in the rural areas of developing nations creates the problem of how to make the services accessible. In the initial phase of the program, the camp approach or the mobile teams approach may be very useful; but factors such as its relative safety, effectiveness and cost-benefit in the long run, need to be weighed against the setting up of static service centers in various places in the country.

Cost of the Service and Program Subsidy

In developing countries like the Philippines, the cost of sterilization is prohibitive for many people who are barely on a subsistence level. Thus, voluntary sterilization is subsidized or provided free. Governments of developing countries with a rapidly expanding program will, however, find it difficult to continue to subsidize a very expensive program. As it is, the subsidy is regarded as inadequate in the Philippines. As a result, the prograam may suffer because of limited finances not only for subsidized operations, but also for training and service equipment, and the development of service outlets.

Use of Paramedics and Nonprofessionals

The insufficiency of medical personnel in many developing countries is another factor to contend with, especially with the expansion of female voluntary sterilization services. Experiments on the use of nonmedical personnel in performing surgical contraception need to be encouraged. The development of simpler technologies is expected to facilitate this.

Advances in Female Sterilization Technology

In developing countries particularly, the mandate for technological development research is towards developing methods that are effective, safe, require only a simple procedure with minimum equipment and facilities, and which may be carried out by paramedical personnel with a minimum of training.

At present, minilaparotomy seems to be the most practical procedure for developing countries, and it should be given priority in the search for further refinement of anesthetic techniques and surgical equipment to further simplify the procedure. In the Philippines, the Study and Training Center of Surgical Sterilization has been con-

tinuously working to achieve this. Until very recently it had to contend with the problem of providing effective minilaparotomy services with the limited subsidy of ₱105.00 (US $13.75) per acceptor.

Another priority for research is the reversibility of sterilization techniques. Although many couples appear to seek sterilization to end childbearing rather than to space their children, there are younger couples who hesitate to adopt the method because of possible death of a child or possible remarriage. Microsurgical techniques for reversing female sterilization appear promising; Dr. Victor Gomel of Vancouver General Hospital, British Columbia has reported 70 percent success.

At the same time, research on the transcervical approach to female sterilization and on systemic, nonsurgical female sterilization methods (such as the pharmacologic or immunologic, permanent or semi-permanent method) should be continued.

Overall Program Challenge

In closing, I would like to stress the fact that there are diverse settings where sterilization services must be performed. The challenge before population program managers is clear: they must find out which strategies of promotion and service delivery for female voluntary sterilization will work in their individual country settings.

The author acknowledges the assistance of the Population Information Division of the Population Center Foundation in retrieving information for this paper.

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The Role of Male Sterilization in Family Planning Programs

Badri Raj Pande

Global population trends reveal that the world population will increase by 150%, from 2.50 billion in 1950 to 6.25 billion (projected) in 2000. If the more developed countries have an increase from 1950 to 2000 of 59%, the less developed countries will have 198 percent. Regionally, the top place may be taken by Latin America with an increase of 278% followed by increase of 272% in Africa and 227% in Asia except East Asia. Europe, USSR and North America are expected to grow only by 37%, 75% and 78% respectively during the period (Table 1). The ratio of people in the developing to the developed world will increase from 2 to 1 in 1950, to 3.6 to 1 in 2000.

Though the population growth trends reveal much higher population growth in Latin America, Africa and Asia, not all countries have official policies to reduce population growth rate. Only 35 countries, including all of South Asia with one exception, have such a policy. However, 30 more provide official support of family planning activities for other than demographic reasons. Sixty-six countries mostly in West Asia, Africa with the exception of North Africa, Latin America, and East Asia have no policy to reduce the growth rate and do not provide direct support to family planning activities (Table 2). Fortunately, even in these countries, contraception services are available in a limited way. It is gratifying to note that family planning service is provided in health as a human right in most countries of the world today.

STERILIZATION

Sterilization service is provided as one of the components of family planning service in many countries which have an official policy to reduce population growth. Even in countries which support family planning services for reasons other than demographic, sterilization service is provided for health and welfare reasons. Most countries provide family planning services within the framework of maternal and child welfare services. In countries like Nepal, family planning services have been integrated with maternal and child health services right from the beginning when an official policy was declared.

Vasectomy has become increasingly popular all over the world, during the last few years. In the U.S. and Europe, vasectomy became the method of choice for many people following adverse publicity regarding the safety of the Pill. In the U.S., feminist organizations believed in vasectomy and felt that the time had come for men to assume responsibility for birth control, that "It is no longer women's burden to inflict pain, humiliation and physical danger" upon themselves by using the Pill, diaphragm and IUD (2). Indeed, in the U.S., the number of vasectomies jumped from a quarter of a million in 1969 to three quarters of a million in 1970 and 1971 and is now levelling off at about half a million annually (3).

Table 1. Global Population Trend 1950 - 2000 (in millions) (1)

Year	World Total	Development Status		Geographic Region							
		More developed	Less developed	Africa	North America	Latin America	East Asia	Balance of Asia	Europe	Oceania	USSR
1950	2,501	857	1,644	219	166	164	674	693	392	12.6	180
1970	3,610	1,084	2,526	352	226	283	927	1,101	459	19.3	243
1976 (estimated)	4,041	1,142	2,899	412	239	333	1,018	1,283	476	21.6	258
1985 (projected)	4,816	1,230	3,586	531	262	426	1,164	1,625	500	25.8	282
2000 (projected)	6,254	1,360	4,894	814	296	620	1,370	2,267	539	32.7	315
Percent increase 1950 - 2000	150	59	198	272	78	278	103	227	37	160	75

More Developed: North America, Europe, USSR, Israel, Japan, Argentina, Australia and New Zealand
Less Developed: Africa, Asia, Latin America, Oceania (excluding countries listed above).

Table 2. Policy Positions on Population Growth Rate, by Region (1)

Government Position	All Developing Countries[a]	North Africa[b]	Balance of of Africa	West Asia[c]	East Asia & Oceania[d]	South Asia	Latin America[e]
Total	132	6	46	16	25	6	33
Official policy to reduce the population growth rate	35	3	5	2	11	5	9
Official support of family planning activities for other than demographic reasons	30	2	13	2	1	0	12
Government policy unkown	1	0	0	0	1[f]	0	0
Remainder: no policy to reduce the growth rate and no support of family planning activities	66	1	28	12	12	1	12

a. Development status is based primarily on stage of economic development; see footnote Table 1.
b. Includes Algeria, Egypt, Libya, Morocco, Tunisia and Sudan.
c. Excludes Israel.
d. Excludes Japan, Australia, New Zealand, includes Melanesia, Polynesia and Micronesia.
e. Includes the Caribbean area plus Central and South America, but excludes Argentina and Uruguay.
f. Democratic People's Republic of Korea.

Vasectomy is popular because it is a simple procedure completed within a few minutes in expert hands and is cheap, safe and satisfactory. The IPPF panel of experts on male and female sterilization has observed that no significant long-term clinical side effects of male sterilization have been demonstrated, although millions of operations have now been performed all over the world (4).

Because of the simplicity and cost effectiveness of vasectomy, the number of acceptors from 1972 through 1976 in 21 developing countries increased tremendously. In India, of 11 million vasectomies performed between 1972-76, over six million were performed during 1976. Vasectomy is also gaining popularity in countries like Colombia, El Salvador, Indonesia, Malaysia, Pakistan, Philippines, Singapore, Taiwan, and Thailand. There is an upward trend in the number of vasectomy acceptors in these countries although female sterilization exceeds vasectomy. The number of vasectomy acceptors exceeds female sterilization acceptors in Bangladesh, Hong Kong, Republic of Korea, India and Nepal (Table 3).

CHARACTERISTICS OF ACCEPTORS

A study of the median age of wives of vasectomy acceptors from eight developing countries revealed that Singapore had the lowest median age at 30.3. The highest median age of 34.8 was in Thailand (Table 4). The median number of living children of vasectomy acceptors was highest in Malaysia at 5 and Singapore had the lowest at 2.6 (Table 5).

The characteristics of acceptors such as age of wife, number of living children and living sons, literacy and occupation in Nepal are given in Table 6. In the case of a vasectomy acceptor, age of the wife is more meaningful than age of the acceptor. The mean age of the former has remained almost constant at about 32 years. The mean number of living children at the time of s[illegible]ization was 5.4 in 1970/71 and it has decreased to 4.7 in 1977/78. The mean number of living sons has, however, remained almost constant at around 2.7. Nearly two-thirds of acceptors were literate and there has been no significant change in this regard. This state of affairs throws a great challenge for program administrators to motivate the majority of people who are illiterate. The proportion of acceptors in agricultural occupations shows an upward trend. This, however, may not be significant, as many mobile camps are now directed towards rural areas.

It has been noted that in Nepal, people in general accept male sterilization after having had more than four children. This finding is consistent with the Nepal fertility survey data on mean total number of children desired by currently married women (Table 7). Nearly 60% of all currently married women stated 3 or 4 as their desired total number of children, while about 25% reported desired totals of 5 or more children. Only 14% expressed a desire to have 2 or fewer children. The desired family size seems to rise in step with achieved family size. However, women with larger families of 5 or more living children state the desired family size smaller than actual size. Thus, people seem to go for permanent sterilization only after having 4 living children.

Table 3. Male Sterilization Acceptors by Year of Acceptance, 1972 - 76 for Twenty-One Developing Countries (1)

Country	Male Sterilizations (in thousands) Year 1972	1973	1974	1975	1976
Bangladesh	0.3	0.2	4.2	29.4	38.6
Botswana	-	-	-	0.1[a]	0.2[a]
Colombia	-	-	-	-	0.8
El Salvador	-		-	0.4	0.7
Hong Kong	0.3	0.3	0.6	0.7	0.8
India	2,613	403	612	1,438	6,087
Indonesia	-	-	1.9	2.1	3.5
Iran	-	-	-	-	0.4[a]
Republic of Korea	23[b]	29[b]	39[b]	43	45
Malaysia	0.4	0.4	0.3	0.2	0.2
Mexico	-	-	13[a]	15[a]	-
Nepal	3.9	4.3	5.0	3.8	10.8
Pakistan	-	3.3[a]	5.4[c]	2.9	-
Panama	3.7[a]	3.4[a]	4.5[a]	0.8[a]	-
Philippines	-	-	1.4	34.0	10.3
Puerto Rico	0.9	1.0	5.9	9.0	-
Rhodesia	-	-	-	0.1[a]	0.1[a]
Singapore[d]	0.3	0.4	0.3	0.4	0.4
Sri Lanka	9.6[a]	20.2[a]	42.2[e]	39.4[a]	-
Taiwan	-	0.4	1.0	1.7	3.5
Thailand	2.6	4.0	6.4	7.5	10.2

a. Includes sterilization (female)
b. Includes about 25% female sterilization
c. Mostly female sterilization
d. Data only from Family Planning and Population board clinic
e. Eighty-three percent of the sterilization acceptors are female

Table 4. Median Age of Wives of Vasectomy Acceptors for Eight Developing Countries (1)

Country	Acceptor period	Number (in thousands)	Wife's median age
Colombia	1975	11.4	33.6
India	4/1975-3/1976	1,002.4	32.9
Republic of Korea	1-6/1975	22.4	32.6
Malaysia	1976	4.0	32.6
Nepal	1975/76	1.3	31.5
Philippines	1976	10.3	31.6
Singapore	1976	0.4	30.3
Thailand	1976	2.1	34.8

Table 5. Median Number of Living Children of Vasectomy Acceptors for Nine Developing Countries (1)

Country	Acceptor Sample: Acceptor period	Number (in thousands)	Median number of living children
Colombia	1975	11.4	4.9
India	4/1974-3/1975	6.8	3.6
Republic of Korea	1-6/1975	22.4	3.0
Malaysia	1976	4.0	5.0
Nepal	1975/76	1.3	4.4
Philippines	7-12/1975	4.2	4.3
Singapore	1976	0.4	2.6
Sri Lanka	1-9/1975	4.6	3.7
Thailand	1976	2.1	3.6

Table 6. Characteristics of the Vasectomy Acceptors by Year of Sterilization, Nepal (5)

Year	Sample	Mean age of wife	No. of living children	No. of living sons	Literacy illiterate	Literacy literate	Agriculture	Non-agriculture
1970 - 71	3,270		5.4	2.9	34.5	65.5		
1971 - 72	2,780		4.9	2.8	35.1	64.9		
1972 - 73	1,353		4.6	2.8	32.3	67.7		
1973 - 74	1,759		4.7	2.8	31.0	69.0		
1974 - 75	100	32.0	4.8	3.0	34.0	66.0	75.0	25.0
1975 - 76	1,361	31.6	4.7	2.8	37.0	63.0	77.0	23.0
1976 - 77	1,267	31.6	4.6	2.8	36.5	63.5	79.6	20.4
1977 - 78	1,186	32.0	4.7	2.7	38.4	61.6	83.6	16.4

Table 7. Mean Total Number of Children Wanted by Currently Married Women—by Number of Living Children (including any current pregnancy) and Current Age (6)

	Number of Living Children							
Current age	None	1	2	3	4	5	6	All
15 - 19	3.5	3.8	-	-	-	-	-	3.6
20 - 24	3.6	3.6	3.6	4.0	-	-	-	3.7
25 - 29	3.6	3.6	3.7	4.0	4.4	(4.5)	-	3.9
30 - 34	(3.3)	3.4	3.8	3.9	4.6	4.8	5.5	4.2
35 - 39	-	3.0	3.5	3.8	4.3	4.8	5.6	4.3
40 - 44	(2.7)	(3.0)	3.2	3.8	4.4	4.8	5.4	4.3
45 - 49	-	-	3.1	3.5	4.2	4.7	5.3	4.3
All	3.5	3.6	3.6	3.9	4.4	4.8	5.4	4.0

The Nepal fertility survey also reveals that there is an overwhelming preference for sons by Nepalese women. Almost 100% of women with no sons indicated that they want a son. Even 97% of women with one son and one daughter indicated preference for the next child to be a son. Although slightly less than one-third of women with two living children, both sons, indicated a preference for a son, almost three-quarters with three living children, including two sons, indicated preference for a son (Table 8). This is a challenge to the planners and program administrators of the Family Planning Program.

Table 8. Of Currently Married "Fecund" Non-Pregnant Women who Want Another Child and State a Sex Preference, the Percentage Preferring a Son—by Number of Living Children and Living Sons (6)

Number of Living Children and Sons		Percentage
None	No son	98.8
One child	No son	98.8
	One son	73.3
Two children	No son	99.3
	One son	96.6
	Two sons	32.3
Three children	No son	100.0
	One son	100.0
	Two sons	72.2
	Three sons	(9.8)
Four or more children	No son	(100.0)
	One son	98.2
	Two sons	(95.0)
	Three sons	-
	Four or more sons	-
All		90.0

MALE STERILIZATION IN NEPAL

The number of male sterilizations has shown an upward trend, with a significant increase in numbers since 1975-76 (Table 9). Service is provided in hospitals and clinics as well as through mobile camps.The bulk of service is provided through mobile teams consisting of a physician and a couple of auxiliaries and helpers. The team has to trek from a few hours to days in the hilly and mountainous areas which constitute 79% of Nepal's land area. In the flat Terai area, use is made of vehicles—car, jeep, truck, tractor, motorcycle or even bullock-cart—whatever is available. The classroom of a school, a local building or tent may be used for the service. An operating

table carried by the team, or a school bench or table is used for the operating procedure.

Table 9. Male Sterilization Acceptors in Nepal by Year of Acceptance (5)

Fiscal Year	Number
1967 - 68	1,062
1968 - 69	3,292
1969 - 70	3,888
1970 - 71	4,441
1971 - 72	3,900
1972 - 73	4,161
1973 - 74	5,166
1974 - 75	3,702
1975 - 76	9,169
1976 - 77	10,953
1977 - 78*	12,172
Total	61,906

**Mid July 1977 to mid July 1978.*

Prior to the organization of the camp, the local community leaders are informed of the date, and in most cases, the date is fixed by them. Sterilization is carried out strictly upon motivation and no amount of coercion is allowed. Satisfied clients seem to be the best motivators. Film shows, use of indigenous folk media, spot radio announcements, use of posters, and most important of all, interpersonal communication are used for motivation. No incentives, monetary or otherwise, are provided to the client. Attempts are made for the camp to become a community affair, rather than a governmental Family Planning Association activity. Ceremonies are organized to provide a chance for the community leader to talk to the local inhabitants about the need to limit family size for economic, health, and environmental reasons. On occasions, a seminar or group discussion on the importance of family planning is organized to get more community leaders committed in the program.

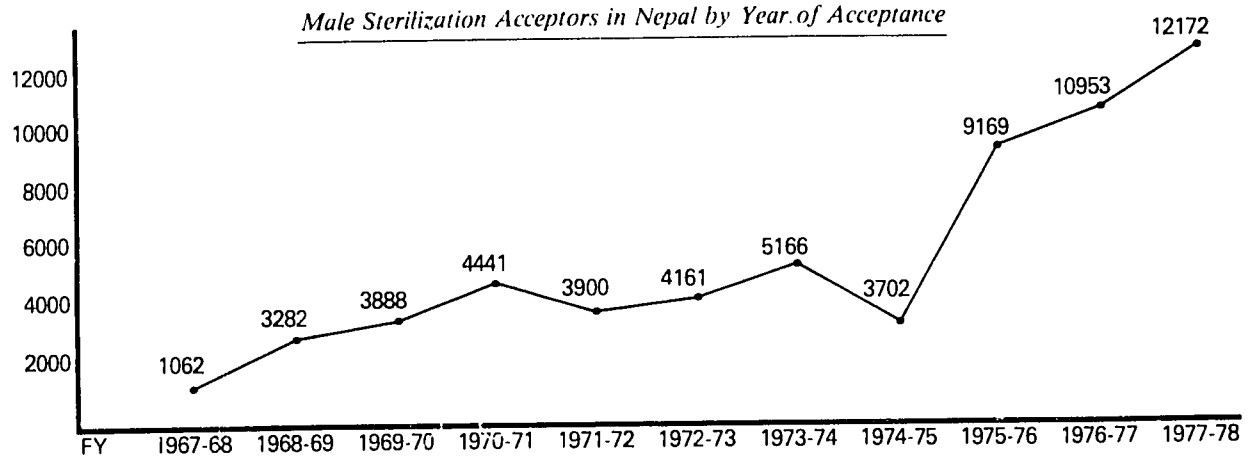
PROBLEMS AND CONSTRAINTS AFFECTING GLOBAL ACCEPTANCE

Sterilization is a leading method of family planning only in India, Sri Lanka, Singapore, El Salvador and Puerto Rico, and to a lesser extent in Thailand and Tunisia. However, acceptance is increasing rapidly in most of the countries of Asia and Latin America despite religious and political opposition. There is almost non-existent sterilization service in West Asia and all of Africa, except for Tunisia and Egypt. Religious opposition seems to hurt male sterilization programs most.

There have been many technological advances in sterilization techniques. Both male and female sterilization have been made simple, safe and effective. Vasectomy is the simplest of all, but on rare occasions, complications might occur. Recanalization or double vas, division of the wrong structure, inadequate occlusion of the vas, unprotected coitus before all sperm have been emptied from the vas are causes of failure (7). Pregnancy in the spouse following "vasectomy failure" makes headlines in the newspapers and has adverse effects on programs in rural areas. Fear of castration, impotency, even fear of the opinion of others need to be alleviated properly before the operation is performed. In countries where childhood mortality is very high, techniques for ensuring 100% success for reversibility have to be developed. Vas anastomosis and vas occlusive devices are two approaches to vasectomy reversibility (8). Varying success has been claimed and more research is needed for universal success in reversibility. However, the increasing interest of people in sterilization leads one to be confident that vigorous programmatic thrust, the use of simple, safe and effective procedures, and serious involvement of the community leaders in implementation of programs will make sterilization the most effective and acceptable method where demographic impact is necessary.

APPENDIX

Male Sterilization Acceptors in Nepal by Year of Acceptance



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Voluntary Sterilization: The ProFamilia Experience

Fernando Tamayo

Recent demographic events in Colombia are enough to have confounded any futurologist. The year 1965 saw the founding of ProFamilia, the Colombian Family Planning Association. If a prediction had been made in that year that correctly described the situation as it would be in 1977, it would not have been taken seriously. No one could have foreseen then that within 12 short years, most Colombians would have accepted family planning. Nor could they have guessed that the crude birth rate would have dropped 30% in just over a decade, placing Colombia among those countries that have achieved marked success in dealing with their population problems. In 1965, it would have seemed even more absurd to have suggested that in Colombia, programs of voluntary sterilization could be established without interference by the government, and that this method would become one of the most widespread and well accepted ways of controlling human fertility. Not even Colombia's pioneers in family planning and demography, a small group at best, would have dared to make such predictions.

The pioneers would have had to ask themselves these questions: Were they not working in a country in which the large family was a mark of social distinction? Did not political and national leaders consider that a greater number of inhabitants represented an increase in economic and military power? Wasn't this a country with a strong Catholic Church, an institution that exerted an enormous influence not only on the central government but on every village and farm? And all these questions would have been answered in the affirmative. Yet the government proved to be tolerant of private activities in family planning. The Church, although occasionally complaining about such activities, never presented a united opposition. And finally, within the past few years, and after a decade of achievement by private groups, the government began to show an actively positive attitude by adding family planning to the services offered in national health facilities.

What happened in Colombia is deserving of careful analysis. It can serve as a case study from which important lessons can be drawn that are applicable not only to places of similar cultural and historical background, but to countries everywhere in the world.

The first question that arises is: What happened in Colombia that led to such extraordinary success? One might speculate that the country experienced an unprecedented surge of socio-economic development. But its advance is nothing unprecedented, and indeed has generally been less than what is evident in Brazil, Mexico or Venezuela, all countries without steep declines in their birth rates. Many factors might be analyzed without reaching firm conclusions. Such an analysis would lead into the controversial and thoroughly debated question of what are the causes that induce the inhabitants of a country to reduce their fertility.

But we do know what was done in Colombia. The private family planning association set itself the goal of extending services to the entire country, first through a limited network of 40 clinics, and then through its development of a system to distribute contraceptives through communities, the so-called community-based distribution program. In this innovative approach, more than 3,000 volunteers, ordinary people, but people who are well trained and highly motivated, provide family planning information and services in both the countryside and the cities. This system has been expanded to the point where 80% of Colombia's population has access to ProFamilia's services.

In 1970, ProFamilia inaugurated an institutional program offering vasectomies—the first such program in Latin America and one of the first in the Western Hemisphere—a program that moved in two years from 92 acceptors in 1970 to 910 in 1972. Progress has continued slowly, although the annual case load declined somewhat after the introduction of female sterilization.

In 1972, at first timidly and experimentally, a program was inaugurated offering tubectomies. The years 1973 and 1974 were devoted to the development of the technology, to the training of personnel and to the extension of services. This cautious beginning led to a robust program which in 1978 provided voluntary sterilization to more than 40,000 women in 178 different locations throughout the country. The service was provided not only to women in the big cities, but also to those in medium-sized and small communities, by means of mobile units which penetrated even completely rural areas.

To do all this was not quite as easy as it sounds. A great number of doctors had to be trained in the new technologies, in those new methods that had made female sterilization into a far simpler and safer procedure than it

had been before. Enormous numbers of motivators and other auxiliary personnel also had to be trained, and resistance had to be overcome. Interestingly enough, the resistance was not on the part of potential acceptors, but rather on the part of those groups and individuals who consider themselves entitled to judge what is good and bad for all members of society.

Fortunately, Colombia had no laws prohibiting voluntary sterilization. After seeing the success achieved by the association, the government decided to initiate its own sterilization program this year—one directed especially toward women of high obstetrical risk. It is a source of pride to ProFamilia that the government has selected this institution to carry out the training of official personnel.

This short history offers a clear demonstration that private organizations can initiate efforts in fields that represent a political risk, for which reason governments hesitate to enter them. Then when political, religious and social resistance are seen to be overcome in a wave of popular acceptance, official entities will lose the timidity that comes from fear of criticism.

Although female sterilization has had wide acceptance in Colombia, this has not been the case with vasectomies. But that is not difficult to explain when one remembers that in Latin America, as in Africa and in Islam, the responsibility for children generally falls on the woman. Furthermore, the character of these societies is such that it is generally the man who makes the decisions. That they are also societies in which women participate passively in sexual life, as if it were just another domestic duty, explains the weak interest in contraception shown by the majority of males. To change the masculine attitude, a broad campaign would have to be mounted to persuade the male of his responsibilities and to convince him to participate actively in family planning. A vasectomy program presents too great a shock to the male if he has not already accustomed himself to using less radical methods. If vasectomy is to be more widely accepted, campaigns must first be developed that promote the use of the condom or of *coitus interruptus*. When one analyzes who the general acceptors of tubectomies are, one discovers that the great majority are women who are experienced users of reversible contraception.

Among the most important factors accounting for the success of ProFamilia's program, and indeed of voluntary female sterilization everywhere, are recent advances in surgical techniques and in anesthesia. Without local anesthesia, and lacking the laparoscope and minilaparotomy, tubal ligation would be an expensive procedure and impossible to carry out on a mass scale. The new procedures have made it possible to bring permanent contraception even into rural areas. They avoid the need for hospitalization, and permit acceptors to return home on the same day without leaving their children alone for an extended period. At the same time, these new technologies have greatly reduced the morbidity associated with female sterilization, while mortality has almost completely disappeared.

If an example were sought that accounts for ProFamilia's success in this field, and if it were asked how this experience can be transmitted to other countries, simple answers could be given that describe a style of program administration that has led to good results.

- Program personnel should be selected with greatest care. They must be given good training. They must also be motivated and made to see that their work is important to the community.
- The technology must be kept simple but safe, avoiding any need for hospitalization, so that (distance permitting) the acceptor can go back home on the same day.
- Equipment must be adequate to do the job but not overly sophisticated.
- The most important of all considerations is that the acceptor receive the best possible treatment. Her anxieties must be recognized, and she must be received into an atmosphere of kind humanity. This makes each acceptor a promoter of the method.

Those in charge of programs of voluntary sterilization in countries where there are political, religious or social resistances must act firmly, and not allow themselves to be intimidated. They must be prepared to overcome the innumerable obstacles and difficulties that arise every day. Above all, program directors must take every needed precaution to guarantee that the acceptance of sterilization is truly voluntary. Care must be taken to identify those acting on emotional impulses that will lead to their subsequent regret.

Programs that are properly conducted, with full recognition of the human dignity of acceptors, will find that they have added an important method to the armamentarium of fertility regulation. It is a method that enables women to avoid long years of wearing an IUD or the daily ingestion of a pill containing powerful hormones. It will be found, also, that it is a welcome method, for a great demand has become evident wherever voluntary sterilization has been made available through properly operated programs.

Training Programs for Physicians and Health Support Personnel

Chairperson: Dr. Allan Rosenfield, U.S.
Co-chairperson: Dr. Hyun-Mo Kwak, Korea
Rapporteur: Mr. Werner Fornos, U.S.

What problems can be anticipated when initiating voluntary sterilization programs in different countries, and how does one deal with them? These and other questions occupied Task Force 6 who examined the milestones as well as the stumbling blocks awaiting the introduction of services, the development and implementation of national training programs, and surgical training programs for paramedics. The group explored ways to make the most of opportunities for providing services in countries where physicians are scarce, especially in the rural areas.

How Did the Pioneers Do It?

First they created public awareness and demand while they assessed the need and feasibility of launching a program. They trained physicians in new surgical techniques using modern equipment, and constantly oriented and educated physicians to the need for and importance of surgical contraception.

Religious and cultural barriers were overcome by gaining political commitment. Physician resistance was overcome with international and national training, by introducing physicians to those needing and requesting sterilization, and by providing them with legal and other support. Volunteers were used in an effort to overcome shortages of funds, and international support was solicited.

The external support needs during initial stages of program development were identified as: professor-on-site for training trainers; basic equipment with teaching attachments; parts and tools for equipment maintenance technicians; a good supply of literature in the national language; funds to pay the whole team; and a training center provided through general institutional support funds.

The Task Force agreed that informational efforts were of paramount importance during the initial phases of program,and that international or regional training is needed at the outset to train trainers.

Developing and Implementing National Training Programs

Discussion revolved around types of personnel to be trained, components of a training program, and resources for training programs. There was consensus that, after mobilization of the medical community, paramedical personnel should be trained for tubal ligation and vasectomy in an effort to relieve pressures on the already overburdened physician. The Task Force recommended continuous physician supervision and stressed the importance of continuing education for all health team members.

Like Task Force 2, this group also recommended the inclusion of voluntary sterilization education in medical curricula.

Techniques

Laparoscopy was seen as appropriate in large volume urban medical centers, but the Task Force recommended minilaparotomy for other areas where smaller hospitals and health centers are located. Minilaparotomy was recommended as appropriate for the occasional operator.

RESOURCE PERSONS

Dr. Helio Aguinaga, Brazil
Dr. Delfina de Badia, El Salvador
Dr. Riddah Chadi, Tunisia
Dr. Nikorn Dusitsin, Thailand
Dr. Jusef Hanafiah, Indonesia
Dr. Hanifa Wiknjosastro, Indonesia
Dr. Kamhaeng Chaturachinda, Thailand
Dr. Joseph Kanyi, Kenya
Dr. Theodore King, U.S.
Mr. Abderrazak Thraya, Tunisia

SELECTED PAPERS SUBMITTED TO TASK FORCE 6 (for texts, see page 175)

Paramedic training programs in Thailand. Nikorn Dusitsin.
Sterilization team training program in Sumatra. M.J. Hanafiah, H. Sitompul and J. Iskandar.
WFAVS survey of national training programs. Hanifa Wiknjosastro.

Current and Future Male Sterilization Technology

Chairperson: **Dr. Phaitun Gojaseni, Thailand**
Co-chairperson: **Dr. Djoko Rahardjo, Indonesia**
Rapporteur: **Dr. Peter Bayliss, Australia**

Topics for discussion in this Task Force ranged from techniques and surgical principles to effects of vasectomy, its role in family planning, reversibility, equipment, facilities and new developments, and personnel for programs.

Vasectomy vs. Tubal Ligation : Pros and Cons

There is a need for a simple uncomplicated vasectomy technique with higher potential for reversibility to offset the increasing demand for tubectomy. In general, however, the Task Force members thought that new technology should not be brought forth unless *vast* benefits could flow from it since the present tried and true method has zero mortality and morbidity in most series worldwide. It was suggested instead that there should be renewed effort to improve current methods and to develop strategies to increase acceptance. The key to acceptance is information and education. Since physicians are considered to be the main obstacles to vasectomy programs, intensive I & E programs need to be developed, extended, or expanded to reach the medical establishment. Physicians need to take a greater part in I & E programs, to be well-motivated, enthusiastic and properly trained in contraceptive surgery.

Advantages of vasectomy over tubectomy are: no operation room required; no pelvic entry required; lower morbidity/mortality; no sophisticated instruments required; simpler anesthesia; faster recovery. Demographic impact may be greater since vasectomy acceptors average one less child than tubectomy acceptors. The only disadvantage is the time required for vas clearance post operatively, necessitating the use of a condom for a short time.

Potential Role of Paramedics

The Task Force called for training of paramedics to perform vasectomies, especially in areas where the doctor-patient ratio is low. Trainees should be local citizens with higher educational achievement, well-motivated and sincere. They should be trained in local health clinics and training should consist of six weeks in basic subjects plus six weeks of practical observations and assisting and operating under supervision. Continuous physician supervision is important to maintain efficiency and provide support.

Areas for Further Research

The Task Force called for intensification of research into intravasal occlusive techniques and agents. The popular press was censured for its sensationalistic reports about no adverse effects of vasectomy. The group called for large series of human subjects and expressed abhorrence of non-human, small segment, non-repeated work given uncritical acceptance by the media.

RESOURCE PERSONS

Dr. Rudi Ansbacher, U.S.
Dr. W.H. Chiang, Republic of China
Dr. Joseph Davis, U.S.
Dr. Carolina Gabriel, Philippines
Dr. Juan Giner, Mexico
Dr. Joel Greenspan, U.S.
Dr. Atiqur Rahman Khan, Bangladesh
Mrs. Carrie Lorenzana, Philippines
Dr. Sherman J. Silber, U.S.
Dr. Fardoon Soonawalla, India

SELECTED PAPER SUBMITTED TO TASK FORCE 8 (for text, see page 175)

Immunologic effects of vasectomy. Rudi Ansbacher.

Current and Future Female Sterilization Technology

Chairperson: **Dr. Hamid Rushwan, Sudan**
Co-chairperson: **Dr. A. Albert Yuzpe, Canada**
Rapporteur: **Dr. Robert Neuwirth, U.S.**

The Task Force reviewed the evolution of female sterilization technology, citing range and types of techniques, professional and public acceptance, and epidemiology of morbidity and mortality. Minilaparotomy, laparoscopy, and failures were then reviewed at length, followed by a discussion on equipment, facilities, and maintenance.

Minilaparotomy: Equipment, Procedures, Complications

Dr. Fongsri described 2,000 minilap cases using local anesthesia on an outpatient basis. The typical stay at the operating facility was four hours, and all cases were women of normal or thin body build. In all cases, tubes were ligated with catgut rather than falope rings. Complication rates were low: 7 cases of subcutaneous hematoma per 2,000 procedures. The average was 6 cases per hour.

Dr. Uchida reported 21,000 cases using his well-known technique. He felt that the tissue necrosis method leads to more post sterilization complications than other methods.

Permanence rather than reversibility should be the goal of sterilization and the size of segment removed was seen as important in assuring permanence.

Laparoscopy

Dr. Oblepias reported on effectiveness, acceptability and follow-up. Educating potential patients is a key factor in acceptability, as is availability of equipment. He uses a mobile team that performs 130 procedures a day, averaging 24 laparoscopies per minilap. All counseling is completed before arrival of the team. Local physicians are trained to deal with complications.

Of 24,000 procedures, there were 15 known failures, but follow-up was poor. Dr. Oblepias urged that patients be followed for evaluation of pyschological adjustment as well as physical problems.

Failures

Dr. Laufe reported on pregnancies following female sterilization in 14,000 cases with good follow-up. There were 222 pregnancies of which 62 were pre-operative. Failure rates were higher for women under 35, and the clip had a 3 to 4 times higher risk of failure than the ring. Experience indicated that failures, when they occur, usually happen in the surgeon's first 100 cases. The rate of ectopic pregnancy was higher in cautery failure than in failures of the ring and clips.

Equipment and Maintenance

Mr. Whang discussed the Korean experience with 564 imported laparoscopes. National repair and maintenance centers (RAM Centers) were established to service the equipment, and to train medical and paramedical personnel in its care and maintenance. It was found that the life of the instrument varies by amount of use, number of users, and quality of daily care and maintenance. The scopes and ancillary instruments normally required replacement, but major components were repairable.

Mr. Vara, an equipment technician, advocated 2-3 hours of lectures in care and use of the laparoscope prior to physician's use of the instrument. He urged that the technician remain with the physician during his first few cases to answer any questions and to assure proper functioning of the laparoscope. His suggestions for troubleshooting afterwards whenever the laparoscope fails included: solving the problem first by telephone, then sending the technician to the area if that fails, and as a last resort, replacing the equipment within 24 hours.

No general recommendations were advanced.

RESOURCE PERSONS

Dr. Alain Audebert, France
Dr. Arunee Fongsri, Thailand
Dr. Kanti Giri, Nepal
Dr. Abdol Hosseinian, U.S.
Dr. Leonard Laufe, U.S.
Dr. Hans J. Lindemann, Germany
Dr. Nargesh D. Motashaw, India
Dr. Virgilio Oblepias, Philippines
Dr. Jordan Phillips, U.S.
Dr. Rodolfo Quinones, Mexico
Dr. Patrick Steptoe, England
Mr. Rafael Vara, Mexico
Mr. Young Whan Whang, Korea
Dr. Robert Winston, England
Dr. Jaime Zipper, Chile

SELECTED PAPERS SUBMITTED TO TASK FORCE 9 (for texts, see page 175)

Laparoscopic sterilization study by open method in Pakistan. Bilquis Malik.
Scope and technique of laparoscopic sterilization. Nargesh D. Motashaw.
Comparison of clip to band. Jordan M. Phillips.

Special Evening Session:

Restoration of Fertility Following Sterilization

Robert S. Neuwirth	Chairperson
Joseph E. Davis	Rapporteur
Patrick C. Steptoe	Pre-Operative Evaluation: Female Sterilization
Fardoon Soonawalla	Pre-Operative Evaluation for Reversal of Vasectomy
Robert Winston	Microsurgical Restoration of Fertility Following Tubal Ligation
Sherman J. Silber	Vasectomy and Reversal of Vasectomy
Gerald I. Zatuchni	The Role of Reversibility in the Acceptance of Sterilization

Pre-Operative Evaluation: Female Sterilization

Patrick C. Steptoe

No evaluation of the female is valid unless her partner is also assessed. Before undertaking any *tubal surgery* one must be first assured that the male partner can produce at least 30 x 10^6 spermatozoa per mil in his semen with 50% motility. *In vitro fertilization* requires at least 5 x 10^6 sperms per mil with similar motility and freedom from bacterial and viral infection as far as possible.

TUBAL SURGERY

Accurate history-taking is vital. What was the fertility performance before the operation? Is the patient menstruating and ovulating regularly? Details of the sterilization operation should be obtained regarding technique. Was it by laparotomy or by laparoscopy? Were the tubes ligated? If so where? Were the tubes diathermied, divided? What source of electrocoagulation was used? High frequency unipolar, bipolar, or thermal? Were clips applied? Was it Weck, Hulka or Bleier? Was the tube banded with a Yoon ring? Were the tubes removed? Is there any other known factor in infertility?

Hysterosalpingography and culdoscopy have a very limited scope in assessing the pelvic status in these cases. At best they will indicate the site of the proximal tubal blockage, but will give no information about the true state of the distal portion of the oviducts, if any, and the periovarian situation.

Laparoscopy is the best means of preoperative assessment. It should be done just after a menstrual period so that surgery can proceed immediately where indicated. In my opinion the angled laparoscope is the best means of approach with the use of two lateral ancillary openings, if necessary, to facilitate full mobilization of the pelvic organs, the stretching and assessment of adhesions, and close-up examination of the fimbriae.

The best case for microsurgical techniques is that in which a portion of the lateral part of the isthmus only is absent and the two stumps are of the same diameter, with a medial stump between 1-2 cm long. The ampullae should be healthy and the fimbriae intact and free from adhesions. The worst type is that in which the tubes have been so destroyed that there only remains a cornual blockage with no stump and a fragment of fimbriae and ampullae. In such cases there is no hope of establishing a functional tube. There are various grades between these two extremes and careful reporting is essential.

Laparoscopy may be followed by immediate surgery to restore the tubes, or by adhesolysis to make the ovaries accessible for in vitro fertilization, or with salpingectomies for the same purpose. Adhesolysis by laparoscopy alone may be sufficient,or a laparotomy may be needed.

Age of the female is very important. From the age of 35, fertility falls fairly rapidly, and an increased risk of chromosome imbalance at fertilization occurs.

On these assessments and history the surgeon will be able to decide one of the following: 1) not operable; 2) operable with good chance of successful uterine pregnancy; 3) operable with moderate chance of success ; 4) doubtful operability with risk of uterine pregnancy. Those falling in the first and fourth categories would be candidates for in vitro fertilization. Adhesolysis is necessary in approximately 15% of these cases.

All cases can be accepted for in vitro fertilization provided ovulation is regular or reasonably regular, and the ovaries, or ovary, are accessible. Ovaries can be made accessible in 100% of cases following sterilizations.

If tubo-plastic surgery is undertaken, I would ask my colleagues to report not only their successful pregnancies and live births in the cases *selected* for operation but also the number of cases *rejected* as unsuitable for operation. Only then can tubal surgery and the alternative of in vitro fertilization be seen in proper perspective.

To be fair, one must be aware of the intrauterine mortality in the human per 100 ova exposed to fertilization. Of every 100 ova, 16 die shortly after ovulation, 47 die during the process of fertilization, cleavage and implantation (1). Seven foetuses are lost in early abortion and of the 100, only 31 end in successful birth. The losses are mainly due to cytogenetic aberrations and chromosome imbalances with failure of the block to polyspermy. These are the figures of natural conception, so losses from in virto fertilization may be as high.

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Pre-Operative Evaluation for Reversal of Vasectomy

Fardoon Soonawalla

A detailed proforma for preoperative evaluation of cases for reversal is necessary as it provides information which is useful both during surgery and in judging the prognosis of the case.

The actual data should include the age of the patient, his marital status, and the age of the wife. The past fertility of the man as well as of the couple is documented from the number of conceptions, live births, and the number, sex and age of live children.

Occupation and economic status has a bearing on the reason for reversal and is also of demographic value. In lower socio-economic groups in countries where pediatric mortality is high, loss of children is the predominant indication. Where such communities happen to be male dominated, loss of the only male child is one of the commonest reasons for wanting reversal. By contrast, in developed countries and affluent societies the desire for children from a second marriage is the indication in the majority.

The medical history of the patient is necessary to detect diseases which are likely to affect vasovasostomy.

Inquiry should be made regarding adequacy of sexual performance, including ejaculation, since ejaculatory disturbances in an otherwise potent male can remain unnoticed. A history of intercurrent illnesses such as diabetes, urinary disorders, venereal infection, and scrotal pain or swelling should be taken. If confirmed, then additional investigations should be made. Information pertaining to the vasectomy procedure is important because the local conditions encountered during the reversal operation, and the prognosis of the case, are at times related to the manner of the sterilization procedure.

The duration of time since vasectomy is of utmost relevance, being the single most important factor in the prognosis. If the vas has remained occluded for periods of 2 to 3 years, the back pressure changes that affect the ductal system of the epididymis and testis are minimal and get reversed in 3 to 6 months after restoration of potency. In these cases the success rate in terms of restoration of normal semen reports is as high as 90 percent. However, if the vasectomy has been maintained for periods longer than 10 years, the recovery of good sperm in the ejaculate is either delayed or inadequate.

The place of the performance of the sterilization, and the status of the surgeon, is at times an index of the technical competence of the operator. This, in turn, is directly related to the incidence of post vasectomy complications such as hemorrhage, pain and infection. Thrombosis and fibrosis resulting from these complications could cause extensive changes in the vas, epididymis or testis and jeopardize successful reversal.

Local examination is done to define the nature of the vasectomy scar. Its level in relation to the vas in the scrotum is of importance when conventional methods of recanalization are used. Vasectomy performed low down, or by excision of long segments of the vas, entails anastomosis in the thin, convoluted segment of the vas. This is technically more difficult with the stented methods of vasovasostomy, and the succes rate is lower.

In most cases, the vasectomy scar is denoted by a single, round or bilobed nodule. Its location, size and degree of tenderness should be noted. In the majority, the nodule is the result of a suture granuloma, the size of a green-pea, which persists for 2 to 3 years after vasectomy. However, we have seen these suture nodules even up to 8 years after vasectomy.

If a larger (and usually painless) single nodule is detected, it may well be a sperm granuloma. In our series this has been found on 10% of the nodules examined histologically. The incidence reported by others, however, is higher. Importance is assigned to the presence of sperm granuloma. According to Silber, it acts as a vent in the ductal system and diminishes the back pressure changes in the epithelium of the epididymis and testis thus making the prognosis excellent.

On rare occasions a large, tender nodule, which may turn out to be a chronic ligature abscess, is encountered. These should be excised without spillage of infection during reversal surgery.

On palpation of the scrotum, the vas on the abdominal side of the nodule is invariably found to be normal except in the rare instance where it may become a thick cord from infective vasitis. The testicular side of the vas usually feels slightly larger than normal. The epididymis feels more turgid.

To rule out testicular atrophy, the testis should be examined for size, consistency and sensation. If atrophy is suspected, preoperative testicular biopsy should be done. This is rare, however, and in none of our series of 280 cases was biopsy found necessary.

In all cases, urine analysis, urine culture, blood glucose estimation and serum V.D.R.L. are done as routine preoperative laboratory investigations.

Where facilities are available, estimation of sperm autoantibodies should be asked for. Most of the investigators have reported an incidence of raised titres in 25% to 50% of men after vasectomy. The antibodies have been found to appear in the circulation within 2 weeks after vasectomy and to persist for up to 10 to 25 years.

After successful reversal, antibody levels are expected to fall if the recanalized lumen remains patent on both sides. The decline in titre usually comes about after one year of reversal. Correlation between pre and post operative antibody titres and restoration of fertility is an important area of potential investigation, though to date no definite correlation has been shown to exist.

The last investigation in the proforma is a semen report. At times this may help detect asymptomatic infection in the genital tract. In specialized centers, where biochemical analysis of the seminal plasma is possible, a research study for changes in the constituents of the semen before and after vasovasostomy could be undertaken and the findings could to some extent denote the changes that occur in the genital tract.

As mentioned, detailed preoperative evaluation provides data which is of value not only to the surgeon, but also to the demographer and the research scientist working in the field of reversal of vasectomy.

Microsurgical Restoration of Fertility Following Tubal Ligation

Robert Winston

During 1978, almost 200 patients were seen at Hammersmith Hospital (London) requesting reversals of their sterilizations. Of those women operated upon, over 60% have had intrauterine pregnancies. Several questions are raised concerning these figures. First, what has led to this fifteen-fold increase in reversal requests? Second, why has the success rate of the operation been doubled and in some cases trebled? Third, how have patients been selected for surgery and has the method of selection had a significant effect on the success rate? Fourth, can the success rate be improved further? Finally, could we predict which patients may subsequently regret sterilization and therefore avoid what is basically unnecessary surgery?

An answer to these questions is clearly important because the trends which these statistics show underline the experience in many centers where tubal surgery is being regularly performed. For example, in Leuven, Belgium, reversal of sterilization was rarely undertaken until recently. This is also true of most European units, departments in the Asian sub-continent and most centers in the United States. In the last three or four years, however, there has been a dramatic increase in the number of women who bitterly regret their decision to be sterilized and who will go to any lengths in an attempt to have the operation reversed.

WHY PATIENTS SEEK REVERSAL OF STERILIZATION

There seem to be a number of factors which have led to the increased demand for sterilization reversal. At Hammersmith Hospital there seems little to deny that the publicity given to research and clinical work in sterilization and microsurgical techniques has given considerable impetus to supporting this demand. Before about 1974, it was widely accepted that sterilization was generally irreversible, and certainly even when reversal was attempted the results were, to say the least, extremely unpredictable. It seems that such a factor could become of importance in the developing world in time.

Refined surgical techniques, particularly microsurgery developed in the animal model, have led to considerable reappraisal of tubal anastomosis. Paterson and Wood (1) achieved more than 60% pregnancies and Winston (2) 92%, using microsurgery with fine nylon sutures for tubal anastomosis in the rabbit. More recently, Boeckx (3) and Stangel (4) have confirmed the value of microsurgical technique in previously sterilized animals. In particular, Boeckx and his colleagues demonstrated the amenability of methods of sterilization such as the Falope ring to this type of approach.

In humans, Gomel (5) used microsurgery to reverse sterilization successfully in 16 out of 28 patients (57%) and Winston (6) demonstrated the value of a microsurgical approach when sterilization had involved damage of the medial portion of the isthmus, close to the cornu. Similarly encouraging results have now been achieved by workers in the United States, Australia and Germany.

Apart from the simple fact that successful reversal is now increasingly available, important social factors have interested the world. Tubal ligation in its various forms is now the most widely used method for limiting family size all over the world, and the number of sterilizations performed is still increasing in most countries. This is largely because all other methods of contraception require continuing motivation for their success and because most of them have either a significant failure rate or, in a few instances, appalling side-effects. By contrast, sterilization is highly effective, carries minimal risk to the patient, and can be done with a single, relatively simple, procedure. Consequently, the very large number of sterilizations that are done has led to an increase in the small pool of women who subsequently regret their sterile state. In the West, particularly Europe and the U.S., the high divorce rate was added to the problem. For example, Winston (7) showed that 81% of his sterilized patients were requesting reversal because they had remarried. This trend was also demonstrated by Gomel (8). The sterilization of younger patients seems also to be an important factor. Winston showed that many of his younger patients had had tubal ligation when their marriages were in jeopardy and the future of their family was in question.

Additionally, a substantial number of women who request reversal were sterilized immediately after a pregnancy or therapeutic abortion. With hindsight it could be fairly said that these women were specially at risk since the decision to be sterilized was taken under pressure and at a time when they were least capable of making a highly emotionally charged decision in a fully objective manner. It is also clear that many patients who subsequently regret sterilization previously used contraception inadequately or had very little in the way of physiological knowledge or

contraceptive advice. Over 30% of our patients had used coitus interruptus as the sole or main method of birth control.

It should be added that sterilization is technically a minor procedure, but one which has profound implications for the patient. Because sterilization is a "trivial procedure," one feels that it has been too frequently delegated to the most junior member of the gynecological team. Such a situation is fraught with danger. In a recent article, Nijs (9) pointed out that the desire for reversal sterilization is an iatrogenic situation and that only by having an expert psychologist-sexologist in the gynecological team would an appropriate option be achieved for many couples requesting sterilization.

WHAT FACTORS HAVE INCREASED THE SUCCESS RATE OF STERILIZATION REVERSAL?

The 95 attempts at sterilization reversal that we report here include tubal anastomosis following all the frequently employed methods of sterilization; 80 of these operations were done at Hammersmith Hospital, the remainder being performed in Leuven or private clinics and peripheral teaching hospitals in the United Kingdom. A standard microsurgical approach was used throughout, and we have followed closely the principles employed in our animal experimental work.

Special attention has been given to getting really adequate exposure with a large extended Pfannenstiel or midline incision using the four blades of the Kirschner retractor, and a vaginal pack to elevate and stabilize the uterus. Throughout the procedure, tissues have been kept thoroughly moist using isotonic solutions and meticulous hemostasis was achieved with the aid of microsurgical unipolar and, occasionally, bipolar diathermy. Handling of the peritoneum has been kept to a minimum, and care was taken to repair all raw surface areas. 8/0 or 9/0 nylon was used for the anastomoses except in a very few cases when 6/0 prolene was employed in order to combat tension at the join. The repair was invariably in two layers, the inner layer being placed just submucosally and the outer layer taking bites of tubal peritoneum with longitudinal muscle. Occasionally, continuous rather than interrupted sutures have been used for the latter layer. Most anastomoses have been made over an indwelling splint of low-density polyethylene of 0.4 mm. diameter, the splint generally being removed before closure of the abdomen. In a few instances, the splints were left in-situ for up to six days postoperatively. Whether or not the splint was removed immediately does not seem to have greatly affected the results. Before abdominal closure, the pelvic cavity was flooded with Ringer-lactate solution, but steroids were never given. Post operative hydrotubation or salpingography has not been employed routinely, nor do we give antibiotics except in a very few cases where the procedure took over three hours. When pregnancy has failed to ensue after one year's follow-up, the patients have been offered laparoscopy to check the anatomical result. Very few patients have been lost to follow-up. Those that have been, are included in our figures with the assumption that they have not become pregnant. The results are tabulated in Table 1 and the operations are classified according to site of anastomosis in the longer tube (or where only one tube was operable, in that tube). The heading "miscellaneous" refers to those operations where this classification was impossible because two or more anastomoses of each tube were needed to establish continuity or because the site of sterilization was different on either side. In five cases the reversal attempt was the second attempt made. In two of these women this repeat procedure followed a previous unsuccessful anastomosis. Both these patients conceived after the second operation. Not included in the figures of Table 1 are five bilateral salpingostomies done for sterilization reversal following fimbriectomy; none of these women became pregnant after surgery.

This table only includes patients who had had surgery at least six months before. Abortions before the end of the first trimester are not included.

In about 80% of the pregnant patients, pregnancy occurred within one year of operation. With some exceptions, the remaining pregnancies occurred within 18 months of reversal. First trimester abortion was slightly more common following cornual anastomosis, but most of the patients who miscarried have subsequently had a successful pregnancy. In the entire series, only three ectopic pregnancies have resulted. One followed ampullo-cornual anastomosis after high-frequency diathermy coagulation. In this patient both cornua were very fibrotic and photographs taken at the time of anastomosis show that we probably did not remove all the fibrous tissue. As the ectopic occurred at the cornu, it is not unlikely that this failure of technique was an important factor. In the second patient who had an ectopic follow-

Table 1. Results of Female Sterilization by Anastomosis Site

	Isthmo-cornual	Ampullo-cornual	Isthmo-isthmic	Ampullo-isthmic	Ampul-lary	Misc.	Total
Operations	13	22	14	14	18	14	95
Pregnant pts.	9	12	11	8	8	6	54
Ectopics		1		1		1	3
Percent of pregnancies	69%	59%	78%	64%	44%		60%

ing ampullary-isthmic anastomosis, there was great luminal disparity in the size of segments joined. Although unusual in our practice, this patient was laparoscoped seven days after surgery, immediately before discharge from the hospital. We saw evidence of postoperative infection, with many fatty adhesions near the anastomotic site, but the tube was patent. It may be that this contributed to the ectopic, as adhesions following anastomotic surgery have been seen only rarely in the patients we have subsequently examined laparoscopically. The third ectopic occurred in the isthmus of a tube subjected to implantation done macrosurgically. On the other side, microsurgical ampullo-cornual anastomosis was done and, at the time of laparotomy for resection of the ectopic gestation, the anastomosis was healthy. Only 2 ectopics, therefore, have occurred following true microsurgery, giving an incidence of 2.1 percent. This is a much lower incidence of extrauterine pregnancy than that publish in any comparable series, where the reported incidence usually varies between 10 to 15 percent.

HOW HAS THE PATIENT SELECTION INFLUENCED THE SUCCESS RATE OF REVERSAL?

The series includes women who have been sterilized by tubal division and ligation (55 patients), unipolar high-frequency diathermy (29 patients), bipolar diathermy (2 patients), Hulka or Filshie clip application (6 patients), and one case where the Falope ring had been employed. Approximately 61% of the women became pregnant after reversal of ligation and 58% after diathermy. The inclusion therefore of a number of women who had been sterilized by diathermy does not seem to have materially altered results. All six of the patients sterilized by clip have conceived, but to date (eleven months after reconstruction) the patient who had had a Falope ring is infertile.

It has been suggested by many colleagues that selection is an important factor in success. The figures above do not seem to support this observation. In general, we have been prepared to offer a reversal attempt to any patient who has good social grounds, providing she has had intact fimbria on one side with at least one centimeter of ampulla. In a great number of patients (about one-third) there has been no isthmus present at all and many had only one tube operable. Nevertheless, we have noted at laparoscopy that many patients, following high-frequency diathermy, have had virtually the whole tube destroyed. Because the results of diathermy appear to be so unpredictable, we suggest that this method of sterilization should be abandoned completely or, at the very least, reserved for patients who are over the age of 35 years.

The main consideration in accepting patients for reconstructive surgery has been their social and domestic circumstances. We have usually refused surgery to patients who do not have a stable relationship with a regular consort or women with large families where the support of an additional child would be likely to prove an intolerable financial burden. Patients with strong medical or obstetric contra-indications have also been excluded. Psychiatric advice has been sought where it seemed appropriate, and we are wary of performing surgery if the patient seems unstable. We have generally refused surgery when the patient has stated that she requires restoration of fertility to save her marriage or before embarking on a new partnership. This confirms an impression that the selection of candidates has greatly improved results in this series.

COULD SUCCESS RATE BE IMPROVED?

In Table 2 we have analyzed the tubal length of the longer oviduct in the last 35 patients operated in one series. It seems clear that the greater the length of the tube the greater the chance of a pregnancy. Nonetheless, in view of the fact that these patients are probably representative of the whole group, it seems that selection has not greatly influenced our results. In general, it seemed that one subjective assessment at the conclusion of the operation of how well the anastomosis went was the best method of predicting the outcome.

It is noteworthy that the greatest success has followed clip sterilization or isthmo-isthmic anastomosis when very little tube has been damaged. Ampullo-ampullary anastomosis was less successful (44%). This may be because a good length of ampulla is required for efficient gamete transport and because ampullary adhesions near the site of sterilization may immobilize the infundibulum and interfere with ovum capture at the ovary or from the Pouch of Douglas. When the ampullo is very short then reconstruction has been less frequently successful. Nevertheless, three patients have conceived when the total length of either tube was less than 3 cms, that is, when more than 75% of the tubal length was destroyed.

Table 2. Sterilization Reversal. Analysis of the Length of the Longer Tube in 35 Patients

Length in cms	Patients	Pregnant
<2.5	4	2
4 - 2.5	7	2
6 - 4.1	15	8
8 - 6.1	5	3
> 8		4

The most reversible form of sterilization would seem to be a method which destroys only a limited amount of isthmus. Isthmo-isthmic anastomosis is generally technically easier because of the relatively uniform calibre of the oviduct in this region. Major degrees of luminal disparity between joined segments are therefore avoided. Another factor is the complexity of the mucosal folds in the ampullary region and the thinness of the muscle coat in the lateral part of the oviduct. A good join is far easier to achieve in the isthmus providing, of course, that a microscope is employed.

Recent innovations in the technique of female sterilization hold great promise of reversibility. The ring and the clip destroy only a short length of tube and are generally placed across the isthmus. Adhesion formation and hydrosalpinx are rare after their application, and fibrosis is usually minimal. As yet there are no published series to provide adequate data, but it would not be unreasonable to suppose a reversibility of greater than 80 percent. We feel that clip sterilization may be better in this respect.

CAN WE PREDICT WHICH PATIENTS MAY REQUEST STERILIZATION?

In spite of refinements of female sterilization and tubal surgery, it seems appropriate to say that we should not offer sterilization to patients on the grounds that it may subsequently be reversed. To do so would be dangerous—partly because there is clearly no guarantee of the success of reversal and partly because we would overburden services which are already greatly stressed in most parts of the world. Sterilization should be employed only where a couple have arrived at the need for "definite contraception" (9), and it should be regarded both by the doctor and his patients as irreversible.

Paradoxically, it seems reasonable to sterilize by methods which cause the least tubal damage in case an unpredictable tragedy affects the patient. Moreover, it is clear that better, more professional sterilization counseling is needed throughout the world. It seems equally certain that sterilization is best avoided in the young woman, when the marriage is in jeopardy, when there are serious emotional disturbances, immediately after an abortion, or in the puerperium. Although sterilization is now the most prevalent global method of contraception, this does not obviate the need for careful assessment of patients' needs and mature consideration of sterilization's serious implication for the individual woman.

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Vasectomy and Reversal of Vasectomy

Sherman J. Silber

In the last 125 years the world's population has grown from one billion to four billion. By the turn of the century the population may very well reach 10 billion. This staggering population growth, in the face of diminishing resources, is a major crisis of our time. One of the most popular and effective solutions to the problem of birth control and family planning has been vasectomy. Its only disadvantage has been its irreversibility. Until very recently the surgical techniques for reuniting the severed vas have been clumsy and fraught with failure. Furthermore, most clinicians performing vasectomy have been ignorant of its pressure mediated effects on the epididymis and testis.

In order to study the problem of reversing vasectomy, we first developed a very accurate technique for microsurgically reuniting the vas deferens, and thereby obtained a dramatic improvement in post-operative semen analyses and pregnancy rate. Indeed, 88% of patients who have had previously unsuccessful vasectomy reversal operations by competent clinicians, developed normal semen analyses after reoperation with microsurgery. Once we had thus removed the artifact of a sloppy anastomosis, we were able to carefully study the other factors related to the secondary effects of the vasectomy itself, which influence the likelihood of recovering fertility. Much of this data has already been published, and I will therefore try to avoid a boring repetition of details which are readily available to you (1,2,3,4,5,6,7,8).

We will first discuss how the pressure mediated effects of vasectomy deleteriously affect its reversal. We will then discuss how microsurgical exploration of the epididymis may solve this problem in many cases. Finally, we will discuss how the technique of vasectomy itself may be modified to make it more reversible. The artifact of a sloppy reconnection will not enter into the discussion because the basic assumption underlying all of this work is that an accurate microsurgical anastomosis has been achieved. With our large series of over 100 patients who have had poor sperm counts and demonstrable infertility after conventional vasovasostomy, but recovered fertility after microsurgical reoperation, we have certainly by now progressed beyond the stage where we have to prove that an accurate reconnection is one basic requirement. Let us then, in this paper, go on to the more sophisticated problems that remain once the microsurgical techniques for vas reanastomosis have been mastered.

THE EFFECTS OF PRESSURE INCREASE AFTER VASECTOMY

After vasectomy, there is a steady build-up of pressure which is transmitted back through the entire epididymis causing relatively massive dilatation and distention. A great deal of fluid is secreted by the testis into the epididymis. The majority of this fluid is then reabsorbed by the epididymis. Despite this reabsorption of testicular fluid by the epididymis, every patient who is vasectomized develops epididymal dilatation and distention. If the vasa efferentia are ligated as they emerge from the testis, the testis itself becomes distended with congestion and subsequent atrophy of the seminiferous tubules. However, vas ligation results only in epididymal distention without any discernible effects upon the testis (9,10,11,12,13,14,15, 16).

At the time of vasectomy reversal, we measure the degree of dilatation of the vas lumen on the testicular side and on the abdominal side of the vasectomy site. Dilatation is always found. The abdominal side lumen measures from ¼ to ½ mm. in diameter, and the testicular side lumen measures from ½ to 2.0 mm. in diameter. The pent up fluid usually gushes out under pressure when the vasectomy site is excised. If this fluid contains no spermatozoa, the patient is highly unlikely to ever have sperm in the ejaculate, despite an immaculately accurate vasovasostomy. If the vas fluid has many spermatozoa, then the patient is virtually certain to have sperm postoperatively in the ejaculate and has over a 90% chance of having a normal sperm count. Sperm count and sperm motility gradually increase to within a normal range sometime between 3 and 12 months postoperatively.

Two factors influence the likelihood of finding good sperm in the vas fluid. First is the duration of time since vasectomy. When the vasectomy was performed within one year of the vasectomy reversal, we have not come across any case where good sperm were not seen in the vas fluid, and where normal semen analysis did not develop postoperatively. In these cases, the reversal was usually prompted by a crib death. On the other hand, when the vasectomy was performed over 10 years prior to reversal, 50% of the patients failed to have any sperm in the vas fluid on either side at the time of vasovasostomy and postoperatively are azoospermic. When the vasectomy was performed within 10 years of the reversal, there is

often no sperm found on one side, but because the other side does have normal sperm, the patient recovers a normal count anyway. Thus, the duration of time since the vasectomy (that is the duration of time that the pressure has been allowed to build up) is one very important factor influencing the likelihood of a successful reversal.

The second intriguing factor affecting the quality of sperm in the vas fluid is the presence or absence of a sperm granuloma at the vasectomy site. If a palpable sperm granuloma is present at the vasectomy site, invariably there will be good quality sperm in the vas fluid. If there is a sperm granuloma on one side and not on the other side, there may be no sperm on the side where there was no granuloma, but there would, without exception, be sperm in the vas fluid on the side where a sperm granuloma is present. Furthermore, in the presence of a sperm granuloma, the vas lumen is rarely dilated to more than ¾ mm. in diameter, whereas in the absence of a sperm granuloma, the vas lumen is usually dilated to over 1.0 mm. in diameter. Thus, a sperm granuloma is a site of continuing leakage with reabsorption of vas fluid, and acts like a safety valve, decompressing the vas and preventing too great a build-up of pressure. In the presence of a sperm granuloma, representing leakage and reabsorption at the vasectomy site, there is very little dilatation of the vas, and there is always good quality sperm, indicating an outstanding prospect for reversibility.

It now seems firmly established that the degree of pressure build-up after vasectomy, and the duration of that pressure build-up, can adversely affect the recovery of fertility even after an accurate vasovasostomy. Furthermore, the likelihood of recovering fertility can be accurately predicted on the basis of the quality and amount of sperm seen in the vas fluid at the time of the reversal operation. If the duration of time since vasectomy has been relatively short, and if there is a sperm granuloma found at the vasectomy site, then fertility can be restored (as measured by a normal semen analysis in the male, and pregnancy in the fertile female) in at least 90% of patients. On the other hand, if the vasectomy was performed a long time ago, and if there is no sperm granuloma present to decompress the vas, then at least 50% of the patients will be completely azoospermic after the vasectomy reversal, no matter how accurately it is performed.

The fact that the testicle biopsy was normal in all cases where no sperm was found in the vas fluid, and the patient remained azoospermic after an accurate vasovasostomy, led us to look more closely at the epididymis. Whenever there was no sperm in the vas fluid, the epididymis had blowouts with extravasation of sperm from the epididymal tubule into the interstitium, causing secondary obstruction. In over 80% of the cases, this epididymal disruption from pressure induced blowouts occurred at the junction of the corpus and tail of the epididymis, just where the relatively muscular caudal epididymal tubule is thinning out into the very delicate tubule of the corpus. In the rest of the cases, disruptions were found farther up the corpus epididymis or in the head of the epididymis. In every case where there was no sperm in the vas fluid, we located a level in the epididymis (even if we had to go up the vasa efferentia) where normal sperm were found in the fluid. Distal to this site was always the area of interstitial sperm granuloma with constriction and secondary obstruction of the epididymis.

These granulomas were not easily observed, even with the operating microscope. Only by serial transection (like a sausage) could the specific focal areas of epididymal sperm granuloma and secondary obstructions be discovered. "Eyeballing it" rarely revealed any useful information, except that, as with any vasectomized patient, one could clearly discern that there was epididymal dilatation. But to the naked eye this dilatation appeared no different in patients who had secondary epididymal disruption than in patients who had no epididymal disruption.

Thus, we conclude that the secondary effects of pressure build-up on the epididymis after vasectomy are what prevents recovery of fertility even after an accurate vasovasostomy. The longer the duration of time since vasectomy, and the greater the pressure build-up, then the greater the likelihood will be of epididymal extravasation and secondary obstruction. The presence of a sperm granuloma at the vasectomy site, indicating continual leakage and reabsorption, eliminates the risk of having a blowout in the epididymis with epididymal sperm extravasation and secondary epididymal obstruction.

MICROSCOPIC VASOEPIDIDYMOSTOMY: Specific Microanastomosis to the Epididymal Tubule

Until recently, vasoepididymostomy for epididymal obstruction has been a very crude operation, with a low success rate, and relied upon the hope of formation of a sperm fistula. Using a microsurgical technique far more delicate than vasovasostomy, we are now able to reliably anastomose the inner lumen of the vas deferens directly to the epididymal tubule. Thus, instead of hoping for the (unlikely) formation of a sperm fistula, we are creating an accurate anastomosis which by-passes any epididymal obstruction. The technique involves serial sectioning of the epididymis until we reach a level proximal to the obstruction, where good sperm is found leaking from the epididymal tubule.

When one observes the transversely sectioned end of the epididymis, there may appear to be 8 or 10 tubules. But only one of those tubules is leaking sperm. The other openings are merely cut ends of this one terribly convoluted tubule which have been disconnected from continuity with the proximal portion of the tubule. If one observes closely under the operating microscope, one can see the epididymal fluid emerging from only one of those tubules. That is the tubule which is specifically anastomosed to the inner lumen of the vas deferens. Then the outer muscularis of the vas deferens is sutured to the epididymal tunic for support.

This operation is extraordinarily delicate. The reader may express doubt that we actually do this procedure unless he comes to St. Louis and observes for himself. Unlike microscopic vasovasostomy, vasoepididymostomy requires more than just laboratory practice. It requires a great deal of experience and seasoning with all kinds of microsurgical techniques. If a vasectomy reversal fails, it can always be redone with more accurate technique. But if a vasoepididymostomy fails, the subsequent scarring around this delicate structure makes later operations almost impossible.

Over 85% of patients upon whom we performed a vasoepididymostomy have recovered normal semen analysis. When the vasoepididymostomy had to be performed in proximal regions of the corpus or in the head of the epididymis, motility did not return to normal. However, when the obstruction was in the distal corpus, motility returned to normal in most cases. Thus, we now have a method for successfully reversing vasectomy even in patients who otherwise have a poor prognosis due to the pressure damage created by the vasectomy. However, this technique is so difficult that for world population planning purposes, it might be more reasonable to perform a vasectomy in such a way as to minimize this pressure mediated damage in the first place.

VASECTOMY TECHNIQUE

One of the major complications of vasectomy is sperm granuloma with subsequent spontaneous recanalization. Yet if spontaneous recanalization does not occur, the formation of a sperm granuloma at the vasectomy site may be beneficial in that it reduces the amount of pressure in the epididymis and eliminates the likelihood of an eventual epididymal blowout. When cautery technique for sealing the vas at the time of vasectomy is employed, the incidence of sperm granuloma is around 1%, and recanalization is rare. On the other hand, when ligature techniques are used for sealing the vas deferens, sperm granuloma will form in up to 30% or 40% of cases, and the spontaneous recanalization rate is about 1 percent. The mechanism for spontaneous recanalization is that sperm leaks out through the cut testicular end of the vas deferens and swims through connective tissue, grinding a pathway to the other side. Most spontaneous recanalizations result in a very poor semen quality and eventually scar down with subsequent azoospermia. However, some spontaneous recanalizations result in permanently restored fertility. Thus, the formation of a sperm granuloma at the vasectomy site, though beneficial, should not be taken lightly.

However, a great deal of emotionalism has clouded our feelings about sperm granulomas. Certainly if one is going to perform vasectomy, one is going to have to accept the inevitability of inducing sperm granulomas in virtually every patient vasectomized. If a sperm granuloma does not form at the vasectomy site, then it will certainly form eventually in the epididymis at the site of a rupture of the epididymal tubule induced by the pressure build-up. It is simply a question of whether one would rather have the sperm granuloma at the vasectomy site or in the epididymis. For the purposes of making vasectomy a reversible procedure, it would be much wiser to have the sperm granuloma at the vasectomy site rather than in the epididymis.

As to the issue of pain stemming from a sperm granuloma, we must objectively look at the large number of men who have had their vasectomies from one month to 28 years ago, whom we have seen for vasectomy reversal. In over 800 such patients, we have usually not found a sperm granuloma to be a source of discomfort. In fact, patients with a sperm granuloma were less likely to have epididymal tenderness than patients who had no sperm granuloma at the vasectomy site. Furthermore, in patients who had a sperm granuloma on only one side, the side with the sperm granuloma had no epididymal tenderness, and the side without the sperm granuloma frequently did have epididymal tenderness. Oddly enough, an epididymal blowout, discovered at the time of vasectomy reversal, was not a source of much pain either. Patients with the most aggravating epididymal tenderness usually did not have an epididymal blowout. They had good sperm in the vas fluid, and a successful result after vasovasostomy. Indeed, it appears to be the pressure build-up within the epididymis that causes most of the mild intermittent orchialgia that one often sees in postvasectomy patients.

In a small number of patients who were referred to us because of persistent discomfort many years after the vasectomy, and who did not wish to be fertile again, only one such patient had a somewhat tender sperm granuloma. The other 8 had no sperm granuloma, but marked epididymal tenderness. After performing a vasovasostomy on these patients to relieve the pressure, the symptoms of discomfort and the epididymal tenderness regressed.

Thus, it would be childish for us to suppose that one can perform a vasectomy without the risk of some scrotal discomfort in a certain small percentage of patients. It does not appear that the formation of a sperm granuloma at the vasectomy site leads to any greater risk of scrotal discomfort. Furthermore, it insures the continued integrity of the epididymis which makes reversibility much more likely.

One method of vasectomy designed to encourage the formation of a sperm granuloma and yet minimize the risk of spontaneous recanalization, has been tried in over 400 patients by Shapiro in Ottawa, Canada. Shapiro did nothing to the testicular cut end of the vas deferens at the time of vasectomy. He merely let it leak freely into the scrotal tissue. In an early group of his patients he sealed the abdominal side lumen with hot wire cautery (vasector). In a subsequent, larger group of patients he used a hemoclip on the abdominal side lumen along with fascial interposition. Despite doing nothing to seal the testicular side lumen, about 3% of patients failed to form a sperm granuloma. All of the others formed nontender sperm

granulomas which never progressed to greater than 4.0 mm. in diameter. None of the granulomas were tender. None of them required any surgical treatment. Thus, Shapiro is at a loss to explain why one particular author reports that almost 50% of patients with sperm granuloma after vasectomy have such severe and persistent pain that they require surgical intervention.

The unsettling aspect of Shapiro's work, however, is that in the first group of patients in whom the abdominal side lumen was treated with hot wire cautery, 7% had spontaneous recanalization. In the second group of over 200 patients who had hemoclip applied to the abdominal end of the cut vas deferens, and who also underwent fascial interposition, none had a recanalization. This work is very [illegible] ging, but further studies are needed to determine [illegible] ner electro-cautery for the abdominal side lumen, or just fascial interposition alone, will be more effective in preventing recanalization than hot wire cautery. A large series of vasectomies have been performed by Moss, using hot wire cautery alone to *both* cut ends, and no recanalizations have been reported.

There is no doubt that the prevention of spontaneous recanalization by proper treatment of the abdominal side of the cut vas deferens is essential before open-ended vasectomy, despite its greater reversibility, can be recommended. Yet it is clear that this problem should be rather easily solvable and answers may be available in the next year or so. However, any emotional outcry against sperm granuloma, whether at the vasectomy site or in the epididymis, is really an uninformed indictment against vasectomy itself, since sperm granuloma is an inevitable and unavoidable consequence of all vasectomies. Furthermore, a certain small percentage of vasectomized men are going to experience some pain no matter what technique is used and whether or not a sperm granuloma forms at the vasectomy site. The symptoms are rarely more than just a minor nuisance, and they are usually transient.

Pregnancy is certainly not a normal state of physiology, and the results of a pregnancy can of course be disastrous. Too many pregnancies for a family are certainly a greater source of misery than the occasional pains that only a few patients may develop after their vasectomy. No matter what technique of vasectomy is used, open-ended or closed-ended, there will be a rare patient who complains of discomfort.

We would not recommend vasectomy for a man who feels he may want to have more children, but the later death of a child or wife may change his view radically after surgery. It is therefore inhumane to disregard the possibility of future reversibility in any vasectomy we perform.

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The Role of Reversibility in the Acceptance of Sterilization

Gerald I. Zatuchni

As recently as 1960, only an estimated cumulative number of 7-10 million couples were using voluntary surgical sterilization as their means of controlling fertility. During the decade of the 1960s, surgical sterilization was a minor method of fertility control and most couples preferred oral steroids, IUDs or "traditional" methods. In fact, the estimated number of couples using sterilization in 1970 was 20 million. The majority of these couples were living in India, China, the United States, and Western Europe. By 1978, the estimated number of couples accepting sterilization had increased to 80 million, and 80% represented acceptors from only three countries—China, India and the United States (1). The estimated number of 80 million sterilizations makes sterilization the number one fertility regulation choice. This is a marked change from 1970 when sterilization was fifth in the estimated world use of fertility control methods.

As additional years go by, it is likely that in many developing and developed countries, male and/or female sterilization will continue to increase until most couples who have achieved their desired family size will choose to accept this permanent method.

It must be emphasized, however, that women who now accept sterilization do so usually at the terminal end of their reproductive years—i.e. when the couple has decided that they do not desire more children. Statistics show that sterilized couples are of older age (beyond 30 in women and beyond 40 in men), and the woman has had a significant number of pregnancies with a resultant three or more living children. Accordingly, and most importantly, the demographic impact of sterilization among such acceptors is minimal. Nevertheless, sterilization is important because it is the most effective method, long-lasting, virtually free from side effects, and requires only one-time motivation. Unfortunately, because of its permanence and the necessity of a surgical procedure, sterilization soon may be reaching a plateau of acceptance in many countries once the couples of older reproductive age have been sterilized (and there is still a tremendous backlog in many countries). The method offers little appeal to younger couples with few children.

To determine the appeal of potential technology—reversible sterilization in this case—without having the technology in hand leads to false assumptions. Without having a product or procedure to offer, sociological surveys and opinion sampling are of little significance. Therefore, in order to determine accurately the potential role of reversibility in the acceptance of a sterilization procedure, an easy and effective reversible procedure must be in existence and known to that particular population.

Surgical reversal of sterilization in the male or female, when performed by appropriately trained surgeons, using meticulous technique and appropriate instrumentation does yield good results in the restoration of fertility. Success, however, is conditioned. In women it is determined by the extent of damage to the fallopian tubes by the previous sterilization procedure; and in men the vasectomy procedure must not be too long-standing (perhaps not over ten years). Given these prerequisites for success with a surgical reversal procedure, and including a large element of patient selection for the procedure, it is unlikely that intrauterine pregnancy success rates of more than 50% can be achieved. Obviously then, neither female nor male sterilization can or should be offered as a reversible method.

In a unique study, Dr. D.N. Pai assessed the need for sterilization reversal in Bombay (2). Interestingly, two-fifths of vasectomized men and one-fifth of sterilized women said that they were aware of the availability of sterilization reversal. However, an interest in reversibility was expressed only by 4.1% of the vasectomy acceptors and 1.1% of the tubal sterilization acceptors. Even fewer actually demanded a reversal procedure—1.3% of men and 0.1% of women. Neither the demand nor the desire for sterilization reversal in this study can provide reliable estimates to define the potential role of true reversibility in the acceptance of sterilization. In this study, vasectomized men in the sample had a mean of 3.8 living children and their age at the time of sterilization was 38.4 years. Female acceptors had 4.2 living children, and the mean age at the time of their sterilization was 28.2 years. It is obvious that these men and women did not want more children at the time of the sterilization; hence, a potentially reversible method would not have been attractive to these groups—nor to most couples of reproductive age who have reached the decision to use permanent fertility termination.

In the United States, as in India, only about 1% of sterilized persons seek reversal. But, as indicated above, this figure represents only the tip of the iceberg. Couples desiring sterilization go through a long period of decision-

making prior to the actual procedure. Those who finally decide to have the procedure are those committed to not having more children. Now suppose an easy and effective reversible procedure were available—how many couples of young age, with no children or one or two children, would accept? In this hypothetical situation prediction of actual behavior is subject to great error. Despite this admonition, I would call your attention to intrauterine contraception. IUDs are somewhat analogous to a reversible sterilization method, although the side effects associated with IUDs and the consequent discontinuation unbalance this analogy. The appeal, however, of intrauterine contraception is great, and couple decision-making prior to acceptance of an IUD, is similar to what would be required if a reversible sterilization procedure were available. Indeed, in the 50% or so of women who accept an IUD, tolerate it without significant side effects and wear it for years, the IUD *is* a reversible fertility terminating device. What then has been the acceptance of intrauterine devices around the world? It is estimated that approximately 23 million women were currently wearing an IUD in 1978, although at least four or five times that number initially had accepted an IUD. Unfortunately, the IUD-induced side effects detract from the popularity and acceptance of the method, as well as from long-term use. So again, it becomes an impossible task to measure the degree of appeal of a long-term contraceptive method that has the capability of full fertility restoration.

Despite the lack of available data or the means to acquire such information relating to the potential role of reversibility in sterilization acceptance, most of us have the impression that a truly reversible method would have substantial impact. This "ideal" reversible method would need to have the following features:

- Contraceptive efficacy must approach 100% over many years duration.
- The potential for reversibility also must be on the order of 90% or better.
- Both the sterilization and reversal procedures should be nonsurgical, or at least not require any major surgery.
- In developing world situations, non-physician application of the method would be most desirable.
- Other positive attributes would include the usual factors of cost or harmful side effects.

Several promising potentially reversible methods of long-term fertility control are under investigation. These include methods for temporarily obstructing the vas deferens by use of a variety of discs, plugs and other geometric arrangements; new techniques of vasectomy and vas occlusion; uterotubal junction blocking devices; tubal blockade using plugs made from various biocompatible materials; and tubal hoods for reversible obstruction at the infundibular end of the fallopian tubes.

In spite of the laudable objectives of such research, insignificant amounts of funding support have been provided by the concerned agencies. It is likely that no more than $1 million a year is being spent throughout the world by public and private sector interests on research aimed at the development of such methods. A reason for this inadequate funding level may be the honest skepticism that a male or female method can be developed having the above "ideal" characteristics. For example, in the early 1970s, there was a flurry of scientific interest in developing reversible vas occlusion techniques, but most of these projects have fallen by the wayside due to technological difficulties arising from both the sterilization point of view and the later restoration of fertility.

A real possibility exists, however, that future long-term methods of contraception having the characteristics of full reversibility upon discontinuation may be pharmacologic in action, rather than surgical or mechanical. Research endeavors are ongoing that have as their objective the development of a one-time application of a fertility control method that would be effective for many years, and yet be reversible, either following spontaneous termination of the inhibition, or upon administration of another agent to counteract the effects of the first agent. However, much more research needs to be done before such a male or female pharmacologic method becomes a reality. Nonetheless, scientific study is not required to bolster the common sense view that a one-time application of a long-acting contraceptive, that is fully reversible upon discontinuation, would have wide appeal for *all* reproductive age groups. What *is* necessary is the development of the method.

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Legal and Ethical Aspects of Voluntary Sterilization Programs

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Voluntary Sterilization and the Law

Harriet F. Pilpel

VOLUNTARY STERILIZATION AND THE LAW

Recent studies assert that people desiring to limit their fertility today are relying on sterilization more than any other single method of contraception. Yet, the law on the subject has not developed with anything like the same speed or prevalence, and the legal status of sterilization still remains unclear in many countries. The law 1) may say nothing about voluntary sterilization; 2) may specifically prohibit voluntary sterilization; 3) may be thought to prohibit voluntary sterilization by reason of general provisions of the criminal law, e.g., those against international infliction of bodily harm; or 4) may expressly permit voluntary sterilization, in which case the law usually also regulates the provision of voluntary sterilization services.*

WHERE THERE IS NO LAW SPECIFICALLY PROHIBITING OR AUTHORIZING STERILIZATION

Since the use of voluntary sterilization for purely contraceptive purposes is a relatively new phenomenon, most countries do not have laws which specifically regulate the procedure. This is a mixed blessing. The absence of laws on the subject may encourage those interested in providing the services to do so. On the other hand, however, it may make them reluctant to do so. In the large number of countries where there are no statutes specifically authorizing or prohibiting voluntary sterilization, it is probably legal. In these settings the availability of voluntary sterilization would, like other medical procedures, be subject to only the laws on medical practice in general and surgery in particular.

Where there is no *specific* provision in the law concerning the legality or illegality of voluntary sterilization, the doctrine, *nullum crimen, nulla poena sine lege* would seem to apply. Loosely translated, it means that an act is considered "criminal" only when it is specifically stated to be so in the crininal law. This precept of criminal law, common to virtually all legal systems of the world, can be applied with advantage to voluntary sterilization, so that in all likelihood, voluntary sterilization is legal in those countries that have no express legal proscriptions.

**Examples of voluntary sterilization statutes presently in force throughout the world are available on request from the Law and Planned Parenthood Program, International Planned Parenthood Federation.*

THE CRIMINAL LAW AND VOLUNTARY STERILIZATION

In some countries the law specifically prohibits voluntary sterilization under any circumstances—as in Italy until the recent change in the law. Section 552 of the Penal Code, which dated from October 19, 1930 provided:

> Whoever performs acts on persons of either sex, with their consent, intended to render them incapable of procreating, will be punished by imprisonment from six months to two years and with a fine from eight to forty thousand lira. Whoever gives consent to those acts being performed on himself shall suffer the same punishment.

However, relatively few countries specifically prohibit voluntary sterilization. In most, the criminal law neither specifically prohibits nor permits voluntary sterilization. Despite the general precept already referred to, that what is not prohibited by law is permitted, there is considerable uncertainty on the part of family planners in many countries as to whether various *general* provisions of the criminal law could be applied to make the procedure illegal. Rather than risk possible criminal penalities, program managers may abstain from offering voluntary sterilization services. The fear is that sterilization may be considered a form of intentional infliction of "grievous bodily harm," "assault," or "mayhem," as expressed in Common Law systems, or of "coups et blessures volontaires" (intentional wounds and injuries), as expressed in Civil Law codes. Such apprehensions have a chilling effect on sterilization services.

WHERE VOLUNTARY STERILIZATION IS EXPRESSLY PERMITTED

In many countries, legal uncertainties about voluntary sterilization have been resolved by specific statutes. In Singapore, for example, the Voluntary Sterilization Act of 1974 provides that "sexual sterilization by a registered medical practitioner (under the Act) shall not constitute a 'grievous hurt' within the meaning of the Penal Code." Article 262, or the Revised Penal Code of the Philippines, imposes penalities "upon any person who shall intentionally mutilate another by depriving him, either totally or partially, of some organ essential for reproduction." But in an opinion dated September 17, 1973, Secretary of

Justice Vincente Abad Santos stated that since several methods of sterilization (tubal ligation and vasectomy) "do not involve lopping or clipping off the organs of reproduction of both sexes," as may be the case with castration, but "are effected by the closing of a pair of small tubes in either the man or the woman so that the sperm and ovum cannot meet," they should not be regarded as "mutilation within the contemplation of Article 262." Similar interpretations have been handed down in other countries.

THE EFFECT OF CONSENT

Clearly, voluntary sterilization must be voluntary, i.e. the person sterilized must consent to it of his own free will. This necessity for voluntarism is another important consideration in determining whether sterilization can fall under the general ban of the criminal law. It offers another way of overcoming potential legal barriers. Under the criminal law in many countries, if the so-called "victim" consents, the person inflicting the so-called "injury" cannot be held criminally responsible. Accordingly, surgical procedures may be performed without fear of penal sanctions. For example, Article 24 of the Penal Code of South Korea provides:

> Conduct which infringes a legal interest shall not be punishable, except as otherwise provided by law, where the consent of someone who is authorized to dispose of such an interest is obtained.

Similar provisions are found in the penal codes of Ethiopia and Greece, as well as those of India, Pakistan, Sri Lanka, Burma, Malyasia and Uruguay, to name just a few.

On the other hand, in France, Belgium and some other Civil Law countries, the consent of the "victim" of "grave bodily injury" does not appear to free the surgeon performing the sterilization from criminal liability. This was the view taken by the court in the celebrated *Bordeaux stérilisateurs* case of 1937. There, a group of French people were accused of advocating and practicing voluntary sterilization on ideological grounds. Although the accused were not authorized physicians, and could have been prosecuted on other grounds, the decision was based on the underlying notion that the consent of the people who underwent sterilization was irrelevant to the criminal responsibility of the accused. The court observed that the patients "could not authorize anyone to violate, on their persons, the rules governing the public order (l' ordre public)." This view could also be applied to doctors, and where it prevails it can pose a rather formidable obstacle to voluntary sterilization programs.

The degree of confusion which exists in many countries is indicated by the fact that the general criminal laws which it is feared may be applicable to voluntary sterilization are the criminal laws on assault and severe bodily injury. If so applied, they would equate brutal assault with the work of a skilled physician on a willing patient under clinical conditions. Such a view is clearly absurd and has been rejected in many countries. A more reasonable approach is to be seen in some African countries with an English Common Law heritage (Ghana, Nigeria, Tanzania and Zambia for example). There, voluntary sterilization is simply considered "a surgical operation" which, if done in good faith for the intended benefit of the patient, is not the subject of criminal penalties. This is a sensible way to resolve any confusion which exists in many countries as to whether the criminal law applies to voluntary sterilization.

It should be noted, not to overstate the case, that where voluntary sterilization is prohibited, either specifically or by reason of the criminal law generally applicable to the infliction of "grievous bodily harm," the actual prosecution or conviction of the doctors or patients is rare (the last known case in France occurred in 1937, and that in Austria in 1934) or unknown (Chile, Indonesia, Costa Rica, and Colombia). That is not to say that because no prosecutions have taken place sterilization for family planning purposes is necessarily "legal." The paucity of prosecution, however, does reveal the disparity between what the law appears to say and what may go on in practice. Unfortunately, as long as laws which it is feared criminalize voluntary sterilization are on the books, they are an inhibiting factor, and steps should be taken to make clear that voluntary sterilization is legal. Actually in many places, because of increased demands, the practice of voluntary sterilization may substantially diminish the effect of the legal ambiguities.

TRENDS IN LAWS ON VOLUNTARY STERILIZATION

On the whole, there is a general trend towards liberalizing the laws affecting the availability of voluntary sterilization. In many instances, changes in the law apply to the whole range of sterilization services, therapeutic as well as contraceptive, either through a re-interpretation of the law or by the enactment of new statutes.

Where laws specifically authorize voluntary sterilization, they generally prescribe certain pre-conditions to the performance of the operation. The following are examples of typical legal requirements. Most of them are designed to assure voluntarism.

Waiting Period. Some laws require a waiting period between the request for voluntary sterilization and the actual operation. The 'waiting period' permits the requestor to reconsider a course of action which has a potentially irreversible outcome. It is also designed to eliminate possible coercion. The 'waiting period' has generated much discussion in the United States of late, where regulations governing federally-funded voluntary sterilization programs, and all sterilizations performed in the City of New York, now call for a 30-day waiting period. Those who pushed for this requirement feel it was necessary to protect "welfare mothers" from the coercive practice of suggesting that they be sterilized in connection with abortion, childbirth and/or the receipt of welfare benefits. In opposition to substantial waiting periods like thirty days, it has

been argued that such requirements may be detrimental to the health of the patients who thus have to undergo two separate surgical procedures with two separate anesthetics. It is also argued that they make getting a sterilization more difficult even where no coercion is involved. However, there are advantages to having some time lapse between the decision to ask for voluntary sterilization and the actual operation. The requisite time gives patients time to reflect. It may be that the greater the interval between any obstetrical event (birth or abortion) and sterilization the better the results for the woman. A recent study in Britain compared reactions of a group of women who were sterilized within a few days of giving birth and those who waited until a later date. The authors conclude that "much distress could have been avoided by performing the operation at a later date."

Some countries have provided for shorter waiting periods. A 1972 amendment of the Singapore Voluntary Sterilization Act of 1969 reduced the waiting period from thirty days to seven days. In the 1974 Act the requirement was eliminated altogether. On the other side, Denmark requires that the operation not be performed later than six months after its authorization. This is meant to insure relatively speedy delivery of the service and to avoid possible changes of circumstances. In some countries the request for sterilization is isolated from childbirth or abortion even when there is no evidence of coercion. This means that the patient may have to travel far from home for both procedures and often cannot undertake two such lengthy absences.

Minimum Age. The imposition of a minimum age requirement on applicants for voluntary sterilization is designed to protect individuals from reaching a rash decision with irreversible consequences, only to regret it later in life. The requirement affects the ability to consent to the operation, but it may also relate to the circumstances under which sterilization is available. In Denmark, sterilization is available on request at age twenty-five. Between the ages of 18 and 25 careful screening is required and sterilization is permitted, among other reasons, where pregnancy would risk the life or deteriorate the physical or mental health. Sterilization of anyone under 18 is not done unless there are very special reasons for doing so. In the United Kingdom, in theory, the age at which a minor can be sterilized is sixteen. In Singapore, the age requirement has been eliminated for some individuals, but is 21 if the person is not married. In countries without specific laws, the age of majority would probably be the minimum age of consent.

There is nothing inherently wrong with a minimum age requirement. Depending on national circumstances, though, a minimum age requirement may make sterilization an unattainable method of fertility regulation where marriage has taken place at an early age and desired family size is either reached before the age of majority or before the age at which sterilization can be normally authorized. The latter is often higher. Any requirements in this regard should realistically reflect circumstances within a country rather than conform to broader rules found in the law on such matters as age of majority. The requirement may also prevent those individuals who decide independently not to have children from using the method in their earlier years.

Minimum Number of Living Children. Some laws, and many government policies, require that before an applicant can be given authorization for voluntary sterilization, evidence must be shown that he or she has already a certain number of living children—5 in Panama, 4 (or 3 if the woman concerned is over 35 years of age) in Czechoslovakia, and 3 in India. In short, in countries in this category, proof of fertility is required before one is permitted to curtail fertility by sterilization. In many countries this serves as some sort of guarantee that the couple will enjoy the benefits of surviving offspring. Yet by the same standard it may prevent many from exercising a choice when they want to.

Spousal or Parental Consent. Since the number of children is arguably a matter of concern to both of the spouses, some laws require that, prior to voluntary sterilization, evidence must be submitted showing that the spouse consents to the operation. Such laws exist in Denmark, Japan and several predominantly Moslem countries. Japan also requires a form of spousal consent whenever the person, though not legally married, possesses marital status with the applicant. There is growing unease over this requirement in some countries on the theory that individuals, male and female alike, should have the sole right to make decisions relating to their fertility. It has been suggested in many countries that spousal consent requirements be eliminated as a matter of *law*. The United States Supreme Court has held that a requirement of spousal consent for abortion is unconstitutional, and the Court would probably hold the same way with reference to a requirement of spousal consent for voluntary sterilization. It may be reasonable *practice* where the requestor is married to attempt to involve the spouse in the decision-making process, but if this cannot be done, or if the spouse objects, the final decision should remain with the person who seeks the sterilization.

Parental or guardian consent comes into play where the individual is under age or incompetent to consent. The requirement was not designed with voluntary sterilization for family planning purposes in mind. In the past it has most often been associated with eugenic or therapeutic sterilization. The question of the rules which should apply to sterilization of incompetents and minors has been the focal point of heated discussions in some countries. While the parental or guardian consent requirements are designed as protections, courts in a few countries have adopted the view that parental consent is insufficient as a means of protecting the interests of the young or incompetent and that something more is necessary. In England courts have allowed others to intercede to stop sterilization of minors. In the United States a number of courts have said that sterilization of minors and incompetents cannot be done even with parental consent and a court order unless there is a specific statute conferring this power.

Facilities. Several laws specifically require that voluntary sterilization operations be performed only in hospitals or sites managed, supervised or authorized by the government. The theory apparently is that special precautions should be taken to ensure the safety of the procedure. Czechoslovakia, Denmark and Singapore are examples. While such requirements may be reasonable health measures at some times and at some places, as technology becomes simpler and safer, the rule that sterilization be performed in hospitals may unduly tend to restrict access to the services. One may well ask why sterilization as a surgical procedure should be singled out for such special regulation when other much more complicated surgical procedures are not so regulated? On such issues a careful balancing of priorities is needed. But the evidence is that with present technology, sterilizations may be performed in many settings other than hospitals.

Authorization by an Official Board. Several countries require the establishment of an official board to receive, review and decide on applications for voluntary sterilization, in all or selected (e.g., if the applicant is under age) cases. There is no unanimity, however, with respect to the size or professional composition of the board, or the method for reaching a decision (by majority or unanimity). It is often argued that the decision to seek a sterilization for family planning purposes should be left to the individual in consultation with the doctor and that authorization requirements are nothing more than a bureaucratic snare which makes getting a sterilization more difficult. Some countries' experiences bear out this fact. However, where the person seeking the sterilization is legally incompetent to consent, by reason of age or mental disability, review by a board of the request would seem appropriate to ensure that the operation is in the best interests of the patient and thus should be permitted, when otherwise it could not have been. In many countries, however, it would be desirable to have the law provide, in addition to a board, for a court order where there is any question of coercion, fraud, or any other legal problem posed (1).

WHAT MAKES STERILIZATION VOLUNTARY?

The type of sterilization discussed in this chapter is voluntary sterilization for family planning purposes, with the emphasis on *voluntary*. Sterilization is also often available for a wide variety of other health-related reasons, therapeutic as well as eugenic. However, the recent attempts in India to enforce an ill-defined policy of compulsory sterilization for certain couples has prodded the world community into looking more closely at the voluntary nature of the sterilization services. The fact that the method, at present, should be considered irreversible (although on occasion it can be reversed), led to renewed determination by governments that sterilization be provided in an atmosphere free of coercion and that recipients be fully informed of the nature and consequences of the procedure.

The Association for Voluntary Sterilization and the International Planned Parenthood Federation were concerned about these issues prior to the India episode. Indeed at two International AVS Conferences, one in Geneva in 1973 and one in Tunis in 1976, a specific proposal from the Legal Workshops emerged. At the suggestion of the IPPF Central Medical Committee and the IPPF Law Panel, this proposal, with slight modifications became IPPF policy on voluntary sterilization. This proposal embodied the substance of the following propositions:

- Sterilization as a method of limiting family size is a matter of individual choice which should be made in full knowledge of alternative methods of contraception and the risks and benefits to health and welfare associated with sterilization.
- The relative simplicity of present sterilization technology, and the known minimal side effects following sterilization, make it an appropriate procedure for those who have attained their desired family size and wish to choose this method.
- In the light of current medical technology, it is recommended that male and female sterilization procedures should be regarded as irreversible at the time of choice of the procedure. However, in order to provide for unforeseen events which occasionally induce a client to seek a reversal of a sterilization procedure, such techniques should be used as to give the greatest chance of reversibility.
- It is the individual's right to choose a method of fertility regulation without coercion. No sterilization procedure should be performed unless the person concerned has given voluntary, unpressured, informed consent. A counselling service and follow-up care should be an integral part of the sterilization program. The IPPF Policy on Voluntary Sterilization and accompanying legal guidelines are available on request from the Law and Planned Parenthood Programs.

In legal terms, the basic responsibility of those who provide voluntary sterilization services is to ensure that the individual gives mature, informed, unpressured consent to the operation, is legally adult, and is legally and socially competent to give that consent. These may look like rather imposing requirements, but if they are lacking the sterilization is not voluntary.To simplify things, the key to voluntarism, when it comes to sterilization, is information, together with an assessment of the recipient's legal capacity to understand that information, and on the basis of that information consent to the procedure. Voluntary consent is nothing more than making an informed, pressure-free choice. Thus, those providing sterilization have a legal responsibility to ensure that the individual seeking the operation receives and understands information about the procedure in a way that is appropriate to the cultural conditions and in his or her own language. The information given should include:

- A discussion of the availability of alternative reversible methods of family planning.

- A description of the techniques used in the procedure itself.
- A review of the advisability of the sterilization procedure as a contraceptive method.
- An explanation of the long-term and short-term benefits and risks to health.

It should be made clear to the individual that, at present, sterilization is considered an irreversible procedure and that the decision should be made in that light. On the other hand, it should be stressed that the operation does not necessarily guarantee the prevention of pregnancy in every case. A small but definite failure rate does exist. In the case of male sterilization, the individual should be notified of the need to use other temporary preventative measures in the immediate post-sterilization phase. If possible, he should be provided with the means, such as condoms, for such measures. For a full discussion of all these points see *Family Planning Handbook for Doctors* (2nd ed.).

It is advisable to secure in *writing* the voluntary informed consent of every legally competent, fully informed person who wishes to be sterilized. Care should be taken, however, to ensure that the piece of paper does not become an alibi for otherwise coercive behavior. The written consent is advised for two reasons: 1) to record the fact that the person being sterilized fully understands and consents to the procedure and the consequences which attend it; 2) to protect the doctor and/or the institution where the sterilization is performed from any liability which might attach if informed consent was not given. (See Appendix for sample consent forms and guidelines for use developed by the International Project of the Association for Voluntary Sterilization).

Consent is normally required before any medical treatment is given. Voluntary, informed consent will generally remove the possibility, discussed earlier, of the criminal law, on mayhem or mutilation for example, being applied to sterilization. Of course, voluntary informed consent does not insulate a doctor from liability for an operation which is performed negligently. All surgical procedures carry with them an obligation by the physician and other personnel not to do the procedure negligently.

Special care should be taken to ensure that a marriage partner, or a third party, does not push an individual to accept a sterilization which is really against his or her free will. It is appropriate, therefore, to tell requestors that they have the right to change their minds and to refuse sterilization, and that if they do so, no medical, health, or other services or benefits to which they are normally entitled will be withheld, nor will they incur any penalties. (This would not work in every jurisdiction, but holds as the general rule. For example, in Singapore, children who have a parent who has been sterilized are given top priority in the choice of schools they attend. Those parents who have not been sterilized are only given their choice for the first child. Suggestions have been made in some countries that promotion within the civil service be linked to sterilization. These "incentives" may be troublesome, particularly if those who choose not to be sterilized are thus indirectly coerced.)

Where the individual being sterilized has given informed consent, under most legal systems it is not *legally* necessary to obtain the consent of the other spouse for the purposes of protecting the doctor or the institution concerned. However, the non-consenting spouse may have the right of action against the person being sterilized, based on the general principles of marriage or family law in a given country. For example, sterilization without either the knowledge or consent of the other spouse,or against his or her expressed wish, may be grounds for divorce or separation in some countries. It is, therefore, advisable, but not in most countries legally mandatory, to get the signature of both spouses where possible when voluntary sterilization is undertaken. The spousal consent policy should not be used, however, in such a way as to deny the procedure to individuals who want it and who can give informed consent regardless of the spouse's position on the matter.

In many parts of the world cultural or religious mores have an impact on the attitudes of the medical profession toward both male and female sterilization. On the one hand, surgeons and other supporting health personnel have a right *not* to participate in procedures which offend their consciences. On the other hand, the medical community as a whole has an obligation to make sure that services in family planning matters are available on the principle of "freedom of choice." Therefore, those professional workers who decline to participate in sterilization should be obliged to inform individuals seeking sterilizations about other qualified persons or facilities which do offer the services.

CONCLUSION

There is a constantly growing acceptance of sterilization as a method of fertility regulation. This acceptance has been accompanied by a trend to clarify what the law has to say on the subject. The initial impression in many countries that the criminal law creates substantial barriers to voluntary sterilization is being gradually dissipated. There remain, to be sure, more than a handful of countries where the law impedes the provision of sterilization services for family planning purposes, but these are dwindling in numbers as the law applicable to sterilization is being clarified.

In several jurisdictions the legal status of voluntary sterilization has been established either by special statutes on the subject or by amendments to existing statutes governing therapeutic and eugenic sterilization. These new laws have sought to regulate the practice in the interests of freedom of choice of the patient by addressing such issues as minimum age, mental competence, informed consent, waiting periods, screening procedures and criteria, and authorization of facilities. There is always the risk that in legislating such matters the availability of services may be impeded by over-regulation. Some evidence does exist

that this has happened to some voluntary sterilization programs. Only essential regulations to ensure voluntarism should be adopted.

The most pressing legal issue today is how to ensure that sterilization is voluntary in the sense that, on the one hand, the decision to be sterilized is one which is informed and unpressured, and that on the other hand, voluntary sterilization services are easily available. This is a challenge which more and more countries are addressing with a considerable degree of success. It should be the purpose of this conference to encourage and facilitate this trend.

POSTSCRIPT ON VOLUNTARY STERILIZATION OF MINORS

Since sterilization is not a viable fertility regulation option for most adolescents, it is not covered in the main part of this paper. However, the question whether minors should even be permitted to choose sterilization and, if so, under what conditions, does arise from time to time, so it is briefly discussed here.

The problem for young people, especially those who are unmarried, is not one of bringing child-bearing or fathering to a halt, but of avoiding or terminating unwanted pregnancy. Indeed, the sterilization of minors and mentally incompetent adults has drawn a fire-storm of criticism and triggered a reassessment of law and policy in several countries. However, given the marriage and fertility patterns in many countries, it is not impossible that a person under the legal age of majority might be placed in a position where sterilization for family planning purposes would be desirable. For instance, over 70 percent of females between the ages of 15 and 20 in Chad, India, Mali, Nepal, Niger, Bangladesh, Pakistan and Tanzania are married. On the average, of those aged 15-19 about 40 percent are married in Africa and about 30 percent in Asia. Many women have three or more children before the age of twenty-one. Similarly, the families of many young men of the same age may have reached their desired size. Voluntary sterilization for these people may not be entirely out of the question.

As we have seen, the vast majority of countries have no specific laws on voluntary sterilization. This legislative silence, in turn, may make it more difficult to determine whether minors can be sterilized. In most instances, however, to inject into the debate over voluntary sterilization the question whether minors (married or otherwise; with children or without) should have access to such services may unduly and unnecessarily complicate matters, particularly since recourse to the procedure by minors is so infrequent. Nonetheless, there are a number of issues here that are worthy of consideration. One of these is what criteria should apply to the case of the sterilization of a sexually active but mentally incompetent minor. Another is whether parental consent to sterilization of a minor—mentally competent or incompetent—is sufficient. On this question, courts in the United States and England have said that it is not sufficient, and that where a person is incapable by reason of age or mental incompetence to consent to voluntary sterilization, the procedure cannot be performed unless there is a specific statute stating the conditions in which it can be. Under the recently promulgated rules of the United States Department of Health, Education and Welfare, for example, *no* federal funds may be used for the sterilization of minors or incompetents.

As various nations begin to stabilize their laws and policies relating to voluntary sterilization of competent adults, they should direct their attention also to the problems involved in voluntary sterilization of minors and come up with adequate safeguards against compulsion which are especially vital where children are involved.

APPENDIX

INFORMED CONSENT GUIDELINES FOR USE BY IPAVS PROJECTS

It is the responsibility of the IPAVS grantee and staff to:

1. Use the utmost care in ensuring that sterilization operations are performed only after a person gives his/her voluntary, informed consent.

   Voluntary, informed consent is defined as occurring when:

   a. The individual presents himself/herself at the treatment center after choosing freely to do so, having experienced no undue inducement or *any* force, fraud, deceit, duress, or other form of constraint or coercion.

   b. The individual is capable of understanding and in fact understands the nature and effects of the sterilization operation (s)he is requesting. Specifically, the individual understands all of the following elements:

      i. Temporary contraceptive methods are available to the individual and his/her partner.

      ii. The sterilization is a surgical procedure.

      iii. Certain discomforts and risks attend the procedure, which have been explained to the individual by the physician and include the fact that sterility is not guaranteed, what complications may result, and what side effects may occur.

      iv. If successful, the operation will prevent the patient from having any more children.

v. The operation is irreversible.

vi. The individual can decide against the procedure at any time and no services or benefits will be withheld from him/her as a result.

2. Require that informed consent be documented with informed consent forms. Suitable forms are attached and can be used as models.

3. Ensure that copies of the documents are kept for audit and annual review for at least three years at your headquarters.

RECOMMENDED INFORMED CONSENT IMPLEMENTATION PROCEDURES

***Recommended Procedures for Implementation by Project Director**

1. Become familiar with IPAVS Informed Consent requirements and contract agreement.
2. Develop an Informed Consent Procedure which:
   - Identifies individual project staff who are responsible for patient counseling and education.
   - Provides for project staff training in informed consent.
   - Prepare appropriate informed consent forms for documenting the informed consent of each patient, in each patient's native language.
   - Implement the informed consent procedure.

***Responsibilities of Project Director:**

- The Project Director is ultimately responsible for ensuring that an informed consent procedure is in effect or implemented immediately.
- The Project Director is responsible for planning and identifying which staff members will be providing patient counseling and education.
- The Project Director must provide each individual staff member's role in the informed consent procedure.

***Responsibilities of Project Staff:**

- Project staff must recognize that informed consent is mandatory for all patients.
- Project staff must understand the informed consent guidelines and know the six essential elements of informed consent as outlined in the guidelines.
- Project staff must be aware of the fact that ALL informed consent must be documented by an informed consent form which is in the patient's native language.

MODEL

INFORMED CONSENT FORM FOR LITERATE ACCEPTOR

(This form is a model, prepared by IPAVS to assist subgrantees in implementing an informed consent program. The form is designed to be used by patients who can read. A form of this kind should be in the local languages(s) and designed to best fit your needs while conforming to the underlying informed consent concept).

I, the undersigned, wish to be sterilized by the following

procedure: _____
(specify sterilization procedure to be performed). I understand the following:

1. There are temporary methods of contraception I can use instead of sterilization for planning my family.
2. The sterilization is a surgical procedure, the details of which my physician has explained to me.
3. The sterilization operation involves risks, which my physician has explained to me.
4. If the operation is successful, I will be unable to have any more children.
5. The sterilization operation is irreversible.
6. I can change my mind at any time and decide against the sterilization procedure and no medical, health, or other services or benefits will be withheld from me as a result.

_____	_____
Date	Signature of Patient
_____	_____
Date	Signature of physician or other authorized person attesting to the patient's understanding of the above statement.

MODEL

INFORMED CONSENT FORM FOR ILLITERATE ACCEPTORS

(This form is a model, prepared by IPAVS to assist subgrantees in implementing an informed consent program. The form is designed to be used for patients who cannot read. A form of this kind should be in the local language(s) and designed to best fit your needs while conforming to the underlying informed consent concept.)

I, _____
(Name of attending physician or authorized assistant)

certify that _____
(Name of patient)

has presented himself/herself freely to undergo a

_____(specify sterilization procedure to be performed.) I have explained to the patient and he/she understands the following:

1. Temporary contraception techniques are available which the patient and his/her partner can use to plan their familiy.
2. The sterilization procedure is a surgical one.
3. The sterilization operation involves some risks, which have been explained.
4. While sterility is not guaranteed, if the operation is successful, the patient will be unable to have more children.
5. The sterilization operation is permanent and irreversible.
6. The patient can change his/her mind and refuse the sterilization procedure and no medical, health, or other services or benefits will be withheld from the patient as a result.

I certify that the patient's mark or signature is made with the understanding that such mark attests to the fact that I have explained the above to the patient and that he/she understands it fully.

Date	Signature of attending physician or other uthorized person
Date	Signature or mark of patient
Date	Signature of witness of patient's choosing

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The Legal Status of Voluntary Sterilization in the Americas

Rosa Judith Cisneros

POPULATION POLICIES: A FIRST STEP

With the exception of the U.S. and Canada, the present population problems in the Americas are due to such factors as an increase in birth rate, a decrease in mortality rate, the resulting incompatibility of both variables, the slow increase of per capita income, and the deterioration of natural resources. This situation impedes improvement in the standard of living and preoccupies people and governments.

In most cases, the private sector has compelled the official sector to define its position concerning the population problem and has contributed to translating agreements and international conferences into national actions which recognize the relationship of population problems to social-economic growth.

Carmen Miro conceives of demographic politics in this way: It is the ultimate goal to be achieved in relation to the size, composition, distribution, rhythm of change of the population, a goal more adequate to the declared political objectives of development and to the strategies to achieve them (1). Therefore, a couple's decision about their fertility is an important element to be considered in formulating any population policy.

The official approach to population problems and the decision to take action to reduce the birth rate supports the recognition of fertility limitation, and thus of the methods and services of family planning. It also implies the express and tacit recognition of the person or couple to decide freely on the number of and interval between their children. It supports the activities of private institutions in matters of family planning; it facilitates the acquistion of data and the development and distribution of studies in this field. It also generates the need to review and analyze the legislations of pronatalist countries.

In North and South America, countries which have explicit population policies are: The United States, Mexico, Guatemala, El Salvador, Colombia, the Dominican Republic, Puerto Rico, Jamaica, Barbados, and Trinidad-Tobago (2). These countries support family planning for maternal-infant health and/or as a basic human right.

In countries with no explicit population policy, there is nevertheless official support of family planning for non-demographic reasons. Such is the case in Canada, Honduras, Nicaragua, Costa Rica, Panama, Venezuela, Brazil, Cuba and Haiti (3). Countries favoring population growth are: Argentina, Paraguay, Peru, and Bolivia (4).

POLITICAL ATTITUDE OF THE GOVERNMENTS

After many centuries, the dramatic increase of population to a degree which represents a high risk for the biological, psychological and social equilibrium of the planet has forced people and governments to recognize their common responsibility in this field.

The Americas began to be aware of the population problem only after the Second World War. The legal approach to population management is even more recent; it began in the past decade and has been emphasized even more during this one.

The decades of the 40's and 50's were characterized by the medical-social approach while the 60's and 70's have focused on the political-legal aspects of this problem.

The political attitude of governments toward voluntary sterilization as a permanent method of fertility limitation can be traced to positions adopted before the demographic problems arose. Positions can be summarized according to the degree of interest shown by the governments: participating, cooperating, indifferent and excluding countries.

In participating countries, the state as well as the private sector offers services in hosptial centers. Canada, the United States, El Salvador and Colombia on the continent, and Cuba and Haiti in the Caribbean, are participating countries (5).

In cooperating countries, voluntary sterilization is offered with approval from the state and through private organizations, or, as in the case of Chile, in state hospitals, for health reasons and with funds from private organizations. Mexico, Guatemala, Honduras, Nicaragua, Panama, Ecuador, Venezuela, Chile, Jamaica, Trinidad-Tobago, Barbados, Granada, Dominica, Saint Kitt and Saint Lucia are in this category (6).

In countries indifferent to population growth, the service is offered by private doctors, as is the case in Peru, Brazil, Guayana and the Domincan Republic. In the latter country, postpartum voluntary sterilization is being programmed into three of the main state hospitals (7).

The excluding countries are those which do not accept voluntary sterilization and consider it to be an illegal procedure. These are: Argentina, Paraguay, and Uruguay (8). In Costa Rica and Bolivia, the procedure is considered quasi-legal, but is not accepted because it is considered a deviation from the political norm (9).

It is pertinent to mention that in 1974 the United States passed a federal law (in the regulations of the Department of Health, Education and Welfare) admitting voluntary sterilization into the family planning programs financed with federal funds. This law produced changes in the laws of the states of California, Delaware, New York, North Carolina, Oklahoma, Oregon, Rhode Island, South Dakota and West Virginia (10).

In El Salvador, Panama and Chile there were ministerial dispositions to regulate and facilitate the performance of voluntary sterilization services. In El Salavador, in February 1979, the regulations became more flexible by eliminating requirements, thus making services accessible to a greater number of people.

CULTURAL NORM AND JUDICIAL NORM: ETHICAL AND LEGAL ASPECTS

It is axiomatic that any judicial norm is a cultural one even though not all cultural norms become judicial. As a general rule, when a given situation succeeds in becoming part of a country's legislation, it has already existed as a cultural process of the country as a fact of life and customs accepted by the people. The fact precedes the right.

In many countries voluntary sterilization is a fact, a part of the cultural process. The future establishment of legal norms will recognize the right and autonomy of any couple to decide freely, in an informed and responsible way, their fertility control methods.

In countries where there is no special interdiction, the following judicial aphorism can be applied: "The law permits what it does not prohibit."

Various ethical aspects shape the approach to voluntary sterilization, since they imply respect for the free determination of the person. For this reason, it is emphasized that the procedure be accepted voluntarily.

Consent, as reflected in an authorization, is the expression of the conformity between thought and decision in relation to an external act. It is the link between the internal process of wishing, wanting, and deciding, and the external act of choosing.

In order for the process to be valid, the person must be normally intelligent, conscious and capable of expressing his/her will freely. Intelligence deliberates, consciousness evaluates, and the will decides. The defects in voluntary consent are the factors that damage or alter it: error, fraud or deceit, forcing, or physical or psychic violence. Error and fraud alter intelligence and consciousness. Violence perturbates the will.

For a person who cannot give consent, as in the case of a mentally deficient, if sterilization is recommended for social or medical reasons, a procedure must be arranged which will guarantee the rights of the disabled patient.

THE LEGAL FUTURE OF VOLUNTARY STERILIZATION

The air is contaminated. Water is scarce. Natural resources, not renewable like petroleum, diminish, thus creating serious energy crises. The inflationary economic process puts survival of the economically deprived in danger.

The uncontrolled and excessive population increase has endangered the life of the planet Earth and even of Man as a social-biological being. It becomes more and more necessary to think about the quality of life awaiting the future generations

The political leaders cannot ignore the numerous consequences of uncontrolled demographic increase. As the consequences become more obvious, the governments will choose to destroy the myths, the beliefs and barriers which impede the exercise of the basic human right to decide about one's fertility. They will put all the methods, including that of permanent fertility limitation at the disposal of the inhabitants to guarantee their rights. The current is moving in this direction. In the 80's there will be important changes in the legislation of a great number of countries. The continuous technological progress made by the indefatigable researchers will play an important role in the acceptance and demand of this method.

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Legal Aspects of Voluntary Sterilization in Kenya

U.U. Uche

It would appear that both the Family Planning Association of Kenya and the Ministry of Health perform sterilizations under the legal maxim that the law permits what it does not explicitly prohibit. Section 240 of the Kenya Penal Code provides that a person is not criminally responsible for performing, in good faith and with reasonable care and skill, a surgical operation upon any person for his benefit, or upon an unborn child for the preservation of the mother's life, if the performance of the operation is reasonable regarding the patient's state at the time and all the circumstances of the case. This provision is, of course, an exemption category under Chapter XXII of the Penal Code which creates offenses for acts endangering life and health.

There is a curious provision in the Medical Practitioners and Dentists Act which on first reading would seem to permit sterilization operations by native doctors. Section 26 of the Act provides as follows:

> Nothing contained in this Act shall prohibit or prevent the practice of systems of therapeutics according to African or Asian method by persons recognized by the community to which they belong to be duly trained in such practices...Provided that nothing in this section shall authorize any person to practice any African or Asian system of therapeutics except amongst the community to which he belongs, or the performance of an act on the part of any persons practicing any such system which is dangerous to life or the giving of an injection by any person practicing any such system.

It is, of course, possible to argue under this section that a "native doctor" (as such practitioners are often called) could practice sterilization operations in his native community as long as he does not transgress any of the provisions of the above section in respect to injurious acts and the administration of injections.

RESTRICTIONS AND PROHIBITIONS

Section 234 of the Penal Code, which provides that any person who unlawfully does grievous harm to another is guilty of a felony, would seem to apply equally to sterilizations in cases of lack of consent. Voluntary sterilization cases will undoubtedly be outside the prohibition of the provision.

No local cases have been adjudicated in the Kenyan Courts on the subject of sterilization. The English case of *Bravery v. Bravery* (1954) 3 ALL ER. 59, to be examined later in this paper, is precedent.

In a dissenting opinion Lord Denning had this to say:

> An ordinary surgical operation which is done for the sake of a man's health, with his consent, is of course, perfectly lawful because there is just cause for it. If, however, there is no just cause or excuse for an operation, it is unlawful even though the man consents to it...Take a case where sterilization operation is done so as to enable a man to have the pleasure of sexual intercourse without shouldering the responsibilities attaching to it. The operation then is plainly injurious to the public interest...It is illegal, even though the man consents to it.

One's quick comment on this opinion is that although the position has not yet been litigated in Kenya or indeed in any other African country, it is reasonably obvious that an act which is being openly canvassed and publicly conducted in government and other clinics in Kenya will not be considered illegal by the Kenyan Courts.

REGULATION OF STERILIZATION

Again, no specific statutory provisions exist regulating sterilization in Kenya. Section *241* of the Penal Code provides for criminal responsibility in cases of excessive use of force, even with the consent of the victim. Section 242 provides that consent shall not be an applicable plea in such cases.

A number of issues could be raised regarding consent in cases of sterilization. First, does the consent of the sterilized party exempt the person performing the operation from criminal responsibility? Second, would the absence of consent by a spouse be grounds for divorce action or any other matrimonial remedy? Third, could a person sue the doctor who has performed a sterilization on his/her child between the ages of 12 and 18 years of age? Finally, is there a legal liability on a doctor who performed an unsuccessful sterilization operation which resulted in pregnancy?

Although there are no Kenya cases in any of these situations, some of these are the facts of cases in other jurisdictions. On *Bravery* v. *Bravery* already referred to above, a husband had been sterilized ostensibly against the wife's consent, and the latter petitioned for divorce on grounds of cruelty, alleging the sterilization to prove the

cruelty. It was neither alleged nor proved that the husband's operation had caused any injury to the wife. Accordingly, the Court of Appeal (England) held (Lord Denning M.R., Master of the Rolls, dissenting) that the wife had failed to establish a case against the respondent husband.

In the case of *Best* v. *Fox* (1952) A.C. 716 the question at issue was whether a husband could sue a doctor who performed the sterilization on his wife without his consent, for an action of loss of consortium. The Court refused to accept the husband's argument. Since the Kenya Courts regard the decision of English Courts as of great persuasive authority, it is quite likely that any case presenting similar facts would be similarly decided in Kenya, and indeed, in any Anglophone African country with a common law tradition.

On the responsibility of a doctor who performs an imperfect sterilization and subsequently the party sterilized remained fertile after the operation, the better view would seem that such a doctor would be liable in damages for causing unnecessary life. It can, of course, be argued that the doctor could only be liable if he were negligent in conducting the operation. A counter argument would be that the fact of post-operative fertility is prima facie evidence of negligence.

The African Regional Panel on Law and Planned Parenthood has advised Family Planning Associations in Africa to include in the consent form for sterilizations a provision clearly stating that the operation is only about 99% successful. Such a provision in the consent form will provide adequate defense for a doctor who performed a sterilization operation without negligence but was nevertheless sued because of a post-operative pregnancy.

Kenya law offers no age requirements for sterilization operations. In theory such operations are available to men sixteen or older, and to women who have up to four living children. (See Appendix.) In practice, however, very few men volunteer for vasectomies because most men do not distinguish between castration and vasectomy; polygamy is still very widely practiced in most African communities and it is unthinkable in a polygamous home for a husband to choose a vasectomy as a family planning alternative.

Regulations of the situation and circumstances of such procedures conform to the general provisions for surgical operations. Since such operations require general anesthesia, it would seem that they could be performed only in hospitals or other adequately equipped clinics run by qualified medical doctors registered under the Medical Practitioners and Dentists Act.

No statutory provisions exist for procedural requirements in sterilization cases. Unlike abortion where a second medical opinion is normally required, cases of sterilization are decided by one doctor who does the operation.

OFFICIAL EUGENIC PROGRAMS

Kenya law has no provision for the sterilization of mental incompetents, epileptics, idiots, imbeciles and sexual offenders. It would be absurd, however, to use sterilization as a kind of punishment for sexual offenders.

CONTROL OF FEES AND COSTS

Section 11 (1) of the Regulation of Wages and Conditions of Employment Act provides:

> Subject to and in accordance with this section a Wages Council shall have power to submit to the Minister proposals for fixing the remuneration to be paid and for prescribing the conditions of employment to be provided, either generally or for any particular work, by their employers and for all or any of the employees in relation to whom the Wages Council operates.

No regulations have been made under this section in respect to Medical Practitioners and other Family Planning personnel who perform sterilizations. The actual level of fees would, however, be derived from the Regulations under the Workmen's Compensation Act, where surgical and anesthesia fees are specified.

FINANCIAL AIDS

No special legislation provides for financial aid in sterilizations. Sections 33 and 34 of the Public Health Act seem to apply only to paupers. Section 34 provides:

> Any local authority may, with the sanction of the Board, themselves provide or contract with any person to provide a temporary supply of medicine and medical assistance for the poorer inhabitants of their district, but may at their discretion charge for the same.

It is also appropriate to include benefits accruing to contributers and their spouses and children under the provisions of the National Hospital Insurance Act, as financial aid.

What emerges from this review of the legal status of sterilization in Kenya is the conspicuous absence of specific provisions and regulations. Yet in the current development plan (1974-1978) as in previous ones, the strategy of reducing the explosive rate of population growth includes sterilization as one of its major family planning methods. What is required now is either a sterilization section in a Family Planning Act or a specific sterilization enactment. The United Kingdom has adopted the former approach; Singapore has adopted the latter, with good results.

THE LAW AND STERILIZATION IN KENYA: THE ROLE THE LAW CAN PLAY

In view of the heat engendered by the attempt to make sterilization compulsory in India, one feels compelled to restate one's position in the controversy on law and sterilization. Several international conferences, seminars,

workshops and, indeed, resolutions and declarations by heads of State, have restated that family planning is a basic human right, and that families have the right to decide freely and responsibly the size of their families. Sterilization *is* a family planning method. The dignity of the acceptor requires that he should be furnished with all the necessary and relevant information about the nature and effect of the operation in order to decide freely whether or not to undergo the operation. Compulsion brutalizes the process and invites a wide range of abuses. In a country where ethnicity is still a live issue, compulsory sterilization could well conjure up the bogey of genocide. Sterilization should remain voluntary; the role of the law should be to devise suitable means to make this possible and effective. This issue has engaged the attention of the Central Law Panel of the International Planned Parenthood Federation for several years. The thrust of the recommendations that the Panel has made to the International Planned Parenthood Federation has been to devise appropriate legal strategies adaptable to local circumstances in order to maximize the use of sterilization operations as a population planning alternative.

APPENDIX

Returns for the Sterilization Cases March, 1976 to April, 1977

The following seven tables illustrate various methods of contraception currently used in both FRAK Private Clinic (Tables 1 and 2) and Chania Clinic (Tables 3 to 7). It is clear that FRAK Private Clinic deploys conventional sterilization. Tubal ligation performed in Chania Clinic is essentially minilaparotomy and although the figures are for March, 1976 to April, 1977 the project started earlier. The cases are outpatient and demand for services is reflected by the numbers of cases during the months of the period under review.

Table 1. Returns of New Cases and Reattendances from FRAK Private Clinic.

Month/Year	New Cases	Re-attendances	Total
March 1976	43	252	295
April 1976	63	329	392
May 1976	43	288	331
June 1976	40	275	315
July 1976	62	255	317
August 1976	64	309	373
September 1976	45	310	355
October 1976	64	281	345
November 1976	62	349	411
December 1976	68	452	520
January 1977	57	377	434
February 1977	79	380	459
March 1977	46	470	516
Total	736	4,327	5,063

Table 2. Returns of Different Methods of Contraception from FRAK Private Clinic.

Month/Year	Depo-Provers	Pills	IUD	Others
March 1976	271	17	1	6
April 1976	348	24	3	17
May 1976	301	18	1	11
June 1976	298	13	4	0
July 1976	292	17	-	8
August 1976	-	26	1	16
September 1976	323	19	3	10
October 1976	317	20	1	7
November 1976	382	21	4	4
December 1976	484	14	5	17
January 1977	411	17	-	6
February 1977	437	8	2	12
March 1977	499	8	-	9
Total	4,713	222	25	103

Table 3. Total Number of Sterilization Cases at the Chania Clinic, Nyeri

Month/Year	Cases	
March 1976	4	*Average is 12.43 cases per month*
April 1976	5	
May 1976	6	
June 1976	9	
July 1976	10	
August 1976	9	
September 1976	11	
October 1976	10	
November 1976	12	
December 1976	13	
January 1977	10	
February 1977	13	
March 1977	31	
April 1977	31	
Total 14 months	174	

The peak reached in the last two months was due to referred postnatal cases from the Provincial General Hospital, Nyeri.

Table 4. Sterilization Cases According to Districts

District	Cases	Percent
Nyeri	112	64.37
Muranga	28	16.09
Kirinyaga	11	6.32
Nyandarua	9	5.18
Laikipia	5	2.88
Nairobi	3	1.72
Kiambu	1	0.57
Others	5	2.87
Total	174	100.00

Table 5. Sterilization Cases According to Age

Age	Cases	Percent
24 and under	3	1.71
24-29	33	18.97
30-34	48	27.59
35-39	52	29.89
40-44	32	18.39
45 and over	6	3.45
Total	174	100.00

Table 6. Sterilization Cases According to Parity

Children	Cases	Percent
0-2	2	1.15
3-4	15	8.62
5-6	69	39.66
7-8	55	31.61
9-10	28	16.09
11 and over	5	2.87
Total	174	100.00

Table 7. Sterilization Cases According to Marital Status

Status	Cases	Percent
Married	125	71.84
Widowed	22	12.64
Divorced	13	7.48
Unmarried	11	6.32
Separated	3	1.72
Total	174	100.00

Note: Marri men seem to come forward more easily for sterilization than any other category as reflected by above figures.

Legal Aspects of Voluntary Sterilization in East and Southeast Asia

Irene R. Cortés

While methods employed to produce human infertility have been traced to ancient times (1), surgical sterilization of men and women are nineteenth century developments (2). Use of sterilization as a contraceptive method is even more recent (3). As a result, practice has developed faster than legal rules.

GENERAL LEGAL APPROACH TO VOLUNTARY STERILIZATION

Voluntary sterilization has proven to be the most effective method of fertility control, but legal, cultural, religious, and social mores, as well as other barriers have limited its acceptance (4).

The legal aspect of voluntary sterilization for contraceptive purposes varies among East and Southeast Asian countries. Some limit its use by placing legal restrictions on it. Others use sterilization as a major component of family planning programs. Explicitly or implicitly, legislation may exist to authorize and regulate it. In the absence of specific laws, sterilization is justified in government family planning programs or by non-governmental family planning associations on the principle that what is not prohibited is therefore permitted. Where penal laws make mutilation or castration a criminal offense, the question of whether or not the penal provisions are applicable to sterilization or contraceptive surgery performed with the subject's consent becomes one of vital importance (5).

Most states have adopted policies on family planning which recognize the right of persons to decide freely whether or not to have children and to have access to information as well as a choice of means to determine the number of and spacing of their children.

Legislation on voluntary sterilization may impose conditions on its use for limiting contraception. Factors include age, consent of the person and of the spouse, a given waiting period, and the number of living children.

In sum, voluntary sterilization is a measure of population control. While it will ultimately serve community welfare, there is a need to protect the individual's fundamental rights: freedom of choice, privacy, and the right to informed consent.

LAW AND PRACTICE

Singapore

Singapore has the most advanced legislation on voluntary sterilization in East and Southeast Asia. The 1969 Voluntary Sterilization Act created a Eugenics Board to authorize and monitor applications for sterilization. The act required *inter alia* that a person applying for sterilization must be 1) at least 21 years old, 2) must consent in writing and secure spousal consent, 3) must have at least three children, and 4) must appear before the Board. Special provision was made regarding those afflicted with specified hereditary disease or defect. In addition, a thirty day waiting period was imposed (6). In 1972 this law was amended, reducing the waiting period to seven days and the required number of living children to two. Applicants were no longer required to appear before the Board and the Board was given more flexibility to evaluate cases. For example, it could allow sterilization in certain cases even where the applicant had only one living child. The law also clarified cases for which the Board could authorize the sterilization of an unmarried or married person over twenty-one (7).

The Voluntary Sterilization Act of 1974 further consolidated and amended these laws. Dispensing with the intervention of the Eugenics Board, it authorized registered medical practitioners to carry out treatment for voluntary sexual sterilization and further liberalized the qualifications for sterilization. Spousal consent and a required number of living children were no longer requisites; an unmarried person over 21 could be sterilized. In qualifying who may be given the "treatment of sexual sterilization," married persons above 21 were conspicuously omitted, while married individuals under 21 as well as those suffering from specified disease or defect were included (8). The intention of the law to liberalize the procedures cannot, however, be ignored. We must assume persons over 21 qualify for voluntary sterilization.

Furthermore, this law requires full and reasonable explanation of the meaning and consequences of the treatment. The individual who consents to treatment or the person who gives it on his/her behalf must certify that he/she clearly understands its meaning and consequences.

The 1974 statute also provided for safeguarding the confidentiality of information and records of sterilization. It clearly protected the medical practitioner from civil or criminal liability for performing sterilization except in cases of negligence. Conscientious objection to the method is recognized.

Singapore, with a total population of 2,074,900 in 1970, registered a growth rate of 1.7 percent. By 1977 the population numbered 2,308,200 and the growth rate had dropped to 1.2%, the lowest in years (9). Clearly the sterilization program contributed to the decline in population growth rate. Acceptors of this method of contraception increased by almost 350% from 1970 to 1976.

Japan

The Eugenic Protection Law of 1948, as amended, contains provisions pertaining to voluntary and compulsory sterilization. The "eugenic operation" may be performed by a physician with the consent of the individual and of the spouse or if any candidate in question (or the spouse) suffers from specified hereditary diseases, malformation, mental disease or defect, or from leprosy; or has a blood relation within the fourth civil degree suffering from such disease or defects; or if the life of the mother is endangered by conception or by delivery; or if the mother has several children and her state of health seems to be seriously affected by each delivery (10).

The reported number of male and female sterilizations increased sharply from 11,403 in 1950 to 44,485 in 1956. Since 1972 the official number has been below 12,000 annually; 9,453 sterilizations (98% female) were reported in 1976. But experts believe that actual number of sterilizations performed may be five to ten times the officially reported figures (11).

Philippines

In the Philippines, sterilization became part of the government's population program when the Commission on Population (POPCOM) stated, in 1974, that "modern surgical techniques of contraception are considered acceptable procedures of conception control" (12).

The Revised Population Act of 1972 assigned the Population Commission the task of making "available all acceptable methods of contraception, except abortion..." Although private agencies had already initiated voluntary sterilization projects, the legality of the method was questionable. The Revised Penal Code made it a crime for any person "to intentionally mutilate another by depriving him either totally or partially of some essential organ of reproduction" (13).

By 1973 a computer-simulated model of the population program had confirmed indications that the program as structured had reached its limits. New capabilities and corresponding strategies had to be formulated (14). By singling out abortion as an exception, Presidential Decree No. 79 could mean that sterilization was implicitly acceptable, except for those questions raised by the Penal Code provision cited above. To clarify this point the matter was referred to the Minister of Justice who serves not only as legal advisor of the government but also heads the state's prosecution. In September, 1973, he rendered the opinion that voluntary sterilization is not mutilation because 1) mutilation involves lopping or clipping off of some parts of the body which are not involved in male or female sterilization procedures; 2) there can be no offense committed where the subject consents knowingly to the operation in the same manner that no offense is committed by a surgeon who intentionally removes an eye or kidney from a person who consents thereto for the purpose of transplanting it to another; and 3) the national policy expressed in the Revised Population Act could be thwarted if these two methods are illegal (15).

With the legal obstacle removed the Population Commission declared modern surgical contraception available in the family planning program on condition:

- that these methods do not consist of abortion as abortion is presently and commonly understood to be the termination of pregnancy before the twentieth week of gestation;
- that the client is thoroughly informed of the medical implications of these procedures, in particular the present irreversibility of contraception; and that the procedure is undertaken on a voluntary basis;
- that a written consent of the spouse is obtained;
- that the procedure is performed by a duly trained physician (16).

Data supplied by the Management Information System of the Population Commission will confirm the increase of both male and female acceptors of voluntary sterilization. Despite the fact that more than 80% of the population is Catholic and church policy does not permit contraceptive sterilization (17), voluntary sterilization has, nevertheless become accepted as a contraceptive method.

Supplementing the service of hospitals, clinics and training centers, itinerant sterilization teams consisting of a medical doctor or two, a nurse, a psychologist or sociologist offer extension services such as performing minilaps and vasectomies, training physicians and counseling (18).

Under the Medical Care Act (19), sterilization expenses of the members of the Government Service Insurance System and of the Social Security System are reimbursed. This was recently increased (20).

Korea

There is no law directly relating to sterilization (21), and voluntary sterilization has been available as part of the government's family planning program since 1962. The government actively supports the programs and has distributed sterilization equipment to over 60 centers throughout the country. The number of vasectomies has increased from 16,396 in 1972 to 53,735 in 1977. Tubal

ligations have risen dramatically during the same period, from 3,283 to 181,427. Nearly 5% of married women of reproductive age are now protected from pregnancy by sterilization of either partner. Fourteen percent of all contraceptive users rely on sterilization (22).

Thailand

Official policy and the absence of legal as well as religious constraints (95% of the population is Buddhist) account for the wide and increasing use of sterilization in family planning (23). Data from the Ministry of Public Health indicates that from 1971 to February 1978 the rate of sterilization acceptors increased consistently, far outstriping the annual family planning program targets (24).

The Thai Association for Voluntary Sterilization is officially registered and promotes sterilization by providing services and counseling (25). In 1975, it organized a club among vasectomized grassroots men. More than 3,000 club members act as voluntary educators-motivators. The Thai-AVS also cooperates with the Family Planning and Population Development Board to use rural health manpower for voluntary sterilization purposes. In 1977, because of the shortage of physicians, a pilot project was set up using paramedics for sterilization purposes (26).

Indonesia

Indonesia has no law specifically regulating voluntary sterilization for contraceptive purposes. Article 1 of the Penal Code provides that "no act may be considered liable for punishment, unless based on provisions of codified law already existing before the act is performed." Since no law punishes voluntary sterilization, general principles are invoked as justification, namely, that what is not prohibited by law is permitted. and that informed consent legitimates a medical operation or treatment. However, Muslim religious groups which approve only temporary or reversible family planning methods oppose sterilization. The Consultative Meeting on Family Planning of Moslem scholars in June, 1972, stated that sterilization is prohibited by Moslem laws, except in case of emergency, e.g., in the case of hereditary disease or where the life of the mother will be endangered by subsequent pregnancy. Nevertheless, the number of acceptors of voluntary sterilization in Indonesia is increasing.

The Indonesian Association for Voluntary Sterilization established in 1974 has established training centers for sterilization and coordinates sterilization services. The National Family Planning Program, however, does not provide sterilization as a family planning method. The Indonesian Association for Voluntary Sterilization imposes the requirements of informed consent of the applicant as well as of the spousal consent, of age and number of living children (27).

Malaysia

No legislation deals directly with voluntary sterilization as a means of contraception. A Ministry of Health Circular of July 25, 1959 broadly defined the circumstances under which sterilization could be performed. The recognition that an operation would be necessary "to avert serious injury to the physical or *mental health* of the patient" became the legal and logical justification for performing it. The term "mental health" lends itself to broad interpretation.

The circular states: (28)

> The only circumstances in which an operation to sterilize a person can be lawfully performed are those in which the operator honestly believes upon reasonable ground that an operation is necessary to preserve the life of, or to avert serious injury to, the physical or mental health of the patient. Whatever the steps a doctor may feel he should take to bring himself within the law, he should never omit:
>
> - to make sure that such danger to life or health as described above exists;
> - to obtain in all cases a second opinion where possible;
> - to make quite plain to the patient the nature of the results of the operation;
> - to make sure that the patient's consent in writing is freely and fully given without influence by others.

Muslim religious beliefs militate against inclusion of sterilization in government population planning (29).

Writing on Law and Population in Malaysia (30), Professor Ahmad Ibrahim, in 1977, expressed the view that "the legal status of sterilization under the criminal law of Malaysia is ambiguous." Section 320 of the Penal Code includes emasculation and privation of any member as "grievous hurt." Modern methods of sterilization, however, do not affect sexual capability, are not "emasculation" and cannot be privation of any member, even if sterilization were held to cause "grievous hurt." Section 88 of the Penal Code provides that an act amounting to grievous hurt would not be an offense if done with the consent of the party for his benefit. Ibrahim believes that consent would be a defense in therapeutic sterilization, but not in eugenic sterilization where the benefit is for the community at large and not for the patient, nor for contraceptive or social economic sterilization because mere pecuniary benefit is not benefit within the section (31). In spite of these ambiguities, 41,000 Malaysians became sterilized voluntarily in 1976 (32).

Others

In South Vietnam, Law No. 12 of May 22, 1962 prohibits "propaganda for, or to encourage...the unnatural prevention of pregnancy...except where the doctor decides otherwise on the basis of clear evidence that the life of the woman will be endangered by delivery" (33).

Hong Kong's data on sterilization in 1977 include: 12,000 males in contrast to 76,000 females (34). At that time,

Taiwan had 21,000 males and 214,000 females accept sterilization (35).

CONCLUSION

The use of voluntary sterilization as a contraceptive measure has become part of family planning programs in the East and Southeast Asian countries under review. Except for Singapore and Japan where legislation regulates it directly, use of surgical contraception has anticipated legal definitions and restrictions.

There appears to be no documentation of prosecution or other legal action arising from voluntary sterilization. This is no guarantee that such will never arise.

Two particularly sensitive legal areas are 1) liability for negligence and 2) absence of informed consent. Where no definitive laws exist governing voluntary sterilization, the possibility of prosecution is more likely than where legal rules establish immunity except for negligence, and specify any steps such as adequate counseling before sterilization. The employment of paramedics to perform sterilization may precipitate these legal problems.

Carefully formulated legislative enactments should be adopted both for the protection of individuals submitting themselves to this practically irreversible contraceptive method and for those who perform the surgery.

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    ...an employee who is confined in a hospital on account of sickness or bodily injury requiring hospitalization, or is operated on for sterilization, shall be entitled to confinement not exceeding forty-five days annually to:

    (a) Room and Board expense benefit for each day of confinement in a hospital not exceeding twelve pesos (₱ 12.00) a day; and

    (b) Special Charge expense benefit for charges necessary for the care of the employee, such as laboratory examination fees, drugs, X-ray and the like, not to exceed one hundred fifty pesos. (As amended by Presidential Decree No. 273).

    For drugs and medicines that may be essential under this sub-section, the employee shall have the option to secure the same from either the hospital pharmacy wherein he is confined or from any retail drugstore of his own choice, subject only to the rules and regulations or as provided for in Section 18 hereof.
20. Sterilization Subsidy, *The Bulletin Today*, 27 February 1979, p. 1.
21. Lee and Larson, *op. cit.*, p. 33.
22. George Washington University. 1978. Male/female sterilization. *Population Reports*, no. 2, March.
23. Lee and Larson, *op. cit.*, p. 80. Osathanondh, V. Reduction of population growth rate to 2.1% by 1981 and 1.5% by 1986 for Thailand, p. 8. (Mimeographed.)
24. Ministry of Public Health, Thailand. 1978. Progress Report of the National Family Planning Program, May.
25. Somboonsook, A. 1978. Family planning in Thailand. *Assest* 103, February.
26. Osathanondh, V. 1978. Paper submitted to the Joint IGCC-IPPF Project on Exchanges of Experience through Workshop on Encouragement, Identification and Extension of Innovating in Family Planning Programs, 13-15 September 1978, Jakarta, Indonesia.
27. Female sterilization is available to women between the ages of 25-30 with 3 or more living children; 30-35 years of age with 2 or more living children, and 35-40 years of age with 1 or more living children. For males the recommended age is 30 years with at least 3 living children.
28. Fletcher School of Law and Diplomacy, Tufts University. 1977. Law and Population Monograph Series, no. 15. Ref. No. MH Cont. 401/7 of July 1959. Medford, MA.
29. Stepan and Kellogg, *op. cit.*, p. 24. Islam authorities are by no means agreed on whether sterilization is prohibited by Muslim religious law.
30. Fletcher School of Law and Diplomacy, Tufts University. 1977. Law and Population Monograph Series, no. 15, Medford, MA.
31. *Ibid.*, pp. 26-28.
32. Nortman, D. and Hofstatter, E. 1978. *Population and family planning programs*, 9th ed., p. 80. New York: Population Council.
33. Stepan and Kellogg, *op. cit.*, p. 12.
34. Nortman and Hofstatter, *op. cit.*, p. 78.
35. *Ibid.*, p. 81.

Legal Aspects of Voluntary Sterilization in Europe and the Mid-East

Anne-Marie Dourlen Rollier

Until recently, it seldom occured to anyone that the medical procedure of sterilization, especially for males, would not affect normal sex relationships.

Sterilization was generally used for other purposes, either eugenic or therapeutic. In reality, male and female sterilization techniques which are surprisingly safe, quick and relatively inexpensive, have been developed with great rapidity.

The attitude of the population of many countries is becoming more favorable, but except in a few jurisdictions, the legal status of voluntary sterilization is obscure.

There are different types of approach to voluntary sterilization under the present laws.

For Europe and the Mid-East, we classified the laws in three types:

1. jurisdictions, which specifically prohibit voluntary sterilization,
2. jurisdictions, which specifically authorize voluntary sterilization,
3. jurisdictions, where voluntary sterilization is covered under criminal law provisions on intentional grave bodily injury.

In the last chapter, the effect of consent of the patient is critical. In some countries, it is relevant to the issue of criminal repsonsibility, in others irrelevant.

COUNTRIES IN WHICH JURISDICTIONS SPECIFICALLY PROHIBIT VOLUNTARY STERILIZATION

The military regimes of Kemal in Turkey and of Mussolini in Italy enacted provisions punishing both the person performing the sterilization and the patient.

The idea of punishing the person sterilized, although contrary to contemporary thinking, is logical if the government's policy is to procreate. *The Turkish Criminal Code of March 1926* provided:

> Whoever, by his acts, causes a man or woman to become sterile, and any person giving consent to the performance of such acts on himself, shall be punished by imprisonment for 6 months to 2 years, and by a heavy fine.

By decision of June 12, 1967 of the Council of Ministers, regulations were issued allowing sterilization on preventive medical grounds, and eugenics on grounds of serious hereditary disease.

There is no sterilization provision on family planning grounds, although the regulations were issued in pursuance of sections of law of April, 1965 concerning family planning.

The Italian Penal Code of 19 October, 1930 provided:

> Whoever performs acts on persons of either sex, with their consent, intended to render them incapable of procreating will be punished by imprisonment from 6 months to 2 years and with a fine. Whoever gives consent to those acts being performed on himself shall suffer the same punishment.

But in 1978, these provisions were repealed so that in Italy, voluntary sterilization has become entirely decriminalized.

In the later period of the Hitler era, a provision was enacted in *Germany*, under which the physician performing the sterilization operation, as well as the patient himself, was culpable and punished. This provision was deleted in 1946.

In *West Germany*, in the absence of applicable legal provisions, voluntary sterilization is implicitly permitted. It results from a decision of the Federal Supreme Court, the Dohrn Case (October 27, 1964), which declares: "There no longer exists any criminal law provision in Germany under which voluntary sterilization would be punishable." No physician has since been punished for performing voluntary sterilization, where the practice is not exceptional.

In 1976, the West German Federal Supreme Court held that the sterilization of a mature consenting woman, even if done with no medical, eugenic, or social reasons, was not unlawful.

COUNTRIES IN WHICH JURISDICTIONS SPECIFICALLY AUTHORIZE VOLUNTARY STERILIZATION

In *England and Wales*, the National Health Service Amendment Act of October 26, 1972, introduced a new

type of regulation. It is unique, since it provides for *male sterilization only:*

> ...Voluntary vasectomy services may be provided by local health authorities on the same basis as contraception services, accordingly: a local health authority in England and Wales may, with the approval of the Secretary of State, and to such extent as he may direct shall make arrangements for the giving of advice on voluntary vasectomy, the medical examination of persons seeking advice on voluntary vasectomy for the purpose of determining what advice to give and for the treatment of voluntary vasectomy.

Even before the Vasectomy Act of 1972, the prevailing legal opinion seemed to hold that full consent of the patient legalized sterilization, presuming that the purpose of the operation was legal. In 1971, the Family Planning Association had 17 specialized clinics, where 4,000 vasectomies were performed, with a waiting list of 10,000 persons.

In 1974, a special Parliamentary commission recognized voluntary sterilization as a valuable form of contraception. Sections 533 and 535 of the report state, as follows:

> ...The general attitude toward sterilization has undergone a radical change in recent years, and it is now recognized as a valuable form of contraception. Unlike abortion, there are no legal criteria which have to be satisfied before it can be performed and it is available at the discretion of the doctor. The Committee regards sterilization as a measure for discriminating use. We recommend that such use should be:

- After careful counseling of the woman and of her husband or other partner in a stable union and counseling should also be available, if desired, after the operation, when doubts and regrets may be felt.
- Not carried out except in an emergency until there has been due time for reflecting.
- Mainly confined to cases where there is medical or genetic necessity to avoid future pregnancy, or where both parties are sure they want no more children.
- Never as a condition of terminating an existing pregnancy, or as a result of any other pressure.
- After consideration of whether sterilization of the woman, or vasectomy for the man, is the more appropriate in their circumstances.

> ...provided that the operation is performed after due consideration, we believe that sterilization can be of greater advantage to health and happiness and that many marriages have benefited from the removal of fear of an unwanted pregnancy and of the need to take contraception precautions.

The legislative techniques of the English statute is very similar to the *Czechoslovak* approach. The law of March 17, 1966 states:

> Sterilization may be carried out only with the agreement, or at the special request of the person on whom the operation is to be carried out, under conditions laid down by the Mininstry of Health.

Previous to this law, the Penal Code of 1961 provided that an act of which the degree of social dangerousness is slight, is not a crime, even if it otherwise fulfills all the elements of a crime. The intentional deprivation of a person of the capacity to procreate would generally be estimated to be a crime against this person, but the whole picture might be completely changed, once the operation is performed by a physician at the request of the patient.

Finland's law on sterilization, April 24, 1970, repealed a 1950 statute and allowed voluntary sterilization on broad social grounds.

In *Denmark,* on June 13, 1973, a law was adopted stating that any person who is at least 25 years of age and is domiciled in Denmark shall be entitled to be sterilized.

Previously, the 1967 law only authorized sterilization when the conditions under which the applicant and his family live make it desirable to prevent the birth of future children. In reaching the decision, account shall be taken of the condition of the family from the point of view of health, housing and income; the number of children in the home; and the possibility that further children will result in an appreciable deterioration of the situation by harmfully affecting the state of health of the woman.

In *Sweden,* the 1941 law required that there be "social consideration" meaning situations where, because of "mental derangement or an asocial way or life, the subject is found obviously unable to assume responsibility for the proper upbringing of children."

A much more liberal law was enacted on June 12, 1975, which allows a Swedish citizen, or a person domiciled in Sweden, who has passed the age of 25 years to be sterilized on his or her request. If sterilization is denied, the matter shall be submitted, without delay, for decision by the National Board of Health and Welfare.

For applicants younger than 25 years, but older than 18 years, sterilization may be approved by the National Board of Health and Welfare in certain conditions:

- If there is a considerable danger that genes can be transferred to descendants, which can cause serious mental illness or abnormality, grave physical illness or other serious handicaps (genetic indication).
- Where a woman requesting sterilization has some illness, physical deformity, or weakness, and pregnancy could seriously endanger her life or health (medical indication).
- In connection with a request for determination of sex (sex change) under Section 1 of the "Act (1972: 119) of Determination of Sex in Certain Cases," where conditions for such a determination (change) are present.

Similar laws were enacted in *Iceland* (May 22, 1973) and *Norway* (June 3, 1977).

JURISDICTIONS WHERE VOLUNTARY STERILIZATION IS COVERED UNDER CRIMINAL LAW PROVISIONS ON INTENTIONAL GRAVE BODILY INJURY

In many European countries the only laws which might be applied against voluntary sterilization are the sections of criminal law dealing with *intentional infliction of heavy bodily injury.*

The "crime" is qualified as "assault," or "grievous bodily injury" in Common Law countries, and "intentional wounds and injuries" (*coups et blessures volontaires*) in the areas of French or formerly French law.

In *France and Belgium,* the principle is that *consent* of the "victim" of "grave bodily injury" *does not exculpate the surgeon.* This was the basis for decision in the only case found in these countries, the French case of the "Bordeaux stérilisateurs" (1937). This involved a group of people who advocated and practiced male voluntary sterilization on ideological grounds. *The consent of the sterilized people* was declared by the French Courts (including la Cour de Cassation), *to be irrelevant* to the criminal responsibility of the accused. This decision was based on the French doctrine that the patients "could not authorize anybody to violate their persons," under the rules governing the public order (*l'ordre public*).

In 1974, the Belgian Government established a national commission to study the ethical problems involved in connection with contraceptives and the penal laws concerning them.

In *Switzerland,* the official view of the Federal Department of Justice is that *only therapeutic sterilization is allowed.* Some leading authorities on Swiss doctrine declare that *consent* excludes criminal responsibility.

In *Austria,* where the authorities declared that non-therapeutic sterilization is a crime in spite of consent, a new provision was included in the Penal Code in 1974, which reads:

- The infliction of bodily injury, or the endangering of bodily safety is not unlawful if the injured or endangered person consents, and if the infliction or endangering, as such, is not contrary to good morals.
- Sterilization of a consenting person by a physician is not unlawful if the person concerned has passed the age of 25 years, or if it is not contrary to good morals for other reasons.

The situation prevalent in the civil law area can be roughly summarized thus: Legal theory and official circles express the opinion that consent does not exclude criminal responsibility in voluntary sterilization for family planning purposes. But these provisions are not generally applied and there is often a discrepancy between the law and its interpretation in actual practice. As a result, female sterilizations are frequently performed by collusion between the physician and patient, under the guise of a therapeutic operation.

In fact, use of contraceptive sterilizations is increasing in many countries and they remain unprosecuted.

In *France,* data issued in January, 1979, by the Institut National d'Etudes Démographiques, show that the practice of female sterilization is becoming more popular:

- 7.5% of women aged 20 to 44 years were sterilized, and 4% were for contraceptive purposes.
- The proportion reaches 17% for women aged 35 to 44 years, and 50% were for family planning purposes.

Concerning vasectomy, Professors Kuss, Jardier, Jouannet and David published in January, 1979, a study of 100 cases of contraceptive vasectomies performed in Paris hospitals from June, 1974 to January, 1978 on French men requesting this operation. Ninety-seven percent of them were married for 11 years and the average age was 36. Thirteen of the men were 25 to 29 years of age; 78 were 30 to 44 years old; and 9 were 45 years or older. Seventy-six of the men had 2 or 3 children; 13 had only one; 2 had none. Half of them declared they had as many children as they wanted. Twelve percent said that they had not wanted any of the children they had, and 42% said that one or several of their children were not wanted, and were born by accident.

All of the couples had used one or several contraceptive methods. Failures, side effects or contra-indications often resulted in abortions.

The men were highly motivated when they came to the hospital and had decided to go to a foreign country for a vasectomy, in case it were refused in France. Physicians performing the vasectomies required that the applicants agree to have some of their sperm preserved.

In the Socialist States of *Eastern Europe,* the legislative techniques on this subject do not differ fundamentally from those of Western Europe. There is, however, a basic concept in Socialist criminal law, common to all Eastern countries, on the "material condition of social dangerousness," as a prerequisite to criminal responsibility. Under this concept, consent may possibly play a decisive role in cases of this kind.

The *RSFSR Penal Code* of October 27, 1960 provides that "it shall not be a crime, if by reason of its significance, it does not represent a social danger."

Under the *Polish* law, sterilization performed upon a healthy consenting individual, with the sole purpose of preventing unwanted pregnancy, is illegal, but in specific

cases, criminal prosecution may be dropped on the ground of insignificant degree of social danger.

In the *German Democratic Republic*, there was considerable resistance to sterilization because of its abuse under Hitler. It is now considered that the provision of the Criminal Code of January 12, 1969, concerning bodily injury does not apply to voluntary sterilization. A medical act is considered to benefit society as it serves to preserve and promote health, and consequently cannot be considered as antisocial and dangerous to society.

The Minister of Health issued a "Directive on Irreversible Contraception for Women" (April 21, 1969), which stated that before sterilization is performed, it has to be established that all methods of reversible contraception are ineffective. An application has to be made by the woman herself to the local district health officer.

Yugoslavia was under the same legal system, but the situation is changing. In July, 1977, the Republic of Slovenia enacted a new law "to realize the right to freely decide on the birth and spacing of children," and for the first time it mentioned voluntary sterilization which is considered a medical act. The applicant should be over 35 years old and mentally competent. The application should be approved by a commission after the patient is fully informed of the procedure, its possible complications and failures. Except for medical reasons, the operation can only be performed after a six months waiting period.

A similar law was voted in Croatia in December, 1978, and laws related to the same subject are examined in the other states of Yugoslavia.

In the *Middle East* region, the position is generally restrictive, differing from country to country.

In *Iran*, the Penal Code of 1928 dealt with bodily injury according to language which did not cover sterilization. It read:

> He who intentionally inflicts an injury or blow to another which causes cutting, breaking, damaging, or disfunctioning of limb, or ends in permanent sickness or loss of one of the senses, shall be subject to 2 to 10 years of solitary confinement.

But a revision of the Penal Code in June, 1973, clarifies the situation and the right to voluntary sterilization.

Article 42, Section 2 states that "any surgical or medical operation which is necessary and performed with the consent of the person (involved) or his or her guardian or legal representative, and in accordance with technical and scientific criteria is not deemed a crime."

Since most of the Middle East is Muslim, it is necessary to know how Islamic law treats voluntary sterilization. Islamic authorities are not in agreement as to whether Islamic religious law does or does not permit voluntary sterilization.

At the IPPF sponsored Conference on Islamic Attitudes Toward Planned Parenthood at Rabat in 1971, the trend was to adopt the findings of the Islamic Research Council in Cairo, which were opposed to voluntary sterilization. Magdi El-Kammash, writing in *Population and Law*, edited by Lee and Larson, North Carolina, USA, 1971 says:

> ...the Islamic religion forbids permanent sterilization...permanent sterilization is absolutely forbidden...except in case of hereditary disease or malformities that may be transmitted to the offspring...Islamic religion forbids sterilization except in justified cases, such as physical deformity, psychological and mental illness and incurable or hereditary diseases.

On the other hand, Al Sheikh Mohammed Bhashti of Iran, and an author from Pakistan, writing on Islamic attitudes towards abortion and sterilization (*Birthright*, Vol. 7, No. 1, 1972) argue that sterilization is not castration, and no Islamic law prohibits it.

As to the effect of Islamic law in the secular courts of an Islamic country, it is unlikely that it would have a direct effect in a country like Lebanon, which has secular legislation on grave bodily injury which is, moreover, consistent with stricter Islamic view. Lebanon's code imposes a high penalty on one who renders an organ of another person "unable to function."

In *Saudi Arabia*, where Islamic criminal law is applied, according to Mr. Nafisa, Cairo University, the Hanbali School of Islamic Law recognizes consent as a defense in bodily injury actions. Thus, it is likely that in the absence of administrative regulations forbidding sterilization operations, consent of the patient would bar the application of Islamic law penalties, otherwise imposed for bodily injuries.

Under *Jewish religious law*, sterilization in any surgical form is forbidden. This is stated explicitly in the Shulchan Aruch, Eben Haeser, Laws of Piryah Veribyah. The Rabbis in Talmudic literature trace the prohibition against impairing the reproductive organs to Leviticus.

In *Israel*, religious law applies only to questions of personal status, which is defined in Article 51 of the Palestine Orders in Council (1922-1947) as covering marriage, divorce, alimony and so forth The list does not include matters such as sterilization which would presumably fall under the criminal law handled by the secular courts. According to our information, there appears to be nothing in the secular law on the matter. However, sterilization might easily be a factor in cases involving marriage and divorce (e.g., can a voluntary sterilized man marry?) These cases are handled in the religious courts and religious law might be applied.

CONCLUSION

Despite the obscurity of the laws or the apparent illegality in many jurisdictions, the practice of voluntary sterilization is common.

It is increasing in many countries and consequently, laws are disregarded and not prosecuted.

We think that voluntary sterilization for family planning purposes should be dealt with separately, and not under a statute dealing with eugenic and therapeutic sterilization.

The freedom of men and women to control their fertility has been recognized as a fundamental human right by the U.N. Conference held in Teheran, 1968.

Consequently, it seems that efficient fertility control implies abortion and voluntary sterilization as necessary complements to contraceptive methods.

The right to voluntary sterilization should be considered part of the human right of family planning and ultimately part of a basic right to control one's own body.

Legal and Ethical Issues in Voluntary Sterilization Programs

Chairperson: **Mme. Anne-Marie Dourlen Rollier, France**
Co-chairperson: **Ms. Elizabeth Keys MacManus, U.S.**
Rapporteur: **Dr. Louis G. Keith, U.S.**

This Task Force echoed many of the concerns voiced by other Task Forces and in the plenary presentations. Since there is a general consensus among most of those involved in the voluntary sterilization movement that laws prohibiting sterilization must be abolished and those limiting it be changed, discussion among this group centered on the need for caution in bringing the issue to public attention when the outcome cannot be predetermined. This suggests the need for careful planning and coordination of an educational campaign directed at legislators as well as the general public.

There is a need also for clarifying interpretation of laws that may relate to both patient and physician, and the group suggested the Philippine interpretation as a model. They stressed that it is incumbent on the legal profession to inform the medical profession that sterilization is *not* illegal where no laws exist prohibiting it.

The Ethical Issues

Involuntary sterilization was condemned as against human rights, but the group recognized this as a political problem also.

It was recognized that some societies have built-in incentives that favor large families. Needed are societal incentives or benefits for small families and it was suggested that such motivational considerations are more acceptable than "gifts" with immediate tangible value which may, in fact, be bribery. The benefit of the sterilization is the operation itself.

Informed consent was a major concern and the group identified the basic component of a written consent form to include an explanation of both risks and benefits of the method, alternative contraceptives, a full explanation of the procedure and what it entails during and after the operation, and adequate documentation that the acceptor has been fully and completely informed and that all questions have been answered satisfactorily.

In the case of illiterates, precautions must be taken to ensure that these individuals understand an oral presentation and that they signify their understanding and consent by appropriate means.

Major Recommendations

The Task Force approved the recommendation made at the 4th International Conference that IPAVS work with other non-governmental organizations in creating a working group to draft an international convention on the "Definition and Protection of the Freedom of Procreation and the Right to Family Planning."

In the area of publications, the Task Force recommended that AVS address the legal status of sterilization in one of its communication mediums, and that an international periodical be constituted to disseminate legal and technical information on sterilization.

RESOURCE PERSONS

Prof. Carlos de Abranches, Brazil
Dr. Rohit Bhatt, India
Prof. Mohamed Bouzidi, Morocco
Dr. Rosa Cisneros, El Salvador
Dr. Irene Cortés, Philippines
Dr. Ahmad Khalifa, Egypt
Dr. Luke Lee, U.S.
Dean Nicholas Liverpool, Barbados
Dr. Richard Turkson, Ghana
Dr. Wickrema Weerasooriya, Sri Lanka

SELECTED PAPERS SUBMITTED TO TASK FORCE 10 (for texts, see page 175)

Population and law projects around the world: Initiating and following through. Luke T. Lee.
Changes in the world's laws on voluntary sterilization in the 1970's: An update and review. Jan Stepan and Edmund Kellogg.

Contraception and Sterilization: A Modern Dilemma

Patrick C. Steptoe

There is an odd opinion current in many foreign places that the Englishman is a dull and humorless sort of fellow, although how this has come about in face of the fact that my nation has produced the most famous company of comic playwrights, novelists, essayists and philosphers is beyond my understanding. Like many other popular notions, it is the reverse. Whatever else there may be in my country there is much fun and laughter at our own expense. If a man has a gravity alien to the common spirit around him he is not able to keep it up for long, and opposing powerful pressures force him to renounce the worship of the goddess of gloom. The most serious creatures find themselves victims of the most ludicrous situations unless they exercise the greatest care to avoid them. I have failed to exercise this care and find myself in this embarrassing position of trying to philosophize about contraception and sterilization.

In the year 2000 one might well see in western countries two buildings. One—tall, large, imposing and peopled by hundreds of clerks and a master computer. This building would be the Family Planning Center, and outside would be a long queue of women seeking permission to have a baby. Each would clutch her application for reversal of an immunization shot against pregnancy previously given at age ten. Of course, each would also have the appropriate fee—about 10,000 dollars?

Around a surreptitious corner would be a small building where a short queue of men would be lining up to enter for reversal of their vasectomies—quite illegally, of course.

In the years between now and then we would have witnessed a few changes in the methods of contraception with the exception of the development of methods of immunization and possibly a male pill.

Sterilization is unlikely to have been made truly 100% effective, cheap, 100% reversible.

There will have been vast changes in the behavior of society, most of all in the western world. The present world population of 4.3 billion is increasing by 73 million per year, or 1.7% annually. Although this is an improvement on past performance it is not good enough.

In some countries economic improvement leads to more acceptance of contraception and sterilization, but in others it leads to an increased birth rate. Hence our dilemma. For example, in Great Britain where at present we are losing population, we had a famous politician who in 1960 won an election on the slogan "You never had it so good!" This was immediately followed by a rise in the birth rate. Of course what he should have said was, "You never had it so good, but do not have it so often!"

Since then inflation has had a marked effect and our growth rate is now less than zero. There will be a rise again as the children conceived in the early 1960's contribute to the population but thereafter another decline. But in other countries inflation leads inevitably to malnutrition, starvation and increased infant mortality. *Economic depression* in some countries leads to a fall in the birth rate, whereas in other countries *improvement* in the standard of living also reduces the population growth.

The situation in Indonesia, Thailand, South Korea and Luxemburg is improving rapidly but Iran, Iraq, Afghanistan, Pakistan and India have birth rates from 34 to over 40 per 1,000. So Asia and surrounding countries will be overwhelmed. Successive governments will fail to establish population control, losing a centuries old battle against religious and educational backwardness.

What will be the role of sterilization? Problems in western societies differ from those in underdeveloped countries. Widespread sterilization can bring problems which can escalate. In the western world it is being done in response to social demands and we may someday see a vast number of elderly people existing on the efforts of a dwindling number of young people.

Dissatisfaction with other contraceptives leads to early demands for sterliization, so we must counter with improved methods, and we must counsel against sterilization too soon. Otherwise, increased demands for reversal will occur. This may line the doctors' pockets but will not bring universal success even with in vitro fertilization.

The present dilemma is due to the fact that considerations about the reversibility of sterilization led to the introduction of methods which, by a process of wishful thinking, are supposed to be efficient, but they are not. Methods designed to reduce the amount of tubal damage are not worthy contraceptives. I view the American figures with great skepticism. A retrospective study is hardly the best statistical method.

Figures are coming now from Germany which show a failure rate of the Hulka clip of some 5%, and of the Bleier clip of approximately 2 percent. These figures are unacceptable in western society, and I believe that diathermy division with destruction of at least 2 cms of tube or more is the only method which gives a very low failure rate. But this does not lend itself readily to reversal. Is this applicable then in Asiatic countries, and unacceptable in western society?

POSSIBLE FUTURE DIFFICULTIES FOR THE PHYSICIAN

Legal problems may arise due to failures of sterilization and to failures of reversal.

In a few years, many women may see sterilization as the long-term contraceptive *method of choice,* that can end naturally in reversal. What begins as a method for parents can be easily extended to non-parents, especially if the process becomes reversible. Like the popular notion I talked about in my opening sentences, the reverse is true. We must correct this erroneous belief.

What criteria to use for selection? It would seem that no simple rules can be made. The number of children the couple already have is not a good guide, since there is great variability in the size of family that is wanted. Similarly, age cannot be used on its own, as some people complete their families by 25, while others take longer. Emotional maturity is not reliable either. The long-term stability of a marriage is very difficult to predict, and the most stable and mature people may fall in love again. Presumably, a judgment has to be made on all these things together. Once a doctor has started to perform sterilizations for social/personal rather than medical reasons, it is hard to see where to draw the line.

We must develop safer methods of contraception and/or sterilization so that it is readily and easily applied, fully effective, and, in certain circumstances, readily reversed.

In the meantime, I believe that in vitro fertilization will develop as an important contribution in effecting reversal of efficient sterilizations.

What of new methods? We have experimented with intratubal devices, and have now reached the stage where I believe that we have an effective method which can be reversed simply by its removal, but further development and experimentation is needed to evaluate its effectiveness. This means, of course, that continued funding is essential.

I will add, parenthetically, that I have always considered the abandonment of efficient methods of laparoscopic sterilizations for the so-called reversible methods to be an admission of failure: failure to select patients properly, failure to resist ill-informed popular demand and perhaps a too ready eagerness to accept a substantial fee for the reversal process.

CONCLUSION

"Horas non numero nisi serenas" is the motto of a sundial near Venice. Of all the conceits this is one of the most classic. "I count only the hours that are serene." The shadows fade on the dial plate and it shows a blank unless progress is marked by joyous sunshine. The rest is oblivion.

What a philosophy! To take no note of time but by its benefits, to neglect the frowns of fate, to compose our lives of bright and gentle moments, turning always to the sunny side of things, and letting the rest slip from our imagination, unheeded or forgotten.

There can be no such complacency about the problems of world population. This unhappy situation must continue to be resisted with all the vigor at our disposal, but not, I may say, at the expense of the miserable, unhappy infertile couples.

Summary and Conclusions

Marilyn E. Schima Challenges and Perspectives: Toward the Future

Mahmoud F. Fathalla International Implications of the Conference for Professionals and the Non-Governmental Network

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Challenges and Perspectives: Toward the Future

Marilyn E. Schima

As we near the close of the Fourth International Conference on Voluntary Sterilization, let us review our past accomplishments.

In Geneva, at the Second International Conference, we were charged with establishing priorities and program directions. In Tunis, we were applauded for our progress. Now, in Korea, we have been challenged to cross new and exciting frontiers, and we accept that challenge. It is our call to action for the 80's, and it comes from the solid foundation of your accomplishments and the work done at this meeting.

IPAVS is proud to be a pioneer in the voluntary sterilization movement. Our agency was created in 1972 in response to requests from international medical and health leaders and from international organizations who suggested a need for a focused thrust for surgical contraception.

The goal of IPAVS in focusing on voluntary sterilization as a method of fertility control or limitation was not for the purpose of population control or demographic impact, although we know it is well-documented that surgical contraception is the only fertility control method that can have a measurable demographic impact, given the state of the art in this century. We do not advocate surgical contraception for everyone, although we advocate its availability to all; we do not advocate voluntary sterilization over other methods, although we believe everyone should be educated to its advantages, its health benefits, its safety, and effectiveness, and we encourage the use of this method at the appropriate time.

We have advocated that this permanent method be made available and accessible to poor as well as rich, rural as well as urban, to males and females alike, and that it be provided by highly qualified personnel who perform quality services. We insist that it include education and counseling to ensure the informed, voluntary consent of the user.

IPAVS has played a significant role in bringing about the accomplishments of the 70's. These include:

- The acceptance of voluntary sterilization by 90 million users.
- The erosion of religious, legal, and cultural barriers that has occurred in country after country and is continuing to do so.
- The development of many multi-level, broadbased educational and counseling programs.
- The significant improvement and simplification of surgical techniques.
- The training of thousands of physicians and health support personnel in the provision of surgical contraceptive services.
- The provision of thousands of pieces of equipment.
- The initiation of program evaluation systems.
- The development of leadership organizations, such as the national associations which have become significant agents for initiating changes.
- The establishment of the World Federation of Associations which is acting now to make its voice heard.

We are working together, exchanging ideas, information and experiences. We are discussing and debating issues; we are seeking answers together. We have, in fact, joined hands in common cause for a common good.

Although new activities and new challenges are arising out of past accomplishments, some of the old hurdles remain in spite of the significant changes in attitudes.

LEGAL WORK TO BE DONE

As noted, we have made striking gains since 1969 when the first non-restrictive laws on voluntary sterilization were enacted in Singapore and the U.S. State of Virginia. Today, attitudes and laws have changed so much that:

- surgical contraception is now seen primarily as a medical matter (1), and
- sterilization on request is now broadly recognized as a right of the individual (2).

There are two rationales behind the changes in both law and attitude: 1) in the developed world, the purpose has been to guarantee freedom of choice for the individual, 2) in the developing world, the purpose has been to "legalize the most efficient method" of slowing population growth (3).

There are still many countries where work remains to be

done to clarify the legal status of surgical contraception. In these endeavors, the voluntary organizations will play a vital part in initiating change through interdisciplinary approaches.

DEMAND AND DELIVERY OF SERVICES

Accessibility and *availability* will be the key words for the '80's. We all know that the demand right now is not being met. We also know that when services are made available, demand has developed. So our-long range goal is to make services available and accessible to all.

Rural Delivery

Although the challenge has been raised to meet the needs of the rural areas, we have only just begun attempts to reach them. In spite of formidable obstacles, a greater, more concerted effort will be made to bring services to rural areas where, in many countries, the majority of the population lives.

Primary Care

We will need to make a continuous and vigorous effort to integrate voluntary sterilization as a basic component into the total health care complex. Wherever possible, we must find alternative ways to include voluntary sterilization in primary or preventive health care systems.

Multiple Delivery Systems

In the whole area of service delivery, we find that delivery through one sector alone is never adequate. Multiple systems need to be developed that include a variety of groups such as voluntary organizations, private practitioners, government programs, and women's groups. Also, we must use any other channels that may evolve or be identified as viable means for delivering services.

Male Sterilization Programs

Sterilization services for both males and females should be made available on an equal basis. We have heard it said at this conference that whenever the medical leadership has advocated and supported male sterilization services, programs have been successful. In most countries and in all family planning programs, the popularity of method follows the physician's preference. As leaders we must try to put aside personal preference or prejudices and be objective in our approach to program planning.

Range of Acceptance

As we stand on the threshold of the '80's, we find that there is a full spectrum of international acceptance for surgical contraception ranging from none at all to complete acceptance, such as here in Korea. The challenges lie at both ends of the spectrum, and the approaches are different at each end. On the one hand, there is the gamut of problems inherent in introduction and initiation of programs, and on the other, the problems of adequately meeting the demand. Many of the variables of this spectrum have been well-explored at this conference.

Official Approval

To establish a program in any country, there must be either tacit or open approval of the government, regardless of the legal situation. Without official acceptance, activities will be severely limited in scope. In such situations, we must work slowly and sensitively. It is of paramount importance that politicians and government leaders understand our program and its benefits. In this area, education is the key. We must continue with concentrated efforts to get our message across.

EDUCATION AND COUNSELING PROGRAMS

We must build and strengthen our educational and counseling programs so that they answer a full range of needs.

Informed Consent

Without education there is no informed consent. We must safeguard the concept of informed consent for every user, especially the pre-literate. Like Caesar's wife, surgical contraception must be above reproach. We must temper high purpose with wisdom and caution so that we ensure the "voluntariness" in voluntary sterilization. We must develop well-thought-out guidelines with foolproof procedures to ensure that every acceptor is a knowledgeable, aware consumer who can make a free choice based upon individual needs and not according to an impersonal target or quota.

Carrying the Message

I & E programs must continue carrying the message to the health and medical professionals, and to the political and governmental decision-makers.

We also need to identify the various groups who can carry the message to the general public, such as: unions, farm co-ops, voluntary, government, professional and religious groups as well as the industrial sector. These groups should be at the local as well as the national or international levels.

Asking the Right Questions

In designing national service programs, we need to be sensitive to the different roles of men and women in different societies, particularly in relationship to decision-making. This is an important area that merits special consideration.

It has been suggested that "motivating men and women to use family planning is one of the greatest challenges in the population field" (4). This is especially true of sterilization.

There are questions we may need to ask about our efforts to develop a climate of acceptance:

- Are we really reaching the full audience?
- Or are we speaking to the already motivated, to those already pre-committed, for one reason or another, to fertility termination?

Perhaps we are neglecting to recognize some fundamental truths about human nature when we design our I & E programs. It has been suggested that motivational messages directed at the general public might be more effective if they acknowledged some of the key "factors in the sexual dynamics of (a culture)..." (5). For example, we must recognize that the emotional value of the concept of virility is, in many cultures, the important issue to the male, not the idea of fertility. Having many children proves that the male is virile, and until we can replace this value with more positive ones of equal value, we will not really communicate our message.

It has been suggested that family planners have been using rational but irrelevant appeals, particularly for the lower economic groups (6). We cannot convince someone to act unless we understand the deep-seated emotional factors involved in that action. To answer the questions presently being asked by social psychologists, we need to gather much more data on the acceptor factors for both sexes.

WOMEN

Dr. Viel has eloquently described the large health risks to mothers and to the newborn that childbearing imposes. Primary health care systems, to be truly responsive, must make the availability of contraceptive materials, services, and information a basic part of the system.

The participation of women as full partners in the design and development of family planning programs must take top priority in the '80's. Programs traditionally designed within male-oriented conceptual frameworks have often overlooked the contributions and needs of women. Too often women are "perceived as targets of, rather than participants in, programs meant to benefit them" (7). We cannot allow that to happen to either sex.

"Excessive emphasis at the point of service delivery on demographic targets, numbers of 'acceptors'...levels of 'motivation'..." (7), distracts attention from provision of quality service...and is unlikely "to promote real caring and attention to individuals" (7). We must never forget that we deal with the most sensitive, emotion-laden aspect of human nature.

On the one hand, we must ensure that women are included as full partners in planning and not just recipients of services. On the other hand, we must help men to understand that they share half of the reproductive responsibility. As the Chinese say, "they must hold up one-half the sky."

"...Influencing people to reduce fertility may be a giant step toward changing the undesirable social traditions of male dominance, female subjugation and intersexual jealousy (7).

MEDICAL-TECHNICAL

Until we have non-surgical sterilization, we will need to continue the research for new methods of reversibility so that there will be options available.

TRAINING

Training programs for physicians and health support personnel have been extremely successful. This activity will continue and expand in the '80's as we move into the establishment and support of national training centers for all health personnel. Tunisia has developed an outstanding model of a national training center which will provide training opportunities for all health members on a regional and international basis as well.

We must also move into the training of health support personnel to perform simplified sterilization procedures under the guidance of a physician, wherever this is legally permitted. If it is prohibited, we will need to prove the efficacy and safety of the concept in order to justify changing the laws.

DATA COLLECTION

National and individual programs need to improve their information management and evaluation systems so that we have access to a variety of statistics that will give us insights into:

- the cost effectiveness of various surgical contraception methods,
- the potential demographic impact of voluntary sterilization,
- the ways in which voluntary sterilization contributes to socio-economic development, and
- how it contributes to maternal and child health.

OTHER PROFESSIONALS

We must broaden our efforts to involve other professionals, particularly the health professionals, in the voluntary sterilization movement. We need to work with them through their organizations at all levels, to educate and orient them to the concept of voluntary sterilization and to its social and health benefits. The time has come for the cross-fertilization of ideas and insights.

THE NATIONAL ASSOCIATIONS AND WFAVS

In the coming decade, we will continue the efforts of the '70's to strengthen the national associations and the World Federation. They are the vanguard of new ideas and new programs. They provide the leadership in identifying new challenges. National associations are the bridges between the needs of the people and the responses of their governments.

SUMMARY

Let me summarize for you highlights for the '80's:

- We must find a variety of ways to make services more widely available, and we will use multiple delivery systems to do this.

- We will continue educational efforts to influence the attitudes of public officials, policymakers, government administrators, and medical and health personnel.
- We will educate new generations to the advantages of and benefits of family planning and the role of sterilization.
- We will continue to underscore the importance of surgical contraception in maternal and child health.
- We will establish well-balanced programs that offer both male and female sterilization on an equal basis.
- We will push to get training in surgical contraception included in the school curricula for medical and health personnel.
- We will establish national training centers for professionals, such as the Tunisian model.
- We will also push for the provision of appropriate physical facilities, specifically dedicated to voluntary sterilization services.
- We will give first priority to the provision of sensitive counseling and education in order to ensure informed consent.
- We will improve our evaluation and management systems so that we have access to the data we need in order to make informed decisions as administrators and leaders.
- We will look to advances in medical technical areas for progammatic implications.

The '80's will see an expansion of these and other areas into more sophisticated and complex levels of activities. It will be an exciting decade of change and growth.

When I visited Korea one year ago to choose a site for the conference, this hotel was only a framework of girders. Coming from a developed country where things take forever to get done, I was amazed at the miracle the Korean people have accomplished in constructing this hotel so quickly and getting such an excellent staff together. I want to thank all of them for their help and cooperation.

My thanks to the Ministry of Health and to the Korean Association for Voluntary Sterilization, President Park, Executive Director Dr. Kim, and their staff who have been so helpful to us all along the way. Without their support and cooperation, this conference could never have gone so well.

I also thank my hardworking staff for helping to organize and implement the conference. They are a fine, dedicated team of professionals.

On behalf of IPAVS I want to express our appreciation to U.S. AID whose support and assistance made this conference possible for all of us.

This conference has given me a valuable opportunity to meet and work with many old friends, and to meet many new ones. All of us, working together, are the international network of leadership for voluntary sterilization. Together we will create the forward momentum that will carry the movement into the next decade.

I know we all accept the challenge of the '80's, and will go forth with new initiatives, courage, determination, dedication, and inspiration.

Friends and colleagues, I thank you for coming to Korea to be part of this exciting and stimulating event.

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International Implications of the Conference for Professionals and the Non-Governmental Network

Mahmoud F. Fathalla

I would like to confess that giving this presentation is one of the most difficult tasks for me at this conference. I find it difficult because the material presented has been so rich in ideas that it is hard to sum up the implications in a matter of fifteen minutes, and much of what I have heard is still simmering in my mind so it will take some time for my conclusions to ripen fully.

As a professional, I come out of this conference with uneasy feelings. Before I arrived, I had been quite happy with what we had achieved in the sterilization movement. But I must confess that what I have heard at this conference disillusioned me. I was impressed by two observations made time and time again during a number of presentations. First, that acceptance figures, high as they may seem to be, fall very short of meeting demographic objectives in terms of numbers and distribution for countries that really need that demographic impact. Second, that these figures fall very short of our potential as professionals. Compared with the number of cases which we professionals of the world have the potential for performing, this is a work of weeks not years.

As a professional, I now feel that we have a long way to go, and there are a lot of things that we have to do. Above all, we have to change. We have to adapt to a new role in society.

First, we physicians have to learn the team spirit so we can work effectively in a team effort to achieve a common goal. That sacred cow of individual physician-patient relationship must give place to community participation and community involvement. Our mystics in medicine are outdated for our time. We must recognize paramedics as members in their own right, we must recognize social workers, we must recognize and work effectively with development workers, communication specialists, promoters, and we must recognize and respect the role of community leadership.

Second, we physicians have to orient ourselves to society's needs. We need to develop a keen sense for community-oriented efforts. Health care is not an activity on its own. It is a part and parcel of the community's overall efforts to achieve a better quality of life.

With 80 countries represented, we come out of this conference with a fresh insight into implications for the non-governmental network. As I see it, non-governmental voluntary organizations play three essential roles in bringing the people and their governments together. Where the people are ahead of their governments in perceiving the need for surgical contraception and family planning, the role of the voluntary organizations is to work on the government in an effort to enlighten them. If government is hesitant, the voluntary organization can prove that the people are ready to accept the programs so that the government can step in, reassured that they are responding to a genuine need. If government is resistant, a lot of hard work to change established policies or laws may be needed at top policy making levels.

In a situation where the government is ahead of the people in perceiving their needs, the role of non-governmental organizations will be largely that of educating and informing the people in order to remove the psychological barriers, misconceptions, and myths surrounding surgical contraception.

The third situation is a happy one, but as with happy things in life, you do not get them too often. This is where a government and its people are moving along together. Here the non-governmental organizations can be helpful by collaborating with and adding strength to the government efforts to meet the increasing demand.

All of us who are working in the family planning field should appreciate that time is a critical factor. What to do is important, but when to do it is even more important. The little we can do now, in view of the nature of the population growth momentum, will be more worthwhile than the big things we are thinking for tomorrow.

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Trends in the Acceptance of Sterilization in Thailand

Boonlert Leoprapai

Sterilization has long been one of the most widely known and practiced methods of contraception in Thailand, especially among women in urban areas. In a 1967/68 survey of 960 married women aged 15-44 living in surburban Bangkok, approximately 14.8% of respondents had been sterilized and 8.0% had husbands who had undergone sterilization (1). In rural areas, however, sterilization was more widely known than practiced. In the district of Potharam in the Ratburi province during 1964-66, approximately 80% of females had some knowledge of contraception and mentioned sterilization specifically (2). In a 1969 follow-up survey of the same group of women, it was found that of the 467 women who were still practicing contraception, only 23 or about 4.9% accepted sterilization (3). A high proportion of married women aged 15-44 in both urban and rural areas were found to be knowledgeable about ligation and vasectomy as methods of contraception, according to a 1969/70 national sample survey. The number of women or their husbands accepting sterilization were, predictably, much higher in urban than in rural areas (Table 1).

Table 1. Knowledge and Use of Sterilization Among Married Women Aged 15-44 and Their Husbands (4)

	Area		
	Rural	Provincial	Bangkok Metropolis
Knowledge of vasectomy	46.9	64.8	59.0
Knowledge of ligation	52.1	84.8	83.7
Use of vasectomy	2.0	2.7	2.8
Use of ligation	3.1	14.4	18.1

TRENDS IN STERILIZATION ACCEPTANCE IN THAILAND

Prior to the inclusion of the National Family Planning Program in the third Five Year National Economic and Social Development Plan (1972-1976), the annual number of sterilization acceptors averaged about 15,000, representing approximately 11% of acceptors of all methods. As Table 2 shows, there was a substantial increase in sterilization acceptors between 1972 and 1978, representing a total increase of over fivefold (5). While the proportion of IUD acceptors has decreased over time, that of pill acceptors has remained fairly constant, and the proportion of sterilization among all acceptors has increased, more or less gradually, from about 11% during the 1965-71 period to about 18.9% in 1978. In the Thai

Table 2. Number and Percent Distribution of New Family Planning Acceptors by Methods: 1965-1978

	IUD		Pill		Sterilization		DMPA		Total	
Year	No.	%	No.	%	No.	%	No.	%	No.	%
1965-71[1]	336,392	35.1	505,314	53.0	105,032	11.0	6,787[2]	0.7	953,525	100.0
Annual average	(48,056)		(78,616)		(15,004)		(3,394)		(136,218)	
1972	90,128	19.7	327,582	71.7	32,668	7.2	6,316	1.4	456,694	100.0
1973	93,449	22.1	268,674	63.6	49,606	11.8	10,447	2.5	422,176	100.0
1974	89,739	18.2	305,244	7	80,482	16.3	19,104	3.9	494,479	100.0
1975	75,163	14.0	345,117	64.5	90,184	16.9	24,559	4.6	535,023	100.0
1976	71,894	11.5	376,707	60.1	105,281	16.8	73,357	11.7	627,239	100.0
1977	74,794	9.9	488,765	64.5	125,939	16.6	68,714	9.1	758,212[3]	100.0
1978	77,720	8.7	557,822	62.6	168,551	18.9	86,620	9.7	890,773[3]	100.0

Notes: 1. The 1965-1971 period is the period before the inclusion of family planning program in the Five-Year National Economic and Social Development
2. DMPA service is available in 1970
3. Conventional methods such as condoms are excluded.

Table 3. Index of New Family Planning Acceptors by Methods: 1965-1978 (1961-1971 = 100.00 [average: 15,004])

Year	IUD	Pill	Sterilization	DMPA	Total
1972	187.6	416.7	217.7	186.1	335.3
1973	194.5	341.8	330.6	307.8	309.9
1974	186.7	388.3	536.4	562.9	363.0
1975	156.4	439.0	601.0	723.6	392.8
1976	149.6	479.2	701.7	2,161.4	460.5
1977	155.6	621.7	839.4	2,024.6	556.6
1978	161.3	709.6	1,123.4	2,552.2	653.9

family planning program, the proportion of DMPA acceptors seems to have increased faster than proportions of other method acceptors.

Using the average number of acceptors during the 1965-1971 period as the base, index numbers of acceptors of each method were computed. As may be seen from Table 3, the number of acceptors of all methods increased about 6.5 times, but the number of sterilization acceptors increased about 11.2 times. The growth rate of sterilization acceptors was higher than the growth rates of IUD and pill acceptors although the former was lower than that of DMPA acceptors.

Females originally accounted for most of sterilzation acceptance in Thailand. For example, in 1972 there were about 31,386 female sterilization acceptors compared with 1,282 vasectomy acceptors, a ratio of 24.5:1. Since 1973, however, the number of vasectomy acceptors increased substantially. In 1978, there were about 44,541 vasectomy acceptors compared with about 124,010 female sterilization acceptors, a ratio of about 2.8:1 (Table 4).

As Table 4 indicates, the annual rate of increase of vasectomy acceptors was substantially higher than the rate of increase of female sterilization acceptors, but several years may pass before both rates become equal.

Table 4. Number of Male and Female Sterilization Acceptors: 1972-1978

Year	Female sterilization	Vasectomy	Ratio: female and vasectomy
1972	31,386	1,282	24.5:1
1973	46,804	2,802	16.7:1
1974	73,702	6,780	10.9:1
1975	82,650	7,534	11.0:1
1976	95,131	10,150	9.4:1
1977	106,816	19,123	5.6:1
1978	124,010	44,541	2.8:1

Source: National Family Planning Program, Ministry of Public Health. Expanded Sterilization Project (1977) and summary tables of new acceptors by method and region, organization and service unit type.

Compared with other countries in Asia, Thailand ranked second in number of sterilization acceptors and third in percentage of all program methods in 1976. As in other countries in Southeast Asia, females still account for a major proportion of sterilization acceptors (Table 5).

Table 5. Sterilization Acceptors in Government Supported Programs, 1976 [in 000's] (6)

Country	No. of vasectomy acceptors	No. of female sterilization acceptors	Combined total	Combined total as a percent of all program methods
Bangladesh	38.6	15.3	53.9	4.0
Hong Kong	.8	.4	1.2	2.2
India	6,087.0	2,019.0	8,016.0	65.0
Indonesia	3.5	19.0	22.5	1.0
Korea	45.0	36.0	81.0	
Malaysia	.2	3.7	3.9	5.2
Philippines	10.3	37.6	47.9	13.4
Singapore	.4	9.5	9.9	25.3
Taiwan	3.5	37.2	40.7	12.5
Thailand*	10.2	95.1	105.3	16.8

**Data for all countries except Thailand are from Nortman and Hofstatter.*

Table 6. Characteristics of Sterilization Acceptors (7)

Year	Vasectomy acceptors: Average age	Vasectomy acceptors: Average no. of living children
1973	39.6	4.53
1974	34.1	4.46
1975	33.3	4.00
1976	33.9	4.06
1977	32.9	3.78

Year	Female sterilization acceptors: Average age	Female sterilization acceptors: Average no. of living children
1973	28.3	4.33
1974	30.2	4.15
1975	29.9	3.13
1976	29.9	3.92
1977	29.3	3.83

TRENDS IN CHARACTERISTICS OF ACCEPTORS

The demographic impact of sterilization depends on the age and the number of children which sterilization acceptors already have; the lower the age of acceptors and the smaller their number of living children, the more pronounced the demographic impact. Based upon trends established from 1973 to 1977, both the average age of acceptors and the average number of living children of acceptors tended to decline over time. The continuation of such trends will have a marked demographic impact (Table 6).

STERILIZATION ACCEPTORS FROM NON-GOVERNMENT SUPPORTED PROGRAM

The data on sterilization acceptors have focussed exclusively on participants in government supported programs. If private sources were included, the role of sterilization among married couples would be even higher. According to a sample survey in one province in Central Thailand, private medical doctors, hospitals and clinics were responsible for about one-fifth of female sterilizations and one-third of vasectomies (8). Certain proportions of these private sources reported their cases to the National Family Planning Program and these are included in the government-supported program statistics. The fact that private sources also provide sterilization services can be inferred from a national sample survey conducted in 1975 (9), which indicated that approximately 18% of females and 6% of males surveyed elected sterilization.

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Stages in Women's Lives and Reproductive Decision-Making in Latin America

Susan C.M. Scrimshaw

In the discussion of a topic such as "women as decision-makers," the tendency is to think of a fixed point in time, of a given woman as she is captured by the interviewer at a particular stage in her life. The life cycle analysis often used by anthropologists is not applied. Yet, when I think of Latin American women, I am reminded of Jaques' words in *As You Like It:*

> All the world's a stage,
> and all the men and women merely players;
> They have their exits and their entrances,
> And one man in his time plays many parts,
> His acts being seven ages.

While a similar analogy could be made for all cultures, it can be argued that Latin American women, in particular, have many roles marking different stages in their lives. This paper focuses on a description of some of these stages. It is hypothesized that the relative autonomy of women in different stages or roles affects their decision-making in relation to fertility.

This paper does not attempt to analyze all the possible factors involved in fertility decision-making. (There are many studies on the subject for Latin America. An excellent recent summary and analysis can be found in *Fertility Decision-Making in the Latin American Context* by Paula H. Hass (1976.) Nor does this paper include all Latin American cultures. Although the Latin American countries do have enormous cultural similarities, the more familiar one is with Latin America, the more aware one becomes of the many variations between and within countries. Because of these variations, this analysis does not attempt to include either tribal or modern Indian cultures, but concentrates instead on Hispanicized peoples. While the generalizations made here might not literally apply to every country, I believe the underlying features of the stages in women's lives and their varying autonomy reflect the realities.

METHODOLOGY

In addition to drawing on the available literature, this paper is based on data collected in Ecuador during 1971, in Colombia (with M. Shedlin, S. Bram, and M.E. de-Ruales) in 1974, and briefer work in Bolivia, Mexico, and Guatemala. The quantitative analyses are based entirely on the Ecuadorian data. The research in Ecuador focused on the squatter settlements on Guayaquil and consisted of ethnographic work followed by a survey of 2,000 households in both central city slum and squatter areas. The survey was based on a probability cluster sample of women aged fifteen to forty-five. Men currently in union with women in the sample were also interviewed. Since the Guayaquil research concentrated on behavior related to fertility, the data collected are particularly relevant to this paper.

THE AGES OF WOMEN

The stages in women's lives in Latin America appear to shape their decisions and subsequent behavior regarding fertility decision-making. They move from being heavily dominated and watched over to increasing covert and later overt autonomy which is reflected in the way they manage their lives and those of their families.

In an article on women in *Latin American Literature,* Jane Jaquette mentions three archtypes: mother, witch, and wife/concubine (1973: 4). In fact, these reflect but a few stages and include some that are more feared than real. For the purpose of describing roles and autonomy, at least six stages could be identified: 1) Infancy, 2) Girlhood, 3) Puberty, 4) Young Wife, 5) Transition, and 6) Matriarch. A potential seventh is Old Age, but many women retain their matriarchal powers as long as they live. The stages could be described as follows:

Infancy. Infant girls are treated differently from boys. As described by Claudewell and Garrison (n.d.), Lewis (1963), Stycos (1955) and others, modesty is immediately considered important, along with other feminine ideals such as quietness and decorum. In addition, from infancy on, girls learn that men get preference. Little boys are often referred to as "the king of the house," and their whims are encouraged (Geyer 1970: 239). Infant girls are not allowed their own way as often and learn that they must defer to males.

Girlhood. In most Latin American countries a girl is referred to as *niña.* At least in Ecuador, the term implies innocence and virginity as well as literally "little girl." *Niñas* continue to be taught modesty and decorum. They are expected to help around the house and care for younger siblings fairly early (from age three or four). Even in the upper classes where servants do the housework, girls help their mothers see to the running of the house and the comfort of the men and boys. Girls' play is

largely restricted to games appropriate for girls—for example, girls should not play soccer, but instead concentrate on games like jacks and hopscotch, or playing house and tending dolls.

Puberty. For most girls in the countries studied, menarche was a rude surprise. Girls are seldom taught what to expect, and think they have somehow hurt themselves. Sometimes it is months before they tell anyone what is happening. They quickly learn that no one, especially no male, should know when they are menstruating and that they must curtail many activities and avoid some foods—for example, women in Cali, Colombia, felt that chocolate or acid foods such as oranges would make the menstrual blood stain more. In many countries, menarche marks the transition from niña to senorita (young lady) and is accompanied by warnings about men. However, young women are seldom told just what they are supposed to be careful of. During the puberty or senorita role, the restrictions on a young girl are intensified. She is closely guarded and watched by her family and neighbors. She has very little autonomy; however, she may rebel and find ways to meet a boyfriend secretly. While the ideal is purity, in reality, some sexual activity may take place (Stevens 1973: 97; Scrimshaw 1978). If her parents disapprove of marriage with the young man of her choice, she may contrive to run away with him. Although she is thereby showing a spark of the strength she may later exhibit, she is actually running from the control of her parents to the control of her partner.

Young Wife. For the purpose of this paper, "wife" is used to refer to women in various union types ranging from stable, long-term visiting relationships to common-law unions, to formalized marriages. (See *Family Formation and First Birth in Ecuador,* Scrimshaw 1978, for a detailed discussion of union types and union formation.) The young "wife" period begins when the union is formed, usually in the teens, and lasts for around fifteen years. During this time, the woman is closely guarded by her husband with the help of neighbors (Lewis 1963: 327). In Guayaquil and Cali, some women are not allowed out of the house without their husbands' permission. Their children (or neighbor's children) do any necessary shopping and errands. Men discourage their wives from having any women friends, who are suspect as potential go-betweens between women and other men. "Good" women are not supposed to enjoy sex much. They might then become promiscuous. In this regard, Stevens says in an article on Marianismo that the ideal is premarital chastity and postnuptual frigidity (1973: 94-6).

Despite all this control, the reality is different from the ideal. As Lewis says, the woman in fact has a great deal of responsibility in the household and the opportunity to do "a lot of secret spending, borrowing, and paying" (1963: 320-321). Jane Jaquette also refers to this phenomenon in her analysis of the novel *One Hundred Years of Solitude,* in which it is the character of Ursula who keeps the family together and sees they are fed and housed (1973: 18). I have repeatedly observed this pattern wherever I have lived in Latin America. Even women who are closely controlled by their husbands find ways to do things that are important to them. In Guayaquil, for example, a woman's "husband" (who lived with his other family which he was also supporting) said there was no money to send their son to school a year early. Nevertheless, she obtained the money by giving her partner an inflated report of household expenses. This managerial role is more important than men realize and prepares women for the next two stages.

Transition. The transition stage often occurs sometime in a woman's thirties—a period during which her spouse ceases to see her quite so much as a sexual object and relaxes his guard accordingly (Lewis 1963: 328). Another pattern is for the union to split up at this point, whereupon the woman assumes much more control over her life and her children. In either case, a lot more independence and autonomy are available to her.

Matriarch. These are women who are separated from their partners or no longer guarded by men because they are seen as no longer being desirable to other men. Also, women appear to get more powerful as they get older. As Jaquette says, "the figure of matriarch is a common one in Latin America." What is important, however, is that a woman, such as Ursula (*One Hundred Years of Solitude,* Marquez 1971) or Fernanda (*La Vida,* Lewis 1965), does not appear out of nowhere at forty. Instead, she has grown through various stages of life, gradually increasing her strength and autonomy.

In describing these stages, I do not mean to imply that all women form unions. In discussions with R. Schwarz, he has emphasized the role of *solterona,* the "old maid." Regarded as not a totally negative role, *solteronas* have a great deal of family involvement (and always live with parents or siblings). They are somewhat envied at times for never having to put up with a spouse and are respected for retaining their virginity (assuming they do so).

In sum, these stages depict a progression from enforced dependence to greater independence; from sex object to nearly neuter matriarch; from timidity to strength. Throughout these stages, there is much variation between real and ideal behavior, the women in reality having more power than men realize. All this has implications for decision-making related to fertility, as will be seen in the next section.

WOMEN AND REPRODUCTIVE DECISION-MAKING

Juana was in her late thirties or early forties. Of her fifteen pregnancies, eight children were currently living. Although all her children had been delivered by a midwife, discomfort after her fifteenth delivery sent her to a regional health clinic, where she was told that another pregnancy would endanger her life. She had an IUD inserted and then proceeded to figure out how to involve her husband. She felt both guilt at having taken such a step without consulting him and fear that he would find out and be angry. She approached an American woman, who was a

clinic outreach worker, and asked her to help. She had her "drop by" on a specific day, just when Juana's husband would get home. She coached her in great detail on bringing the subject up, beginning with a discussion of the new baby, the doctor's health warning, and then working around to family planning. She warned her friend that she would not speak up in support of the idea; all the approval had to come from her husband. The actual conversation took place just as Juana had predicted. When the discussion on contraceptive methods began, Juana's husband listed many concerns, not the least of which was that Juana's personality would change. Juana did not speak except to say, "whatever he wants" and to bring up potential problems the health worker had not covered. The conclusion was that Juana should have an IUD inserted, but only if the health worker accompanied her. The two women had to fake a trip to the doctor for the insertion (Elizabeth Burleigh, *Personal Communication*).

While "Juana" is a pseudonym, this incident occurred in a Guatemalan town about two years ago. It illustrates two important trends that emerge from the literature and from my research. First, men are, in fact, very important in Latin American family life and do have a great deal of influence. Second, women often succeed in manipulating people and situations to obtain their goals, thereby tempering the male dominance. In an article, "Female Forms of Power and the Myth of Male Dominance," Susan Rogers suggests that in many societies, particularly peasant societies, women appear to play a secondary role but, in fact, dominate most situations (1975: 746-47). The evidence for decisions related to fertility in the Latin American literature show that men are indeed an important influence. Just as Juana had to consider her husband's opinion, many women cannot openly contradict their men. Stycos writes of Puerto Rican men's objection to their wives' contracepting because they feel it robs them of authority: "Control in the sexual sphere belongs exclusively to the husband" (1953: 72). He further reports that men see the woman's fear of pregnancy as a deterrent to infidelity—a feeling which I also have observed in several countries. Finally, he mentions that men are influential in decision-making, and that women whose husbands have suggested contraception are the most persistent users (Stycos 1968: 76-77, 94). Similarly, Requeña mentions that in Chile in the early 1960s, half of those women whose partners were in favor of their practicing birth control did so; of those whose partners objected only 20% practiced (1965: 76). For methods other than folk methods or induced abortion, only 1.2% of those whose partners disagreed were users, as compared to 20% of those whose partners agreed. In Mexico City, Keller reports that roughly 8% of "family planning dropouts" left the program due to the opposition of their spouses (1973: 38). For Honduras, Mundigo says, "None of the women whose husbands had opposed contraceptives or who had work problems returned to the clinic within forty days of interview" (1973: 105). In an analysis of rural data from Colombia, Costa Rica, Mexico, and Peru, Simons and Culagovski found that the strongest predictor of contraceptive practice was a joint husband-wife decision to use contraceptives (1975: 8-11). If the woman had not discussed the matter with her husband or did not have his approval, she was less likely to use contraceptives. All this points to strong male domination of the situation. However, the women's decisions are often exercised in areas less obvious to the husband, such as induced abortion. In "Priests, Machos and Babies," Nora S. Kinzer says:"Latin American women of all social classes choose abortion as their solution to unwanted pregnancies" (1973: 305).

The classic example of this has been Chile, where in 1965 Armijo and Monreal reported that 41% of nearly 4,000 women had spontaneous or induced abortions (23% had admitted induced abortions). The women aged twenty through thirty-four had 80% of the abortions (1965: 264-65). Hall also describes high rates of induced abortions for women over thirty in their fourth or subsequent pregnancy (1965: 111).

Both the ethnographic and survey data from Guayaquil demonstrate the role of induced abortion in fertility regulation. One informant had two induced abortions without her husband's knowledge because she felt he could not provide for more than the three children they already had. She said he would be furious and beat her if he ever found out. Another said she had "taken three children out." She said: "I hope God will forgive me because my life has been very hard. My husband knows nothing of this. I was working at the time and had the money."

As Tables 1 through 4 show, men and women in Guayaquil do not together agree on all aspects of induced abortion. While a vast majority (94 and 95%) of both sexes said they disapproved of abortion if a woman wanted no more children, the two groups differed on abortion if the woman becomes pregnant and there are "too many children to support," or if the wife's life is in danger. More of the women approved in the former case, and slightly more of the men in the latter. (The differences are statistically significant at the .01 level when the chi-square test is applied.) Also, more of the women say they would abort if they wanted no more children and became pregnant (12% as opposed to 8% for the men). In response to the first question in the series—"if a couple wanted no more children"—it is interesting that more men and women would use abortion if they, themselves, wanted no more children than those who approved of it in general.

The proportion of admitted induced abortion is lowest for the first pregnancy (0.3%) and rises to a high of 6.2% for pregnancy number nine and remains fairly high thereafter (Scrimshaw 1973: 146). While this means that older women are inducing more abortions, they are also more likely to want to because of higher parity. Strength in decision-making may help, but it is not the only factor.

Besides the practice of induced abortion, knowledge and use levels of contraception were higher in Guayaquil. Knowledge ranged as high as 80% (men) and 89% (women) for the pill. Men's knowledge of male methods was significantly greater than women's knowledge of female

ATTITUDES ON ABORTION AMONG MEN AND WOMEN

Table 1. If You Want No More Children

	Men		Women	
	N	%	N	%
1 yes	53	5	177	6
0 no	1096	95	2757	94
Total	1149	100	2934	100

$x^2_2 = 2.87$ $p > .01$

Table 2. If You Have Too Many Children to Support

	Men		Women	
	N	%	N	%
1 yes	203	18	723	25
0 no	936	82	2212	75
Total	1139	100	2935	100

$x^2 = 21.28$ $p < .01$

Table 3. If Your (or Your Wife's) Life Would be Endangered by Pregnancy

	Men		Women	
	N	%	N	%
1 yes	994	87	2371	81
0 no	144	13	563	19
Total	1138	100	2934	100

$x^2 = 23.95$ $p < .01$

Table 4. If You (or Your Wife) Do Not Want Another Another Child

	Men		Women	
	N	%	N	%
1 no	1032	92	2492	88
2 yes	87	8	337	12
Total	1119	100	2829	100

$x^2 = 14.0$ $p < .01$

contraceptive measures (Scrimshaw 1973: 165). Men's attitudes towards contraceptives were more negative than women's (Scrimshaw 1973: 169). The ethnographic data repeatedly confirmed this as the men imagined all sorts of horrors emanating from the various methods. For example, some felt that the pill would "eat the red blood cells" or change a woman's temperament, or that withdrawal would make a man's head swell up. Despite the negative male attitudes, use of contraception was high for women at 44%, while current use was 22 percent. However, this figure includes all attempts to prevent pregnancy, whether effective or not. The data on attitudes and use are summarized in Tables 5, 6, and 7. It is obvious that many methods were used by women despite their partners' disapproval, or without their knowledge.

The mean ideal family size also differed for men and women, at 2.96 and 2.83, respectively. The difference is

Table 5. Knowledge of Contraceptive Methods for Urban Men and Women

Method	Men								Women							
	No Knowledge		Volunteered		Probed		Total		No Knowledge		Volunteered		Probed		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Pill	233	20	705	61	214	19	1152	100	492	17	1947	66	501	17	2936	100
IUD	736	64	98	8	318	28	1152	100	1478	50	493	17	964	33	2936	100
Condom	302	26	237	21	613	53	1152	100	1722	59	190	6	1023	35	2936	100
Coitus Interruptus	422	37	79	7	650	56	1151	100	1841	63	80	3	1015	34	2936	100
Foam Tablet	760	66	101	9	289	25	1150	100	1833	62	416	14	687	23	1936	100
Jelly/Cream	1011	88	32	3	109	9	1152	100	2563	87	98	3	274	9	2936	100
Douche	764	66	48	4	341	30	1152	100	1801	61	320	8	904	31	2935	100
Foam	1112	96	9	1	31	3	1152	100	2849	97	19	1	67	2	2935	100
Rhythm	550	48	103	9	502	43	1152	100	1511	51	192	7	1232	42	2935	100
Injection	449	39	314	27	389	34	1155	100	1057	36	858	29	1020	35	2935	100
Diaphragm	990	86	30	3	133	11	1153	100	2610	89	74	2	251	9	2935	100
Sterilization	335	29	171	15	638	56	1144	100	895	31	363	12	1678	57	2936	100

Table 6. Attitudes Towards Contraceptive Methods for Urban Men and Women

Method	Men								Women							
	Negative		Neutral		Positive		Total		Negative		Neutral		Positive		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Pill	518	65	0	0	280	35	798	100	1340	62	0	0	805	38	2146	100
IUD	220	65	0	0	117	35	337	100	905	71	0	0	377	29	1282	100
Condom	539	71	0	0	223	29	762	100	726	75	0	0	249	25	975	100
Coitus Interruptus	523	78	0	0	144	22	667	100	623	64	0	0	350	36	973	100
Foam Tablet	131	45	0	0	159	55	290	100	322	37	0	0	561	63	883	100
Jelly/Cream	64	59	0	0	44	41	108	100	193	68	0	0	90	32	283	100
Douche	154	43	95	27	106	30	355	100	275	24	283	25	576	51	1134	100
Foam	14	41	1	3	19	56	34	100	25	44	0	0	32	56	57	100
Rhythm	171	33	23	5	318	62	512	100	342	24	254	18	828	58	1424	100
Injection	342	62	20	4	189	34	551	100	605	32	393	21	880	47	1878	100
Diaphragm	71	62	2	2	41	36	114	100	159	49	75	23	91	28	325	100
Sterilization	366	52	82	11	261	37	709	100	867	47	250	14	717	39	1834	100

Note: The N's vary as people would only have attitudes towards methods they knew about. Also, some individuals did not express any attitude towards a particular method.

Table 7. Use of Contraceptive Methods for Urban Men and Women

Method	Men								Women							
	No Use		Past		Current		Total		No Use		Past		Current		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
Pill	981	85	96	8	77	7	1154	100	2365	81	377	13	191	6	2931	100
IUD	1125	97	13	1	17	2	1155	100	2824	96	51	2	56	2	2931	100
Condom	947	82	192	17	16	2	1155	100	2792	95	131	5	6	<1	2931	100
Coitus Interruptus	915	79	180	16	60	5	1155	100	2542	87	270	9	118	4	2931	100
Foam Tablet	1104	96	39	3	12	1	1155	100	2755	94	145	5	31	1	2931	100
Jelly/Cream	1141	99	9	1	5	<1	1155	100	2885	98	41	1	5	<1	2931	100
Douche	1088	94	57	5	10	1	1155	100	2675	91	203	7	53	2	2931	100
Foam	1149	100	4	<1	2	<1	1155	100	2920	100	10	<1	0	0	2931	100
Rhythm	982	85	106	9	67	6	1155	100	2493	85	297	10	141	5	2931	100
Injection	1127	98	19	1	9	1	1155	100	2865	98	56	2	9	<1	2931	100
Diaphragm	1148	100	4	1	1	1	1153	100	2916	100	11	1	4	1	2931	100
Sterilization	1111	97	6	1	26	2	1143	100	2835	97	8	<1	86	3	2931	100

Note: Slight variations in the N's reflect no response on some items.

statistically significant when a chi-square test is performed. A principal components analysis of the men in the sample and their current spouses revealed that higher fertility is associated with disagreement about family size and discrepancies in how each mate perceives the other's desired family size. The mean discrepancy in desired family size for approximately 1,300 couples interviewed was 1.49; that is, on the average, men wanted 1.49 more children than their mates. Men also wanted more boys than their mates by an average of 1.32. The men misguessed their spouses' desired family size by .52 children.

In sum, the Ecuadorian couples illustrate both some disagreement on fertility decisions and some independent action on the women's part. I also feel that the Ecuador data is consistent with increasing female autonomy at older ages, or later stages in life. While this could be said to have less effect on fertility than if women rebelled earlier, women start childbearing early in this population. The median age at first pregnancy is between eighteen and nineteen, and the mode is seventeen to eighteen. This means that a woman may still have ten to fifteen years of childbearing remaining when she is thirty and begins to gain more autonomy. In Guayaquil, at least, both contraceptive use and induced abortions are highest for the thirty to thirty-four age group. This may represent a combination of being tired of childbearing and of increased independence in decision-making, both of which tended

to occur soon after thirty in this population. Women over thirty-five years of age at the time of the interview (1971) were in a cohort which has had less access to contraception all along and which experienced higher infant mortality than is now the case.

CONCLUSIONS

This paper has hypothesized several stages of life for Latin American women in terms of their autonomy and freedom to make decisions. It has also looked at male-female interaction, particularly in terms of decisions related to fertility. It is clear that men do have a great deal of influence over women and their fertility. It is also evident that women both covertly and overtly find ways to circumvent men to carry out their own wishes. This behavior becomes more overt as women progress from the sheltered, heavily-guarded earlier roles in life to the greater independence manifest in the well known Latin American matriarch.

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ACKNOWLEDGMENTS

A portion of this paper includes data collected in Ecuador in 1971 for a project financed by USAID (AID/ csd 2474 Task Order 3B). USAID's support of that research is greatly appreciated.

I would also like to acknowledge the valuable help of Elizabeth Burleigh in both research assistance and comments for this paper.

EDITOR'S STATEMENT

"Stages in Women's Lives" first appeared in *Medical Anthropology*, Summer 1978. The editors gratefully acknowledge permission to reprint this article in its entirety in this monograph. In spite of an editorial policy excluding previously published manuscripts, the editors felt strongly that Dr. Scrimshaw's article offered important insights our readers would appreciate.

Cultural, Social, Political and Religious Factors Affecting Voluntary Sterilization in Pakistan

Fakhar un-Nisa

Demographic Situation

Pakistan has 72 million people. Its annual growth rate is approximately 2.9 percent. Its total area is 310,304 square miles, creating a population density of 210 persons per square mile. The overall dependency ratio is above forty-seven. Pakistan is primarily an agricultural country with three-fourths of its people farming the land, so that one major barrier to acceptance of a voluntary surgical contraception program is the belief that permanent contraception will deprive the family of more working hands in the fields.

The second obstacle to our program is a lack of communication and transportation facilities. Roads are few and many villages are connected to the nearest town by a kutcha road, which is unsuitable for automobiles. Villages are completely cut off from the nearest post office and hospital during the rainy season. The survey conducted in the pilot project of female sterilization at Lady Willingdon Hospital showed that 60% of the patients had to travel by tonga (horse or cattle driven vehicle) to get a bus.

With a literacy rate of only 20%, a large number of people cannot be reached by ordinary means of communication. Much greater effort is required to communicate with a person who cannot read. Messages in pictorial language or through the mass media like radio or television are much more expensive and beyond the means of a voluntary organization.

Another obstacle is the fear and anxiety among illiterate people about a surgical method of contraception. The problem, then, is to reach them and help to discard old misconceptions and anxieties. Time and much more intensive efforts are needed to make this program acceptable and popualr.

The fourth major problem in our country is a high infant mortality rate of about 135 per thousand. But people are not ready to adopt a permanent method of surgical contraception at a younger age, especially when their children are young, because of the fear of losing them.

To improve the situation and to make the surgical method of contraception more popular, we also have to offer a comprehensive family welfare program that provides basic health and education facilities, vaccination, and some treatment for ordinary ailments like malaria, dysentery and anemia.

In my country, there are three organizations that are presently active in family planning:

1. The Population Planning Council of Pakistan, a governmental agency, works through the Population Planning Department to set up clinics for surgical contraception in different hospitals. However, its major role is in field motivation.
2. The F.P.A.P., working since 1950, runs four clinics for surgical contraception.
3. The P.N.A.V.S., now called FRAP, works at the grasss roots level to promote voluntary sterilization.

The number of acceptors has risen during the past few years.

Table 1. Lady Willingdon Hospital, Lahore

Year	No. of Acceptors
1972	149
1973	200
1974	260
1975	708
1976	1071
1977	774
1978	517

Table 2 shows the estimated current sterilization users in Pakistan.

Reasons for Acceptance

Surgical contraception is a permanent, simple, effective, and safe method of fertility control for those who have completed their desired family size.

Reasons for Non-Acceptance

- Non-availability of service in rural areas.
- Non-availability of transportation for rural population to reach the service center.

*Table 2. Estimated Current Sterilization Users, Pakistan Program 1967-1981**

Year	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81
66-67	1826										0				
67-68		14558									1459	0			
68-69			58435								11687	5844	0		
69-70				10297							3089	2059	1030	0	
70-71					4769						1908	1431	954	477	0
71-72						3311					1656	1324	993	662	331
72-73							3164				1898	1582	1266	949	633
73-74								4131			2892	2479	2066	1652	1239
74-75									7785		6228	5450	4671	3892	3114
75-76										14000	12600	11200	9800	8400	7000
76-77											24000	27000	24000	21000	18000
77-78												60000	45000	40000	35000
78-79													120000	108000	96000
79-80														200000	180000
80-81															300000
Total											67417	118369	209780	385032	641317

**These figures are based on actual performance data provided by the Population Planning Council for the years 1966-67 through 75-76. The figures in the vertical columns for 76-77 and beyond are based on a 10% reduction each year in the original number reported sterilized in each of the previous ten years. Thus, of 14,558 reported sterilized in 67-68, 10% or 1,459 are still considered to be in the 15-44 age group and current users of sterilization nine years later in 76-77. The following year, all of this cohort are considered to have passed 45 years of age and out of the program.*

The totals given horizontally include those projected for sterilization each year plus those carried over from previous years as current users on the basis of the 10% attrition formula.

- Irreversible method, not desirable in view of high infant mortality in Pakistan.
- Fear and anxiety in the minds of illiterate people, associated with any surgical procedure.

Characteristics of Acceptor

Usually multipara with average parity of 4.5, average age 33, lower middle class, very little education, Muslim, forced by economic pressure to choose a simple, convenient and effective method of surgical contraception.

Existence of Voluntary Sterilization Service Program

Five large centers for training of laparoscopy, minilap and other techniques of female sterilization run with the help of the Government, PIEGO and IPAVS. In addition, we have five service centers run by FPAP. There are seven more service centers located in different towns. At the moment, all these centers a.e in big towns, 80% in teaching hospitals.

We intend to spread it further to district and tehsil level and later to rural health centers as a part-time facility.

Trends

Sterilization will become increasingly popular. Economic pressure, growing needs of the society, and population pressure are all factors contributing to the public's increased awareness of the need to limit their families.

An attitudinal survey carried out by PNAVS in 1977 indicated that most females favor sterilization. However, desire to have a male child very often counteracts the acceptance of sterilization.

Young male adults have a more favorable attitude towards voluntary sterilization than the older generation.

Sterilization: A Bridge to Preventive Health Care for Acceptors and Their Families

Polly Fortier Harrison

It is not uncommon to hear sterilization spoken of in two different ways: as a therapeutic isolate, a one-time medical event which should be supplemented or enhanced to legitimate it as a health service; or, as just one element of a public health delivery system or family planning program. Recent anthropological fieldwork in rural El Salvador and Panama (1) suggests the latter—that sterilization can produce a ripple effect. Offered through public health facilities, sterilization actually pulls women into preventive health activities in which they might otherwise not have become involved.

Four assumptions inform this presentation. One is that "acceptors" are understood to be female. While there are some male acceptors in both countries, particularly El Salvador, the majority of surgical contraception users are women. Second, the term "preventive services" includes preventive health education. Third, the accepted model is a fixed facility system. Fourth, for logistical as well as cultural reasons, some women will bear their babies in a public health facility; this number is growing with the increased awareness of and availability of service.

BACKGROUND

Some basic sociocultural facts underlie health behavior in both El Salvador and Panama. While minor variations between and within these countries exist, certain characteristics—seemingly random and disparate—in fact, form a coherent fabric of thought and behavior.

First, in the rural populations studied, concepts of modern preventive medical behavior are inconsistent, poorly developed, and rarely translated into action. There is a pervasive sense of environmental fatalism; given the conditions of rural life, illness is inevitable. While indigenous preventive health concepts and behavior prevail, e.g., the use of amulets and charms, concern for maintaining hot-and-cold body equilibrium, and dietary restrictions, campesinos have not tied such thinking to modern preventive techniques. To them, no parallelism seems to exist. For example, vaccination has come to be valued, but follow-up on boosters is erratic. Preventive-cum-curative control programs for malaria, venereal disease, and tuberculosis also present major problems of continuance and compliance.

Second, the client view of the modern medical system is, accurately enough, hierarchical. Doctors cure. Nurses, auxiliaries, rural health aides are at best minor curers; mostly they are seen as deliverers of health messages. Doctors counsel on, refer for, or perform sterilization operations. Other people talk about family planning. Prestige is awarded accordingly; family planning becomes the poor relation. Erratic clinic attendance accurately reflects these status perceptions; on the days the doctor arrives with the mobile health team, attendance is sometimes overwhelmingly high; on other days it is scanty.

Third, in rural clinics, women are the primary recipients of service. Men appear infrequently, depending on the extent of services offered. Notably absent are female teenagers. In the Panamanian village studied, there were virtually no females between ages 14 and 17; they had migrated to Panama City, to earn the cash rural families needed as, more and more often, their subsistence allotments grew smaller and poorer. Usually uninstructed by their mothers, untutored by the rural public health system, they appear later in urban public health systems, unwillingly, and too soon pregnant.

Fourth, clients appear to share the same confusion and doubts about the proper mode of integrating health service as do health planners. In Panama, women who walked for three hours to bring their children for well-baby clinic were unhappy about having to return another day for family planning. In El Salvador, women complained bitterly about the sequencing of patient consultations, which made it all too apparent who was "planning" a behavior still not without a certain stigma. In both countries, practitioners and clients alike found that the pressure of time, noise, and fatigue created an environment hostile to satisfactory health education. In both countries, there was gratitude for the availability of any services, mixed with ambivalence about the quality of those services.

Fifth, except perhaps for primagravidas, pregnancy and childbirth are often viewed as a sort of illness or at least an undesirable health condition from which one must be cured, relieved, and, of course, delivered. As a logical consequence of this view, since modern medicine is perceived as essentially curative, sterilization becomes a cure for childbearing. Family planning is primarily prevention. The decision-making process and management of the two contraceptive modalities—spacing and termination—are quite different in many cases; in fact, many women indicated that they did not consider "the operation" (*la operación*) a family planning method.

As national-level statistics reflect (2), interest in and commitment to surgical contraception is high, even passionate, whereas attitudes toward reversible methods are generally ambivalent and fraught with anxiety, particularly concerning side-effects and health risks. In 1976, when the statistics were gathered, referrals were obtained through the clinic doctor, thus enhancing enrollment in pre-natal surveillance programs. In turn, hospital childbirth was promoted in value, with the assurance of the ease and confidentiality of sterilization, among women who had had major reservations about the gynecological examination and hospital childbirth. This growing preference is manifested by a decline in the numbers and prestige of traditional midwives, whose role in pre-natal and post-natal care is now very limited and whose interest in promoting family planning and providing various sorts of referrals is predictably low.

Finally, as in most societies, the puerperium is perceived, for good reason, as a period of extreme danger for both mother and child, particularly the child. Infant illnesses, e.g., gastroenteritic and diarrheal diseases, are often masked by folkloric syndromes linked to supernatural causes or mother's dietary violations. As a result, first recourse is to traditional home cures or indigenous healers; the secondary result can be a dangerous, perhaps fatal, delay. The peril for the neonate is exacerbated in El Salvador by the loss of various protection afforded by the mother's colostrum, which is expressed.

IMPLICATIONS AND CONCLUSIONS

Against this background, what does the drive toward sterilization imply for rural women and their families in terms of expanded preventive health services? How has it come to pass that a curative, one-time, medical occurence acts, in effect, as a magnet for women who might otherwise stay in a system which has traditionally entailed high health risks to mother and infant? I offer the following responses:

- Sterilization is offering some women, especially in cases of interval sterilization, their first chance for a preventive/diagnostic gynecological examination, and may even motivate these same women to seek subsequent examinations.
- It is bringing some women, for a least one pregnancy—perhaps their most dangerous one—within the preventive health system for pre-natal care in areas where traditional midwife availability and expertise are limited.
- Because of the tetanus injections given mothers enrolled in clinic pre-natal programs, a certain number of neonatal deaths are averted, a preventive service by definition.
- Similarly, sterilizations are bringing mothers who are generally at high risk due to age and/or parity to hospitals for childbirth.
- Finally, hospital supervision of lactation can sometimes insure utilization of the colostrum, thus providing protection for infants who will return to home environments often hostile to health maintenance.

What remains to be done in this fixed facility model, recognizing the limitations inherent in its design, is to exploit its preventive educational potential, an educational activity that the cultural and medical evidence suggests should be targeted quite precisely at two issues:

1. Proper care of the newborn, specifically in the identification and management of infant illnesses, to help rural mothers to better confront a period justifiably associated with great anxiety and risk.
2. What I consider a family- and community-oriented preventive health service, that is, at least the preliminary motivation of mothers who have had post-partum sterilization to function as satisfied user-promoters. Many of these women are old enough to have teen-age daughters, the future migrants, untutored sexually, who will come to constitute the prematurely pregnant. Properly managed, sensitive maternal motivation and education after sterilization can prevent not only additional births among the maternal generation but among the daughters these mothers have borne and bred.

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1. The field work was carried on in remote rural villages and hamlets in these countries at different times from March 1976 to November 1978, under the aupsices of the Agency for International Development (AID) and the respective Ministries of Health of Panama and El Salvador. The foci of the research were: rural health and family planning systems, modern and traditional; how they function and are used and perceived by clients; and the reproductive life of the rural woman, its meaning and management. The research tools used were: participant observation of clinic and village life; semi-structured and unstructured interviews, usually in samples big enough for some descriptive statistical handling; analysis of clinic dossiers and cumulative records; and national-level contraceptive prevalence and service statistics.
2. In 1976, 22.1% of Salvadoran and 10.3% of Panamanian married women of reproductive age (including women in consensual union) were protected from pregnancy by sterilization (*Population Reports*, no. 2, March 1978).

A Strategy for the Development of a National Surgical Sterilization Program in Pakistan, 1976-1981

Fakhar un-Nisa

OBJECTIVES

1. To provide surgical sterilization services of high technical excellence, free from coercion, with maximum availability in both rural and urban areas;
2. To use existing hospital facilities, upgrading and expanding if necessary; to provide needed equipment and supplies, and mobilize personnel and other facilities for part-time service in rural hospitals and health centers;
3. To ensure that each acceptor of sterilization is fully informed and courteously treated, is provided with high quality medical and surgical service, and is properly followed up after the operation;
4. To mount an intensive training effort to prepare the needed medical/paramedical personnel to maintain both quantity and quality of sterilization services;
5. To design and field a program to popularize sterilization, involving government leadership at all levels, the medical professional, health and population planning field workers, voluntary agencies, the general public, all generating a growing number of satisfied acceptors who then effectively motivate new acceptors;
6. To aim for administrative integration of the sterilization program into each participating hospital's total services, with full support from the national population planning program;
7. To ensure maximum use of all available financial resources, public, private, national and international;
8. To develop evaluation mechanisms for all phases of the sterilization program;
9. To design and implement research studies of social and cultural barriers to acceptance, and to identify program elements requiring pre-implementation study.

PROGRAM COMPONENTS

This strategy calls for consistently excellent medical services delivered in hospitals by qualified medical practitioners using specially designed surgical facilities to provide easy availability of both male and female sterilization. It includes:

- Phased development of *400 sterilization centers* based in hospitals at metropolitan, district, tehsil and rural health center levels. These may include:
  - Sixteen full time, large urban hospital-based centers, affiliated wherever possible with medical colleges, offering all methods of sterilization for both males and females.
  - Three-hundred and eighty-four part time centers, located in all district hospitals, most tehsil hospitals, selected government and private health centers, and private hospitals, offering minilaparotomy and vasectomy services on a regularly scheduled basis 2-4 times a week.
- As an *outreach to rural areas* not served by a permanent sterilization center, teams of surgeons and ancillary medical personnel from the urban centers may be mobilized to conduct 1-5 day "camps" at nearby district, tehsil and sub-tehsil hospitals and health centers. These camps will supplement facilities and equipment already available in these peripheral institutions. The operations may be performed by surgeons from the urban center or, if local trained practitioners are available, they may be provided essential supplies, equipment and staff support necessary to field the "camp."

  The program must be carefully planned at least two months in advance with adequate notice given to field staff to recruit cases. An alternative approach would be to wait until the requisite number of cases is guaranteed in a given rural hospital/clinic and then mobilize the team required to do the job.
- *Operating theaters* in all 400 sterilization centers should be provided with equipment of superior quality. Operating theaters in the 16 sterilization training centers should be used exclusively for sterilization. Those in the remaining sterilization service centers may be used for other surgical procedures provided 1) fixed dates and times are reserved for sterilization operations, preferably at least two half-days a week, and 2) priority is given to their use for sterilization at all other times.
- *Follow-up services* of high quality and consistency must be assured every acceptor of surgical sterilization. In urban areas, patients can return to the sterilization center if complications arise, and routinely on the 7th or 8th postoperative day for removal of stitches.

  In rural areas, postoperative patients who have come long distances may need to be kept overnight in

those centers and camps, checked for complications in the morning, and then sent home. Absorbable stitches may need to be used here, thus eliminating a return trip for removal. Home visits within a week of surgery should be arranged in all cases not otherwise followed up, to be conducted by the resident female population planning field worker or the family welfare visitor. Complications should be treated at the nearest sterilization center, health center, hospital or other medical facility with a doctor in attendance for diagnosis and treatment.

- It is important that transportation be provided for acceptors of sterilization, particularly women. Transport is also required to move staff and equipment for motivational and field service work. One microbus-type vehicle and driver are necessary for the exclusive use of each sterilization center, in addition to an adequate budget for its operation, maintenance and repair.
- No *incentives* are to be given to sterilization acceptors other than free service of excellent medical quality, ease of availability, transport and adequate follow-up. While the government-provided service should remain free, there should be no objection to trained private practitioners charging fees for the sterilizations they perform. A fixed honorarium may be arranged for those surgeons in government service, providing remuneration of Rs. 200-300 per day. Private practitioners may be contracted similarly.

  Hospitals should be given a subsidy of Rs. 100 per sterilization payable to the hospital management, covering all surgical expenses, including medication, anesthetics, dressings, overtime payments to paramedical staff, and other expenses.

  No payment should be made to field workers or dais for referrals. This is an integral part of the field workers' job. Dais should be hired on a part time basis.
- It is imperative that any strategy for sterilization services include a capability of *repairing and maintaining equipment*, particularly laparoscopes.There appears to be a consensus among local laparoscopists that this capability should be limited to minor repairs and the replacement of defective parts and components, with arrangement for the rapid transmittal of major components, particularly the optics, to points abroad where definitive major repair is possible. With this in mind, the following steps should be taken:
  - Select 1 or 2 technicians for training in minor laparoscope repair and maintenance.
  - Arrange for their training, preferably in-country, but abroad if necessary. PIEGO, AVS, and UNFPA/WHO can facilitate this.
  - Set up and equip 1 or 2 "first aid" stations, ideally located in Lahore and Karachi, with a full supply of spare parts, components and facilities for all minor repairs. The stock should include a number of spare laparoscopes which may be issued to sterilization centers while their scopes are abroad undergoing major repair.

  Provide consultation service as needed. Technicians must be free to fly to any point in Pakistan where laparoscopy is being done, for maintenance, repair and component exchange.
- While sterilization is the prime focus of services offered through the 400 designated centers, it is important that each center provide the usual *spectrum* of family planning, maternal and child care services. This is primarily the responsibility of the FWV, with participation by doctors and others as necessary.

TRAINING AND MANPOWER DEVELOPMENT

At the outset, high priority should be given to the establishment of the 16 large urban hospital-based sterilization facilities as *formal training centers*. Both physicians and paramedical workers requiring training through these centers can be rotated. When fully operative, each STC and their paramedical assistants should be able to train 2-4 doctors a month in minilaparotomy and/or vasectomy techniques.

Training in the techniques of minilaparotomy should be given highest priority, and made available to any qualified physician in Pakistan who is already doing surgery and wishes to learn this skill. The training should be given at the STCs. The average surgeon can learn the technique in 2-4 days if 10 or 12 cases are available.

Laparoscopy is best conducted in large hospitals and performed only by highly experienced surgeons. Twenty-three are already trained and certified in this technique in Pakistan. Future training may be confined to a very few carefully selected ob/gyn surgeons. A maximum of 50 is considered sufficient. Training in this technique should also be made available at the 16 STCs, obviating the need to go abroad; however, some practitioners may need training abroad to learn new techniques.

All 400 service points will be provided a *basic team* consisting of a part-time surgeon, a FWV/LHV, ayah, and a male orderly.

The STCs will be provided additional staff, including a surgical nurse, part-time anesthetist, and another orderly. Training for all these paramedical assistants should be given at the STCs.

Private, non-government *doctors* as well as government-hired physicians whose practice includes surgery may be trained, equipped with the necessary instruments, and encouraged to expand their practice to include sterilization.

Medical colleges need to revise training requirements. Theoretical and practical training in all sterilization techniques must become compulsory for all students. Sixth year students should be required to assist with at least one case of vasectomy, minilaparotomy and laparoscopy. House surgeons should be required to perform at least five cases of vasectomy and minilaparotomy during their house residency.

Descriptive printed materials of up-to-date information on all modern techniques of sterilization should be made available to all trainees.

Valuable assistance in training is available through WHO, PIEGO, AVS and other *international organizations.* To take full advantage of the facilities offered through these organizations, better liaison with them should be developed by the government's population planning program.

COMMUNICATIONS

An effective communication program will have to:

- Develop an awareness among the nation's political and religious leaders of the need for a sterilization program and gain their cooperation and support.
- Fully inform the population planning and health program staffs of current sterilization technology, plans for its field application, and the role of each worker in the national program. Recruiters must be well-informed about sterilization and must not enlist participants through misleading information.
- Identify informal leaders throughout the nation and give them factual information about modern sterilization technology and its practical application in Pakistan. This should include dais and indigenous practitioners as well as allopathic physicians; agricultural extension workers; school teachers, and others.
- Mobilize all media to carry the sterilization message without restriction of any kind. The messages must be specific, telling time and place where service is available, and describing the procedures, accompanied by diagrams, pictorial illustrations, and other aids.
- Develop a vigorous in-house promotional program in each participating hospital, with active involvement of all hospital staffs, but particularly the female recruiters. Both in- and outpatients need to be informed of the availability of sterilization, with focus on the most vulnerable group, the postpartum mothers.
- Effectively utilize the resources of voluntary agencies such as the Pakistan National Association for Voluntary Sterilization, Family Planning Association of Pakistan, and others to develop appropriate and innovative sterilization-related messages for motivating various groups in society.

MANAGEMENT AND SUPERVISION

It is important that the full integration of sterilization services with on-going programs be achieved at every level and in all hospitals. The director of each hospital should manage the sterilization services in his hospital as an incorporated part of the total institutional services. Administratively, officers of the government's population planning program should relate to participating hospitals in a "staff" rather than a "line" relationship, providing full support and back-up, but exercising no direct management functions. These remain the sole responsibility of the hospital administration, whether public or private.

A technical advisory board should be constituted to review the program periodically, insuring maintenance of the highest medical standards. This group should include respected practicing surgeons from both public and private sectors, representatives of ob/gyn departments of medical colleges, the PMA, and the National Association for Voluntary Sterilization. This group should also arrange for periodic visits to participating hospitals to insure the maintenance of medical standards.

DPPOs and other peripheral staff of the Population Planning Program must organize and manage consistent recruitment of cases. It is their responsibility to insure that each participating hospital has a full quota of sterilization cases for each of the designated operating days, that adequate transport is available, and that out-of-hospital follow-up is arranged for with field workers or family welfare visitors. They must insure that progress reports are properly, accurately and consistently compiled and dispatched by all participating hospitals.

A mechanism for the stable allotment of funds, equipment and supplies to the hospitals is essential. Population program officers must take responsibility for this.

FUNDING

The Population Planning Program must insure that adequate funds are available for implementation of sterilization services. Sources include the Government of Pakistan, voluntary agencies, and foreign donors.

Maximum requirements will be in terms of local currency. Foreign exchange requirements should remain modest throughout the program, unless grants are made available by foreign donors for conversion to rupees.

Major rupas expenditures will be necessary for:

- Remodelling/expansion of surgical facilities;
- Assuring the availability of equipment and supplies;
- Subsidizing of hospital operating costs;
- Maintaining the field organization of the Population Planning Division for recruitment, follow-up and other activities;

- Transporting, purchasing, maintaining, repairing, operating;
- Researching.

Foreign exchange may be needed for:

- Purchasing and importing equipment and supplies not available in Pakistan;
- Arranging overseas training, observation tours;
- Hiring foreign technical consultants;
- Converting to rupees for general program support, training, research, evaluation.

EVALUATION

The major evaluative criterion will be the number of new acceptors of sterilization. In time, the average number of living children per acceptor should decline, ultimately resulting in a decline in fertility rates.

Evaluative mechanisms need to be written into the formal plan. These should include both internal or continuing evaluation, and a more formal, preferably external, evaluation. Specific evaluative criteria need to be devised for every element of the program, including services, communications, motivational effectiveness of field staff, reporting and recording.

RESEARCH

Many of the dimensions suggested in this strategy need to be studied carefully on a small scale before nationwide implementation. Particularly urgent is action-oriented research in the following areas:

- Religious, cultural constraints on acceptance of any sterilization procedures;
- Acceptability of vasectomy;
- The role of the dais, indigenous practitioners in recruitment services;
- Requirements for the remuneration of doctors;
- "Camp" approach in rural areas;
- Effective motivational approaches for various groups in society;
- Effective use of the mass media;
- Effective follow-up approaches.

Research may be sponosred directly by the government through TREC, DPARC, NRIFC, and others, or by indirectly utilizing contracts/agreements with Pakistani or foreign organizations.

Of particular importance is the input of both international and national voluntary agencies, notably the Internatonal Project of the Association for Voluntary Sterilization, the Johns Hopkins University Program of International Education in Gynecology and Obstetrics, Family Planning International Assistance, the World Health Organization, Pakistan National Association for Voluntary Sterilization, and the Family Planning Association of Pakistan. A primary thrust of these organizations has been the fielding of numerous pilot studies in laparoscopy and minilaparotomy, and demonstration of effective approaches to service delivery both via hospital and outpatient clinics. Resources of these organizations should be mobilized to expand this action-type research, focusing on the aspects of this strategy cited above as needful of research.

Feasibility Studies Regarding Determinants of Demand for Voluntary Sterilization

J.C. Baltazar and L.B. Valencia

In the recent past there has been an increase in the number of adopters of surgical sterilization as a method for controlling fertility. The estimated number of adopters in a community is a basic requirement for the proper planning, organization and management of health and fertility-related services.

While demographic techniques are already available for calculating the number of users of all methods of fertility control, the basic problem is left untouched, i.e., establishing specific determinants of the demand for a particular contraceptive like voluntary sterilization. The problem can be argued from two perspectives. In a society where a family planning program is within the overall context of integrated health services, services provided are already utilized by an increasing number of acceptors. Within this framework of "natural growth" of the service, critical factors include the demographic profile of adopters: identification of couples with particular emphasis on those who are "sterilization prone." In other words, the first level of determinants relate to the adopter as he/she interacts with his/her biological, cultural, psychological and educational milieu. In addition to such individual factors, the individual's opportunity for service utilization, e.g., availability and cost of services, must be considered (1).

From another perspective, voluntary sterilization can be categorized as a separate sub-program of family planning. The dimensions underlying its delivery on a national level need to be established. In cases where a program of voluntary sterilization is nonexistent, feasibility studies are needed to organize an efficient delivery system. Such studies become the essential research tool to determine the demand for voluntary sterilization at the community level. Relevant information includes medical and health-related data such as manpower and facilities; demographic data; sociological and psychological data; and administrative implications like the political climate and a policy of government intervention.

This paper will explore the first position.

PREVIOUS STUDIES

Numerous studies describing acceptors of voluntary sterilization have been summarized in a special monograph (2). The following inferences have been drawn:

- Female sterilization adopters outnumber males in most countries. This sex differential has been related to a variety of factors, such as availability of services, attitudes of policy makers and health providers, cultural beliefs, and the individual couple's feelings. Misconceptions about vasectomy (e.g., equating it with castration, or believing it affects sexuality, or marital relationships) are largely responsible for its being less popular than tubal occlusion.
- While a tubal ligation adopter may be in her early 30's, a vasectomy client is in his late 30's, with the latter having lesser number of children than the former.
- Men and women who choose sterilization tend to have a larger proportion of sons than the general population.
- The desired family size is an important consideration in the decision to have a sterilization operation.
- Male and female adopters have been involved in long, stable marital relationships. They come from both urban and rural areas with a broad spectrum of occupations, income and educational levels.
- Educational characteristics of adopters vary in different countries and in some, e.g., India and Singapore, the choice of female sterilization was negatively correlated with levels of education.
- Previous contraceptive use varies from country to country with a large proportion of sterilization adopters from developing countries who had never used contraception before. Their sources of information about sterilization services include family planning and health personnel, acquaintances and the mass media.

FURTHER STUDIES

While the profile of sterilization adopters is important, it seems inadequate for purposes of defining direct determinants of demand for voluntary sterilization. A review of the limited literature available to the authors showed that there is a dearth of materials on the subject. Only one investigator had studied the association of a number of demographic variables with sterilization adopters in a sample of married women of reproductive ages in the community (3).

Several approaches to the problem exist, one of which is *epidemiological*. The number of sterilization adopters

when related to the "population at risk," that is, currently married women in the community, aged 15 to 44 years, yields useful measures. Either the prevalent or incident adopters during a given period of time can be studied. Differential rates according to the various characteristics under investigation can be used for determining which of them have significant relationship with the adoption of sterilization.

It is suggested that the following variables be examined:

- Demographic variables;
- Family health, particularly the health of the woman and of her young children;
- Family planning experience;
- Attitudes of the women regarding family size, family planning, fertility regulating methods, particularly surgical contraception, and attitudes toward service providers;
- Access to health service facilities.

Alternatively, adopters of voluntary sterilization may be compared and contrasted with users of fertility regulating methods other than sterilization, and with non-users of any contraceptive method though potentially in need of one, also in terms of the above-mentioned variables. The appropriate multivariate technique can be used to aid in the identification of characteristics which can discriminate best adopters from non-adopters of voluntary sterilization.

Most of the data requirements in this type of investigation are unavailable from existing records. Nonetheless, a community survey, either total coverage or a random sample, can adequately provide the necessary information.

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Promotion of Postpartum Contraception Using MCM as a Tool of Management

Roger P. Bernard, Ellen M. Kendall, and Malcolm Potts

INTRODUCTION

More and more obstetricians in both developing and developed countries want early and routine access to a comprehensive profile of the women who deliver at their institutions. Routine monitoring can help health professionals and administrators identify unmet needs so they can set priorities for the use of available but, all too often, limited resources.

Areas to be singled out for routine study and programmatic intervention include: (a) reproductive history in the context of the socio-economic status, (b) the general health status of the mother, (c) management of the current delivery including antenatal and postnatal care, (d) outcome of the current delivery, that is, the postpartum status of the mother and infant, including their well-being, morbidity and mortality, and (e) the woman's postpartum intentions to family planning and *the institution's response to those intentions.*

A core package of information may be collected with a standardized maternity record form that then becomes part of the woman's clinical record. The International Federation of Gynaecology and Obstetrics (FIGO) has introduced an experimental version of such a maternity record in collaboration with the International Fertility Research Program (IFRP), and to date more than 100 maternity centers around the world have participated in an expanded pre-test of this single sheet record. Earlier reviews ascertained the feasibility and immediate usefulness of Maternity Care Monitoring (MCM) for continuing evaluation at the maternity ward level (1,2,3).

It should be emphasized that institutionally based data will not necessarily reflect the overall situation in the country, but institutional trends can be analyzed, unmet needs defined, and cross-cultural comparisons established.

The maternity record records data collected while the woman is in the hospital for delivery. Follow-up is not possible. In this paper the woman's *intention* to use contraception is recorded, although it is not possible to check if this *intention* was fulfilled in all cases. Some women desiring sterilization obtained the operation postpartum in the hospital while others merely stated their intention to be sterilized.

This report focuses on a small but important part of data routinely collected at the maternity ward. Postpartum contraceptive intentions in context of family size expectations and surgical contraception provided before discharge is compared with the women's declared intentions to seek voluntary sterilization. The analysis concentrates on Asian studies.

MATERIALS AND METHODS

Institutional MCM establishes a *continuous survey at birth* for every woman who delivers, whether at a large metropolitan or teaching hospital or at a more peripheral maternity center. The single sheet, double-ply maternity record inquires into the five themes cited in paragraph two (a-e) and the data collected may be analyzed on a national or international level. An instruction manual facilitates proper completion of each record to be added to both the patient history and a central data bank. A set of preprogrammed computer-generated tables permits easy and rapid access to information on service and health/fertility status. The *feedback to the institution* is a critical step in improving reproductive care and behavior. *Interinstitutional feedback* gives additional insights (4).

The 15 MCM studies conducted in Asian departments of obstetrics and gynecology during the pretest period (1977/1978) cover a broad geographic zone from Japan to Pakistan. To achieve regional perspective, the 15 data sets were split into two groups: (a) *East Asia* (Japan, Singapore, Thailand and Indonesia) and (b) *Indian Subcontinent* (Bangladesh, Sri Lanka, India and Pakistan).

Two additional studies were included to provide a broader epidemiologic perspective: a center in Ibadan (Nigeria) was added to the East Asian group and a center in Tehran (Iran) was added to the Indian subcontinent group.

Data on 59,386 women in maternity centers are presented. Reproductive attainment and desire (Figures 1-4) is assessed for the various maternity centers. The group of women who say they want no more children is then split into the two extremes in planned protection: non-protection and voluntary sterilization (Figures 5 and 6). Further specificity is then reached by looking at women with three living children postpartum and their desire for

additional children. This group is then subdivided in the same way: those intending sterilization and those choosing no protection (Figures 7-10).

This systematic approach by regional centers, proceeding from reproductive attainment and desire to contraceptive intentions and protection, points up valuable information on *unmet needs* for family planning services.

FINDINGS

Fertility Attainment

As expected, the profile of fertility attainment varies greatly from center to center. The mean number of living children postpartum ranges from 3.6 (center in Karachi) down to 1.5 (center in Tokyo). Four centers on the Indian subcontinent show a narrow range (2.1 - 2.2) while the two centers in Bangladesh have means of 2.4 and 2.8 living children postpartum. The mean number of living children postpartum in four Indonesian studies show a range from 2.8 (Semarang and Bandung) to 3.3 (Medan).

Fertility Expectations and Fertility Attainment (Figures 1 and 2)

Systematic postpartum inquiry into the number of additional children wanted is used as the basis for aggregate institutional estimates of total family size expectations. The bivariate representation of current fertility attainment and additional children desired for various centers produces informative scattergrams (Figures 1 and 2). The

Figure 1. Mean Number of Additional Children Desired Versus Mean Number of Living Children Postpartum.

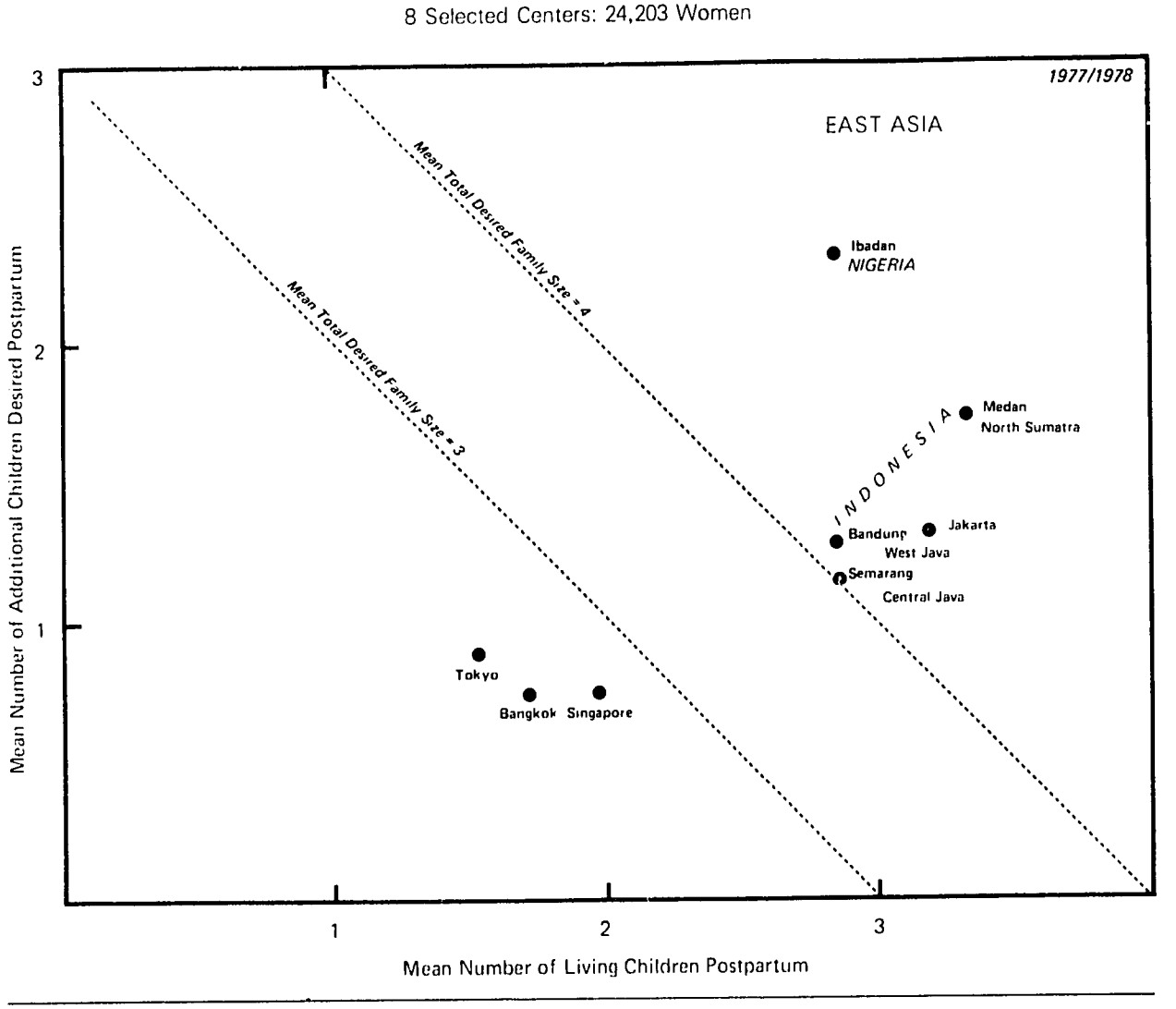
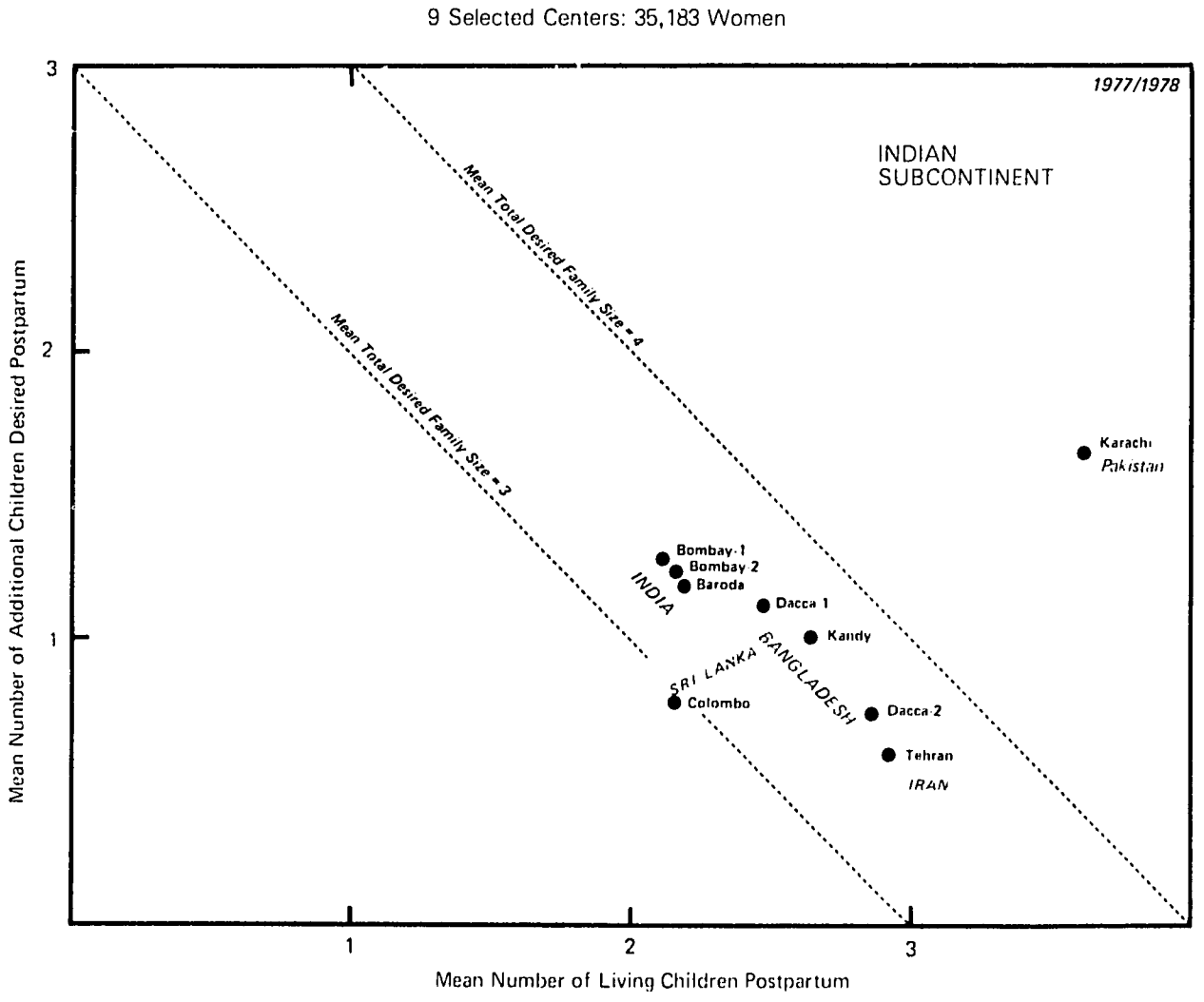


Figure 2. Mean Number of Additional Children Desired Versus Mean Number of Living Children Postpartum.

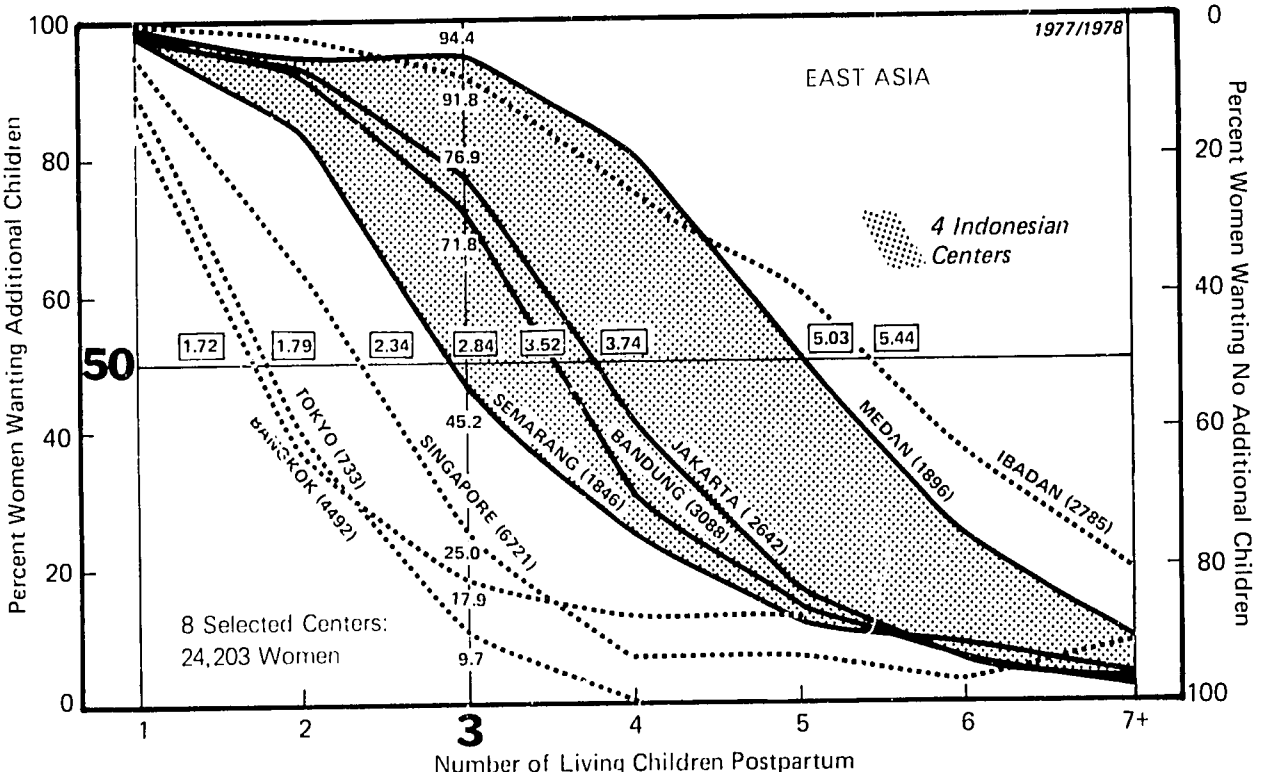


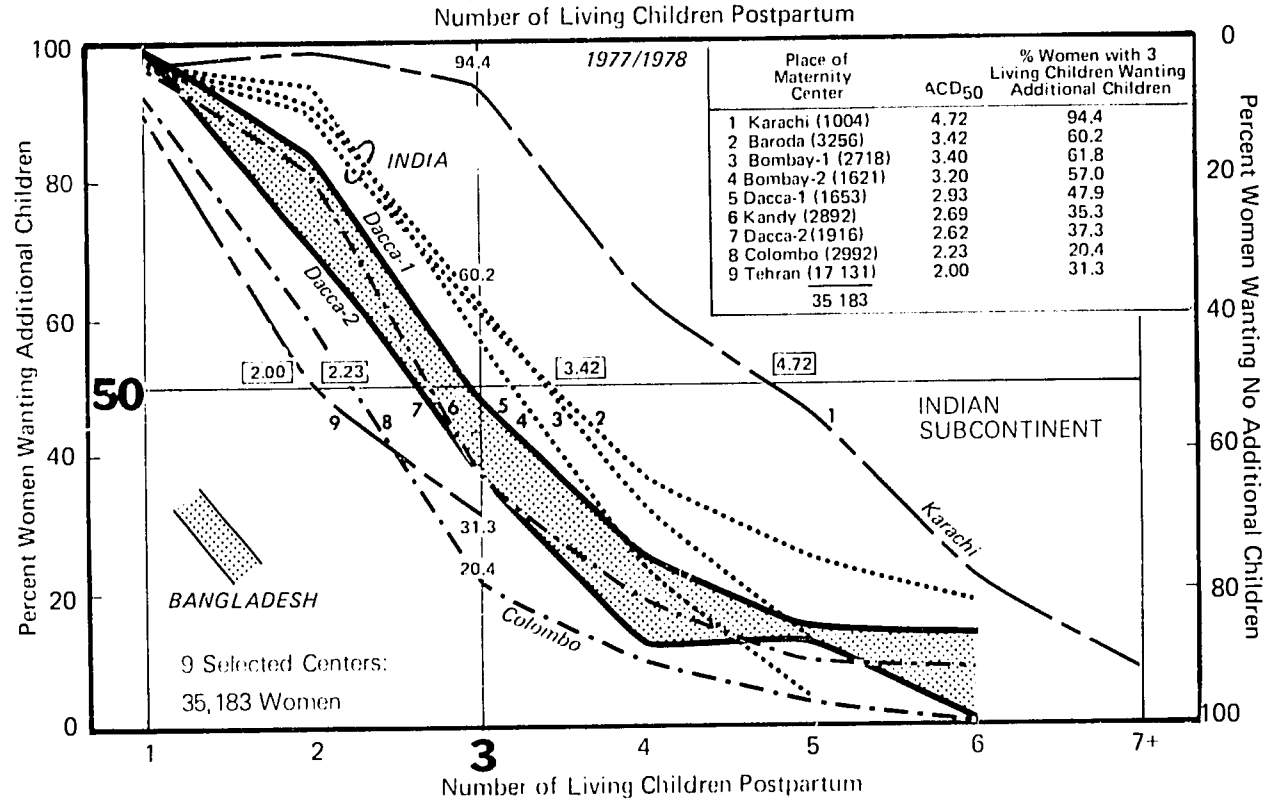
centers in Tokyo, Bangkok and Singapore have mean family size desire estimates of less than three children, while the four Indonesian centers have values of more than four children. One center in Indonesia (Medan), one in Nigeria (Ibadan) and one in Pakistan (Karachi) have values of more than five children.

Fertility Expectations by Fertility Attainment
(Figures 3 and 4)

Institutions can measure additional fertility desire for each level of fertility attainment. The proportion of women wanting additional children postpartum by number of living children postpartum can be summarized particularly clearly by two indices. The first index is *the proportion of women* with three living children postpartum who want additional children. As shown in Figures 3 and 4, the percentages of women in the 17 centers who want more children range from 94.4% (Medan and Karachi) to only 9.7% (Tokyo). Most women with three living children postpartum in the centers in Medan, Ibadan and Karachi want additional children, whereas in the maternity centers in Tokyo, Bangkok, Colombo and Singapore, most women do not want additional children. The second index is *the interpolated number of living children* postpartum at which 50% of the women do want and 50% do not want additional children. This midpoint is similar to the concept of the LD_{50} in toxicology—the point at which 50% of animals die when given poison. When the term is modified for use in the epidemiology of reproductive care, it is referred to as "Additional Children Desired-Fifty" (ACD_{50}). For the data sets from the 17 centers, the ACD_{50} spans a wide range from 5.44 living

Figures 3 & 4. Percent of Women Wanting Additional Children by Number of Living Children Postpartum and Additional Child Desire-Fifty (ACD_{50}), the Interpolated Number of Living Children at Which 50% Want and 50% Do Not Want Additional Children





Place of Maternity Center	ACD_{50}	% Women with 3 Living Children Wanting Additional Children
1 Karachi (1004)	4.72	94.4
2 Baroda (3256)	3.42	60.2
3 Bombay-1 (2718)	3.40	61.8
4 Bombay-2 (1621)	3.20	57.0
5 Dacca-1 (1653)	2.93	47.9
6 Kandy (2892)	2.69	35.3
7 Dacca-2 (1916)	2.62	37.3
8 Colombo (2992)	2.23	20.4
9 Tehran (17 131)	2.00	31.3
35 183		

children (center in Ibadan) to 1.72 living children (center in Bangkok) as shown in Table 1. The centers in Ibadan, Medan and Karachi exhibit the highest midpoints (more than 4.5 living children) and the centers in Bangkok, Tokyo, Singapore, Colombo and Tehran the lowest (less than 2.5 living children).

The grey areas in Figures 3 and 4 delineate ranges within Indonesia and Bangladesh, respectively. The four maternity centers in Indonesia reflect a West-East decrease in fertility desire (Medan-Semarang), which is in line with the known gradient of national family planning penetration (5). The two centers in Dacca, the capital of Bangladesh, also show a measurable difference in fertility expectations, although they are located only some kilometers apart. The women at the center with the poorer population (Dacca-2) want fewer children.

Contraceptive Intention and Contraceptive Service Postpartum (Figures 5 - 10)

Women who do not want additional children are the highest priority for early intervention postpartum (Figures 5 and 6), and they are most likely to accept the sterilization of either partner.

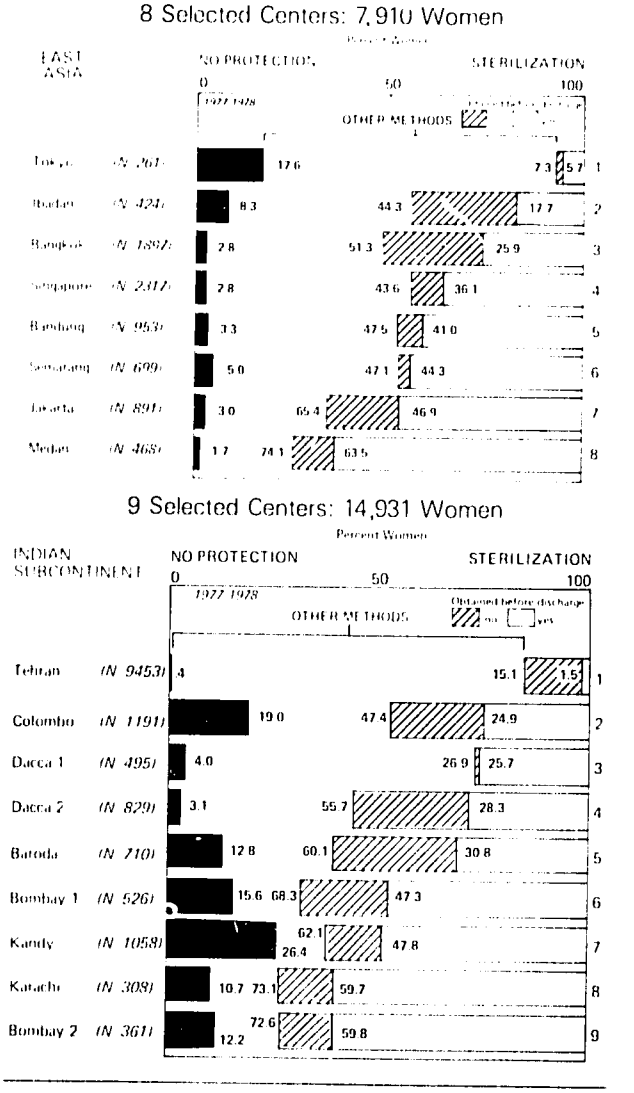
Figures 5 and 6 give the two extremes of intended/obtained contraceptive protection for all the women who declared postpartum that they did not want additional offspring. The percentage of women who say they want no more children but do not intend to use contraception varies from less than 3% in the centers in Tehran, Medan, Bangkok and Singapore to more than 15% in the centers in Bombay-1, Colombo, Tokyo and Kandy.

The rate of *intended voluntary sterilization* varies even more, from less than 10% (Tokyo) to more than 60% (Medan, Karachi, Bombay-2, Bombay-1, Jakarta, Kandy and Baroda), which may reflect essential differences in information and education for choosing surgical contraception. Furthermore, the availability of surgical services postpartum seems to vary greatly just as the actual num-

Table 1. Additional Children Desired-Fifty (ACD_{50}) Is Ranked in Descending Order.

Order	Center	ACD_{50}	% Women with 3 living children wanting additional children
1	Ibadan	5.44	91.8
2	Medan	5.03	94.4
3	Karachi	4.72	94.4
4	Jakarta	3.74	76.9
5	Bandung	3.52	71.8
6	Baroda	3.42	60.2
7	Bombay-1	3.40	61.8
8	Bombay-2	3.20	57.0
9	Dacca-1	2.93	47.9
10	Semarang	2.84	45.2
11	Kandy	2.69	35.3
12	Dacca-2	2.62	37.3
13	Singapore	2.34	25.0
14	Colombo	2.23	20.4
15	Tehran	2.00	31.3
16	Tokyo	1.79	9.7
17	Bangkok	1.72	17.9

Figures 5 & 6. Rate of Non-Protection (Left) and Postpartum Sterilization Before Discharge (Right) Among Women Who Reported That They Did Not Want Additional Children. Ranked in Ascending Order of Predischarge Sterilization Rate.



ber of women *obtaining surgical service before hospital discharge* shows great variation when compared with the woman's stated intentions. An index of institutional sterilization service varies from .955 (Dacca-1) down to .099 (Tehran) as shown in Table 2. In the maternity hospital in Tehran, the problem may be one of availability of services during the few hours the women remain at the hospital postpartum.

When the analysis is restricted to women with three living children postpartum, the variation in contraceptive intention is even greater (Figures 7 and 8). The rate of intended nonprotection ranges from less than 1% (Tehran, Medan, Bangkok and Singapore) to more than 30% (Kandy and Karachi).

The rates of intended sterilization of either partner range from 6% (Tehran) to more than 70% (Bombay-1, Bombay-2, Baroda and Bangkok). Probably most couples with three living children postpartum in all Indian studies elect voluntary sterilization because of systematic postpartum motivation at the maternity center. But there is a great variation in intended male sterilization as declared by the women. Table 3 shows that, in four centers, between 10% and 20% of all intended sterilizations are planned for the male partner (Bandung, Bangkok, Baroda and Dacca-2), as compared with the total absence of intended male sterilization in seven other centers (Tehran, Tokyo, Karachi, Dacca-1, Ibadan, Jakarta and Medan). The great difference by center in Indonesia is noteworthy. In the centers in Jakarta and Medan there are no planned male sterilizations, whereas 19.2% of all planned sterilizations in the center in Bandung are vasectomies. A similar variation occurs between the two Dacca centers, with 10.4% vasectomies planned in one center and none in the other.

In various centers an "all-or-none" protection pattern emerges among women with three living children postpartum, with a marked shift toward (planned) sterilization when Tehran (6.0%) is compared to Bangkok (88.3%). Indeed, the rate of intended nonprotection for

Table 2. Women Wanting No More Additional Children. An Index of Surgical Contraceptive Service Postpartum Is Ranked in Descending Order.

Order	Center	% intending sterilization (a)	% sterilized before discharge (b)	Surgical service index (b/a)
1	Dacca-1	26.9	25.7	.955
2	Semarang	47.1	44.3	.941
3	Bandung	47.5	41.0	.863
4	Medan	74.1	63.5	.857
5	Singapore	43.6	36.1	.828
6	Bombay-2	72.6	59.8	.824
7	Karachi	73.1	59.7	.817
8	Tokyo	7.3	5.7	.781
9	Kandy	62.1	47.8	.770
10	Jakarta	65.4	46.9	.717
11	Bombay-1	68.3	47.3	.693
12	Colombo	47.4	24.9	.525
13	Baroda	60.1	30.8	.512
14	Dacca-2	55.7	28.3	.508
15	Bangkok	51.3	25.9	.505
16	Ibadan	44.3	17.7	.400
17	Tehran	15.1	1.5	.099

Figures 7 & 8. Rates of Non-Protection (Left) and Intended Postpartum Sterilization of Either Partner (Right) for Women with Three Living Children Postpartum Who Do Not Want Additional Children.

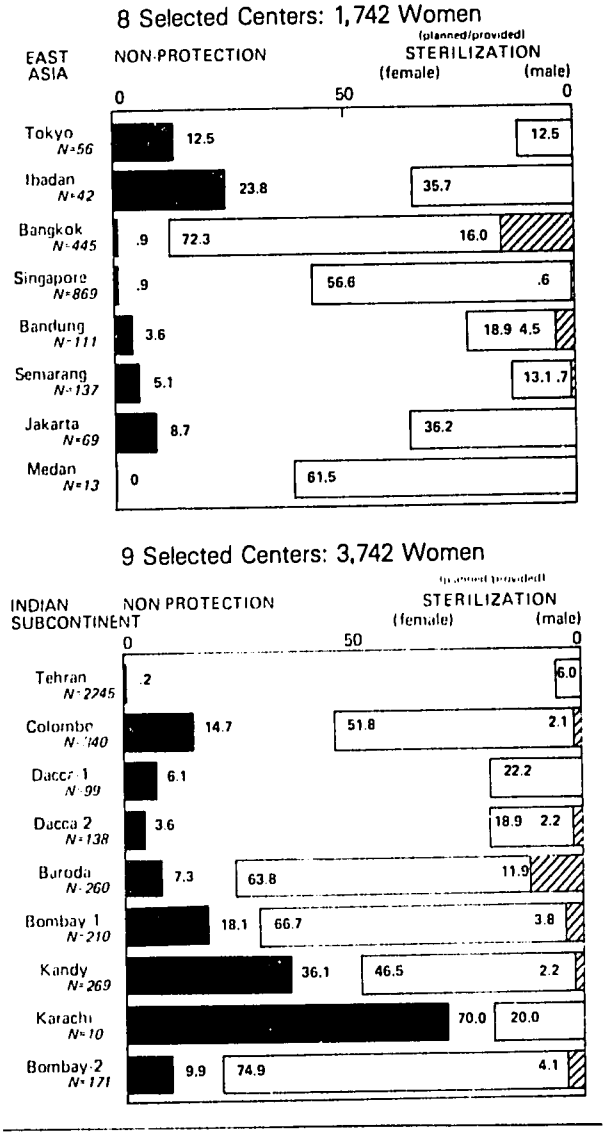
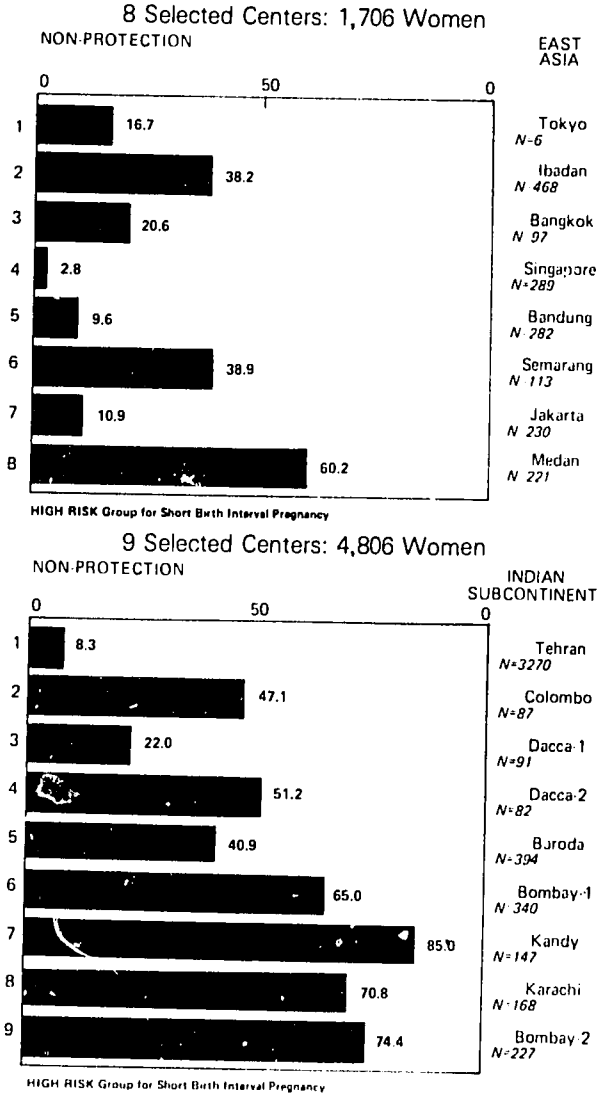


Table 3. Women With Three Living Children Postpartum Who Do Not Want Additional Children. An Index of Planned Male Sterilization as Indicated Postpartum by the Women Is Ranked in Descending Order.

Order	Center	Postpartum Intention: % either partner sterilization (a)	Postpartum Intention: % male sterilization (b)	Index of planned male sterilization (b/a)
1	Bandung	23.4	4.5	.192
2	Bangkok	88.3	16.0	.181
3	Baroda	75.7	11.9	.157
4	Dacca-2	21.1	2.2	.104
5	Bombay-1	70.5	3.8	.054
6	Bombay-2	79.0	4.1	.052
7	Semarang	13.8	0.7	.051
8	Kandy	48.7	2.2	.045
9	Colombo	53.9	2.1	.039
10	Singapore	57.2	0.6	.010
11	Tehran	6.0	0.0	.000
	Tokyo	12.5	0.0	.000
	Karachi	20.0	0.0	.000
	Dacca-1	22.2	0.0	.000
	Ibadan	35.7	0.0	.000
	Jakarta	36.2	0.0	.000
	Medan	61.5	0.0	.000

women with three living children postpartum who intend to have further children ranges from 2.8% (Singapore) to 85.0% (Kandy) as shown in Figures 9 and 10. In general, there is a tendency for greater nonprotection rates for the Indian subcontinent than for the centers in East Asia. The centers in Bombay-1, Bombay-2 and Karachi have nonprotection rates between 65% and 75%. Furthermore, within countries the differences in nonprotection rates between various centers is noteworthy; Kandy vs Colombo in Sri Lanka (85.0 vs 47.1), Bombay-2 vs Baroda in India (74.4 vs 40.9), Dacca-2 vs Dacca-1 in Bangladesh (51.2 vs 22.0), and Medan vs Bandung in Indonesia (60.2 vs 9.6).

Figures 9 & 10. Rate of Non-Protection for Women with Three Living Children Postpartum who Want Additional Children.



DISCUSSION

Examination of fertility expectations by fertility attainment reveals differences in expectations among centers in the same country (Table 1 and Figures 3 and 4), although they are not as large as intercountry variations. In Sri Lanka, for example, the center in Colombo (ACD_{50} = 2.23) appears to have a smaller family size norm than the one in Kandy (ACD_{50} = 2.69. Routine monitoring of fertility expectations by fertility attainment on a national multicenter level should assist ministries of health and national population and family planning boards to (a) examine the *unique national map of fertility behavior and expectations,* which could become a solid basis for charting out national family planning programs, and (b) study the *changes over time (trend studies)* made possible by updating this national map. Trend studies possible through routine monitoring can further benefit policy and planning bodies by providing a source of information on the degree and speed of changes relative to the specific regional family planning program inputs.

Women who want additional children but do not intend to protect themselves postpartum (Figures 9 and 10) constitute a *group at high risk for a short birth interval between this birth and the next birth.* High rates of non-

protection among these women indicate the need for institutional promotion of contraceptive protection to lengthen the birth interval, thus making a significant health input into families with relatively few children.

Women who do not want additional children but do not intend to protect themselves postpartum (Figures 5-8) constitute a *group at high risk for genuinely unwanted pregnancies.* These women need active motivation, counseling and education incorporated in their obstetric care to preserve their present desired family size and to avoid the risk of criminally induced abortions linked with high morbidity and mortality.

Because women not wanting additional children can face up to 20 or more years of exposure to unwanted pregnancy, *voluntary sterilization often emerges as the surest and most appropriate means of protection.* The wide range of actual postpartum sterilization services among women who say they desire the operation (Table 2 and Figures 5 and 6) indicates the need to examine the causes of low service rates, which may be the result of space, equipment and/or personnel shortages that can be remedied.

In Dacca, the great difference between the two neighboring institutions may point to differences in the availability of surgical services in one of the two medical colleges (.508 vs .955). The four Indonesian centers exhibit high surgical service indices. The financing of surgical availability postpartum, as based on expressed needs indentified through MCM, is most likely to be very cost-effective in preventing future unwanted births.

The number of couples planning male sterilization (Table 3) is most likely linked to its local availability and promotion, which in turn partly determine acceptability. The observed differences among centers within a country merit the attention of the directors of maternity services so that *a common policy for the promotion and availability of male sterilization can be developed.* Such a difference emerges in Dacca for the two maternity centers: while in both centers about one-fifth of all women with three living children who do want additional children elect sterilization of either partner, 10.4% of these sterilizations are intended for the male partner in one center as compared with none in the other center. The promotion of male sterilization in one of the two centers would appear to be the main reason for this marked difference.

CONCLUSION AND OUTLOOK

The analysis of MCM studies focusing on reproductive expectations and contraceptive behavior/service postpartum in Asian maternity centers shows:

- The feasibility and usefulness of monitoring both reproductive attainment and family size expectations with a view toward counseling the women to choose an appropriate method of contraception. Pattern and trend studies of family size expectations at various centers across a nation bring new insights of direct interest to planning bodies and policy-makers working in the fields of public health and population. Two indices of cross-sectional family size expectations show sensitivity and thus have potential for classification of maternity centers.
- The feasibility and usefulness of monitoring contraceptive intentions postpartum for two groups of women:

  Women who do not want additional children. Two proposed indices (surgical service index and index of planned male sterilization) reveal basic unmet needs in education and motivation postpartum in many maternity centers. An "all-or-none" contraceptive protection pattern was noted in various various centers on the Indian subcontinent reflecting the neglect of methods other than sterilization. A group at high risk for genuinely unwanted pregnancy was identified and quantified (range: 0.4%-26.4%).

  Women who want additional children. To facilitate stricter comparison among centers, the analysis was restricted to women with three living children postpartum—a fertility level conducive to family planning acceptance by virtually all ministries of health around the world. A group at high risk for a next short birth interval was identified and quantified (range: 2.8% - 85.0%).
- The findings have implications beyond Asia. Maternity care should be routinely monitored because it shows *center-specific unmet needs* to provide, among others, counseling and reproductive care services postpartum as an integrated part of obstetric care, antepartum and postpartum.
- Maternity care monitoring can assist in the most cost-effective use of local resources available for MCH care. Ministries of health should review the feasibility of monitoring trends of fertility behavior and contraceptive service delivery at the various outlets of obstetric care. A network of provincial/district/subdivisional maternity centers may report to the ministry of health and/or centers of learning and institutions responsible for population activities. In turn, these intermediate centers should be focal points of reporting by satellite maternity centers in rural areas. These kinds of tiered service statistics, collected for programmatic intervention, are one response to a recommendation in the World Plan of Action, adopted at Bucharest in 1974 by the United Nations World Population Conference (6). Indeed the statement that "monitoring of population trends and policies should be undertaken continuously as a specialized activity of the United Nations and reviewed biennially by the appropriate bodies of the United Nations system, beginning in 1977" may be modified in a practical, down-to-earth manner by changing it to read: *The monitoring of trends of fertility behavior and contraceptive service delivery should be undertaken continuously as a specialized*

routine activity of the ministries of health and those concerned with population in general and reviewed annually by the appropriate national bodies, beginning in 1980. The United Nations Fund for Population Activities (UNFPA) should consider the beneficial implications in orienting the governments on the birth of a new and workable service delivery monitoring tool.

- MCM also shows great promise for "satellite monitoring" linking the two pyramids of health delivery management: institutional and primary health care (7). To date, the primary health center (serving 50-100,000) lacks monitoring capability. MCM records could be used at peripheral health care institutions, contributing toward the World Health Organization/United Nations Children's Fund goal of "health for all by the year two thousand" (8).

ACKNOWLEDGMENTS

The Asian national programs of fertility and/or family health research (BFRP, BKS PENFIN, FRP/SL, INDIA FRP, SFRP and TFRP) are thanked for stimulating and pulling together the data, which were in part processed in Asia. The individual contributors in Japan (Profs. S. Sakamoto and R. Iizuka), Singapore (Prof. S.S. Ratnam), Pakistan (Prof. R. Ansari), Iran (Dr. F.S. Ghorbani) and Nigeria (Prof. O.A. Ojo) are thanked for contributing to this review.

Prof. A. Omran's review of the analysis sequence is gratefully acknowledged. Lani Cartier is thanked for drawing the regional charts. Thanks are due to Dr. E. Kessel for continuous stimulation of MCM and the careful reading of this paper resulting in pertinent suggestions. Finally, Dr. M. Schima deserves credit for proposing the topic of this paper.

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The Potential Demand for Voluntary Sterilization: Some Findings from the World Fertility Survey

J.W. Brackett and R.T. Ravenholt

Family planners can divide the universe of reproductive age couples into two broad groups: 1) Those who do not want any children and 2) Those who want another child. The latter group may be further divided according to whether the women wish to have another child right away or whether they wish to wait before becoming pregnant. Since this paper deals with the potential demand for sterilization and since with present technology sterilization is ordinarily a permanent method of fertility control, it is those couples who wish no more children at all who are potential candidates for voluntary sterilization. In fact, in many cases, for the couples who are definite in their decision not to have additional children, a physician or other family planning adviso. would likely recommend sterilization as the method of choice.

The World Fertility Survey (WFS) (1) collected information from women on whether they wanted any more children. Those who responded that they wanted no more are the focus of this paper. At this writing, country reports have been published for 13 countries. Eight of these countries are in Asia, four are in Latin America, and one is in Oceania. While the countries, from a purely statistical point of view, are not representative of the region in which they are located, they do provide some insights into what might be expected when results from surveys in countries with similar cultures are published.

DEFINITIONS OF POTENTIAL DEMAND FOR VOLUNTARY STERILIZATION

In this paper we assume that the data on responses to the "no more children desired" question can be used as proxy for potential demand for sterilization. Obviously, this assumption has several problems. First, the question could be used as an estimate of the desire for any form of family planning rather than for sterilization only. More importantly, there is the major problem of the use of attitude data collected in surveys to represent possible future actions; the link between such attitudes and particular behavior involves many other facets of one's life. Furthermore, the WFS responses refer to what women alone think rather than to the collective view of the husband and wife, and because some couples who want no more children may not choose a permanent method of family planning for a variety of reasons, it is possible that the number of women who state that they do not want any more children exaggerates somewhat the potential demand for voluntary sterilization. In fact, a stated desire not to have additional children may not necessarily be translated into acceptance of any family planning method, although evidence to date shows that where good family planning services are offered, there is substantial acceptance. On the other hand, women who do not know about family planning may have given little thought to their desire for more children and thus may be less likely to state that they do not want any more children than women who do know about family planning. The data show an association between knowledge of sterilization and use. Of the 13 countries covered in this paper, Nepal reported both the lowest percent knowing about contraceptives (22%) and the lowest percent wanting no more children (30%). The highest percentages wanting no more children are reported in Korea, Panama, Sri Lanka, Colombia, and Thailand where knowledge of contraception is highest.

A conservative estimate of the demand for sterilization might be those women who are 35 years or over or who have three or more children and who state that they do not want any more children. Women who are thirty-five years old or over are approaching an age at which the risk to the health of women and the increased probability of bearing a deformed child weigh against having additional children. Those who have three or more have enough children to give them reasonable assurance that some of their children will survive them.

A more liberal estimate might be based on the assumption that as more women learn that they can control their fertility, more will decide not to have any more children. Thus the proportion of women expressing a desire not to have additional children could rise substantially in coming years.

WOMEN WHO WANT NO MORE CHILDREN

Among the WFS respondents interviewed in 13 countries for which country reports are available, those wanting no more children range from 72% in South Korea to 30% in Nepal. For nine of the 13 countries 50% or more of the currently married, fecund women (including those who have already elected voluntary sterilization for contraceptive purposes) wanted no more children while one other country (Pakistan) fell just short of 50 percent.

Using the more restrictive definition of potential demand, the range is from 59% for Korea to 26% for Nepal. Thus,

Table 1. Percent of Currently Married, Fecund Women (Including Contraceptively Sterilized) Who Want No More Children

Country	Percent of *all* currently married, fecund women who want no more children: Total	& are age 35 or have 3 or more children	& are under 35 with less than 3 children
Korea, South (1974)	72	59	13
Panama (1976)†	63	57	6
Colombia (1976)	61	52	9
Bangladesh (1975)	61	55	6
Sri Lanka (1975)	61	54	7
Malaysia, West (1975)	59	43	16
Thailand (1975)	57	46	11
Costa Rica (1976)†	52	45	7
Fiji (1974)	50	44	6
Pakistan (1975)	49	44	5
Dominican Republic (1975)	45	38	7
Indonesia (1974)	39	33	6
Nepal (1976)	30	26	4

†*For Panama and Costa Rica the WFS excluded women under 20 years old.*

whichever definition one uses, a substantial percentage of the currently married fecund women might elect sterilization if it is fully available.

BACKGROUND CHARACTERISTICS OF WOMEN WHO WANT NO MORE CHILDREN

Education

One often hears that poor and under-educated women want large numbers of children and therefore will not use family planning. The WFS findings do not support that conclusion. In fact, a greater proportion of WFS respondents who had no formal education stated that they wanted no more children than did better educated women. For example, 88% of the women with no formal education in Korea wanted no more children compared with 71% for those with primary education and 65% for those with secondary education. In Colombia 67% of women with no formal education wanted no more children compared with 64% of those with primary education and 48% of those with high school. (Table 2 on page)

In Indonesia the percentages for all education groups are lower—47% for those with no formal education and 33% for those with primary education—but the pattern of an inverse relationship between education and percent wanting no more children is still evident. In some cases, such as Indonesia, the percent wanting no more children is higher for women with secondary or college level education than for those with primary, but the numbers of women with education beyond the primary level are often quite small.

One possible explanation for the highest proportion wanting no more children among the least educated is that women who are under-educated already have more children than those with more education. Yet, recent data indicate that women with no formal education do not necessarily have more children than those with more education. Data from Phase II of the 1976 Indonesian Intercensal Survey (2), for example, showed the highest fertility to be among women who had attended some junior high school. Women with no formal education had about the same number of children as women who had finished high school. For the age group 40 to 44 years, that is, women who have largely completed their child bearing, women with no formal education reported fewer children ever born than all education groups except those who had attended college (3). The WFS data show that for women with fewer than three children the highest proportion wanting no more children is found among women with no formal education. For women with three or more children, the percent wanting no more tends to be high for all education levels, making educational differences less meaningful. However, for a number of countries, women with no formal education still show higher percentages wanting no more children than other education groups.

A further explanation of the educational differences may be found by considering age. Since educational opportunities have been expanding in recent years, women with no formal education are likely to be older than those who have attended school. Moreover, women with substantial education, that is, high school or better, are likely to be fairly recent graduates and thus young. For women 35 years old or over, a very high proportion of all education groups in all countries want no more children. In Korea, for example, well over 90% of the women 35 years old or over in each education group wanted no more children, and there were no significant differences among the groups. In Sri Lanka the percentages are the same for those with no education and for those with primary education (88%). The percentages were somewhat lower for women with secondary (80%) or college (73%) education. In Thailand 87% of the women 35 years old or over with primary education wanted no more children compared with 81% of those with no formal education and 79% of those with secondary school.

Controlling for both age and parity will further increase the percentages of all education groups and eliminate meaningful differences for older, higher parity women. For example, virtually all women 35 years old or over who have three or more children in Korea and Sri Lanka want no more children, while the lowest proportion in any of the countries for which data were available is the 70% in Nepal where knowledge of family planning is low.

It is clear from the above data that a substantial number of women at all education levels in these 13 countries

Table 2. Percent of Currently Married Fecund Women (Including Contraceptively Sterilized) Who Want No More Children by Level of Education, Age, and Number of Living Children

Country & Level of Education	Total	Less than 3 children	3 or more children	Age 35 or over
Bangladesh				
None	61	37	79	89
Primary	62	42	84	92
Higher	60	46	88	100
Colombia				
None	67	41	76	74
Primary	64	34	81	81
Secondary	48	27	78	85
College	55	40	92	91
Costa Rica				
None	72	41	78	u
Primary	57	21	76	u
Secondary	41	22	77	u
College	36	67	73	u
Dominican Republic				
None	59	38	60	60
Primary	54	18	66	71
Secondary	36	9	61	76
College	36	10	60	72
Fiji				
None	70	26	84	u
Primary	48	16	67	u
Secondary & Higher	29	15	61	u
Indonesia				
None	47	22	64	u
Primary	33	13	60	u
Junior High	39	9	71	u
Sr. High or Higher	36	10	66	u
Korea				
None	88	50	92	93
Primary	71	35	90	93
Korea (*Continued*)				
Secondary	63	43	93	93
College	70	56	96	95
Malaysia (a)				
None	53	9	64	70
Primary	40	9	58	77
Secondary	28	16	59	81
College	42	33	63	94
Nepal (b)				
None	30	10	56	61
Primary	24	9	57	69
Secondary	47	31	100	u
Pakistan				
None	50	u	u	84 (c)
Primary	44	u	u	70 (c)
Secondary & Higher	46	u	u	83 (c)
Panama				
None	72	34	79	u
Primary	67	27	81	u
Secondary	58	27	86	u
College	45	23	85	u
Sri Lanka				
None	72	37	84	88
Primary	65	24	86	88
Secondary	54	25	86	80
College	52	34	88	73
Thailand				
None	66	26	81	81
Primary	58	31	82	87
Secondary	31	20	78	79
College	20	10	79	67

(*a*) *Excludes contraceptively sterilized.* (*b*) *None of the WFS respondents in Nepal attended college.*
(*c*) *Excludes contraceptively sterilized and includes infecund.* (*u*) *Unavailable.*

want no more children. It is also evident that the women who already have several children or who have passed the prime reproductive years are overwhelmingly inclined toward terminating their childbearing. It is not surprising that women with little or no education are less eager than those with more education to have any additional children since these are the women most likely to be poor and in greatest need of family limitation.

Urban-Rural

Rural women are often assumed to be less interested in family planning than urban women. It is often stated that rural women must have an "urban life style" before they will limit their fertility. The WFS data do not support this conclusion. Of the 12 countries for which an urban-rural breakdown was available, five reported a higher proportion of rural women wanting no more children and seven report a higher proportion among urban women.

The data demonstrate that there is a substantial demand to terminate childbearing among both urban and rural women. Korea reported more than 70% of both urban and rural women wanting no more children while four other countries—Bangladesh, Colombia, Panama, and Sri Lanka—reported 60% or more wanting no more children. The lowest percent for urban women was reported by the Dominican Republic (39%) and the lowest for rural women by Indonesia (38%).

Table 3. Percent of Currently Married, Fecund Women (Including Contraceptively Sterilized) Who Want No More Children, by Urban-Rural Residence

Country	Urban	Rural
Bangladesh	69	60
Colombia	60	64
Costa Rica	49	54
Dominican Republic†	39	50
Fiji	54	47
Indonesia	43	38
Korea	71	73
Malaysia	49	40
Pakistan	54	47
Panama	60	66
Sri Lanka	64	61
Thailand	45	59

†*Excludes contraceptively sterilized.*

Age and Parity

The WFS data do show the expected differences by age and number of living children. Younger women and women who have not yet had a child usually want children. However, some countries show surprisingly high percentages of women who do not have any children as not wishing any. Korea reports 13% of the zero parity women as not wishing any. Colombia reports 9%, and Panama 8 %.

Family Planning Use

The WFS found significant use of contraception among women who want no more children in those countries where family planning was available. Moreover, where sterilization services were available a significant proportion of the women have elected that method. For example, in both Panama and Fiji 36% of the women who want no children have been sterilized. In Costa Rica 28% have elected sterilization and in the Dominican Republic 26 %.

In 11 of the 13 countries a significant number of women who want no more children were using other effective methods—from about 40% in Indonesia where sterilization services have not been widely available but where a strong family planning service program offering other methods has been operating—to 12% in Sri Lanka where family planning services other than sterilization are not as widely available as in Indonesia. In Nepal, where family planning services are not generally available, only 2% were using other effective means. The use of ineffective means ranged from a high of 18% in Sri Lanka to 4% in Bangladesh, Pakistan, and Thailand and essentially zero in Nepal.

The proportion using either sterilization or some other effective means ranged from a high 65% in Costa Rica to 8% in Bangladesh and Nepal. Three countries reported use rates of 50% or more, four had rates of 40-50% and three had rates of 30-40 percent. The percent not using any method and not pregnant ranged from a high 81% in Nepal to a low of 14% in Costa Rica.

Knowledge and Availability of Services

The World Fertility Survey collected information on the knowledge of family planning and in some countries information on perceived availability and accessibility of family planning information, services, and supplies. The published tabulations in Country Report Number One do

Table 4. Percent of Currently Married, Fecund Women Who Want No More Children, by Family Planning Status

Country	Using					
	Any Efficient Methods	Sterilized	Other Efficient Method	Inefficient Method	Pregnant	Not Using Any Method
Bangladesh	8	1	7	4	9	79
Colombia	35	7	28	14	13	38
Costa Rica	65	28	37	12	9	14
Dominican Republic	41	26	15	7	17	36
Fiji	55	36	19	6	18	22
Indonesia	41	1	40	6	12	41
Korea	40	8	32	11	9	40
Malaysia	34	10	24	13	11	42
Nepal	8	6	2	*	12	81
Pakistan	20	3	13	3	20	61
Panama	56	36	20	9	11	23
Sri Lanka	30	18	12	18	10	42
Thailand	45	16	29	4	12	39

**Less than 0.5 percent.*

not show knowledge of specific family planning methods according to whether the respondent wanted more children (4). The published volumes do show data on knowledge of specific methods for all ever-married women. These data show a clear association between knowledge of sterilization and use. The top four countries with respect to use of sterilization report that well over 90% of the respondents knew about sterilization while the next two reported knowledge rates above 80 percent. Very low use rates were associated with moderately high knowledge rates in Colombia, Korea, and Malaysia while both use and knowledge were low in Nepal, Pakistan, and Indonesia. Clearly, lack of knowledge of sterilization is not a major impediment to use in 10 of the 13 countries. While these levels of knowledge refer to all ever-married women rather than to those who want no more children, it is reasonable to assume that knowledge is also high among women who want no more children.

Knowledge of a family planning method does not indicate that the respondent has access to a service facility which offers the method, and without success she or her husband are not able to translate knowledge of the method and desire not to have another child into use. The WFS surveys for which data are currently available did not include detailed questions about perceived availability of service facilities offering specific methods (5). The surveys did include general questions regarding perceived availability of family planning information or supplies. Rodriguez (6) found that in four of the five countries he studied women who do not want any more children are more likely to know a family planning outlet than women who do want more children. But these findings do not provide any information on perceived availability of sterilization facilities as distinct from facilities offering other methods.

DISCUSSION

The WFS findings provide substantial data of use to persons concerned with the provision of family planning information, services, and supplies generally as well as those offering specific methods. For those offering voluntary sterilization, the WFS documents the high proportion of women who want no more children. It further documents that where good service programs offer voluntary sterilization, many couples elect to use that method.

The more recent WFS surveys as well as the contraceptive prevalence surveys (7) collected much more detailed information on perceived availability and accessibility of each method of family planning, including sterilization. This information, which will be available in coming months, will provide additional help for planning, managing, and evaluating service programs.

Sources: Except where otherwise noted, the data used in this paper were obtained from the World Fertility Survey Country Report Number One for the individual countries.

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1. The World Fertility Survey (WFS) is an international effort to collect high quality, internationally comparabel data on fertility and fertility regulating behavior for a large number of countries. The WFS, originated by AID's Office of Population with primary financial support by AID and the United Nations Fund for Population Activities, is being executed by the International Statistical Institute. To date surveys have been initiated in about 40 developing countries. The British Ministry of Overseas Development, the Canadian International Development Agency, and ORSTOM have also contributed financially to WFS.
2. The 1976 Intercensal Survey consisted of three phases, each a subsample of the previous phase. The WFS was Phase III.
3. The Indonesian data show that child mortality was highest for those who had never attended school and that it decreases with increasing education. For example, women 40 to 44 years old who had never attended school reported a mean of 5.1 live births, 3.7 living children and 1.4 dead children. Those who attended some junior high school reported a mean of 6.3 live births, 5.7 living children and 0.6 dead children. Women who had finished high school reported a mean of 5.2 live births, 4.9 living children and 0.3 dead children. See BIRO PUSAT STATISTIK, *KETERANGON FERTILITAS PENDUDUK INDONESIA. Fertility of the Indonesian Population,* 1976 Intercensal Survey, Jakarta, 1978, Table 5.
4. They do show knowledge of efficient and inefficient methods as a group.
5. The later surveys include questions on perceived availability and accessibility of individual methods.
6. Rodriguez, G. 1978. Family planning availability and contraceptive practice. *International Family Planning Perspectives and Digest,* vol. 4, no. 4.
7. AID has a contract with Westinghouse Health Systems to support contraceptive prevalence surveys.

The Demographic Impact of Voluntary Sterilization and Its Relation to Other Birth Control Methods

Dorothy L. Nortman

Numerous forces have been at work to establish surgical sterilization as a dominant contraceptive method. Not the least of these is the vision of its potential for reducing fertility in developing countries concerned with high rates of population growth and its cost-effectiveness if amortized over the couple's remaining reproductive years. From the perspective of individual couples, however, in all societies the same factors govern voluntary acceptance of sterilization. These are a strong conviction that the couple has all the children it wants; a sense of assurance that the children will outlive their parents; sufficient understanding that the procedure does not interfere with sexual capacity or enjoyment; disaffection with hormonal, barrier, and traditional methods; access to and confidence in the operator; and simplification and improvement in female as well as male techniques, allowing procedures to be performed on an outpatient basis (1).

Further consideration of the relative advantages and disadvantages of sterilization would be superfluous here but for analyzing its demographic impact, it is relevant to note that sterilization's supremacy over other methods rests on two attributes: 1) its effectiveness, virtually guaranteeing protection from pregnancy; and 2) its duration for life, once performed, without further service, supply, or effort. The latter attribute, however, comes at a price—its reversibility—which renders the method attractive to and appropriate only for couples convinced they want no more children. (*Development of reversible techniques that can be widely used would render the discussion in this paper obsolete. Researchers are optimistic about the outlook for producing reversible procedures, but the consensus is that present techniques must be regarded as irreversible.*)

Couples selecting contraceptive sterilization do so in the belief they are still fertile, but few are likely to quantify the number or timing of the births they avert. Yet the quintessence of measuring the demographic impact of contraceptive practice, be it by sterilization or any other method, is quantification of the number of births a couple would have had in the absence of contraception. Moreover, for demographic purposes, it is not sufficient to know the number of births by which contraception reduces a couple's ultimate total fertility. Measurement of demographic impact requires the apportionment of the averted births into time intervals, generally calendar or fiscal years, so as to assess the impact on fertility, the crude birth rate, age structure, and other demographic variables. If interest is further to measure *net* as well as total or gross demographic impact of a method (or a family planning program) then assessments are required of 1) the extent to which the totality of births averted by the users of the method (or program) were incremental to those that would have been averted without the method (or program) and 2) the extent to which availability of this method (or program) stimulated other method (or non-program) contraception.

Clearly, measurement of the demographic impact of contraception is a complex, technical exercise that involves speculation of the potential fertility of a couple in the absence of contraceptive use. At the same time, given the effectiveness and duration of sterilization, on an absolute as well as relative scale, it is equally clear that sterilized couples make the maximum contribution of which they are capable toward fertility decline. If individual couples maximize their demographic impact by contraceptive sterilization, is it not logical to conclude that family planning programs concerned with implementing an antinatalist population policy can also best achieve that purpose by emphasizing sterilization as the dominant, perhaps sole, method? The answer is "not necessarily."

The flaw in the logic lies in its failure to take into account the number and age composition of the clients a voluntary sterilization program is likely to recruit. Where contraception is little used, a sterilization program may indeed be the rational one for demographic purposes, since the people most likely to enroll in a program in the early stages are those who 1) have all the children they want; 2) have reason to think they are still fertile; and 3) have not yet found a satisfactory alternative method. However, irreversible sterilization not only limits the potential clientele to those who want no more children, but since number of children is highly correlated with age, it recruits people likely to be older than the average couple of reproductive age and almost certainly older than couples interested in spacing rather than limiting births.

AGE AS AN IMPORTANT FACTOR

Because of the close relationship between a woman's age and her prospective fecundity, her age at acceptance of contraception has a great bearing on her potential fertility and hence the number of births she averts. Table 1 compares the wife's age among sterilization acceptors with that of acceptors of other methods in the family planning

Table 1. Wife's Age and Number of Living Children of Sterilization Compared with Acceptors of Other Methods in National Family Planning Programs.

Country and method	Acceptance period	Wife's age-years (median)	No. of living children
Colombia			
Sterilization	1975	33.6	4.9
Orals	1975	24.7	2.2
IUDs	1975	26.1	2.5
Hong Kong			
Sterilization (female)	1977	33.9	3.2
Orals	1977	24.5	<1
India			
Sterilization (male)	1976-77	33.2	(1975-76) 3.8
IUDs	1976-77	28.3	2.6
Indonesia			
Sterilization (male)	10-12/77	37.0	4.7
Sterilization (female)	10-12/77	33.6	5.1
Orals	10-12/77	26.0	2.4
IUDs	10-12/77	26.5	2.5
Malaysia			
Sterilization	1977	32.8	5.0
Orals	1977	25.5	2.1
IUDs	1977	29.3	2.9
Nepal			
Sterilization (male)	1975-76	31.5	4.4
Sterilization (female)	1975-76	32.2	4.5
Orals	1975-76	30.3	3.4
IUDs	1975-76	28.7	3.2
Philippines			
Sterilization (male)	1977	31.4	3.8
Sterilization (female)	1977	31.7	4.4
Orals	1977	26.7	2.5
IUDs	1977	27.0	2.6
Thailand			
Sterilization (male)	1977	34.0	3.4
Sterilization (female)	1977	29.5	3.5
Orals	1977	26.4	2.1
IUDs	1977	26.0	2.2
Tunisia			
Sterilization (female)	1975	36.4	5.4
Orals	1975	28.8	3.3
IUDs	1975	29.2	3.6

Source: Nortman, Dorothy L. and Ellen Hofstatter, Population and family planning programs, New York: Population Council, Ninth edition, 1978; and Supplementary tables, March 1979. Center for Policy Studies, Working papers, Special Series, No. 2.

programs of several developing countries. It can be seen that women accepting sterilization have about two more children and are at least five years older than women taking pills or IUDS. These findings do not surprise us because in societies where high fertility is still the norm, couples on average will not voluntarily terminate their reproductive capacity until they have four or more children. It was in an effort to recruit people with fewer children that Prime Minister Ghandi in India found it necessary to resort to the coercive tactics that played so large a role in her defeat in the March 1977 elections.

Nor is the average age of sterilization *acceptors* the decisive factor in measuring annual demographic impact. In the case of a permanent method, *prevalence* and *incidence* can be quite different and it is prevalence of use that has a bearing on births averted. Sterilization prevalence being a composite of couples previously as well as those presently sterilized, the average age of all sterilized couples of reproductive age (CRAs) is likely to exceed that of current users of renewable methods or of the average CRA. Thus, even in low fertility societies, where sterilization is popular among younger as well as older couples, the age differential between sterilized couples and users of other methods is appreciable. In the U.S., for example, in 1973 when sterilization already accounted for almost one-fourth of all contraceptive use, the average age of the wife among sterilized couples was 35.4 years as compared with 26.8 years for women taking pills and 29.9 years among women using IUDs and diaphragms (2).

Age is stressed in considering demographic impact because it affords the best measure—on average—of a woman's potential fertility, herein defined as fertility in the absence of control, and hence of births averted by effective contraceptive practice, whatever the method. Age serves this purpose because it is well known that fe-

male age patterns of fertility characteristically increase from zero at age of menarche, reach a maximum some time in the twenties, and then decline progressively with increasing age to virtually zero by age fifty (3). Thus the older the contraceptive acceptor or user, the lower is her potential fertility.

EFFECTIVENESS AND DURATION VERSUS POTENTIAL FERTILITY

These considerations indicate that the impact of sterilization on a country's birthrate involves a trade-off between great effectiveness and prolonged duration of use on the one hand, but relatively low potential fertility of the user of this method on the other hand. One meaningful way, therefore, to assess the demographic impact of sterilization versus other methods is to compare the additional potential fertility required of users of other methods characterized by higher discontinuation rates in order that they and sterilization users avert the same number of births in the same time duration after acceptance. This time duration after adoption of the method should not be too long because people who take renewable and reversible methods do not forever renounce contraception after terminating one particular acceptance. On the contrary, method resumption and switching are common among ever-users of contraception after fairly short periods of non-use or after lactation if a birth has occurred.

Table 2, which shows a gradient of potential fertility required of users of different methods to avert an equal number of births in a defined time interval, therefore focuses on a short time interval, months 13 through 24 or the second year after acceptance, with acceptance timed at the beginning of year one. Sterilization acceptors, as the standard, are assigned a relative potential fertility of 1.00 during year 2; also, a two percent annual rate of discontinuation is arbitrarily imputed to them to allow for marital dissolution. Other methods are distinguished not by name but also by specific discontinuation rates, from which use in the nine months preceding year 2 can be readily calculated. Since births averted are computed as

Table 2. Comparison of Relative Potential Fertility of Contraceptive Acceptors to Achieve an Equal Number of Averted Births in Year 2, the Year Following Acceptance, at Different Rates of Discontinuation.

CONTINUATION SCHEDULE (a)

Annual discontinuation rate	Proportion starting use	Use over period that averts births in year 2 (b)	Relative potential fertility (c)	Births averted (Index) (c)
(1)	(2)	(3)	(4)	(5)
.02	.98	.965	1.00	.965
.10	.95	.882	1.09	.965
.20	.90	.776	1.24	.965
.30	.90	.721	1.34	.965
.40	.85	.634	1.52	.965
.50	.80	.556	1.74	.965

(a) The continuation schedule is assumed to conform to the modified decay curve, $C = a e^{-rt}$, where "C" is the proportion of an initial acceptor cohort remaining at time "t", "r" equals the proportion discontinuing per unit of time, "a" equals the proportion remaining after an immediate dropout of "1 - a", and "e" is the natural logarithm constant 2.178....

(b) If t_0 represents acceptance time, (t measured in years), then use (U) in the interval $t_{.25}$ (U) $t_{1.25}$ averts births in the 12 months after acceptance, with a nine month allowance for gestation. U is readily calculated from

$$U = \int_{t_{.25}}^{t_{1.25}} a e^{-rt} dt = (a/r) \left[e^{-.25r} - e^{-1.25r} \right].$$

(c) Births averted are the product of use and potential fertility. Assigning a potential fertility rate of 1.00 to a continuation schedule assumed to characterize sterilization averts .965 births. Dividing column 5 by column 3 for the other continuation schedules yields column 4, the relative potential fertility that compensates for the reduced use in order to achieve the same number of averted births as sterilization.

Note: Implicit in the calculation is the assumption that conception while using birth control method results in immediate discontinuation of the method, so that all use is effective and there is no overlap of pregnancy and use. This limitation is not considered to affect the results appreciably.

the product of potential fertility and use nine months earlier, it is a simple exercise to calculate the relative potential fertility for *cohorts of equal size* accepting the various methods to avert the same number of births in year 2 following acceptance as sterilized couples do.

According to Table 2, the potential fertility of acceptors of methods discontinued at annual rates of 10, 20, 30, 40 and 50 percent must exceed that of sterilization acceptors by 9, 24, 34, 52, and 74 percent respectively, in order to achieve the same demographic impact as sterilized couples do in the second year following contraceptive adoption.

Age differentials in marital fertility in developing countries are often of a magnitude to suggest that a cohort of women in their twenties taking methods that they discontinue using at rates of 20 or 30 percent per year, such as the IUD, are indeed likely to avert as many births in the short run as women in their thirties adopting sterilization. Methods with discontinuation rates of 40 percent or more are more problematic with respect to the births their use will avert but differentials in fertility between women in their early twenties and mid- or late thirties of about 50 percent are not uncommon.

In extrapolating births averted over a longer time period, say a five year period from acceptance, a sterilization cohort comes out ahead of an acceptor cohort of less durable methods. However, this presupposes that dropouts among the latter do not renew contraceptive use, by the same or some other method, during the extrapolated period. On the contrary, however, repeated acceptances are common. Mathematically this has the effect of reducing the discontinuation rate, perhaps sufficiently to equalize the births averted over a five or even ten year period by older sterilized couples and by younger women, who, though they practice less efficient and less durable methods, have greater potential fertility.

AGE COMPOSITION OF MARRIED WOMEN

In comparing the demographic impact of sterilization with that of other methods, the focus thus far has been on births averted over a stated time interval on a cohort or per couple basis. Countries interested in reducing their birth rates, however, must also consider the age composition of married women of reproductive age. Because of their history of high fertility and recent mortality declines, developing countries have young populations so that women of reproductive age tend to be heavily weighted with the younger age groups. Age at marriage is increasing, however, and with smaller proportions of females under age 25 married, the age composition of married women is not so adverse as it would otherwise be for fertility decline. This augurs well for the potential demand for sterilization among CRAs, but it is contingent upon a substantial increase in age at marriage.

Table 3 presents an index of married women in specified age groups, with age group 30-34 = 100 as the base, for several developing countries. Although such data are often of inferior quality and out of date because they come mostly from decennial censuses, they suggest that relative to the number in their 20's, the number of married women in their 30's, the likely age group for sterilization, is sufficiently adequate for sterilization to make a significant demographic impact, provided enough older women (or their spouses) undergo the procedure.

Table 3. Index of Married Women in Specified Age Group: Age 30-34 = 100

Country/year	15-19	20-24	25-29	30-34	35-39	40-44
Colombia 1973	37	105	114	100	97	76
Costa Rica 1973	42	108	113	100	94	78
India 1971	74	114	116	100	85	66
Indonesia 1971	50	88	116	100	92	62
Korea 1976	4	51	95	100	84	64
Malaysia 1970	31	86	95	100	80	66
Mexico 1975	44	105	114	100	84	69
Philippines 1970	25	87	107	100	92	71
Taiwan 1975	14	89	107	100	97	85
Thailand 1970	36	85	98	100	90	70
Tunisia 1975	16	98	115	100	113	102

Source: Unless otherwise noted, computed from United Nations Demographic Yearbook 1976, Table 41. Korea: Republic of Korea, Statistical Yearbook 1976, Table 17. Taiwan: Republic of China, Demographic Factbook, 1975. December 1976, Table 10. Tunisia: Correspondence from C. Tarifa, Director, Institut National de la Statistique.

In five of the 11 countries in the Table, Colombia, Costa Rica, India, Indonesia, and Mexico, married women in their twenties exceed the number in their thirties by a median average of 14 percent; in four countries the numbers are about equal; and in two, Korea and Thailand, there are more married women in their thirties than in their twenties.

AGE COMPOSITION OF MOTHERS

The final consideration is the age composition of the women who become mothers each year. An analysis of the maternal age distribution of births in 1975 in 33 developing countries that have official policies to reduce population growth rates showed that on average (median) women aged 30 and over accounted for 30 percent of all births, while women aged 35 and over produced 14 percent of the total births (4). Since these are appreciable proportions, the elimination of fertility after age 30, or even after age 35, would have a significant demographic impact. However, to pin hopes on zero fertility after age 30 or 35, is in the first place not realistic, and in the second place, even if achieved, is not likely to meet demographic goals. In the course of the demographic transition fertility does come down faster at older ages, and sterilization, especially with the recent improvement in techniques, is an attractive method that can make a signifi-

cant contribution. Nevertheless, on the premise that the women among sterilized couples are age 35 on average, to emphasize sterilization unduly in trying to achieve demographic targets in developing countries is to give secondary consideration to the couples who produce some 85 percent of the births.

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Trends in the Indian Sterilization Program

Datta Pai

The greatest challenge facing India is the rapid population growth which hinders our nation's progress as it tries to satisfy the growing needs and demands of its people. India, as a developing country, is in a critical position struggling to support 15% of the world's population (630 million) with 1.5% of the world's income. To combat this gigantic problem, the Government of India introduced a National Family Planning Program in 1952 with a clinical approach as its emphasis until 1963 in hope that eligible couples would come to nearby family planning clinics for advice and service. In 1965, an extension approach was undertaken to bring family planning services to the people. These services are provided through a network of primary health centers and sub-centers in rural areas, medical care institutions and family welfare centers—both public and private—in urban areas. A full-fledged department of family planning was created and it adopted a voluntary family welfare program as a "time-bound and target-oriented" program with the "cafeteria approach." However, special emphasis was laid on sterilization as a method of choice.

It is interesting to note that by all these measures, only 25% of 115 million couples in the reproductive age group have been protected. Most of them have been covered by sterilization (27 million), IUD (6 million), and conventional contraceptives (4 million). Forty-five percent of eligible couples will need protection if the revised target birth rate of 25 per thousand is to be reached by 1984. This will require sterilizations of at least 3.5 million couples every year until 1984. Achievement during the last two years has been disappointing (Table 1).

Table 1. Sterilization Achievement Since 1966 (1)

Year	India
1966-67	887,368
1967-68	1,839,811
1968-69	1,664,817
1969-70	1,422,118
1970-71	1,329,914
1971-72	2,187,336
1972-73	3,121,856
1973-74	942,402
1974-75	1,353,389
1975-76	2,668,754
1976-77	8,150,000
1977-78	926,000
1978-79	1,300,000

The All India Survey (1970-1971) by an operation research group in Baroda (Table 2) showed that 78% of couples interviewed were aware of at least one method of family planning, but only 40% had knowledge of how to use the method. The ever-use of family planning methods was reported as 35.6% in urban areas and 14.3% in rural areas. Thus, the total ever-use of different family planning methods was 18.2% for India. The acceptance of sterilization was quite high among the family planning users in rural (49.1%) and urban areas (36.6%), with 44.8% of total acceptors of family planning using it. The demographic characteristics of couples who were users of sterilization showed that the average age of the wife was 33.7 years. The couples, on an average, had 4.3 living children with 2.5 living sons. This shows that people selected sterilization only after attaining the desired family size with desired number of sons.

Maharashtra is one of the most progressive states in India and it was a pioneer and forerunner of the family planning movement. The sterilization program in Maharashtra got a big boost with the introduction of the camp approach. By March, 1979, 4.57 million sterilizations were done. At present, 36% of couples are practicing various methods of family planning and out of these couples, 62% are sterilization acceptors.

Bombay is a miniature India since 1% of the country's population from all states resides there. Bombay is the birthplace of the family planning movement in India. The Municipal Corporation of Greater Bombay introduced mobile family planning clinics to carry out motivation and service for those who lived in slums or in remote areas. Family planning exhibitions and vasectomy camps were held at railway stations and other important community locations to attract greater attention for the sterilization program. Mobile vasectomy units visited crowded localities and slum areas to perform vasectomy operations and IUD insertions inside the vans. An active family planning drive was instituted in the municipal hospitals and maternity homes, so that more and more women could be motivated for interval and postpartum steriliza-

tions. Thus, the tubectomy operations increased year by year, gaining greater acceptance. As a result of the intensive family planning program, the registered birth rate dropped from 34 per thousand in 1965 to 24 per thousand in 1978. As an exercise in innovative planning and implementation around well-defined objectives, the Greater Bombay experiment in family planning is unique.

In a K.A.P. study of Greater Bombay by Pai (3) in 1976, it was revealed that knowledge of family planning methods was widespread among the respondents (99.9%). Almost all respondents had knowledge of vasectomy (99.4%) and tubectomy (99.26%). Among the respondents, 49.8% were users of different family planning methods. Among the total users, acceptors of vasectomy (9.1%) and tubectomy (56.3%) consituted 65.4 percent. The demographic characteristics of sterilization acceptors show that the mean age of vasectomy acceptors at the time of the operation was 37.8 years and 30. 3 years for tubectomy acceptors (Table 3).

Table 2. Trends of Indian Sterilization Program (2)

Characteristics	India 1972
Random sample size	25,330
Knowledge of family planning methods	77.9%
Knowledge of sterilization - male	73.0%
- female	61.6%
Total sterilization acceptors (among total users)	44.8%
Number of living children - male	4.3
- female	-
Number of living sons - male	2.5
- female	-

The average number of living children was 3.4 for vasectomy and 4.2 for tubectomy acceptors. The average number of living male children was 2.0 for vasectomy and 2.4 for tubectomy acceptors. The average duration of marriage for sterilization acceptors was 10.9 years. Among different religious groups, acceptance of sterilization was high among Hindus, followed by Muslims and then others. Religion exerted little influence on patterns of acceptance. Though sterilization was the most popular method for respondents in all income groups, tubectomy was favored by those with low income. Acceptance was high among nuclear families possibly due to greater communication leading to decision. The majority of acceptors were willing to recommend sterilization to others. Even the non-users of family planning had favorable attitudes towards sterilization and 55% were willing to use sterilization after having had three children.

In an effort to assess the need for sterilization reversal, a follow-up study of individuals sterilized between 1966-76 was conducted by Pai (4) in 1977. The period coincides with the increasing use of incentives for acceptors, promoters and doctors offering services. Most of the sterilization acceptors adopted the terminal method without the past use of any temporary methods of contraception. Male sterilization gained increasing popularity especially with low socio-economic groups and the number of vasectomies per 1000 sterilizations increased during this period (Table 1), then reverted to an all time low during 1977-79. Involuntary acceptance, where the decision was not totally made by the individual or couple, was quite high (males 10.7%, females 3.0%). Sexual dissatisfaction was reported by 7.6% males and 2.1% females, especially by those in the younger age groups. The need for sterilization reversal was higher among men (8.5%) than women

Table 3. Characteristics of Various Family Planning Method Users in Bombay (3)

Method	Number cases	%	% of acceptors only	Median Age: Husband years	Median Age: Wife years	Duration of use years	General marital fertility rate
Tubectomy	567	28.00	56.25	43.12	36.92	6.64	417.6
Vasectomy	92	4.54	9.12	43.86	40.00	6.10	386.9
Condom	103	5.09	10.22	34.90	29.50	3.73	248.5
Oral pills	99	4.88	9.82	36.05	29.77	2.76	253.5
Loop	52	2.57	5.16	37.18	31.25	2.79	305.7
Jelly, etc.	10	.49	.99	44.50	41.50	9.10	250.0
Rhythm	85	4.19	8.43	38.91	34.10	7.43	237.6
Total users	1008	49.78	100%	41.10	35.15	5.81	357.6
Non users	1017	50.22	-	39.22	32.41	-	233.3
Total	2025	100.00	-	40.30	34.20	-	296.2

(1.1%). A random sample survey of two municipal wards by Pai (5) in 1978 indicated that knowledge of family planning was as high as 99.9% but practice was only 42.4 percent. Among acceptors, tubal ligation was accepted by 73.2%, vasectomy by 10.2% and other methods by 16.6 percent. Incidentally, abortion was gaining greater acceptance and may have made a difference in methods of spacing. The most disappointing finding was in the desired number of children (more than three) and desired number of sons (more than two), which is far removed from the optimal family norm required for a stabilized population.

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Paramedic Training in Thailand

Nikorn Dusitsin

The National Family Planning Program (NFPP) of Thailand has set a target for the reduction of the country's population growth rate from an estimated 2.5% in 1977 to 2.1% in 1981 and hopefully to 1.5% in 1986. Efforts have been made to increase the availability of all currently acceptable fertility regulating methods, with special emphasis on male and female sterilization. However, due to the shortage of doctors (either an overall shortage and/or a shortage due to maldistribution) the NFPP has been exploring an alternative: the possible deployment of paramedical personnel for family planning services.

IUD INSERTION

After a successful pilot study, evaluation and modification, a training model for nurses on inserting the IUD was adopted by the MOPH. A ministry rule was issued authorizing trained nurses to insert the IUD under medical supervision. Regular training courses for nurse-midwives have been organized jointly by MOPH and Chulalongkorn University. Approximately 250 nurses are being trained each year for this purpose.

Another similar pilot project currently being evaluated is the training program to enable midwives to insert the IUD. The results so far are very encouraging.

FEMALE STERILIZATION

In recent years, Thai women have increasingly opted for tubal ligation, particularly during the postpartum period. Predictably, the shortage of physicians has resulted in prolonged delays, and a heavy operative load. Two studies on the use of operating room nurses to perform postpartum tubal ligation have been conducted. The study at Siriraj Hospital is being evaluated.

Another study, conducted through the MOPH and Chulalongkorn University, with the support and collaboration of the WHO Special Program of Research, Development and Research Training in Human Reproduction, has devised a program for the training and evaluation of theatre nurses for the performance of postpartum sterilization. The operative procedure adopted was a modified minilaparotomy approach performed under local anesthesia.

Six nurses were carefully trained and each successfully performed 20 supervised operations. Their performance was compared with that of physicians under carefully controlled-random clinical conditions. An independent evaluator assessed the operative outcome, both in the short and long-term.

Nurses and physicians were comparable in terms of postoperative complications (1.4% and 0.7% respectively), the frequency of operative difficulty (2.8% and 2.7%), and the degree of patient satisfaction (94.4% and 94.6%). The only significant difference in the performance of nurses and physicians was that the mean duration of operation was significantly longer when performed by nurses (18.5 minutes $\pm$ SD 4.9), compared to the physicians (11.9 minutes $\pm$ SD 3.9). Although the 6.6 minutes' difference in the operative time is statistically significant ($t = 12.7$, $p<0.001$) it did not entail any additional surgical hazard to the patient since local anesthesia was used, and the comparability of complications or patient complaints showed that the longer operation time had no major effect on the subject's health or satisfaction with the procedure.

This phenomenon may be partly explained by the fact that, coincidentally, the nurses' subjects tended to be more obese than the physicians'. The mean thickness of the abdominal fat was 2.2 cm $\pm$ SD 0.9 among the nurses' patients, compared to 1.9 cm $\pm$ SD 0.7 among the physicians' patients. This difference is statistically significant ($t = 3.15$, $p<0.001$). Furthermore, there was significant correlation between the thickness of the abdominal fat and the length of the operation when performed by nurses ($r = 0.34$, $p<0.001$) whereas no such significant correlation was observed for the physicians ($r = 0.13$). These results suggest that the nurses encountered more problems with the dissection of abdominal fat in obese cases, and that obesity delays the operative procedure when performed by these personnel. In addition, among the 6 cases in which the nurse reported operative difficulties 4 stated that the problem was attributable to the thickness of the abdominal fat, suggesting that they should refer obese patients to physicians for operation.

MALE STERILIZATION

The Thai Ministry of Public Health has for some years promoted vasectomy as means of fertility regulation, but because of the shortage of surgeons and the apathy of many physicians who had been especially trained vasectomists, the program has failed to achieve the Ministry's

targets. To overcome this problem, the Thai Ministry of Public Health and Chulalongkorn University, with the support and technical assistance of the WHO Special Program of Research, Development and Research Training in Human Reproduction, have studied the training of medical students in vasectomy techniques and have compared their performance with that of physicians in a randomized controlled trial situation.

Ten students were selected for the study. After completing carefully phased didactic and practical training, each student performed 20 operations closely supervised by a surgeon. Complications were encountered only in 2.9% of the 209 student operations and most of these were minor. Fully informed volunteers attending the Chulalongkorn Hospital Clinic were then randomly allocated to either physicians or students for a vasectomy. An independent observer assessed the outcome of the operation both in the short-term and after a three-month follow-up. Short-term minor problems were observed in 3.7% of the students' cases and 6.4% of the physicians' cases. Infection or bleeding occurred in 1.8% of the students' cases and 2.2% of the physicians' cases. The long-term follow-up showed a comparable degree of operative success among physicians and students in terms of the proportion of subjects with azoospermia.

Another study on the use of sanitarians to perform vasectomies is being conducted by Ramathibodi Hospital in collaboration with MOPH. The study and evaluation of the program are now in progress.

Sterilization Team Training Program in Sumatra

M.J. Hanafiah, H. Sitompul and J. Iskandar

Indonesia shares the problems of all developing countries: poverty, ignorance, high mortality and morbidity from preventable diseases, high maternal and perinatal mortality and an excessive population growth. During the last decade, a national family planning program has been coordinated by BKKBN (National Family Planning Coordinating Board). However, sterilization has not been included due to legal, cultural and religious barriers. With the increasing demand and need for such service, it could always be obtained for medical, obstetric or psychological reasons. As attention shifts to socio-economic considerations, more and more clinics and training programs will be needed to meet the demand for sterilization.

FEMALE STERILIZATION AT THE PROVINCIAL REFERRAL HOSPITAL, MEDAN

The Provincial Referral Hospital in Medan, North Sumatra Province, is a teaching hospital for the School of Medicine, University of North Sumatra. The hospital has 700 beds; about 20% of them are used for ob/gyn service. There are approximately 3500 deliveries annually, and about 1200 gynecological admissions. Besides providing undergraduate and postgraduate training in ob/gyn and training of midwives, the Department of Ob/Gyn is also actively engaged in human reproduction research, including fertility control and subfertility.

In 1974 a review was made of postpartum sterilizations indicating that use had risen sharply between 1971 and 1974, i.e., 144 acceptors in 1971, 180 in 1972, 323 in 1973 and 426 in 1974.

By the end of 1974, three staffs from the Department of Obstetrics and Gynecology were trained for interval endoscopic sterilization, one in the U.S. (laparoscopic sterilization) funded by JHPIEGO, and two in Singapore (laparoscopic and culdoscopic sterilization), funded by IFRP and IDRC. Two additional staffs, sponsored by JHPIEGO, were trained in the U.S. in 1975; one in Singapore was supported by IDRC. Since then, interval endoscopic sterilization has been made available at Medan Hospital.

The acceptance of voluntary sterilization in females has been beyond our expectation in North Sumatra. The number of women adopting sterilization has increased dramatically to one thousand acceptors a year since 1975. Many patients came from over 300 km from Medan. The wife of the head of the regency (sub-province) and satisfied patients are the most effective motivators in persuading friends or relatives to seek sterilization. This fact encouraged the center to initiate a training program for a sterilization team for the Regency Hospital in Sumatra.

TRAINING PROGRAM

Sumatra is an island in the western part of Indonesia covering 473,500 km^2 with a population of 23 million. It is divided into 8 provinces, each administered by a governor. These are sub-divided into autonomous regencies and districts (Table 1).

Primary health care is provided by a health center found in most regencies. A regency hospital and a provincial

Table 1. Sumatra Sterilization Training Centers Covering Area and Population

Training Center	Province	Regencies	Area (km^2)	Population (1976)
Medan	Aceh	10	55,392	2,276,029
	North Sumatra	17	70,787	7,033,542
	West Sumatra	14	49,778	3,071,056
	Riau	6	94,562	1,767,042
	Jambi	6	44,924	1,183,319
	South Sumatra	10	103,688	3,803,260
	Bengkulu	4	21,168	598,241
	Lampung	4	33,307	3,598,702
Total	8	71	473,606	23,331,191

hospital found in each respective area function as referral hospitals. In the last 3 years each provincial hospital has a specialist in obstetrics and gynecology; however, most of the regency hospitals have no obstetrician and gynecologist.

Prior to the commencement of a training program, a needs assessment was made through questionnaires and hospital visitations. The following qualifications were established as a requirement for participation:

- The training in female sterilization would be given to a team of one physician (general practitioner or gynecologist if available) and two paramedics from the same hospital.
- The hospital should have facilities for surgery.
- There should be a demand and need for voluntary sterilization in the area.
- Social, cultural and religious factors will have been taken into account in giving training priority.

The goals of the training are:

- To popularize female sterilization as a method of family planning among trainees;
- To instruct trainees in the benefits of family planning and in patient counseling methods;
- To distribute information on outpatient sterilization and instruct trainees in the use of these materials.

The specific objectives of training the physician are:

- To educate and instruct the physician in selecting appropriate sterilization techniques;
- To evaluate socio-medical factors as significant components in clinical decisions about sterilization;
- To train physicians in the specific techniques of female sterilization including postpartum, culdoscopic,and interval minilaparotomy sterilization; to underscore the indications, contraindications, complications and failure of each technique;
- To encourage physicians to conduct such procedures in their own hospitals;
- To communicate the importance of training paramedical personnel to perform certain essential functions.

These objectives also apply to interns who perform their clerkship in obstetrics and gynecology. While they observe and assist, they do not necessarily perform such procedures.

The specific objectives of training paramedics are:

- To motivate patients for sterilization;
- To assist the physician while he performs the sterilization;
- To prepare and maintain sterilization equipment.

Selection of and conditions for trainees:

- Trainees must be ob/gyns from the provincial or regency hospital, or general practitioners with 2 years practical experience in surgery and/or ob/gyn.
- Paramedical trainees must have two years practical experience in the operating room, and trainees must remain at their work locations for two more years after completion of training.

Duration of training:

- Four weeks for gynecologists.
- Six weeks for general practitioners.
- Two weeks for paramedics.

Each trained doctor will personally conduct at least 10-15 cases of each technique of sterilization, and observe and assist his counterpart for a similar number of cases. During the course of their matriculation, trainees will be allowed to participate in the educational program of the Department of Obstetrics and Gynecology of the University of North Sumatra/Provincial Referral Hospital, Medan.

At the successful completion of training each trainee will receive instrument kits appropriate to his skill and return with the instruments to his respective hospital. All equipment will be supplied by the Pathfinder Fund, U.S. This consists of medical kit (tubal postpartum ligation), minilap kit; culdoscopic set. The equipment is given only to qualified trainees.

Complications arising from services rendered in the regency hospital will be referred to the provincial hospital. If problems arise during implementation of the program by trainees, an on-site visit may be made by the trainer.

NUMBER OF TRAINEES

From July, 1975 until April, 1979, 18 general practitioners, 19 ob/gyn's and 60 paramedical personnel have completed their training. Six more physicians and 14 paramedics will be recruited as scheduled by the end of this year (Table 2).

Table 2. Number of Trained Physician/Paramedical Personnel, 1975-1979

Year	Ob/Gyn	General Practitioner	Paramedic
1975	3	3	12
1976	8	5	20
1977	6	2	12
1978	1	4	8
1979	1	4	8
Total	19	18	60

TRAINEE FOLLOW-UP

About 3 months after training is completed, trainees commence sterilization service. After enlisting a designated number of candidates for female sterilization, they inform the center which appoints trainers to visit the subcenter, inaugurate the opening of the sterilization unit and review procedures with the trainees. The trainees must submit three reports a month to the center.

At the annual meeting of trainees from Sumatra in Medan, April, 1978, the following objectives of the meeting were established:

- To discuss their experiences with female sterilization;
- To inform trainees of new developments in the field through guest lectures, films, observation of new techniques and equipment;
- To motivate the trainees to continue the promotion of surgical contraception;
- To provide them with spare parts or replace the old equipment.

The meeting was clearly fruitful and it was suggested that such a meeting be held twice a year.

NUMBER OF FEMALE STERILIZATIONS

Table 3 shows the number of postpartum female sterilizations performed at 22 subcenters in Sumatra during 1977-1978. Among interval cases, laparoscopy and minilap predominated.

SUMMARY

In a developing country such as Indonesia where childbearing begin early in a couple's reproductive life, there is a marked need for voluntary sterilization. Although it is not officially included in the National Family Planning Program due to various restrictions, sterilization can be performed, nonetheless, under certain circumstances.

Female sterilization has had great acceptance and satisfied couples have, in turn, become good motivators for others.

Every effort should be taken to prevent the occurrence of serious complications and side-effects which may jeopardize sterilization programs. A team training program is therefore essential.

Eighteen general practitioners and 19 ob/gyns are performing female sterilizations in Sumatra after completing training with equipment supplied by the Pathfinder Fund. However, using sophisticated instruments like the culdoscope can present problems. It is sometimes difficult to get replacements for damaged parts. Minilaparotomy and postpartum sterilization with simple instruments seems preferable in these circumstances.

In conclusion, female sterilization is one means of contraception for couples who have completed their families and should be made readily available whenever the need and demand exist.

Table 3. Number of Female Sterilizations in 22 Sub-Centers in Sumatra, 1977-1978

Year	Postpartum	Minilap	Culdscopic	Laparoscopic	Others	Grand Total
1977	1,311	376	280	821	83	2,871
1978	1,766	534	390	626	358	3,674
Total	3,077	910	670	1,447	441	6,545

Immunologic Effects of Vasectomy

Rudi Ansbacher

The possibility of immunologic sequelae developing after bilateral vas ligation, including delayed thrombophlebitis, diabetogenic hyperinsulinism, multiple sclerosis, arthritis, and autoimmune type diseases, was first suggested by Roberts (1, 2, 3, 4, 5).

To date, however, these adverse conditions have not appeared. In fact, Edwards (6) commented that vasectomy might have a protective immunologic effect in the human.

IMMUNOLOGIC ASPECTS

Trauma to the testis (including surgery), infection (subclinical, epididymitis, or orchitis), or the blockage of the excretory ducts may lead to the development of sperm antibodies (7, 8). Rümke and Hellinga (9) suggested that the initiation of sperm antibody production could occur from the extravasation of spermatozoa into the interstitium, the lymph vessels, or the blood capillaries of the epididymis with subsequent transfer into the regional lymph nodes. In 1964 Phadke (10) demonstrated intraluminal phagocytosis as a mechanism involved in the disposal of spermatozoa in patients with obstructive azoospermia or with ligated vasa deferentia.

Absorption of testicular proteins and nucleoproteins might be implicated in the initiation of the autoimmune response and can account for the formation of sperm antibodies in vasectomized men. If spermatogenesis continues at the same rate as prior to vas ligation, the body must rid itself of the spermatozoa formed and a plausible explanation would be by phagocytic destruction, absorption, and disposition through the immune system.

The vertebrate organism develops its state of immunologic tolerance to its own constituents during the prenatal and immediate postnatal periods (11). The immune system is competent by the sixth or seventh month of intrauterine life and is almost completely responsive by four months after birth. However, spermatogenesis is not initiated until puberty (12). Therefore, no antigen (spermatozoa) is present when tolerance to self-antigens is developed. Because spermatozoa have a conduit, the vas deferens, for egress from the body, and since this is a self-contained unit, the individual does not recognize spermatozoa as antigens unless they escape from where they are naturally found. In addition, a blood-testis barrier is present which prevents the passage of serum proteins into the seminiferous tubules (13).

SPERM ANTIGENS AND SPERM ANTIBODIES

At least 14 substances have been demonstrated in the human ejaculate which are antigenic (14). Ten were species specific in man and cross reacted with chimpanzee, rhesus monkey, and baboon spermatozoa. Most of these probably coat the spermatozoa and their importance is still debatable.

Other antigens, capable of cross reacting with serum, kidney, and liver, were found in both seminal plasma and spermatocele spermatozoa, and may be relevant to sperm antibody formation in vas ligated men. Mumford (15) noted that there are cross reacting antigens, especially of the liver, spleen, kidney, and brain, and there can be cross reacting antigens between species and with microbial flora.

Using immunofluorescence techniques, Tung (16) reported seven sperm antibodies to specific sites on spermatozoa: two acrosomal (one crescent shaped and one speckled) and one each at the equitorial region, post nuclear cap region, main piece of the tail, midpiece, and the nucleus. Four were "natural antibodies" which he demonstrated in both male and female children: the crescent shaped acrosomal, equitorial region, post nuclear cap region, and midpiece antibodies. The other three only developed after bilateral vas ligations.

Antibodies have also been demonstrated against human sperm hyaluronidase (17), human protamine I and II (18, 19), LDHx (20), and a sperm surface membrane glycoprotein (21).

From the various testing methods, e.g., the gelatin agglutination test (22), the immobilization test (23), the cytotoxic test (24), and the immunofluorescence tests (25), agglutinating, immobilizing, and cytotoxic sperm antibodies have been described, and head-to-head and tail-to-tail type agglutination reactions have been demonstrated.

POSSIBLE ADVERSE EFFECTS OF VASECTOMY

Physiologic

Marked dilatation of the vas deferens and epididymal tubules, increased pressure in the epididymis and seminiferous tubules, congestion, extravasation of spermatozoa, sperm granulomata, scarring of the sheath around

the vas deferens, atrophy of the germinal epithelium, disruption of spermatogenesis, and circulating immune complexes have all been discussed as possible deleterious effects of bilateral vas ligation.

Morphologic

Alexander (26) suggested that vasectomy results in an autoimmune phenomenon which helps the body to dispose of spermatozoa still produced by the testes which have no egress. Resection or interruption of the vas deferens causes formation of sperm antibodies in both men (27, 28, 29, 30) and rhesus monkeys. After vasectomy, there is a build up of pressure on the testicular side of the vas ligature; as the cuff of vas deferens distal to the ligature necroses, there is a blowout and leakage of spermatozoa. This may lead to granuloma formation with multiple interananstomosing fistulous channels (31). The presence of sperm granulomata, which may represent persistent leakage of sperm at the vasectomy site, might modify the detrimental effect of high intravasal pressure and high epidiymal pressure after vasectomy (31).

Silber (31) stated that the reabsorption of epididymal fluid is a major source of protection from the pressure build-up after vasectomy. Sperm granuloma formation may represent a safety release valve which helps to alleviate the otherwise high build-up pressure that would occur in the intravasal system proximal to the vasectomy site, reduces the risk of congestive epididymitis, and thereby enhances the chance for successful reversibility (32).

Neurologic

The innervation of the vas deferens is necessary for its proper function and motility. Alexander (33) showed that the site of the vasectomy affects the degree of denervation: inguinal vasectomies destroyed much of the innervation whereas those performed adjacent to the caudal epididymis in rabbits caused total denervation. Significant reinnervation of the ductus deferens in these rabbits was noted 28 days after vasovasostomy; however, reinnervation of the caudal epididymis was slower, and by 49 days post vasovasostomy, only 20% of the normal innervation density was found. This might result in reduced sperm transport.

Hormonal

Smith (34) reported that hormonal profiles, including testosterone, follicle-stimulating hormone, luteinizing hormone, and estradiol, had been followed in a large series of men both before and after vasectomy without the findings of any alterations from normal values three years later.

Immune Complex Deposition

Orchitis and a mild form of glomerulonephritis have been associated with immune complex deposits in the basement membrane of the seminiferous tubules and the glomeruli of the kidney, respectively, in rabbits two years after vasectomy (35).

Circulating immune complexes have also been described in guinea pigs after bilateral vas ligations (36). However, the relationship between circulating immune complexes and autoimmune orchitis or allergic aspermatogenesis has not been verified.

Atherosclerosis

Alexander and Clarkson (37) reported the effect of vasectomy on diet-induced atherosclerosis in monkeys with the demonstration of circulating immune complexes. Epicardial coronary atherosclerosis was considerably more extensive in vasectomized monkeys, and the number of atherosclerotic plaques present in the intracranial arteries was increased compared to sham-operated monkeys. In a follow-up study (38) it was found that monkeys (fed Monkey Chow, which are rations low in fat, devoid of cholesterol, and high in fiber) with long-term vasectomies had more frequent, more extensive, and more severe arteriosclerosis than their age-matched controls.

Spermatogenesis

Alexander (39) noted some disruption of spermatogenesis after vasectomy in the guinea pig. However, Masters (40) recently reported on 20 men, with an average of 4.9 years from vasectomy, who underwent testicular biopsies: 36 tests were biopsied, and all the specimens showed normal spermatogenesis without abnormalities of the Leydig cells or interstitial tissues. They also could not demonstrate any evidence of immune complex deposition in the testicular tissues.

Cell-mediated Effects

Antibody reactions mediated by T lymphocytes usually present as a delayed type of hypersensitivity. No good studies have appeared to implicate this type of immunity developing as a consequence of bilateral vas ligations. It is obvious that better techniques, purer antigens, proper controls, and a good experimental model are prerequisites for the characterization of cell-mediated events (15).

Lack of Sperm Antibody Formation After Vasectomy

Rümke (41) suggested the following as possible explanations for why some men do not develop sperm antibodies after blockage of the vas deferens:

- Resorption of sperm antigens may induce tolerance.
- An "adjuvant" inflammatory effect may be necessary to initiate sperm antibody formation.
- Other kinds of antibodies might block the formation of agglutinating antibodies.
- Weakly antigenic stimuli may be effective only within the individual who is genetically more prone to produce antibodies than others (hypo or hyper responders).

Evidence for the latter possibility has been given by Bigazzi, et al. (42, 43), who showed a strain dependent

sperm antibody response in vasectomized rabbits and mice. To date, this has not been confirmed in humans.

IMPLICATIONS

Every step in spermatogenesis and spermiogenesis (sperm maturation) appears to be susceptible to immunologic interference (44). Vasectomy does lead to an autoimmune type response directed to both surface and internal antigens. Sperm antibodies do develop after vasectomy and are persistent in individual cases. Why all vasectomized men do not develop sperm antibodies is unanswered.

The relevance, if any, of sperm antibody production to future fertility after vasovasostomy is yet to be determined. There is no evidence in humans that sperm antibody production following vasectomy is detrimental or that it causes autoimmune type diseases. Epidemiologic studies (case control) are underway in various parts of the world to determine if there are any deleterious effects following vasectomy.

As pointed out by Tatum and Ansbacher (44) at the 2nd International Conference on Voluntary Sterilization, held in Geneva, Switzerland, in 1973, the specificity and purification of both sperm antigens and sperm antibodies; the demonstration of non-reactivity with other organs such as the liver, kidney, spleen, and brain; the non-interference of sperm antibodies with normal physiology; and the reversibility of techniques such as vasectomy are tantamount to the wide-spread acceptance of this method of conception control and would increase its overall acceptance as a contraceptive method of first choice. Hopefully, more investigations will be performed to establish the pertinence, if any, of an immune response after bilateral vas ligation, especially in regard to local antibody response in the genital tract.

The risk-benefit ratio is still decidedly in favor of bilateral vas ligations as a conception control device for the male, since no specific long-term problems have been uncovered to date in the human.

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Laparoscopic Sterilization Study by Open Methods in Pakistan

Bilquis Malik

The sophisticated laparoscope with its fiber optics offers improved visualization of the peritoneal cavity for diagnostic purposes and for certain gynecological surgery, and it has earned an important place in the field of gynecology.

Female sterilization by laparoscopy is now practical, popular, and widely used. The laparoscope is now moving from the hands of the senior clinicians to that of junior physicians in many institutions.

The closed method of laparoscopic sterilization is still associated with the potential hazards of blind peritoneal insufflation with gas, and blind and forceful introduction of a sharp trocar into the peritoneal cavity. Injury to the large blood vessels and unrecognized bowel damage, though rare, are reported.

A comparative study was conducted on a series of 620 women to assess the risk and complications of open versus closed method techniques of laparoscopic procedure.

MATERIAL AND METHODS

From December, 1977 to March, 1979, 620 women requesting tubal ligation for fertility control were accepted into the study. Of these, 311 were selected for the closed method, 309 for the open method. Women undergoing laparoscopic sterilization by both closed and open method came from similar socio-demographic characteristics and all were healthy, parous, and currently married. They came directly to Sheikh Zayed Hospital for Women or were referred by District Family Planning Centers. The characteristics, obstetrical, gynecological, and any relevant medical and surgical histories were recorded. Patients with pulmonary tbc's, mild diabetic, hypertensive, cardiac, and anemia cases were also accepted into the study. Laboratory investigations included hemoglobin levels and urine analysis, recorded prior to the operation.

PRE-OPERATIVE

Date of operation was immediately after the menstrual period. No women were accepted prior to six weeks postpartum. Patients were instructed to take nothing by mouth after midnight prior to operation. All patients came from home and traveled 60-80 miles a few hours before the operation.

OPERATIVE PROCEDURE

Before the patient was taken to the operating room, the bladder was emptied. The patient was placed on the

Table 1. Age and Parity of Female Acceptors

	Age						
Parity	16-20	21-25	26-30	31-35	35-40	41-45	Total
3	-	-	2	-	2	-	4
4	-	-	7	16	6	-	29
5	-	-	12	31	10	-	53
6	-	-	-	57	25	-	82
7	-	-	10	60	42	-	112
8	-	-	20	105	48	-	173
9	-	-	3	40	36	-	69
10	-	-	2	34	22	-	58
11	-	-	2	8	7	-	17
12	-	-	-	1	18	-	19
13	-	-	-	2	-	-	2
14	-	-	-	-	1	-	1
15	-	-	-	-	1	-	1
Total	-	-	58	354	208	-	620

operating table and an injection of Demerol 100 mgm, of Diazepam 10 mg, and of Flaxadil 40 mg was given intravenously. Patient was then placed in the lithotomy position. After vulval toilet pelvic examination was completed, a sterile Sims' speculum was placed in the vagina, and the anterior lip of the cervix was grasped with a sterile volsellum. Rubin's intra-uterine cannula was inserted into the uterine cavity and was fixed to the volsellum, then the speculum was removed. The abdomen was cleaned with iodine solution and draped with sterile towels. The inferior rim of the umbilicus, including the rectus sheath, was infiltrated with 1% lidocain (Xylocaine), 10-12 milli-litres. A semilunar incision of 1.5 cms was made along the inferior rim of the umbilicus in the infiltrated area and under direct vision. Superficial fascia, rectus sheaths and peritoneum were carefully dissected. While holding the divided edges of the wound with a Babcock forceps, the inferior edge of the wound is lifted vertically up away from the abdomen and the superior edge of the wound is held horizontally so they are at right angles to each other. The cannula for the laparoscope is gently introduced into the peritoneal cavity. The laparoscope with fiber optic light source is then introduced along the anterior abdominal wall. Visibility is excellent and the Falope ring operative procedure is performed without difficulty. Laparoscope and cannula are removed and the wound closed in layers. The peritoneum with rectus sheath is sutured with continuous chromic catgut No. 0 as is the skin with interrupted sutures. The wound is cleaned and dressed with a sterile dressing, and a band-aid is applied. Two hours later the patient is allowed to return to her home 60-80 miles away.

Both open and closed operative procedures were randomly assigned. All procedures were carried out by one operator. The physician and evaluator who cared for the patients immediately in the post-operative period and who followed them up were unaware of the technique used. All the patients had follow-up from one week, four weeks, twelve weeks, six months and one year.

RESULTS

The technique of tubal occlusion used in both methods was the same. Technical difficulties encountered in both methods were of similar nature, e.g., thickened tortuous and short fallopian tubes. No failure was recorded with either method.

Surgical difficulties encountered with open and closed methods were also of similar nature. In these cases, the operative procedure could not be performed. In one case, because of the large retroverted, densely adherent uterus with limited mobility, the fallopian tubes could not be visualized. In the second case, the fat omentum filled the peritoneal cavity and fatty pads under the pelvic peritoneum completely occluded the accessibility to the pelvis. A similar situation arose in the closed method technique. In the third case, only one tube was ligated since the left fallopian tube was congenitally rudimentary and was buried under the broad ligament.

COMPLICATIONS

In the open method technique, bleeding from the wound occurred in the two cases. Hemostasis was secured immediately by ligating the bleeding blood vessel. A small mesosalpingeal tear occurred in one case. Hemostasis was secured by applying a Falope ring.

In the closed method technique, surgical emphysema was recorded in two cases. A small hematoma of omentum was recorded in two cases. Superficial injury to the uterus was recorded in two cases. No other serious complications were recorded (Table 2).

POST-OPERATIVE

Pain was significantly lower in the open method technique. Wound sepsis was recorded in two cases of closed method technique, but none in the open method.

DISCUSSION

There are two considerations as a result of this study. The first concerns the approach to the peritoneal cavity in the closed method by blind insertion of the Tuohy needle or Verres needle through the anterior of abdominal wall and blind insufflation of the peritoneal cavity with gas (pneumoperitoneum). Tissue or surgical emphysema of a minor nature occurs even in the hands of the experienced phy-

Table 2. Complications of Operative Procedures by Type

Type of Complication	Operative Procedure	
	Open Method (309*)	Closed Method (311*)
Failed Attempts	2	2
Tissue Emphysema	0	1
Hemorrhage or Hemotoma	2	-
Injury to Omentum	0	2
Injury to Bowel	0	0
Injury to Bladder	0	C
Injury to Uterus	0	2
Wound Infection	-	-
Bleeding Requires Laparotomy	0	0

*Number of Procedures by Method

sician. In less experienced hands it certainly carries potentially hazardous risks. Blind insertion of a trocar under uniform pressure scratches the omentum and uterus in experienced hands. In the beginner's hand, it certainly can be potentially fatal.

Approach to the peritoneal cavity by the open method is not without risk, but careful dissection of a small abdominal wound in the umbilical area under direct vision eliminates the risk. In the above study no serious complication was recorded since the abdominal wall was lifted well above and out of reach of viscera while making an incision.

Accessibility and ease of performance of the surgical procedure is the second consideration. The technique of tubal ligation is the same in the two methods. In a properly prepared woman, well-sedated, with muscles relaxed, the bowels recede from the pelvis, and visibility of the pelvic organ is excellent. If the sigmoid colon or small bowels are crowded in the pelvis, it can be overcome by allowing a little amount of gas through the cannula.

Apart from scant bleeding from the wound, no significant complications occurred in the procedure. On the contrary, a large number of women who underwent the open method technique did not experience backache. There were no immediate post-operative complications.

The follow-up record is from 2 weeks to 15 months. No failures were recorded.

Sepsis of the wound did not occur in either method. Menstrual cycles have remained normal. No complications of a serious nature are recorded. Open laparoscopy is a safe outpatient procedure under local anesthesia with sedation.

Scope and Technique of Laparoscopic Sterilization

N.D. Motashaw

At the 3rd International Conference on Voluntary Sterilization (1) in Tunis in 1976, it was said that the ideal sterilization procedure had yet to be evolved: safe, easily executed, cheap, reliable, reversible and rapidly performed by the average physician.

We are still searching for the ideal laparoscopic procedure, so let us review the "technical minutae" of the existing methods of laparoscopic sterilization. What is well known and oft described, I will not reiterate, but I would like to present different viewpoints on some controversial topics.

RANGE OF LAPAROSCOPIC TUBAL STERILIZATION

Laparoscopic tubal sterilization can be done in most women, at any time during the reproductive years. The commonest is interval sterilization. When laparoscopic sterilization is postabortal, it can be simultaneous with suction evacuation, or after/with midtrimester termination. Are there any special problems when the two are combined? Way back in 1969, Steptoe and Imran (2) found it safe. Hernandez, et al, (3) found an increased risk of complications when laparoscopic sterilization was done on postabortal women. They found a ten times increase in infection and a two-and-half times increased risk of bleeding. We have recently completed 300 cases (unpublished data) of suction termination with sterilization and found the procedure safe and satisfactory.

Puerperal laparoscopic sterilization is technically feasible. One of the largest series has been reported by Louis Keith (4). There is, however, a higher incidence of hematoma formation; the episiotomy often gives way if adequate care is not taken, and the failure rate is a little higher. In fact, the complication rate is about three times that of the interval cases so that though practicable in the hands of experts, minilaparotomy is preferred in the puerperium.

Should laparoscopic sterilization be combined with removal of an IUD? Modern bacteriological investigations show that in almost all cases of IUDs with threads, organisms can be found in the uterine cavity. Natural body defenses overcome this infection. However, in 2% of women, PID does develop during the first year of use. Soderstrom and Smith (5) have carefully examined tubal specimens obtained at laparoscopy. They found chronic nonbacterial salpingitis in 47% of IUD users undergoing elective sterilization and the same was present in less than 1% of non-IUD users. The presence of chronic salpingitis can influence the morbidity of sterilization. I have known of a patient who developed bilateral tubo-ovarian abscesses after laparoscopic sterilization at which an IUCD was removed. Her convalescence was stormy. A total hysterectomy and bilateral salpingo-oophorectomy with peritoneal drainage had to be done to save her life.

TECHNIQUE OF LAPAROSCOPY

Position

In the conventional modified lithotomy position, when local anesthesia was employed, patients often complained of leg pain if the procedure took longer than usual. To overcome this we now introduce the uterine elevator and then bring the legs to rest. The mid-piece of the caudal end of the table is removed (between the adductor muscles) so that manipulation is possible. The Trendelenberg tilt should not be over 45°, otherwise cardio-respiratory embarrassment can occur.

Technique of Anesthesia

Laparoscopic sterilization can be performed under local, general, spinal or epidural anesthesia. Local and general are the commonest. When local is used, is premedication mandatory? It is customary to give Diazepam 10 mg and Meperidine or Demerol 25-100 mg intravenously, before positioning the patient. Atropine sulphate 0.4 mg is, we all know, absolutely essential to prevent vaso-vagal reflex and bronchial secretions. There is a trend to avoid premedication. This decreases drowsiness and postoperative nausea and the hospital stay is minimized, as shown by Van Lith and others (6). Whatever be the drugs used for premedication, the surgeon must be aware of the dosage, duration of action and antidotes, if any. Additional adrenaline 1 in 200,000 to the local anesthetic prevents vaso-vagal shock during uterine manipulation.

In the recent mass sterilization campaign in Gujarat, one patient succumbed after convulsions following overdosage of local anesthesia (personal communication).

Kumarasamy (7) mentions that 25 out of 294 women experienced vaso-vagal shock during uterine manipulation while undergoing laparoscopic sterilization under local

anesthesia when lignocaine hydrochloride was used without adrenaline.

Should the fallopian tube be anesthetized? Spraying the surface of the tube with a local anesthetic before handling or cauterizing the tube relieves the discomfort during surgery and for a while postoperatively. in most cases the procedure is so quick that the well-motivated woman tolerates the discomfort easily. As for the postoperative pain, simple analgesics suffice.

Should fluids and food be withheld before surgery under local anesthesia? Long ago we did away with the ritual of enemata before minor surgery. Now Hartzell and Newberry (8) have shown that the chances of syncope during stress situations is incre ed in patients with hypoglycemia. Women who un . went sterilization on an empty stomach often felt sick ar weak after surgery. I think we should give them a small meal 3-4 hours before surgery. The chances of the patient needing general anesthesia is not more than 2-5% either to complete the procedure or for a major laparotomy. If general anesthesia is needed appropriate precautions could be taken to prevent aspiration such as gastric decompression, intratracheal tubes and the administration of magnesium trisilicate.

General Anesthesia

In spite of reports of large series of laparoscopies under general anesthesia without intubation all agree that intubation with controlled ventilation is the safest.

Spinal and epidural can be administered by the experienced anesthesiologist. In a large series recently reported by Burke (9), 22% of the patients were discharged on the same day after spinal anesthesia.

Whether you use local, general or spinal, careful and continuous monitoring of vital signs will reduce the morbidity and mortality of this procedure. In the absence of continuous EKG recording, a precordial stethoscope will pick up cardiac arrhythmias. It is worth noting that the most recent AAGL Survey of 1977, and the confidential U.K. inquiry covering 1976-77, showed that 95% of laparoscopies in the U.S.A. and 99% in the U.K. were done under general anesthesia (10). In Asia the large majority of procedures are done under local anesthesia.

Pneumoperitoneum

Of the two routes of creating a pneuoperitoneum, more and more surgeons are today using the vaginal route routinely. Personally, I would strongly recommend it.

Can we spontaneously create a satisfactory pneumoperitoneum with air and thus avoid the hazards of insufflation? Badawy (11) has done away with the Verres needle and the trocar and cannula. The abdomen is opened as for a minilaparotomy and then the patient placed in a steep Trendelenberg position, to allow the air to enter.

Now for the gases used. Both CO_2 and N_2O have been widely used. If electrocautery is to be used, certainly CO_2 is the gas of choice. When non-electrical methods of tubal closure are employed, N_2O is less of an irritant, and may be safer. With CO_2, acid base changes, cardiac arrhythmias, and respiratory problems are more common. Gas embolism is rare. In such a situation the solubility of CO_2 is high as compared to N_2O and would produce fewer problems. It must be remembered that the N_2O when mixed with intestinal gases may be explosive in the presence of a spark or a flame.

Air is extensively used by the gastroenterologists and by several laparoscopists in the underdeveloped countries. Little is known of the true incidence of air embolism and the morbidity and mortality associated with it. It is comforting to know that gas embolism is extremely rare during laparosocopy whatever the insufflating gas.

Now for the needles. I would simply mention that though a pneumoperitoneum can be obtained with a simple spinal or other needle, most of the newer Verres needles are now double cnannelled so that the insufflating pressure and the intra-abdominal pressure can both be registered. Again in many parts of the world no pressures are recorded. When laparoscopy is done under general anesthesia the intra-abdominal pressure should be monitored. With local anesthesia the patient complains of pain and gets restless. The surgeon is thus aware of the raised intra-abdominal pressure.

Trocar and Cannulae

These are available in various sizes with different arrangements for preventing the gas from escaping. The synthetic seal of KLI is a promising new innovation. The rounded trocar is used by Hasson (12) in "open laparoscopy" which is gaining popularity. Wiring the outer surface of the cannula prevents it from slipping out of the abdominal wall, particularly when the procedure is prolonged.

Is it advisable to introduce the trocar and cannula without a preceding pneumoperitoneum? Dingfelder (13) has reported on 300 successive laparoscopies where the trocar and cannula were introduced directly under local anesthesia. Many laparoscopists may not take to this method easily. Further experience with this technique is essential.

Scopes Proper

A large number of scopes of sizes varying from 1.7 mm to 12 mm are available. The instruments are straight or angled. The operating scopes are as a rule larger carrying channels for accessories from 3 mm to 6 mm.

The two puncture technique is preferred by many as the operating endoscopes lack three dimensional vision and spatial control.

The needlescope has not caught on for, in general, a decrease in the diameter of the endoscopes results in a diminished field of view of 55° only, diminished light, higher magnification and increased distortion. It should only be used by those who have already acquired great skill and experience in the technique of laparoscopic sterilization. A combination of the laparoscope and the Falope ring applicator is "the laprocator." Capability of loading two rings, and with a channel for anesthesia, the instrument should be useful for successfully implementing large-scale family planning programs.

Uterine Elevators

No single elevator is ideal for every case and situation.

Sterilization Procedure

The most recent survey (1977) conducted by AAGL and the data from U.K. (1976-77) (10) show that electrical methods were employed in both countries in 80% of the cases. Of the electrical methods, bipolar was used in 19.5% in the U.S.A. and only 1.1% of the cases in the U.K. The non-electric clips or bands were used in 16.5% and 18.5% respectively.

Every laparoscopist is aware of the hazards of unipolar cautery. Apart from intestinal problems, the extent of tubal damage is such that it prohibits reconstructive surgery. The serious complications are minimal in the hands of the experts and certainly the method continues to be used as the unipolar machines are readily available in every operation theatre.

The bipolar cautery is undoubtedly safer, and several types of forceps are available, but the point I would like to make is what length of tube should be cauterized and should the mesentary be left untouched or should a segment of it be included in the forceps. Kleppinger's forceps (14) includes a segment of the meso-salpinx while others do not. Hirsch (15) applies the forceps to the tube for a short duration repeatedly. The meso-salpinx is not involved.

Endocoagulation of the Tubes

This technique was introduced by Kurt Semm (16). A few years ago it was deplored by many. Today it is used by Steptoe and Palmer and many others. The current is of very low voltage; no electricity flows through the tissues. The lower, non-mobile jaw is heated by an element to 140° to 180°C; the tissue caught in the forceps remains at 100°C. The forceps are not insulated. Cooling from 100° C to 38° C takes about 20-25 seconds. Van Lith et al. (6) use the Wolf machine and coagulate a small segment of the tube near the cornu. Semm (17) himself advocates coagulation at two to three places and sections the tube. Acoustic signals indicate the coagulation and cooling process.

In the Water's technique of thermocoagulation, the tube is drawn into the cannula by a special hook forceps. After 35 to 40 seconds of cautery the fallopian tube is divided automatically as a result of the terminal lesion (18).

Should the tube be divided? When ectopic pregnancy has occurred after laparoscopic tubal sterilization, the gestation sac has always been in the distal or ampullary portion. Failure is due to a microscopic tubo-peritoneal fistula which allows the sperms to travel so that fertilization occurs in or on the ovary. In over 1,772 sterilizations without division and resection, reported by Kleppinger (19), no tubo-uterine fistulae occurred. This makes a sterling case against the tubal division.

COMPLICATIONS OF LAPAROSCOPIC STERILIZATION

The complications of laparoscopic sterilization, though infrequent, can make a formidable list. I would like to mention the two fatal cases, one from Ohio reported by Root et al (20); and the other from Bombay reported by Paul et al. (personal communication). Gas embolism and death occurred from trapping CO_2 in the portal circulation. CO_2 gas can withstand solution in the blood stream; even though small bubbles disappear as they traverse the coronary vessels, larger bubbles coalesce and produce long immobile columns. The gas was trapped in the portal vein and its intra-hepatic branches. The skull X-rays also showed gas in the cerebral vessels. At autopsy large amounts of gas in the heart chambers, the inferior vena cava, the portal vein, pulmonary artery and the aorta, were found. Additional pertinent autopsy findings included massive pulmonary hemorrhage and edema.

Clear cut case reports in which gas embolism has occurred are uncommon. Several reported cases of unexplained cardiac arrest have been presumed by their authors to be due to gas embolism.

Complications occurring with introduction of the trocar and cannula are well-known. During removal incarceration of omentum and bowel can occur. When the pneumoperitoneum is readily released and the cannula removed, the omentum or bowel is dragged through the fascia. With the two-puncture technique, deflate the abdomen under vision through the second puncture, then remove the second cannula under vision. Pass the laparoscope beyond the trocar sleeve and remove the unit as a whole.

Ectopic Gestation

The failure of laparoscopic tubal sterilization varies from 0.1% to 2 percent. The causes of failure are many. Luteal phase pregnancy and technique failure are the commonest. Checking the patency at repeat laparoscopy or by hysterosalpingography increases the chances of a fistula formation and ectopic gestation. (I have seen one such following a Weck clip sterilization). Some authors have

expressed the view that since complete fibrosis takes 3 months, the patient should be given some other contraception for 3 months after laparoscopic sterilization by cautery (21). This view needs clarification.

The incidence of ectopic gestation varies from .020% reported by Steptoe (22) to .071% reported by Thompson and Wheeless (23). Since ectopic gestation is one of the important causes of maternal deaths, the importance of early diagnosis is vital.

The risk of an ectopic pregnancy in IUD users is ten times that of non-IUD users (1 in 20 or 30 to 1 in 300 non-IUD users).

Post Tubal Sterilization Syndrome

Does this syndrome exist? After tubal sterilization by cautery, is the incidence of abdominal pain and menstrual disorders higher than the conventional Pomeroy or other techniques? Adequate matched controls are difficult and a number of factors such as age, parity, previous menstrual history, history of PID,and the psyche of the patient influence the outcome.

Can laparoscopic sterilization be done safely in an office and in rural centers? When we read and hear of the possible complications, we would certainly recommend office laparoscopy when the physician's office is in a hospital not far from the operating theatre. This was most ably shown by Jefferson Penfield (24) when he reported on the vascular complications at the 1st International Conference in San Francisco.

To meet the need of the hour in a country like India, laparoscopic sterilization is practiced on a very large scale in makeshift clinics. I would make a plea that the operators must not violate the principles of safety which have been enunciated. The operator must, under such circumstances, possess both ingenuity and equanimity to cope with the serious situation.

ENDOSCOPY TRAINING

The ideal time for training in endoscopy is at the undergraduate and residency stage. In spite of some criticism, the short-term courses will have to be conducted for several years as many, many practicing gynecologists must learn the technique and surely they cannot go back to medical schools.

In conclusion, I strongly recommend laparoscopic sterilization since the documented death rate is much less than the documented recurrent annual risk of death associated with oral contraception and sterilization is a single incident in a woman's life.

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Comparison of Clip to Band

Jordan M. Phillips

In the 1960s the Agency for International Development funded research in simpler and more reversible sterilization at the University of North Carolina by Dr. Hulka. This study reviewed a large number of techniques of sterilization, eliminating many because of pregnancies in animals. A special spring loaded clip was designed which was extensively tested in animals and humans. An applicator was also designed to be used with a single puncture technique through a 10 mm. sleeve. The technique was extensively studied in many countries. I was one of the original investigators in the United States. Our first series and all others was the subject of a one year follow-up on 1,079 cases. When the clip was applied, a minimum amount of tube was damaged, and the reaction to the clip was peritonealization..

Figure 1. Original Clip

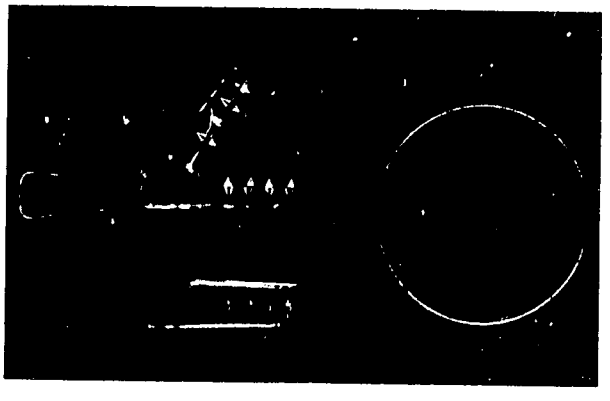
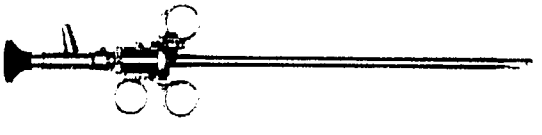


Figure 2. Original Applicator



Minimal peritonealization covered the clip after 9 months and it was effective in preventing pregnancies by occluding the tube. Pregnancies did occur, however, and the majority were found to be due to poor application or a defect in the spring. Enlarged uteri, such as seen postpartum, were difficult to maneuver for laparoscopy. The application of a clip by laparoscopy was reported as contraindicated for uteri over 12 weeks gestational size. This information was published in the American Journal of Obstetrics & Gynecology in 1976 (1).

Figure 3. Anaylsis of Pregnancies

Pregnancies

Ectopic	0	surgical or manufacturing error
Pregnant at surgery	3	
Ampullary application	6	
Structure other than tube	5	
Poor isthmic application	2	
Weak spring	3	
Unknown	4*	method failure rate; (2-6/1,000)
Correct application, good spring	2	
Total:	25 — crude failure rate	

*1 - delivered; to undergo repeat laparoscopy

1 - aborted; vasectomy chosen

2 - Singapore and Bombay - no data

With this information in mind, the clip was redesigned. Note that the spring is much stronger and the jaws were built to closer tolerances than had been recommended originally (Figure 4).

Figure 5 shows that a gap of 5,000th of an inch in the original clip, right, permitted pregnancies. In the newly designed clips (those made of clear material shown on the left), these gaps have been eliminated.

Figure 4. Current Clip

Figure 5. Gaps in the Black Clips

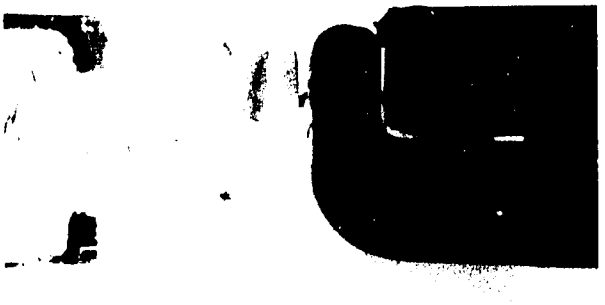


Figure 6. Second Puncture Applicator

Figure 7. Visibility Using the Second Puncture

Some pregnancies resulted from the single puncture procedure due to poor visibility. A double puncture technique using an improved second puncture applicator with an improved spring clip corrected the problem.

The photograph by Lieberman (England) shows the excellent visibility with the second puncture, assuming that the clip goes onto the tube (Figure 7). With Lieberman's improved second puncture applicator and the improved spring clip in a series of 800 patients, there was only one pregnancy (1.6 per thousand) in over one year (2).

The data reported in the literature have been collected to date with the prototype spring clip with its inherent problems with weak springs and gaps and the prototype single puncture applicator. For these reasons, the pregnancy rates in these series are higher than those with the redesigned spring and second puncture approach (3).

COMPLICATIONS

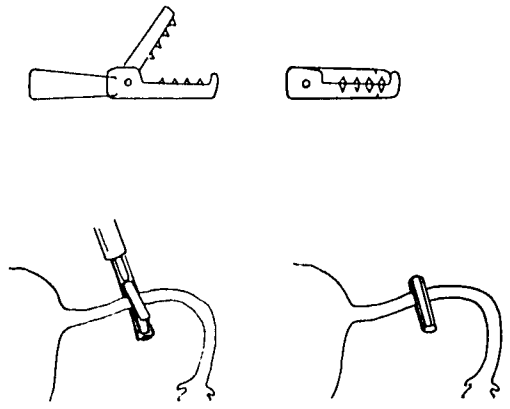
In comparing the spring clip to other techniques, there are considerations other than pregnancies since we believe the pregnancy problem has been eliminated by the proper design. The following is a summation of the three laparoscopic techniques to be compared:

In Figure 8, the clip is applied across the tube. If the tube is not stretched, there is no chance of hemorrhage. Accurate placement of the clip across the isthmic portion of the tube is necessary.

In Figure 9 a portion of the tube must be drawn into a 5 mm. cylinder for the band to slip across it. With this manipulation, approximately 2 to 3 % of patients will experience mesosalpingeal tears and hemorrhage. The hemorrhage can be managed by applying another band, but Dr. Yoon recommends that electrocoagulation be available in case of hemorrhage.

In bipolar coagulation (Figure 10), an electric current of very low wattage flows between the upper and lower poles of the forceps. In extensive U.S. experience there has been no true report of an accidental bowel burn with this technique to date, although subsequent bowel injuries and infection have been reported.

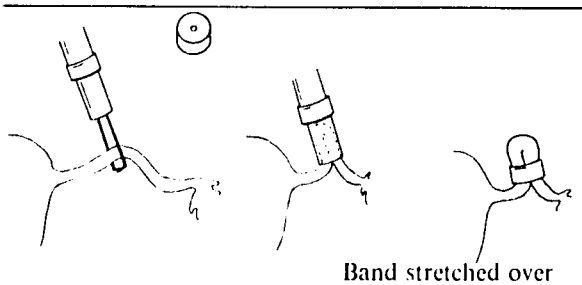
Figure 8. Clip Application



Clip placed over tube. Spring presses jaws together.

Clip across tube. Spring seals tube over 2-3 days.

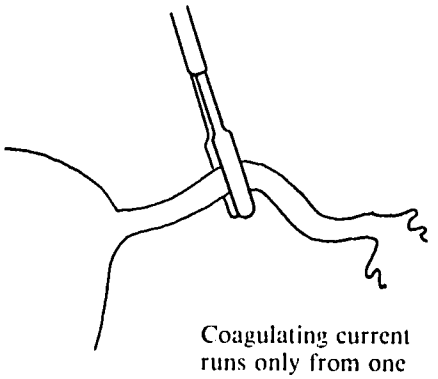
Figure 9. The Band Technique



Tube is drawn into 5 mm cylinder by forceps.

Band stretched over cylinder catches loop of tube, like Pomeroy.

Figure 10. Bipolar Coagulation



Coagulating current runs only from one forceep prong to the other.

Table 1. Mesosalpingeal Hemorrhage Managed by:(4)

	Laparoscopy only	Laparotomy	Total
	(Rate/1000)		
Electric			
Coagulate, divide, specimen	26.8	2.1	28.9
Coagulate + divide	19.3	2.1	21.4
Bipolar (including division)	13.6	3.0	16.6
Coagulate only	3.9	0.5	4.4
Nonelectric			
Silastic band	19.1	5.2	24.3
Spring clip	0	0	0

The single most common complication at surgery is hemorrhage. In Table 6, compiled by the AAGL membership in 1976 (4), one can see that the traditional method of coagulating, dividing and obtaining a specimen—the method originally advocated in laparoscopy—carried with it the highest hemorrhage rate. Coagulation alone, such as with the bipolar forceps, has a very low hemorrhage rate. The silastic band in the U.S. has a 25/1000 hemorrhage rate or a 2.5% rate in the study. This is the same rate of hemorrhage as reported by the most recent data from Johns Hopkins. The clip in this natural survey revealed no hemorrhage. Thus, the best way to avoid hemorrhage at laparoscopy is with the clip.

In a multicenter study with skilled surgeons (England) alternating between clips and bands, there were 10 instances of tubal transection with the band compared to none with the clip (5). In some instances, the only instruments available were more clips and bands, and in three instances the hemorrhage was controlled with application of a clip. Coagulation was required in four instances. Dr. Madrigal of El Salvador has also observed that hemorrhage with coagulation or with the band can be controlled with application of a clip.

In comparing pregnancy rates, an important concern is long-term rates for ectopic pregnancies. For example, when a technique is performed in a village by a team which then leaves, a subsequent ectopic pregnancy could be fatal. In Dr. Tatum's 1977 study (6), the band was found to have a surprisingly high ectopic rate compared to other techniques, and there were no ectopics with the clip. Since this survey, three ectopics have been reported with the old clip throughout the world, but the high rate with the band apparently has not been duplicated again. It appears that the newly designed clip may offer better protection against ectopics because of its positive occlusion of both proximal and distal segments with scar.

Table 2. Tubal Transection—% of Patients (5)

	Total Patients	Transection
Band	95	10
Clip	96	0

Table 3. Percent Ectopic Pregnancies by Method of Sterilization (6)

	Pregnancies	Ectopic	% Ectopic
Coagulate + divide	55	8	14.5
Coagulate only	14	6	42.8
Weck clip	46	3	6.5
Falope ring	15	9	60.0
Spring clip	22	0	0.0

Table 4. Moderate to Severe Pain Under Local Anesthesia—% of Patients (7, 8)

	At Surgery	Post-operative	Total Patients
Band vs	39.9*	51.7*	137
Coagulation	19.4	15.8	139
Coagulation vs	15.4	14.0	136
Spring Clip	11.3	24.1*	115

*Significant

Table 5. Complication Rate per 1,000 Cases by Sterilization Technique (9)

Electrocoagulation only	26.9
Electrocoagulation and cutting	30.5
Rings and Bands	42.6
Clips	29.8
Other methods (exteriorization)	58.7
Total	40.6

"Among sterilizations, those involving exteriorization of the tube had a very high complication rate which also increased to a lesser extent in association with the use of rings and bands compared with cauterization or the use of clips."

Pain under local anesthesia is a consideration. Local anesthesia is by far safer and simpler in many countries, but postoperative pain may be a reason for patient dissatisfaction. Although it is not a "complication" in the strict surgical sense, postoperative pain can be a reason for a woman to avoid sterilization, if a method has a reputation for pain.

Dr. Suporn in Bangkok(7, 8) did the only studies in which the clip was compared to coagulation, and then band was compared to coagulation. Moderate to severe pain was noted by band patients in over half the cases, whereas a quarter of the patients with the clip complained of similar pain. The conclusion was that the band was more painful than the clip, and both were more painful than coagulation. These observations have been confirmed informally by other studies comparing the clip to the band when objective evaluation of postoperative pain has been sought.

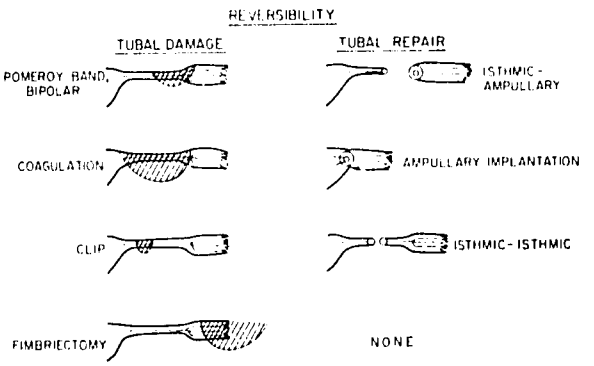
An overall statement about the relative complications of the clip versus the band was detected by the nationwide British Survey performed in 1977 and reported in 1978.

In this study, the British team, surveying 50,000 laparoscopies in Great Britain, concluded that the clip carried less overall complication rate as defined by the survey. "Among the commonly used methods... the application of rings and bands was associated with a markedly increased complication rate, but there was little difference between the other three techniques."(9) These complications included hemorrhage at surgery and postoperative complaints of pain.

A question of interest to some is that of reversibility of sterilization.

This figure summarizes the amount of tissue damage caused by different techniques of sterilization and, therefore, the situation facing the microsurgeon in reversing

Figure 11. Reversibility



the sterilization. A band such as the Pomeroy destroys at least 3 cm. of tube leading to the isthmic ampullary anastomosis, and has a known 6% ectopic pregnancy rate with an overall success rate of 70 percent. The clip destroys the least amount of isthmus and leads to an isthmic-isthmic anastomosis. Of eight patients in whom an anastomosis was performed, six out of six women who were trying to achieve pregnancy achieved intrauterine pregnancy. Though these numbers are small, they suggest that the clip may be the most reversible sterilization method currently available (10).

Most complications will occur in the teaching process when introducing a sterilization method. Summarizing the major hazards of the different methods:

- Electrocoagulation has a serious risk of bowel burn which is not shared with bipolar coagulation.
- Inadequate bipolar coagulation may lead to subsequent pregnancy.
- The band has a high rate of mesosalpingeal hemorrhage which requires immediate control by more bands, coagulation, or clips. Laparotomies may also be required for hemorrhage.
- The clip has as its only complication pregnancies due to inadequate application by physicians during training.

The original clip had a high pregnancy rate because of weak springs and gaps. When these were corrected, available evidence indicates no increase in pregnancy rates as compared to other techniques. In comparative studies the clip was found to have less hemorrhage than the band, less operative and postoperative pain than the band, but more postoperative pain than electrocoagulation. Microsurgeons are increasingly enthusiastic about the clip compared to the band because of the chance of greater reversibility. In the words of one of the microsurgeons, "please tell me one reason that a band should be chosen over the clip for sterilization."

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Population and Law Projects Around the World: Initiating and Following Through

Luke T. Lee

Around 1974-75, a meeting was held in Washington to review the progress of voluntary sterilization around the world. A question was asked as to how the Philippines became a success story for voluntary sterilization in a very short time. I gave as an important reason the fact that the Philippine Secretary of Justice, Abad Santos, ruled in September 1973 that voluntary sterilization was not castration, and hence was legal under the Spanish-origined Criminal Code. Only after this ruling was voluntary sterilization able to commence.

Mr. Abad Santos based his opinion on three grounds:

1. Article 262 of the Criminal Code imposes a penalty on any person who intentionally mutilates another by depriving him, either totally or partially, of some essential organ for reproduction. Mutilation as defined is "the lopping or clipping off of some part of the body." Since tubal ligation or vasectomy involves only the "closing" of a pair of small tubes in men or women, and not "lopping or clipping off" of any organ, no mutilation, hence no violation of the Criminal Code, has occurred.
2. No offense is committed when the subject consents knowingly to the operation, such as a transplantation of an eye or kidney.
3. The government policy, as evidenced by the Constituition and the Presidential decree establishing the Commission on Population, "make(s) available all acceptable methods of contraceptives except abortion to all Filipino citizens desirous of spacing, limiting or preventing pregnancies."

This legal opinion has far-reaching significance for voluntary sterilization. In the first place, since the Philippine Criminal Code was derived from the Spanish Code, on which many Latin American Criminal Codes are based, the Philippine opinion has relevance in a large part of Latin America. Second, instead of adopting new or revised legislation which would be time-consuming and risky, a legal opinion with similar legal effect was formulated instead by the Secretary of Justice. Directing informational and educational efforts to one official (the Attorney General or the Minister of Justice) rather than to the entire legislative body would be more expeditious with issues involving the reinterpretation of existing law.

Having commented on the legality of voluntary sterilization, let me introduce my topic: "Population and Law Projects Around the World: Initiating Them and Following Through."

Some thirty-five Law and Population Projects have been established in all geographical regions around the world since 1972. They are usually based in the law faculties of the leading national universities, allowing the collaboration of sociologists, economists and public health experts. Their main tasks, supported principally by the United Nations Fund for Population Activities (UNFPA), are to compile and review population-related laws and to recommend legal reforms reflecting human rights principles.

Through these efforts, there now exists a large body of recommendations for legal and administrative reform in many countries around the world. However, these will only be theoretically interesting unless they are translated into law and actual practice. It is essential to assist governments in removing legal and administrative obstacles which block the effective exercise of family planning and other associated human rights, and also to engage them in instituting and implementing new measures to advance the cause of human rights as these relate to population. Although most governments are already committed to this human rights cause through their endorsement of various international human rights documents, e.g., World Population Plan of Action adopted at Bucharest in 1974, this commitment imposes certain obligations upon governments. Three are particularly relevant here:

1. To allow the individual to exercise the right of free choice, with respect to such concerns as religion, mobility, privacy, and access to the knowledge and means of practicing family planning.
2. To regulate the individual's legal status in such areas as equality of the sexes, equal status for all children whether born in or out of wedlock, labor (child and women), adoption, marriage (including the setting of a minimum age and the issue of polygamy), and divorce.
3. To provide public resources so that the individual will possess both the knowledge and the means to exercise the basic human rights pertaining, for example, to health care and family planning, education, food and nutrition, shelter, social security and job opportunity.

The first two obligations can usually be discharged without direct government expenditures. The third, which is

bound up with larger problems of development, requires the generation or reallocation of financial resources. The economy with which the first two government obligations can be fulfilled should not suggest that they have already been carried out—or that they are of lesser importance. At the same time, it cannot be overemphasized that affirmation of the abstract right to family planning, for example, must be accompanied by actual allocations. Without such expenditures, the exercise of that right is impossible for large numbers of people.

How can governments be assisted in fulfilling their human rights obligations, assuming that they would welcome such assistance? The following suggestions are offered for your consideration:

- *The Inter-Parliamentary Union (IPU).* Held in Sri Lanka in August 1979, the IPU Conference on Population and Development provided an ideal opportunity for Law and Population Projects to assist members of many Parliaments in their efforts at legal reform. Continuous services in the fields of law and population could be provided to all members of the IPU to enable them to keep abreast of developments in legal reforms throughout the world and to assist them in formulating model codes to facilitate their efforts at legal reforms.

- *Regional Development Banks.* Although the World Bank has been active for some time in granting soft loans for population projects in the developing countries, the various regional development banks—the Inter-American Development Bank, the Asian Development Bank and the African Development Bank—have yet to begin a systematic effort in tying population to development. Logically the regional development banks are generally more familiar with local conditions than the World Bank. The IDB, for example, has provided more loans in its region than the World Bank.

  The Law and Population Projects could render the following services to involve the regional development banks in the population field: a) reviewing the various banks' constitutions or terms of reference with a view to clarifying and publicizing their potential role in the population field, thus clearing the way for a reordering of their loan or grant priorities; b) informing governments of developing countries of available soft loans from these banks (and even grants in the case of the IDB for population-related projects, and encouraging them to make use of such services, and c) working toward a requirement that all loan applications submitted to regional development banks include a demographic analysis, thus drawing the attention of governments to the relationship of population to development.

- *Inter-Ministerial Coordination.* Population and family planning programs in the developing countries are frequently matters of exclusive concern of the Ministry of Health. It is essential that the potential roles of all ministries—including Health, Education, Labor, Social Affairs, Planning, Finance, Justice and Agriculture—be explored and maximized through effective inter-ministerial coordination under the chairmanship of the President or Prime Minister. The Law and Population Projects should encourage each of the pertinent ministries to undertake a thorough review of what that particular ministry could do in the population field under its overall terms of reference. (Indeed, such a review would appear a *sine qua non* for effective interministerial coordination.)

- *Role of Paramedicals.* We should assist countries in their efforts to revise health laws to expand the role of non-physicians in the delivery of low-cost, integrated nutrition/family planning/health services to as large a segment of population as possible, particularly to the rural poor.

  It may be noted that a major bottleneck in the family planning delivery services in many developing countries is the retention of Western medical laws and regulations which emphasize a costly physician-dominated curative approach and allow only physicians to prescribe pills, insert IUD's, and perform other basic family planning services. The irrelevance of such a system to the developing world, particularly to its rural poor, may be seen from the fact that, whereas the U.S. has one physician for every 600 persons (the ratios in the Soviet Union and the U.K. are one per 410 and 900 respectively), the developing countries have far less adequate ratios: *e.g.*, one physician for every 2,000 in Brazil and Egypt; 2,800 in the Philippines; 5,000 in Bangladesh; 6,000 in India; 13,000 in Haiti; 21,000 in Indonesia and Nigeria; 34,000 in Zaire; 50,000 in Burundi and 72,000 in Ethiopia. Compounding the problem of shortages is the fact that most of these doctors are concentrated in cities, leaving as disproportionate a doctor-per-capita ratio as 1:100,000 in the rural areas. (There are more Indian doctors outside India than in the Indian rural areas, and the traditional modesty of Indian women dictates their physical examinations by female gynecologists, who are even fewer in the countryside.)

  In contrast, the success of the Chinese primary health delivery systems and "birth planning" may be attributed to heavy reliance on paramedicals ("barefoot doctors") and an elaborate referral system which sends more serious cases to regular doctors with better equipped facilities. The Law and Population Projects should cooperate with IPPF and IGCC in translating the recommendations adopted by their seminars held in Thailand in December 1978 into reality.

- *The Status of Women.* Two paragraphs of the World Plan of Action adopted by the World Conference of the International Women's Year in Mexico City in 1975 (which were inspired and drafted by the Law and Population Program) state:

38. Government(s) should review their legislation affecting the status of women in the light of human rights principles and internationally accepted standards. Whenever necessary, legislation should be enacted or updated to bring national laws into conformity with the relevant international instruments. Adequate provision should also be made for the enforcement of such legislation...
39. Appropriate bodies should be specifically entrusted with the responsibility of modernizing, changing or repealing outdated national laws and regulations, keeping them under constant review, and ensuring that their provisions are applied without discrimination...

Despite these recommendations, there are still many laws denying women the right to the "knowledge and means" of practicing family planning as well as other basic human rights. Even in countries where the legal process has already begun, actual enactment or enforcement of updated legislation remains an unfulfilled goal. The World Conference for the UN Mid-Decade for Women planned for August 1980 in Copenhagen would be the occasion for taking stock of women's progress to date as well as for a redoubled effort to achieve full implementation of the two paragraphs cited above. The proposed project would work closely with the Law and the Status of Women Projects already established to accomplish this end.

- *Rights of the Child.* Approximately one-half of the world's population is less than 20 years of age; indeed, in the developing world, the majority of the population in all regions except East Asia it is less than twenty. All the rhetoric and solemn proclamations about the rights of men and women will come to naught if the basic rights of the child—the rights to education, health, job opportunity, food, and housing—cannot be secured.

  The designation of 1979 as the International Year of the Child (IYC) has given rise to a Project on the Rights of the Child. This project would work closely with lawyers of 60 National Commissions for the IYC to compile and review laws affecting the rights of the child in accordance with the *Classification Plan on the Rights of the Child* (by M. Cohen, J. Stepan and myself) and assist in the holding of conferences in each of these 60 countries with a view to formulating recommendations for legal reforms as well as exploring ways and means of implementing such reforms. The project would also publish selected country studies in a volume similar to that of *Law and the Status of Women* which the Law and Population Program prepared for publication by the United Nations. Needless to say, this project provides a potential role for all Law and Population Projects to play.

- *Rights of the Elderly.* This is an important area of social concern not only on its own merits, but also because, until such rights can be exercised by everyone, the perceived need for many children as "old-age insurance" will persist.

  A UN proposal to designate an International Year on Aging provides an opportunity for Law and Population Projects to assist governments in safeguarding the rights of the elderly. As medical science has made huge strides in prolonging the life span of individual human beings, the number of elderly persons is increasing throughout the world, necessitating attention to problems confronting the aged which are made acute because of their shrunken income and weakened health. Such problems often include inadequate housing, health care, food and nutrition, transportation and recreational facilities, in addition to such discriminatory practices as compulsory retirement at an arbitrarily established age. It is also necessary to examine the impact of the increased number of elderly persons upon the society in such areas as the family structure, increased cost of social security and higher dependency rates.

  A classification plan on laws affecting the rights of the elderly should be developed with a view to promoting a systematic compilation and review of these laws by each country in the light of human rights principles. Each Law and Population Project should explore legal means to broaden the base for old-age support from the family to the village or the country as a whole. At the same time, it could promote the study of the interrelationship between old-age support and fertility in its country.

- *Strengthening the Vital Registration System.* In addition to demographic considerations, a sound vital registration system may be justified on the ground that no legal reform in such areas as compulsory education, the specification or raising of the minimum age of marriage, or provision of old-age social security can be enforced unless the exact age of the persons involved can be ascertained. The Law and Population Program therefore prepared and published the *Classification Plan for Laws Regulating and Influencing the Vital Registration System* (1), participated in the regional conferences on vital registration in Manila and Montevideo in 1977, and organized five projects on the legal aspects of the vital registration system. The Law and Population Projects could assist in the establishment of additional vital registration projects.

- *Role of Local Governments.* Family planning activities in the developing countries are, by and large, funded by central governments of foreign sources, whether official (*e.g.*, AID, CIDA, SIDA, and DANIDA) or private (*e.g.*, IPPF, Ford, Pathfinder Fund), and policy as well as implementational authority is generally centralized; very few local resources have heretofore been directly tapped. How-

ever, no family planning program can be really successful without local self-help and community mobilization—taking into account local traditions and patterns of organization and behavior. This means that local government must be given the initiative and authority to establish and coordinate population/family planning programs and that local resources should be maximized to enhance the well-being of the individual inhabitants.

The establishment of the Model City Project in Cagayan de Oro in Mindanao, the Philippines, has demonstrated the feasibility as well as effectiveness of local government's role in population and family planning. Under its aegis, a number of programs were established entirely with local resources. It is significant to note that one year after the inauguration of the project, the city's birth rate dropped by 15 percent. The project's impact on the national scene is even more impressive: The Philippine Government has adopted many laws based on the municipal ordinances of Cagayan de Oro, among which is the requirement that couples applying for marriage licenses must first undergo family planning counseling. On the basis of the Model City Project's success, the Philippine Government decreed in August 1976 that all government units—at the provincial, municipal and village levels—must have a population officer to initiate and coordinate population activities. The financial support for these activities was to be given initially by the central government, but was gradually and eventually to be assumed by local governments. The genesis of the "outreach" program, currently supported by AID, may be traced to this Model City Project.

The Law and Population Projects should encourage the establishment of Model City Projects in other countries to undertake experimentation in legal reforms on a small scale as a preliminary to their potential nation-wide application. They could co-sponsor with IGCC a seminar on the role of local governments in the ASEAN countries.

- *Religion and Population.* A number of Islamic and Catholic countries have a system of religious law which interacts with or dominates the civil law regulating family planning. Thus, rightly or wrongly, lack of progress in family planning in many LDC's has often been attributed to religious—primarily Roman Catholic and Islamic—factors. It is often posited that since many governments are reluctant to antagonize the religious hierarchies—especially if they are beset with other problems—they avoid a vigorous stance on family planning.

  But do religions pose an inherently insuperable barrier to the adoption of an anti-natalist policy? Even the most extreme form of birth control— abortion—has recently been sanctioned by Italy (Roman Catholic), Tunisia (Islamic) and India (Hindu). What are the factors in these countries which can be adopted (or adapted) by other nations with similar religious backgrounds? Can the more successful family planning programs in the Islamic countries of Indonesia and Tunisia be of relevance to other Islamic countries, such as Egypt? Can the French, Italian, Mexican and Cuban (all Catholic) examples be of relevance to South America?

- *Role of Incentives and Disincentives.* There are many forms as well as definitions of incentives and disincentives in the population field, and their results are uneven. In Singapore and Korea, for example, incentives and disincentives are credited with the success of their family planning programs; in India, on the other hand, failure has resulted from a program relying heavily on such an approach. A comprehensive, comparative study of laws governing incentives and disincentives and of their implementation and effects would be undertaken by Law and Population Projects and should provide a useful guide to policymakers in the developing countries.

- *Evaluation of Legal Reforms.* With a view both to the improvement of new laws and their replicability in other countries, evaluations should be undertaken to ascertain their impact. Thus, for example, the Philippine law of 1976 requiring all couples applying for marriage licenses to undergo family planning counseling would be the subject of such questions as: How has this law been implemented? What comprises "counseling" and who gives it, for how long, and how frequently? Has this law actually slowed population growth rates in the Philippines? What are the comparative fertility rates of those who have undergone family planning counseling and those who have not? Have abuses occurred? If so, of what nature, and how can they be prevented? Obviously, an evaluation of this nature must rely on close collabortion among lawyers, sociologists, political scientists, demographers and psychologists. It is also obvious that, unless such an evaluation is undertaken, the replicability of such a law in other countries is very much limited.

  Evaluation of legal reform therefore should be promoted by local Law and Population Projects in collaboration with social science consultants—as an integral part of the action-oriented work of these projects.

The twelve areas suggested above are not exhaustive. There are many more ways for the Law and Population Projects to assist governments, directly and indirectly. Thus, it may be postulated that any assistance rendered to the United Nations in fulfillment of its mandate in the population field is, in effect, assistance rendered to governments, since the United Nations is made up of, and serves the needs of, governments. Accordingly, the Law and Population Projects should assist the various UN agencies (*e.g.*, UNESCO, WHO, ILO), regional commissions (ECA, ESCAP, ECLA, ECWA), and regional

demographic training and research centers by contributing law and policy components to their programs.

Finally, as many governments still depend largely on private voluntary organizations for their family planning programs, any assistance given by the Law and Population Projects to such organizations would equally constitute assistance to governments.

In sum, the "following through" tasks of the Law and Population Projects around the world remain formidable and never-ending.

Changes in the World's Laws on Voluntary Sterilization in the 1970's: An Update and Review

Jan Stepan and Edmund Kellogg

In 1969 the first two non-eugenic, non-restrictive laws on voluntary sterilization were enacted in two parts of the world far separated from each other: Virginia and Singapore.

Up to that time in nearly all countries the only laws which were thought to apply to sterilization were the criminal codes. Today, ten years later, contraceptive sterilization is seen primarily as a medical matter; and in many jurisdictions it is dealt with as a part of medical law. Ten years ago sterilization was, at least in theory, a most serious crime; today sterilization on request is broadly recognized as a right of the individual.

Many countries have now faced up to reality and accepted voluntary sterilization as one of the methods of family planning. In addition to the worldwide acceptance of efficient contraceptive means, there have been two rationales underlying the modern legislation. In Europe and in North America the purpose has been to provide and safeguard freedom of choice for individuals; and in countries endangered by overpopulation, the rationale has been to legalize the most efficient method of slowing down population growth.

There are, of course, a great many countries where there has been no change of law (law which, with very few exceptions, rarely regulated the issues of sterilization in specific terms). These countries still face an unclear legal situation and the legal concepts of the 19th century which, in the context of the worldwide changes of attitude toward contraception, now seem unacceptable if not absurd. Other countries have decriminalized voluntary sterilization by amending their criminal laws. Still others have enacted statutes covering, in a more or less comprehensive way, various aspects of contraceptive sterilization. The legislatures of this last group have had to face and resolve some fundamental problems without many direct precedents to follow.

From the point of view of modern democracy and legislative standards, there have been two fundamental and potentially conflicting aspects of voluntary sterilization which have had to be balanced. First, the utmost privacy of decision as to whether to have or not to have a child. Second, the irreversible nature of sterilization. In the light of our experience, this latter problem demands that some protection be given to immature individuals against hasty decisions which they may later deeply regret.

It will be noted that, during the 1970's, virtually no laws have been enacted which are intended to regulate voluntary sterilization for pro-natalist reasons—at least not directly. In this connection it is interesting that the former legislative effort to allow sterilization only where the woman (or the couple) had already had several children has not reappeared.

COUNTRIES WHERE VOLUNTARY STERILIZATION WAS CONSIDERED EQUIVALENT TO THE CRIME OF GRAVE CORPOREAL INJURY

In these countries there has been little statutory change. The law is still unclarified and in many civil law countries, a consent of the sterilized person is not recognized as justification of the "criminal" act (1). A surgeon, acting at the request of a mature individual in his or her own interest, is theoretically punishable by many years of imprisonment. He is considered to be a criminal comparable to a mugger who, for reasons of greed or sadism, mutilates his victim on a dark street. This construction, officially maintained throughout the Continent of Europe and in Latin America, has nowhere been applied in practice since it is one of the most absurd and obsolete legal concepts to be found in our century.

The surprising concept that consent of the "injured" person is not a defense against a charge of inflicting corporeal injury is not expressly stated in the statutory criminal codes (except in a few Latin American countries). Historically, this concept developed in legal theory and was accepted by the courts. When, in this century, the issue of voluntary sterilization emerged, jurists theorized that the criminal responsibility of the "perpetrator" could only be excluded by the consent of the "victim" when the "victim" is authorized to dispose with the interest concerned. Therefore, consent, or even request, cannot justify acts which, although directed against the patient's own body "violate good morals." [Section 266 (a) of the West German Criminal Code.] The Supreme Court of Austria ruled in 1934 that vasectomy was not justified by the consent of the patient, because no one had the right to dispose of the intactness of his or her body on contraceptive grounds since they were "not an interest recognized by law."

The above concepts originated at a time when contraceptive sterilization was generally thought to be an immoral

extravaganza, which could have been contemplated only by licentious persons (2). However, an entirely new situation has come into existence during our generation. Views on contraception, including voluntary sterilization, have undergone a worldwide change. The operation has now been accepted by a general consensus in most of the world, and it is broadly practiced. This is often with governmental support even in countries which still have criminal codes containing the concept of "grave corporeal injury."

The complete reversal of attitudes has occurred even—and most clearly—in countries which are not suffering from overpopulation. Courts in the United States have held that voluntary sterilization is not against public policy. The positive statements of the Lane Committee in the United Kingdom are well known. The Australian Royal Commission on Human Relationship, in its Final Report in 1977, summarized its views as follows: "In our view a doctor who acts on request with due care should be protected from legal liability if the person requesting the operation is over twenty-five." Also in 1977, the New Zealand Royal Commission of Inquiry recommended "a clear statutory enactment" declaring male and female voluntary sterilization, including non-therapeutic sterilization, to be legal.

Perhaps the most official declaration on an international plane on the "moral" acceptability of voluntary sterilization was issued by a representative body of West European countries. The Committee of Ministers of the Council of Europe recommended in its Resolution (75) 29 of 14 November 1975 that member governments take legislative and administrative measures "to make sterilization by surgical procedure available as a medical service" in order to implement the right to family planning (3).

With the reversal of public attitudes, the basis on which the juristic theory criminalizing voluntary sterilization was built disappeared. This has occurred precisely in that part of the world where it originated. No one can seriously maintain in 1979 in France that sterilization performed at the request of a mature patient violates public order or in West Germany, good morals, or that the family planning motive should not be recognized as legitimate in Austria. Since this reversal of public and even official attitude has emerged only in the last decade, it can be hoped that the obsolete civil law construction of *voluntary* sterilization as a grave corporeal injury, not justifiable by request of the patient, will also be generally reversed.

In 1976, the West German Federal Court (*Bundesgerichtshof*) held that the sterilization of a mature consenting woman, even if done with no medical, eugenic, or social reasons, was not unlawful. Giving reasons for its decision, the Court said:

> Neither birth control as such, nor its medical administration are reprehensible under prevailing moral notions. On the contrary, it is generally understood that the freedom to decide for or against parentship makes possible a more humane manner of living. Such a view conforms with our scale of constitutional values... (4)

It is well known that a similar situation of legal uncertainty has been cleared up in the Philippines by Opinion No. 131 of 17 September, 1973, of the Secretary of Justice. He stated that sterilization, male or female, "is not mutilation" punishable under the Criminal Code, since family planning is not contrary to law or public policy. He also cited the national program of family planning, among the purposes of which was "to make available all acceptable methods of contraception, except abortion." Similar arguments would necessarily apply in other countries where family planning has been accepted as part of national policy, except perhaps Chile. (In Chile, Resolution No. 003 of 8 September, 1975, of the Ministry of Health declared that "[s]terilization will not be considered as an activity to regulate fertility and it may only be practiced for medical reasons," under specifically listed indications) (5).

Finally, in some countries the acceptance of family planning and the de facto practice of voluntary sterilization may be inconsistent with so-called sanitary codes, or codes of medical ethics. Where such codes are old, the prohibition of voluntary sterilization may be simply viewed as obsolete. However, in El Salvador there were issued: 1) a 1974 regulation of the Ministry of Public Health establishing rules and procedures for voluntary sterilization; 2) an amendment to the provisions of the Criminal Code of 20 October, 1977. Its Section 173 expressly provides that consent is only a mitigating circumstance where the crime is "mutilation." (Among corporeal injuries "incapacity to conceive or to beget" is expressly mentioned.)

Another problem may arise in Moslem countries governed by criminal codes based on a "civil law" model. Moslem tenents may be interpreted adversly to voluntary sterilization as a method of population limitation.

COUNTRIES WHICH HAVE "DECRIMINALIZED" VOLUNTARY STERILIZATION BY AN ADMENDMENT TO THE CRIMINAL CODE

The legal absurdity of a surgical operation—requested and thought beneficial by a mature patient—being considered equivalent to the felony of muggery has been solved in a few countries by short amendments to their criminal codes. Such amendments provide that contraceptive sterilization is not punishable under provisions covering "intentional corporeal injury," "grievous hurt," and so forth. Various legislative techniques are used to achieve this object.

In the common law area, the Singapore Voluntary Sterilization Act of 1974 was the first to provide in Section 9:

> [F]or the avoidance of doubt, it is hereby declared that any treatment for sexual sterilization by a

registered medical practitioner shall not constitute a "grievous hurt" under sections 87 and 320 of the Penal Code.

More recently, the New Zealand Act to Amend the Crimes Act 1961, of 16 December, 1977, inserted in the Crimes Act the following section 61A:

(1) Every one is protected from criminal responsibility for performing with reasonable care and skill any surgical operation upon any person if the operation is performed with the consent of that person, or of any person lawfully entitled to consent on his behalf to the operation, and for a lawful purpose.

(2) Without limiting the term "lawful purpose" in subsection (1) of this section, a surgical operation that is performed for the purpose of rendering the patient sterile is performed for a lawful purpose.

Most important for the development of criminal law in Europe, the new Austrian Criminal Code of 1974 states in Section 90:

(1) The infliction of bodily injury, or the endangerment of bodily safety is not unlawful ("*rechtswidrig*") if the injured or endangered person consents, and if the infliction or endangering, as such, is not contrary to good morals ("*gute Sitten*").

(2) Sterilization of a consenting person by a physician is not unlawful, if the person concerned has passed the age of 25 or if it is not contrary to good morals for other reasons.

Thus the law of a country with a long rather conservative tradition, now one of the model democracies of the European continent, has officially declared that voluntary sterilization to which a mature person consents is not "against good morals."

In pre-revolutionary Iran, the Civil Penal Code was amended in 1976 by inclusion of the following text of Article 48, paragraph 8:

(5) (1) A doctor shall be permitted to perform a sterilization if the spouse of the patient gives written consent, and the couple have two children.

(2) If both partners are over 25 years, the stipulation as to having two children shall be waived.

(3) Sterilization may be performed on unmarried persons only if they are over 30 years of age (6).

The most recent liberalization of penal provisions on voluntary sterilization was enacted in Italy in 1978. The former Italian Criminal Code differed from nearly all other civil law codes by two special provisions. Its section 552, paragraph 1, contained a special provision on *voluntary* sterilization (7). Under this provision sterilization of a consenting person, be it a male or a female, was punishable by imprisonment of not less than six months and not more than two years, plus an additional fine. The notorious paragraph 2 of section 552 then provided: "The same penalty shall be applied to whomsoever consents that such acts be performed on himself or herself."

Both paragraphs of this section were repealed by Section 22 of Law No. 194 of 22 May, 1978, so that voluntary sterilization in Italy has been entirely decriminalized (8).

Theoretically, the legal problems of voluntary sterilization could be solved by simply deleting provisions penalizing the operation (on a consenting person) from the criminal code since this would completely liberalize the procedure on the principle that "what is not forbidden by law is permitted." However, this would be an insufficient solution. Due to the great importance of what is still an irreversible operation, several difficult questions arise of such character that some legislative regulation or safeguards against possible abuse seem to be needed. Therefore, in most countries enacting new laws on sterilization, there have been more or less comprehensive statutes regulating several aspects of the problem.

COUNTRIES WHICH HAVE RECENTLY ADOPTED COMPREHENSIVE (NON-RESTRICTIVE) STERILIZATION STATUTES

In the past few years such legislative action has been taken by several countries in various parts of the world.

Some of the states in the *United States* (Virginia in 1962 and North Carolina in 1963) were the first jurisdictions to enact new statutes under which sterilization operations may be performed under certain non-restrictive conditions.

In 1969 *Singapore*, under the pressure of fast population growth, enacted its first Voluntary Sterilization Act, to be amended in 1972, and finally replaced by the very liberal Voluntary Sterilization Act of 1974 (No. 25).

Then Scandinavia followed. *Finland's* Law on sterilization (No. 283 of 24 April, 1970) repealed a 1950 statute which had been motivated by eugenic considerations and allowed voluntary sterilization on broad social grounds. *Denmark's* restrictive Law No. 234 of 3 June, 1967, on sterilization and castration (also concerned with eugenic indication) was replaced by Law No. 318 of 13 June, 1973, which recognizes the right of any person over 25 years to be sterilized on request. The right to sterilization on request after the age of 25 was recognized in *Iceland* by the Law of 22 May, 1975, in *Sweden* by the Sterilization Law of 12 June, 1975, and in *Norway* by Law No. 57 of 3 June, 1977.

In 1977 and 1978 respectively, sterilization was regulated by two comprehensive statutes of the Yugoslav constituent republics of *Slovenia* and *Croatia*, "to realize the right to freely decide on the birth and spacing of children." (The statutes of Iceland and of both Yugoslav republics enact a comprehensive coverage of sterilization and various other questions affecting birth control.)

To complete the list of most recent sterilization laws, the statutes of *South Africa* of 1975 and *New Zealand* of 1977 should be mentioned, although they are concerned only with a few special aspects of the subject.

In all the most recent, non-restrictive comprehensive "sterilization statutes," there appears a nearly uniform pattern: *the right to be sterilized on request is recognized to belong to all persons over a certain age of maturity; while younger persons can be sterilized if certain indications are present and if a body (board, commission) authorizes the operation* (9).

In recent years, the laws on sterilization enacted in various countries typically tend to include provisions on some of the following issues.

Acceptance of Voluntary Sterilization as a Right of the Individual

Early sterilization laws, especially in Scandinavian countries, were mostly concerned with eugenic problems and, in addition, allowed sterilization if there were serious social grounds. However, in recent years the laws of several countries have accepted sterilization as a *right of the individual.* (Finland, 1970; Denmark, 1973; Singapore, 1974; Iceland and Sweden, 1975; Norway and Slovenia, 1977; Croatia, 1978.) It may be instructive to note that three of those countries, Finland, Singapore, and Denmark, had to change their legislation from the earlier type, where sterilization had to be authorized by a state body.

Both Yugoslav statutes expressly proclaim that they have been enacted to implement the constitutional "right to freely decide on the birth of children."

From the concept of the *right* to contraceptive sterilization the following conclusions result:

- The decision (after a certain age of maturity has been reached) is up to the individual; therefore; *permission of an authorizing body* (or the opinion of a consultant-physician) *is not required* by modern statutes.
- If the person who wants to be sterilized is married, *consent of the spouse is not required,* as was the case, e.g., in the post-war Eugenic Protection Law of Japan. (As distinguished from the abortion situation, an *additional consent of the parents of a minor* is, as a rule, necessary, wherever the law allows a minor to be sterilized. This is justified by the irreversible nature of the decision.)
- *If the "right" is to have meaning, the operation must be accessible to the average citizen* even though, as a medical act, it must be accompanied by reasonable medical safeguards. Therefore, modern legislation should avoid cumbersome procedures and medical requirements which, in view of the simplicity of vasectomy and even of female sterilization, seem unnecessary. This, however, has not always been the case, and in some instances unnecessary requirements have been imposed.

In practice, some countries do make a special effort to make sterilization available. For example, the Slovenian Law of 20 April, 1977 provides that health care establishments "shall take all necessary measures to ensure that women and men *can enjoy*" their right to decide on parentship.

It is also worth noting that in the U.S. the Wisconsin Health Policy Council adopted a State Health Plan under which both voluntary and medically indicated sterilizations "are a part of the full range of service that should be available at some level of obstetrical care....For some women, sterilization may be the only effective form of family planning, but all women should have the freedom to choose this form...." The council urged all hospitals with obstetrical services make sterilization available to all women "within one-half hour travel time" (10).

From the point of view of accessibility, of course, the coverage of sterilization surgery by social security or health insurance systems or, at least, a regulation ensuring low medical fees, is essential. This end has by now been achieved in the United Kingdom, in West Germany, in Austria, in Iceland (11), in all the Socialist countries, and, of course, by those countries which view sterilization as an important method for decreasing their excessive population growth.

Safeguards Designed to Ensure Maturity and Freedom of the Decision to Undergo Sterilization

Mature age. The right to choose sterility is recognized only after the person concerned has reached a certain age, higher than that of civil majority (12). There are two rationales underlying this approach:

1) It is assumed that a person should reach a certain "age of maturity" in order to be able to make a decision as important as that on (irreversible) sterility. Only after that age has been reached can anyone be sterilized on request. If the patient is younger, sterilization can be authorized only if there is one of the grounds provided in the statute. Sterilization statutes in the Scandinavian countries and Austria have set this age at 25 years.
2) Sometimes, however, the age may be set so high that the rationale behind it seems to be to allow sterilization on request only to persons who, in the overwhelming majority of cases, already have some children. The recent Yugoslav birth control statutes of *Slovenia* (1977) and *Croatia* (1978) provide for sterilization on request only at the age of thirty-five years. The question is clearly raised as to whether an age requirement as high as thirty-five years infringes on the constitutionally assured right to "freely decide on the birth of children."

A mixture of both rationales seems to exist in the 1976 amendment to the Civil Penal Code of Iran (13). Under it a physician may perform sterilization on a married person (with the consent of the spouse) only if the couple has two children, or if *both* partners have reached 25 years; or, on unmarried persons, if they are over 30 years of age.

Informed consent, including the requirement that the patient be made aware of the irreversibility of the operation. In cases of a surgery, the consequences of which are irreversible, such a requirement is elementary under the basic principles governing the law of medical responsibility. It may therefore seem strange that statutes [e.g., Danish Law of 13 June, 1973, Section 9 (3)] (14) are required in order to impose on a physician the self-evident obligation to inform the patient "on the nature of the operation and its direct consequences as well as the risks it may involve." However, gross violations of that medical duty in some countries resulted in the adoption of detailed provisions on written consent and its form (e.g., in the U.S., the 1978 HEW Regulations of 30 October, 1978 on conditions of federally funded sterilizations). In Sweden, the National Board of Health and Welfare found it useful to include in the regulations implementing the 1975 sterilization law the following provision: The physician who performs the operation "must in each case satisfy himself that the applicant is aware of the significance and the consequences of the operation and maintains his request to be sterilized" (15). The case of ten women in California who sued their doctors because they had allegedly been sterilized without due consent, owing to misunderstanding caused by the language barrier, shows that the language of the Swedish circular ("must in each case satisfy himself") is not superfluous.

In the U.S. the above cited HEW 1978 regulations include very detailed provisions on what information is to be given to the patient, the contents of the consent form, and its handling (e.g., to be signed also by the surgeon who performed the operation).

Waiting periods may be required to allow reconsideration of the decision to be sterilized. Since 1960, sterilization statutes in the U.S. as well as in other countries have provided that a certain period of time (e.g., thirty days), must elapse between the time of the consent to be sterilized and the actual performance of the surgery. This seems to be a simple, natural way to ensure that the consent or request is well-considered and that the patient has an opportunity to reconsider. Drawbacks to that solution become visible when medical or even other circumstances (e.g., a necessity that the patient travel twice to a distant medical facility) make a delay of the surgery unsuitable. On several occasions where a law introduced a mandatory waiting period, this provision has later had to be repealed or limited in its scope by amending legislation. (The 30-day waiting period of the Singapore Voluntary Sterilization Act of 1969 was shortened to seven days by a 1972 amendment, and it disappeared completely from the Sterilization Act of 1974.) In the U.S. the requirement of a 30-day waiting period in North Carolina's 1963 sterilization statute was repealed in 1974 (16).

The recent Yugoslav statutes do not provide for a waiting period, neither do the recent sterilization statutes of the Scandinavian countries (17).

Sterilization of Minors, Incompetent, and Institutionalized Persons

Recent legal developments as to these issues vary, and in some countries difficult problems are developing. On one hand, minors and mentally handicapped persons may be incapable (either legally, or in fact) of giving informed and mature consent. Moreover, mentally handicapped people are often unable to control their fertility through the use of contraceptives although they may have frequent sexual relations. They are incapable of taking care of their children who may inherit some of their defects. On the other hand, to substitute for their own decisions those of their parents, guardians, or courts amounts to an imposed and enforced sterilization.

The sterilization of minors on the request of their parents is abhorrent in some countries. In Sweden, the minimum age at which a person may be sterilized is 18 (Section 3 of Law No. 580 of 1975). Under the 1970 Finnish law, persons under 18 may be sterilized only where there are "very serious" or "imperative" reasons. (See also Section 413 of the Danish Law No. 318 of 1973.)

Several cases arising during recent years show the need for restraint in allowing minors to be sterilized since some parents, social workers, and even physicians may too easily accept the responsibility for a decision that another person must remain sterile for life. In the United Kingdom, in an important case *Re D (a minor)*, (1976). All E.R. 326 (18), the High Court held that non-therapeutic sterilization performed without competent consent of the person sterilized would be a violation of a basic human right and refused to authorize a sterilization requested by the mother of an eleven year old girl.

In the U.S., the complicated history of regulations governing federally funded voluntary sterilization started with several tragic cases of abuse, among them the sterilization of the adolescent Relf sisters in Alabama (19).

After a long discussion the *U.S. Department of Health, Education and Welfare issued its regulations of 30 October, 1978* (Federal Register of 8 November, pp. 52. 145-175), *which prohibit federal funding* [through Medicaid and other programs] *of sterilization of:*

- individuals younger than 21 years,
- individuals mentally incompetent,
- institutionalized individuals.

There were several decisions of both federal and state courts in the U.S. in the 1970's which held that, in the absence of specific statutory authority, the court lacked the power to approve a parent's request for the sterilization of a mentally retarded child. [Citations are to be found in *Family Planning/Population Reporter,* Vol. 8 (Feb. 1979), p. 5.]

In *New Zealand*, Section 7 of the Contraception, Sterilization, and Abortion Act, 1977, strictly prohibits parents or guardians from consenting to a sterilization of a minor in the following language:

> Section 7: Consent to sterilization operation. Notwithstanding anything in the enactment or rule of law to the contrary, no person shall have the capacity to consent to the performance on any other person of an operation of sterilization if that other person lacks the capacity to consent on his own behalf by reason only of his age.

As *to adult, mentally-handicapped persons*, recent statutes of various countries take different positions. Some of them permit, without much limitation, the consent of parents, or of a specially appointed guardian, of the handicapped person to be substituted for that of the patient. Thus the 1973 statute of *Denmark*, similar to the 1967 Danish law and to the 1970 law of *Finland*, provides:

> *Section 6, paragraph (2)*: If the said person, on account of a mental disease, mental deficiency, or other reason is permanently or for a long period not in a position to understand the significance of the operation, the committee may authorize sterilization on the basis of an application submitted by a guardian specially designated for the purpose, where this is justified by the circumstances...
>
> *Section 7*: If the person on whom the operation is to be performed is a minor or suffers from a mental disease or it is to be considered doubtful, on account of the applicant's mental state, which may include feeble-mindedness, that he himself will apply for sterilization, the committee may authorize sterilization on the basis of an application of the person concerned and of the person exercising parental authority or of the guardian, or possibly a guardian specially designated for the purpose.

Section 10 of the 1978 comprehensive statute of *Croatia* allows legal representatives, instead of the incompetent individuals themselves, to apply for sterilization, with the approval of the guardianship authority.

The Law of 22 May, 1975 of *Iceland* provides for the application for sterilization to be submitted by a specially appointed legal guardian instead of by "persons incapable of comprehending the consequences of the procedure." Under the *Norwegian* Law No. 57 of 1977, an application may be submitted by a guardian if the person concerned suffers from mental illness or mental handicap or retardation "of such severity that he is incapable of expressing any personal opinion regarding the operation and recovery or significant improvement cannot be anticipated."

The 1975 Sterilization Law of *Sweden* (which allows sterilization only after the age of 18 has been reached) has no provision in regard to applications submitted on behalf of an incompetent person. Under the 1977 comprehensive statute of *Slovenia*, legal representatives of incompetent persons may apply for a sterilization only "for health reasons" (Section 11) (20).

A special statute "to define circumstances in which...a person who is incompetent to consent to sterilization may be sterilized" is found in the Abortion and Sterilization Act of 1975 of *South Africa*. It applies, in broad language, to "any person who for any reason is incapable of consenting or incompetent to consent" to sterilization. Such persons may be sterilized if their legal representatives apply and sterilization is granted by the Minister of Health. This is under the condition that two physicians, one of them a psychiatrist, certify that such person

> (i) is suffering from a hereditary condition of such a nature that if he or she were to procreate a child, such child would suffer from a physical or mental defect of such a nature that it would be seriously handicapped; or
>
> (ii) due to a permanent mental handicap or defect is unable to comprehend the consequential implications of, or bear the parental responsibility for, the fruit of coitus.

Another problem involves the freedom of decision in the face of pressure which may sometimes be exerted on *inmates of certain institutions*—inmates mentally handicapped or not. In some psychiatric institutions or prisons, inmates sometimes may not be in a position to freely make vital decisions. Experience shows that pressure may sometimes be exerted to induce the inmates to consent to a sterilization which, in the opinion of the officials, is in the best interest of society.

Physicians, too, may engage in influencing their patient toward sterilization by means unacceptable under any criteria. In a recent case in the U.S. (*Walker v. Pierce*, 560 F. 2d 609 [1977]), it was shown that an obstetrician had a "policy" under which any woman on Medicaid who came to him for the delivery of her third (or later) child had to give prior consent to a tubal ligation which would take place after the delivery; if she refused, the physician would not perform the delivery. When the plaintiff in this case refused, the doctor ordered her discharged and released from the hospital.

Cases such as the above led the U.S. Department of Health, Education and Welfare to include in its 1978 regulations the provision requiring that patients must be informed that if they refused sterilization, or withdrew their consent, it would not affect their right to future treatment or to their normal benefits (21).

MISCELLANEOUS RECENT DEVELOPMENTS

Incentives to Sterilization

The governments of some countries suffering from severe population pressure—most notably India—introduced various kinds of incentives to support the use of contraception sterilization by couples who already had a certain number of children. Some of these incentives have been

criticized as encroaching on the freedom of the individual concerned.

The question of "incentives" demonstrates the possible conflict between two aspects of voluntary sterilization: between the right of an individual to a free choice, and the requirements of the population policy of a state. One of the problems is how to delineate the boundary between unobjectionable privileges (such as positive incentives) and the threat of deprivation of benefits. Much may depend on the specific situation of the country and even on that of the individual. Perhaps part of the answer may be that, in order not to impose upon free choice, no "incentives" should exploit a special weakness in the position of the individual. This might make suspect a governmental policy which reserved a basic product or service to which all citizens should be entitled to those who limited their families through sterilization (22).

Spousal Consent

The development of sterilization laws worldwide seems to tend towards the right of *individuals* (23).

None of the comprehensive sterilization statutes described above require consent of the spouse as a requirement for sterilization. However, some hospitals still require the consent of the spouse (as distinguished from advising the patient to reconsider the operation if his or her spouse does not agree). In September, 1979 a Federal District Court in the U.S. ordered a municipal hospital to discontinue its policy of requiring spousal consent to sterilization, as such policy "constitutes a violation of [the] constitutionally protected right...to family planning decisions and [the] fundamental right to choose whether to bear children...(24).

Different Treatment of Male and Female Sterilization

The only direct differences in recent legislative treatment of the two sexes arise from the nature of the operation. There are two such differences:

1) Therapeutic sterilization is in some statutes made applicable only to operations on women (Norway, Croatia). Although this seems self-evident, it might, however, be considered a deficiency that such statutes did not provide for a possible vicarious sterilization of the husband where the health of a married woman is endangered by pregnancy or childbirth. (The 1972 West German draft had such a provision.)
2) The requirements of hospitalization or for a special health institution where the operation must be performed, or the qualifications of the physician might be drafted differently (e.g., Section 10 of the Norwegian 1977 law: performing sterilization of men in policlinics authorized).

None of the modern comprehensive sterilization laws has provisions which would directly violate the equality of sexes. The previously cited Wisconsin State Health Plan provides for broad availability of sterilization *for women* only. On the other hand, the World Health Organization's "one hundred rule" (under which a doctor should refuse to sterilize a woman unless her age multiplied by the number of her living children equals 100) must be considered to be grossly discriminatory unless some analogous limitation is applied to men.

Civil Responsibility for Unsuccessful Sterilization

This issue has become the subject of several law suits, as well as literary discussion, in the United States. [We refer to Mrs. H. Pilpel's paper (25).]

As to other countries, proof of negligence remains the usual basis for any civil responsibility of the surgeon as in any other medical malpractice case. There are, however, two specific features affecting the responsibility of the physician in a sterilization operation (in addition to his specific responsibility for giving full information to the patient regarding the irreversibility of the surgery, and the necessity that the surgeon satisfy himself that the patient is aware of the significance and the consequences of the operation). These features are:

- The *lege artis*-based duty to perform appropriate *post-operative tests* and "post-operative counseling" informing the patient of the desirability of using contraceptives until the results of the post-operative tests are favorable.
- The question as to *what, if any, damages can be recovered by the parents of an unwanted child* for his or her "wrongful birth," weighing the "intangible benefits of parenthood" and the economic cost of raising a child. As this is an issue which probably has never before, even indirectly, been covered by the statutory law of any country, the answer has to be with future legislators.

In comparison to numerous cases of "wrongful birth" in the U.S., there are relatively few reported from other countries, but an important 1974 decision of an appeals court has been reported from West Germany (26).

Conscience Clauses

The right of a physician, nurse, or other person to refuse participation in a sterilization procedure on grounds of conscience is not, as a rule, regulated by the provisions of "sterilization laws" outside of the United States. (The issue may not be as sensitive in the context of sterilization as it is when connected with abortion.) In the U.S., several states have statutory provisions ensuring a broadly drawn right to conscientious objections regarding sterilization.

In such legislation the most important aspect is to impose upon the objecting physician the duty to refer the patient to another facility where he or she can obtain the re-

quested service. This is especially needed where the entire institution (as, e.g., denominational hospitals) is not willing to perform sterilizations (27).

In the U.S., a public hospital cannot refuse to perform voluntary sterilizations on "conscience" grounds [decision of U.S. Court of Appeals in *Hathaway v. Worcester City Hospital*, 475 F. 2d 701 (1973)]. Private hospitals, even if they are partially supported by federal funds, may deny sterilization operations [*Chrisman v. Sisters of St. Joseph of Peace*, 506 F. 2d 308 (1974)].

From the point of view of future legislation, a distinction should probably be made between the right of denominational institutions to refuse, for religious reasons, to perform sterilizations or abortions and a case where the head administrator or the administrative board of some non-religious institution issues such a prohibition covering the entire institution. The issue of conscientious or religious objection must be confined to the individual and not as a "right" of a non-religious institution. That is the answer to the question, "Do hospitals have a conscience?"

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REFERENCES

1. In most common law countries, including the United Kingdom and the United States, the legality of consensual contraceptive sterilization is not subject to doubt.
2. This attitude has not yet disappeared from the juristic views of some French and West German scholars. Some evidently still believe that contraceptive sterilization without medical, eugenic, or social grounds is only requested by a woman who "desires to lead a licentious sexual life" (*demener une vie sexuelle sans frein*). Thus, one standard commentary (Schonke/Schroder, *Strafgesetzbuch, Kommentar*) maintains as late as in its 18th edition of 1976 that sterilization performed solely for "social reasons" is inadmissible and much more so if there is no ground except convenience (the so called *Gefälligkeitssterilisation*, p. 1348). The fragile basis for such legal thinking may be seen in another statement from the cited work, made in the same context (p. 1347) to the effect that sterilization does not violate good morals "if it is performed for the purpose of removing a sexual desire which results in criminal acts"—a possible confusion of sterilization with castration.
3. The governments are also urged to ensure that persons who desire sterilization be made fully aware that, in the present state of knowledge, the operation is generally irreversible.
4. Decision of the *Bundesgerichtshof* of 29 June 1976, *Neue juristische Wochenschrift* 1976, 31: 1790.
5. See text in *International Digest of Health Legislation*, issued by World Health Organization (hereinafter referred to as IDHL), Vol. 28 (1977), p. 212 ff. This is a sudden reversal of an earlier policy stated in Circular No. 432 of 2 December 1974, by the same Ministry under which contraceptive sterilization could be performed after approval of regional committees. (*Annual Review of Population Law*, 1974, p. 16. *Review*, originally issued by Law and Diplomacy, now issued by United Nations for Population Activities.)
6. Translation reprinted from *IDHL*, Vol. 27 (1976), p. 789.
7. In Italy the sanction imposed for "grave corporeal injury" applied only to *involuntary* sterilization.
8. It may seem that the provisions of sec. 552 of the Italian code were so obsolete as not to be applied in post-fascist times. However, the Italian judicial statistics show that during the five-year period from 1970-1974 more than twenty persons were *prosecuted* (the statistics do not show if and how many were found guilty) for the crime of sterilization. The statistics also do not distinguish between prosecution for the first and for the second paragraph.
9. Such was also the general basis of the West German draft bill, submitted to the Parliament in 1972 but not adopted. That bill would have legalized the sterilization of any person over 25 years if performed by a physician, and of younger persons under strictly drawn indications. However, the bill was characterized by several questionable features: a) It retreated from the liberalizing decision of the *Bundesgerichtshof* in the *Dohrn* case and reintroduced the concept that any voluntary sterilization performed in violation of the provisions of the bill would constitute a crime of grave corporeal injury. (In view of the recognition of the social acceptability of voluntary sterilization, this amounted to a legislative fiction.) b) It implanted a rather complicated and extensive sterilization statute in the Criminal Code, thus reviving the old approach of treating contraceptive sterilization primarily as a matter of criminal law instead of medical law. c) Finally, it contained explanatory remarks which strongly indicated that the physician rather than the individual concerned should be authorized to decide who may and who may not be sterilized. Such a concept, aside from denying individuals the right to decide on parentship, would have transformed the physician into an administrative agency authorized to make decisions on rights of individuals.
10. *Family Planning/Population Reporter*, Vol. 8, No. 1 (February 1979), p. 9.
11. *See* Sec. 29 of Law of 22 May 1975.
12. The International Planned Parenthood Federation's Statement of May 1977, as well as its Proposal for a Voluntary Sterilization statute (as drafted by the Second and Third International Conferences on Voluntary Sterilization), propose that every person who has reached majority should have the right to be sterilized.
13. Translated into English in *IDHL*, Vol. 27 (1976), p. 789.
14. Similar provisions can be found in Sec. 5 of the Swedish 1975 sterilization statute, Sec. 5 of the Norwegian statute, and Sec. 21 of the 1975 Icelandic statute.
15. Circular of 31 October 1975, summary in English in *IDHL*, Vol. 27, p. 867.
16. See *Annual Review* 1974, p. 30.
17. An extensive discussion on the pros and cons of the waiting period has been summarized by the U.S. Department of Health, Education and Welfare in the *Federal Register*, Vol. 43 (1978), No. 217, pp. 52149-51.
18. The case involved a mother's attempt to arrange for the sterilization of her 12-year-old daughter who suffered from a condition diagnosed as Soto's syndrome. The girl

was somewhat retarded mentally (IQ 80) but, as was commonly accepted, had sufficient intellectual capacity to enable her to marry in due course. When she reached puberty at 10, her mother was worried that her daughter might be seduced and possibly give birth to an abnormal child. It should be noted that a consulting pediatrician who was ready to perform the operation on the girl, *then 11 years old*, refused to defer the surgery, which had to be stopped by the court.

19. An even more shocking case, Stump v. Sparkman, 435 U.S. 349 (1978), occurred in the State of Indiana. A fifteen-year-old girl was sterilized at the request of her mother, although the girl herself was informed that the operation was for an appendicitis. She learned the truth only after she married. The operation was authorized by an Indiana judge without any legal basis. (It should be added that the U.S. Supreme Court, in a 5-3 decision, held that even such an act was covered by judicial immunity and that no damages could be recovered from the judge.)
20. *New Zealand*, the Royal Commission of Inquiry (report on *Contraception, Sterilisation and Abortion in New Zealand*, March 1977, pp. 127-28) recommended "that the Courts be vested with power to make an order for the sterilisation of intellectually handicapped persons"; if the parents of such persons do not apply, the application may be "initiated" by the superintendent of any institution or home, or even by a physician or social worker. This recommendation was accepted in slightly modified form by the drafters of a bill on Contraception, Sterilisation, and Abortion. However, the General Assembly did not pass that part of the bill and enacted instead of it the exclusion of a sterilization of minors (see above p. 24.).
21. The 1977 New Zealand legislation (see p. 25 above) went even further, providing that a promise to be sterilized must not be made a condition to a loan or to an employment.
22. As this report deals only with the topic of voluntary sterilization, it does not touch the difficult political decision involved in the mandatory sterilization program which was contemplated in part of India a few years ago.
23. See U.N. World Population Conference, World Population Plan of Action, approved Bucharest, August 30, 1974. U.N. Document E/CONF. 60/WG/L 55, Add. 3, Chap. II , para. 14 (f).
24. Brassfield v. Lee (1978), cited from *Family Planning/Population Reporter*, Vol. 8 (1979), p. 10.
25. An excellent recent article on the problems both of negligence and damages in cases of unsucessful sterilization is G.B. Robertson's article "Civil Liability Arising from 'Wrongful Birth' Following an Unsuccessful Sterilization Operation," in *American Journal of Law and Medicine*, Vol. 4 (1978), pp. 131-56.
26. *Neue juristische Wochenschrift*, Vol. 28 (1975), p. 595: stating the following three principles governing the liability of a surgeon for an unsuccessful sterilization: 1) The physician is responsible to perform the operation in accordance with the best known medical procedures and with full information to the patient on the consequences; 2) in order to claim damages for failure of the sterilization, the patient must prove negligence; 3) if negligence 1975 sterilization statute, Sec. 5 of the 1977 Norwegian statute, and Sec. 21 of the 1975 Icelandic statute.
child. (The case was settled out of court.)
27. The 1973 statute of Denmark provides in section 10, para 2: "If the chief physician of the hospital or hospital department concerned refuses to perform the operation, even if...authorization for sterilization has been granted, the applicant shall be referred to another hospital or hospital department in which the operation can be performed."

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Reversal of Female Sterilization by Microsurgery Dr. V. Gomel	10 mins. 16mm	Medical	
Laparoscopic Falope Ring Procedure Author: Dr. E. Timoll	10 mins. 16mm	Medical	Johns Hopkins Med. Institute
That Children May Not Die Director: Joyce Chopra	60 mins. 16mm	General	Ford Foundation
Republic of Korea	20 mins.	General	
A Question of Choice Consultant: Dr. M. Potts	23 mins. 16mm	General	George Washington University
To Keep Green Field	10 mins. 16mm	General	Population Dynamics
Mini-laparotomy for Female Sterilization Author: Dr. V. Osathanondh	12 mins. 16mm	Medical	Population Dynamics
Falope Ring Sterilization Via Mini-lap	10 mins. 16mm	Medical	Johns Hopkins Med. Institute
Mini-lap Technique	30 mins. 16mm	General	Pathfinder Fund
A Door to the Happiness	20 mins. 16mm	General	
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The Island Way Consultant: Dr. C. Gabriel	15 mins. 16mm	General	
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Training Paramedics in Vasectomy	10 mins. 35mm slides	General	
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Birth Following In-Vitro Fertilization Patrick Steptoe	30 mins. 16mm	General	
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Nurse Training	15 mins. 35mm slides	General	
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I & E. aterial for Illiterates Dr. Gordon Perkin	15 mins. 35mm slides	General	
Open Laparoscopy Dr. Malik	30 mins. 35mm slides	Medical	

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