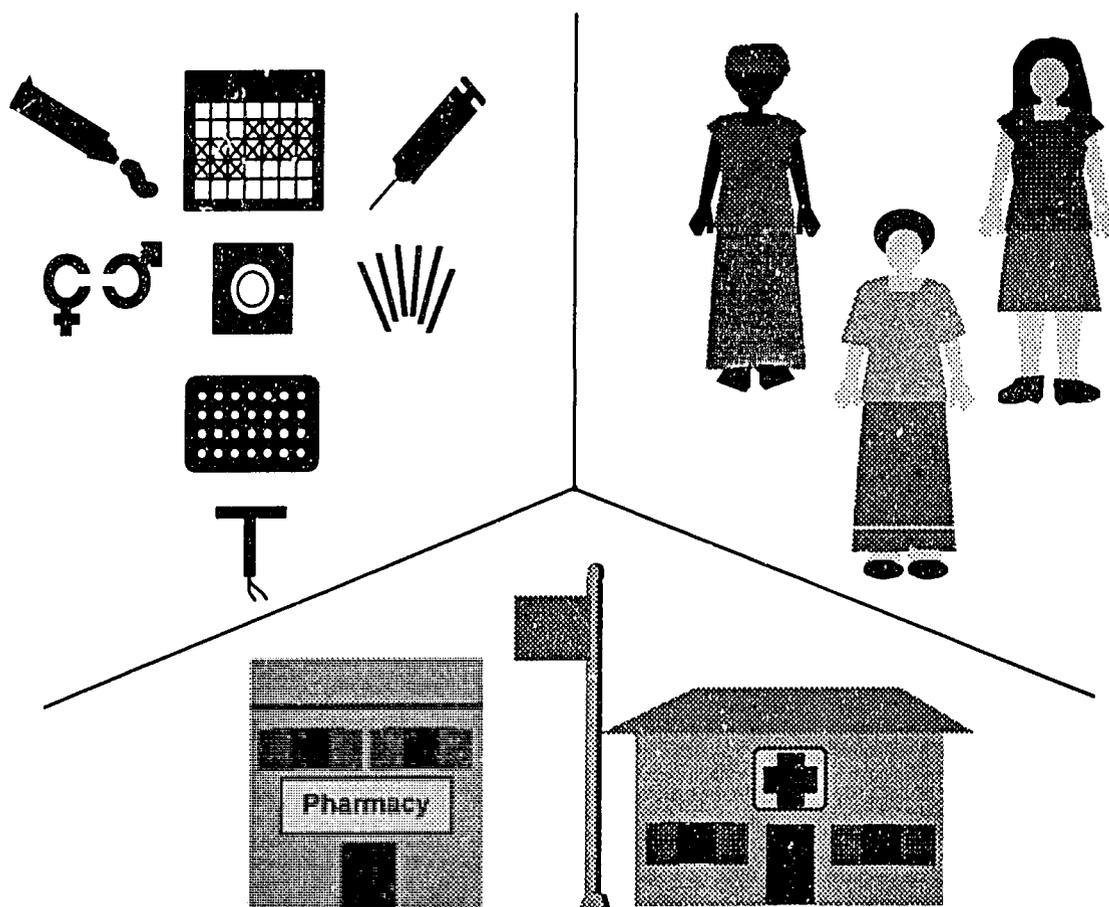


# Policy and Programmatic Use of DHS Data: A Tool for Family Planning Program Managers and Analysts

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THE  
**FUTURES**  
GROUP

## PREFACE

**O**PTIONS for Population Policy II is a five-year project funded by the Office of Population of the U.S. Agency for International Development. The goal of the project is to help A.I.D.-assisted countries formulate and implement policies that address the need to mobilize and effectively allocate resources for expanding family planning services. The project provides technical assistance to:

- improve the analytic capacity of developing country institutions to design, manage, and monitor family planning programs;
- assess legal and regulatory policies affecting the delivery of family planning services;
- promote efficient use of public sector resources in family planning programs; and
- increase private sector participation in service delivery.

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# **POLICY AND PROGRAMMATIC USE OF DHS DATA: A TOOL FOR PROGRAM MANAGERS AND ANALYSTS**

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## CHAPTER 1

### OVERVIEW: USE OF DHS DATA FOR FAMILY PLANNING PROGRAM DESIGN AND EVALUATION

#### I. INTRODUCTION

The magnitude of demand for family planning services in the developing world is enormous. Each year millions of women become pregnant with unwanted children, jeopardizing their own health and the health of their children. Policymakers are becoming increasingly committed to providing a range of quality family planning services, both as a human right and health benefit, and as an essential component for achieving national development goals. In many countries, however, improving and promoting existing services—much less adding new ones—is hampered by limited national and donor resources. This reality makes it essential that policymakers and family planning program managers allocate resources in the most effective manner possible.

To be successful in this endeavor, policymakers and program managers must have a keen understanding of the potential client population. By listening to the women they serve *or have yet to serve*, program officials can anticipate information and service needs, helping them to allocate program resources efficiently and—more importantly—to satisfy clients. Many developing-country officials have already taken this principle to heart and now measure the success of their family planning program by its responsiveness to individual needs.

A valuable resource exists to help program officials respond to client needs. The **Demographic and Health Surveys (DHS) Project**, funded by USAID, conducts systematic, extensive interviews with women of reproductive age in over 40 countries. These interviews provide a wealth of empirical information about women's personal characteristics, fertility desires, knowledge and use of contraception, use of maternal and child health services, and the household and family context of their lives. When adeptly analyzed and interpreted, these survey data can provide program officials with valuable insights to design effective, cost-efficient, and client-centered programs. This manual, entitled *Policy and Programmatic Use of DHS Data*, is intended to enhance some of that analytic capability.

The results from the DHS have been of critical importance for documenting levels of fertility and mortality and factors affecting contraceptive knowledge and use. They provide comprehensive descriptive information of women's reproductive lives. In addition to the important descriptive information contained in the surveys, DHS data can also serve as input to various demographic models used to project population, understand the proximate determinants of fertility or estimate future levels of contraceptive prevalence needed to obtain target fertility levels. This manual focuses on the use of DHS data to help program managers make wise decisions about program directions. Too often this potential use of

the data is overlooked. *Policy and Programmatic Use of DHS Data* seeks to remedy this shortcoming by presenting some important programmatic issues that DHS data can be used to address and providing step-by-step guidelines on how to carry out analyses of three priority issues.

## II. ILLUSTRATIVE EXAMPLES OF PROGRAMMATIC USE OF DHS DATA

A wide range of programmatic issues can be addressed using DHS data. We group relevant issues into four major categories and include examples of analyses that could be undertaken using the DHS.

### A. Develop Consensus, Goals and Projections for Service Expansion

- Build a Supportive Policy Environment for Family Planning

Though support for family planning in the developing world is widespread, it is not universal. By using DHS data on women's contraceptive knowledge, practices and desires, policymakers can determine the extent to which family planning services are indeed needed and wanted. Coupled with information linking high fertility with slowed economic growth, the data on unmet need for contraceptive services can make a strong case for service expansion.

- Anticipate Changes and Develop Goals

*Anticipate Changes in Fertility Behavior and Contraceptive Use.* DHS data can be used to project trends in fertility desires, fertility rates and contraceptive behavior. Analysts can compare older women's contraceptive use with that of younger women to see if and how rapidly the overall pattern of use is changing. They can also compare fertility behavior of urban, educated women with that of other women and then estimate fertility change based on expected levels of urbanization and educational attainment.

*Develop and Verify Goals and Projections for Reduced Fertility and Increased Contraceptive Use.* Planners can use DHS data to develop goals and to verify whether the goals for reduced fertility and increased contraceptive use are being fulfilled. Information on desires for children, knowledge of contraception, and intention to use contraception can indicate whether modification of goals and/or projections is warranted. The analysis can be used to discern whether existing goals are too ambitious or too modest and to gauge the general effectiveness of program efforts. For instance, in many countries (e.g., Jordan, Senegal) it is government policy to provide contraception for purposes of birth spacing. Analysis of DHS data can assess the effectiveness of such a policy in meeting the country's fertility goals.

- **Balance Program Efforts between Fulfilling Demand and Creating Demand**

Even if high-quality contraceptive services were readily accessible to every couple, fertility would not necessarily drop to replacement level because many people desire large families. Thus, a program striving to reduce fertility may need to also create demand for family planning services. To do this, planners must have a keen understanding of the concerns of the potential user population. Using DHS data, planners can identify where demand for family planning services exists, whether the need for demand-creation activities is geographically localized, and whether promotional efforts should be targeted to older or younger women, rich or poor women, urban or rural women, etc. Other factors to be considered include educational level, participation in the labor force, child enrollment in school, child labor contributions, male attitudes toward contraception, gender roles and equality. Based on this information, planners can allocate resources and make regulatory and social changes to build an environment that fosters desire for small families, thereby creating demand for family planning services.

- **Identify Priority Constituencies for Program Focus**

To meet family planning needs and maximize the impact of program resources, DHS data can be used to identify groups in greatest need of family planning services. These may include women with an unmet need for family planning or likely to experience a high-risk birth. Profiles of contraceptive users by such characteristics as age, marital status, place of residence, socioeconomic status, and reproductive preferences allow more precise planning of program strategies. For example, adolescents and unmarried women have special needs for family planning services. Analyses carried out at the national and sub-national level allow planners to identify and prioritize geographic areas for intensive program focus.

- **Develop Indicators to Evaluate Program Performance**

Managers need basic indicators in order to assess the success of policies and program efforts. DHS data can provide a range of indicators to gauge whether programs have performed as intended and whether program performance has resulted in the desired reductions in fertility or unwanted births. Indicators also show where adjustments in program efforts are needed. Historically, measurement of family planning program performance has been based on fertility and prevalence levels. However, programs should also be evaluated by how well they respond to demand. Indicators of program success can include measurements of how fully the program has been able to remedy "unmet need," or preferably, whether women have achieved their fertility preferences, successfully and without jeopardizing their health.

## **B. Assess the Situation of Needs and Opportunities**

- **Analyze Need versus Demand, Intention to Use**

The DHS contains a question on whether women intend to use contraception. Different programmatic responses are needed if women deliberately intend not to use, or if women intend to use but somehow do not actualize their intentions. Surveys from two points in time can show the characteristics of women who intended to use contraception (by method) and whether they were able to start using it. It is also possible to examine which women did not fulfil their intentions. The results can indicate where more programmatic emphasis is needed (e.g., regionally, by rural/urban residence, spacing or limiting, or on certain methods).

- **Examine Reasons for Non-use and Use of Inappropriate Contraceptive Methods**

DHS data can be used to understand why women are not using contraception or are using an inappropriate method. Reasons for non-use include lack of knowledge of methods or sources, bad impressions of methods, concern for side effects associated with methods, spouse's objection to use, and other reasons. Understanding the reasons for non-use enables program managers to focus their efforts on resolving problems, such as by improving the training of providers, access to service delivery points, or client understanding of side effects.

- **Examine Excessive Levels of Discontinuation**

DHS data can be used to estimate rates of discontinuation and examine reasons for discontinuation. Program strategies can be developed according to the level of discontinuation, the reasons for discontinuation, and the characteristics of women who discontinue and their sources of provision.

- **Consider the Role of Men**

A woman's apprehension about using contraception may stem from concern about her husband's approval. In gaining an understanding of men's role in family planning, managers can determine whether to focus efforts on increasing male support for spouse's use of contraception, raising men's awareness of the benefits of family planning, dispelling misinformation about specific methods, or promoting male contraceptive methods.

- **Verify Service Statistics**

Comparisons of DHS data with program information on clients can verify prevalence estimates and information on the sources women say they used to obtain their methods. Procurement information can be matched with data on the number of users to estimate commodity requirements and identify misreporting or waste in the system.

### **C. Assess Program Needs for Methods and IEC**

- **Design an Appropriate Method Mix**

Methods of contraception differ greatly, and women and men need to be able to obtain a method that appropriately suits their needs. Otherwise, they may use no contraception at all, discontinue their use prematurely, unsuccessfully use the method, or unnecessarily suffer adverse health consequences from its use. Moreover, the level of fertility and number of unwanted pregnancies that result from different method mixes can be measured using DHS data and compared to further scrutinize a method mix. Knowing what methods to provide is important in planning for service expansion.

- **Design IEC Programs**

DHS data provide substantial information on media access to women (e.g., their literacy, readership of newspapers, use and ownership of radio and television, and opinions about family planning messages) which can be used to design effective IEC programs.

- **Design Improvements in the Quality and Accessibility of Service Provision**

Women's acceptance and continuation of contraception is related to the quality of the services they receive. Many of the questions contained in the DHS can illuminate problems associated with quality of care. Information on discontinuation, reasons for not wanting to use contraception, attitudes toward sources, and differences by source in continuation rates or understanding of methods can indicate areas for improvement in quality of care. The DHS service availability questionnaire also sheds light on the range of services available and hence the choices women have, and on the training and skills of personnel available in health centers.

### **D. Address Sustainability**

- **Identify Labor and Infrastructure Needs for Services**

DHS data can be used to develop goals for changes in the mix of sources that women use to obtain their contraception. Given a mix of methods one can identify sources appropriate for each method and then plan for the distribution of source use for women using each method. This in turn can have important implications for planning the personnel and infrastructure requirements for the proposed source mix.

Once an appropriate source mix is developed, the number of clients who will use each source for each type of method can be estimated. This information is also useful for estimating the number and types of health care workers that will be needed and the resources needed to train and support them.

- **Examine Ability to Pay**

DHS data can be used to identify groups of women who could pay for services. Women's ability to pay can be assessed by developing a socioeconomic composite variable based on responses to questions in the DHS (i.e., educational and occupational status of the woman and her husband, retention of wages, household characteristics, and the presence of durable goods). This information, coupled with information on the sources women are using, can be used for developing a plan to implement user fees for those women who can contribute to the cost of the services they obtain in public sector facilities. Candidates for private sector services can also be presumed from information on the use of private health care services for prenatal, postnatal and infant care.

- **Assess the Feasibility of Integrating Family Planning with Existing Health Services**

Many countries have a policy to provide family planning in conjunction with the provision of other basic health services. An analysis of DHS data can identify which (if any) services are used by women (i.e., for her last birth did she receive prenatal care, a tetanus injection, assistance at delivery) to determine whether existing services reach a majority of women. Those services most used by women can be flagged to include family planning. If women do not visit health centers, other strategies for service expansion need to be considered.

- **Expand Private Sector Provision of Services**

Policymakers and managers may be skeptical about the potential beneficial role of the private sector. Information showing the contribution that is already being made by private sources can be of tremendous value in justifying loosening of constraints on private sector participation. Information on the socio-demographic profiles of private sector users can help decision-makers assess the feasibility of private sector expansion.

- **Design Social Marketing Projects**

Many questions on the DHS are important for the design of social marketing projects. In addition to assessing the buying potential of users based on their personal characteristics (e.g., education, employment) and household assets, many questions are useful for project design (e.g., pill brand recognition and opinions about radio messages).

### **III. ORGANIZATION OF MANUAL**

The three analytical chapters contained in this manual address priority issues confronting national family planning programs that can be examined using DHS data. The priority issues are: designing an appropriate method mix, understanding why women do not use contraception, and identifying an appropriate source mix. Each of the chapters presents an analytic approach to the issue, guides the reader through a simple process of how to

tabulate the data, and suggests possible programmatic options and solutions based on the results.

While the chapters in this manual were written to stand on their own, there are several concepts and terms, such as unmet need and appropriate method use, that are used in each of the chapters. It is important to note that while the specific definition and derivation of these terms are similar, their derivation may vary slightly across country settings because of empirical findings or programmatic concerns that govern the way the terms are defined in a particular setting.

Chapter 2, "Determining an Appropriate Contraceptive Method Mix," describes a methodology for determining an appropriate method mix for a country program, based on the desires and needs of women as revealed by DHS data. The analysis first identifies groups of women with similar fertility desires and needs, and suggests several approaches for identifying appropriate methods for each profile group of women. Next, an appropriate mix for the whole population of women is calculated. The differences between the appropriate method mix and the actual mix are examined in terms of programmatic responses.

Chapter 3, "Identifying Barriers to the Use of Appropriate Methods of Contraception," seeks to identify the various factors that inhibit appropriate contraceptive use among women who would like to delay their next pregnancy, who would like to stop childbearing altogether, or for whom a new pregnancy would pose serious health risks. It examines non-use and use of less appropriate methods in terms of women's stated fertility intentions, their awareness of appropriate methods, awareness of sources of supply, experience with certain methods, perceived problems with methods, and reasons for discontinuation.

Chapter 4, "Designing an Appropriate Mix of Sources for Contraceptive Methods and Services," addresses the issue of family planning source mix, in terms of the level of complexity of outlets (hospitals, clinical, nonclinical) and the sector to which they belong (public, NGO, commercial). It analyzes the existing source mix and factors to consider in devising efficient delivery strategies that maximize program efficiency and minimize costs to both users and providers. Approaches are provided to estimate the mix of clinical and nonclinical family planning outlets needed to deliver the number and mix of contraceptive methods, and to apportion these outlets among the public, NGO, and the private commercial sectors considering such factors as existing capacity, consumer buying preference, and willingness and ability to pay.

The final section of the manual contains a glossary of the technical terms used in each of the three analytical chapters.

#### IV. OBTAINING DHS DATA

All of the analyses described in this manual use DHS data and are carried out with a statistical analysis software package, typically SPSS/PC. Before beginning the analysis, the analyst will need to obtain the country's DHS data file and have access to a statistical analysis software package. The analyst should also read the DHS final country report and review the questionnaires used to collect the data.

All DHS surveys use both a household questionnaire and an individual questionnaire. The household questionnaire lists the members of the household and their characteristics (age, sex, schooling, etc.), structural characteristics of the dwelling (construction of the floor, running water, electricity, etc.), and durable goods (radio, TV, etc.). One household questionnaire is administered per household; the respondent is usually the head of the household or other responsible adult. The individual questionnaire is administered to eligible women (depending on the country, this may include all women ages 15-44 or 15-49, or only ever-married women). Each eligible woman identified in the household questionnaire is administered a separate individual questionnaire, which follows either a Model A or Model B format, depending on the overall level of prevalence in that country. The Model A questionnaire is designed for high prevalence countries (over 25%). The Model B questionnaire is for low prevalence countries, and generally contains less detailed information on contraceptive use and does not contain a monthly calendar. In some countries, a male questionnaire is also administered to a sample of men in the household, or to the husbands of married women who have also been interviewed. The DHS questionnaire used and the universe of respondents for the country examples are specified in each of the three analysis chapters.

The raw data files contain the codes for all the questions in each of the different questionnaires. Using this data file, each country prepares a final report containing the basic results of the survey. Once the final report is published, the DHS Project also prepares a standard recode file, which includes variables not included in the original questionnaire, such as the respondent's age in standard five-year categories, and translates country-specific codes into common codes used by all DHS countries. This facilitates cross-national comparisons by using the same names and the same codes for all variables. The standard recode files can be used in conjunction with a number of different software packages, such as SPSS, SAS, ISSA or EASEVAL, although all the analyses in this document have been done with SPSS/PC.

The analyst must first obtain a copy of the DHS data, preferably in standard recode format.<sup>1</sup> This is done by mailing or faxing a data request form to the DHS data archive. A copy of the data request form is included in Appendix A at the end of this chapter. It

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<sup>1</sup> The analyses could also be performed using the raw (unrecoded) data file; however, in that case it would be necessary to rewrite the SPSS/PC code contained in the appendix to each chapter.

also is advisable to obtain a copy of the final country report of the DHS to be analyzed. This will contain much useful background information and specific findings from the survey. Inquiries regarding DHS publications should be addressed to Ly Tun, Publication Requests, DHS/Macro International Inc., 11785 Beltsville Drive, Suite 300, Calverton, MD 20705, USA.

The analyst should also review the country's questionnaire and become familiar with the questions that were asked. It is important to see if the questionnaire contains any country-specific questions that would augment the analyses presented in the following chapters. The analyst must also become familiar with the standard recode documentation that comes with the data file, since not all variables used in the example code may be available in the country dataset.

## V. ORGANIZATION OF CHAPTERS

Each of the chapters in this manual follows essentially the same format. The introductory section contains an overview of the analysis and a flow chart depicting how the analysis proceeds. This section also outlines the programmatic questions the analysis is designed to answer, potential findings from the analysis and policy or programmatic actions that could be taken depending on the results.

The next section presents a detailed methodological framework for the analysis, providing step-by-step instructions for carrying out the analysis. It describes the specific variables and tabulations needed and provides information on how to interpret the results.

A third section describes the software that could be used to perform the analyses, followed by a discussion of the findings of the analysis, which highlight programmatic concerns.

Finally, the analysis is illustrated with a step-by-step example for a selected country, presenting all the tables and calculations needed to generate the results. The results are presented in tables and often depicted graphically. Each table is interpreted in terms of how it fits into the sequence of the analysis and any potential differences that might occur in the datasets for other countries.

The appendices to each chapter contain technical information on the creation of certain variables used in the analysis and the code for the SPSS commands used to generate the results for the country example. The SPSS commands should be modified to remove any extraneous variables that will not be used for the analysis. Copies of the command files are available on diskette from The Futures Group International. A diskette request form is included in Appendix B of this chapter. The example code can be entered into a file that is used in conjunction with SPSS. Any problems encountered should be resolvable through the use of either the SPSS documentation or the DHS documentation.

# APPENDIX A

## DHS DATA REQUEST FORM

---

Principal researcher : \_\_\_\_\_

Telephone : \_\_\_\_\_

Institution : \_\_\_\_\_

Shipping address : \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

invoicing address : \_\_\_\_\_  
 (if different) \_\_\_\_\_  
 \_\_\_\_\_

---

**PROJECT:**

Title : \_\_\_\_\_  
 \_\_\_\_\_

Researchers: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Please attach a description of your proposed project with this request, including expected publications.  
 It is requested that researchers send a copy of all publications to DHS, plus copies to be forwarded to each country whose data are used.

---

**DATA SETS:** Select data type and file format. List countries required below:

Individual recode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual raw	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Male or husband	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Household	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Service availability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flat file      ↑  
 Rectangular file   ↑  
 Hierarchical file   ↑

The standard format is:  
 Individual Recode as a Flat file

## Demographic and Health Surveys — Data Request

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### STORAGE MEDIUM REQUIRED:

IBM PCs and compatibles

Computer make and model : \_\_\_\_\_

Operating system version : \_\_\_\_\_

44 Megabyte 5 1/4" Bernoulli cartridges   
20 Megabyte 5 1/4" Bernoulli cartridges   
20 Megabyte 8" Bernoulli cartridges   
10 Megabyte 8" Bernoulli cartridges

5 1/4" Double sided/High density diskettes 1.2Mb   
3 1/2" Double sided/High density diskettes 1.4Mb

Other computers

### MAGNETIC TAPES

Density in BPI : 1600 6250 Maximum blocksize : \_\_\_\_\_

Code : ASCII EBCDIC

Labels : ANSI IBM None

Computer system : \_\_\_\_\_ Operating system: \_\_\_\_\_

---

### CHARGES:

Charges to cover data media, handling and postage are US\$200 per dataset. A discounted rate of US\$50 per dataset is offered to researchers and institutions from developing countries.

---

### CONDITIONS:

Signature of this application is taken as agreement to provide adequate security for data files to prevent unauthorized use. Datasets may not be passed on to other researchers without the written consent of DHS. Users are requested to complete a data request form for each new project, stating which datasets are to be used. Copies of all reports and publications based on the requested data should be sent to DHS in sufficient number for DHS to forward copies to the countries whose data are used.

Signature : \_\_\_\_\_ Date : \_\_\_\_\_

---

### DHS OFFICE USE ONLY:

Request received : \_\_\_\_\_

Approval received : \_\_\_\_\_

Data sent : \_\_\_\_\_

---

APPENDIX B

REQUEST FOR DISKETTES CONTAINING SPSS COMMAND FILES

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(detach and mail)

Yes, I would like to receive the diskette containing the SPSS command files for the three chapters in the manual, *Policy and Programmatic Use of DHS Data*. Please mail it to me at the address below.

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I would like the following type of diskette:

- 3.5" (high density OR low density)
- 5.25" (high density OR low density)

Please mail or FAX this request form to:

OPTIONS II Project  
The Futures Group International  
1050 Seventeenth St., N.W.  
Suite 1000  
Washington D.C. 20036

FAX: (202) 775-9694

## Chapter 2

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## CHAPTER 2

### DETERMINING AN APPROPRIATE CONTRACEPTIVE METHOD MIX

#### I. INTRODUCTION

Methods of contraception differ greatly, and women and men need to be able to find a method that suits their individual needs. Some methods of contraception are temporary, others are permanent; some methods require minimal technology while others involve surgery and anesthesia; some methods can be kept secret, while others involve the cooperation of the partner; some methods can be dangerous to women with certain medical conditions, while other methods can offer distinct health advantages.

If users cannot obtain a method they feel comfortable accessing and using, they may not use contraception at all, discontinue prematurely, use unsuccessfully, or suffer adverse health consequences. It is of utmost importance for family planning service delivery planners to appreciate the relevance of offering an appropriate range of methods to the overall success of the program. Rather than simply attempting to increase contraceptive prevalence, policymakers and program managers should consider increasing use of appropriate methods. Appropriate method use is central to the quality of the family planning program.

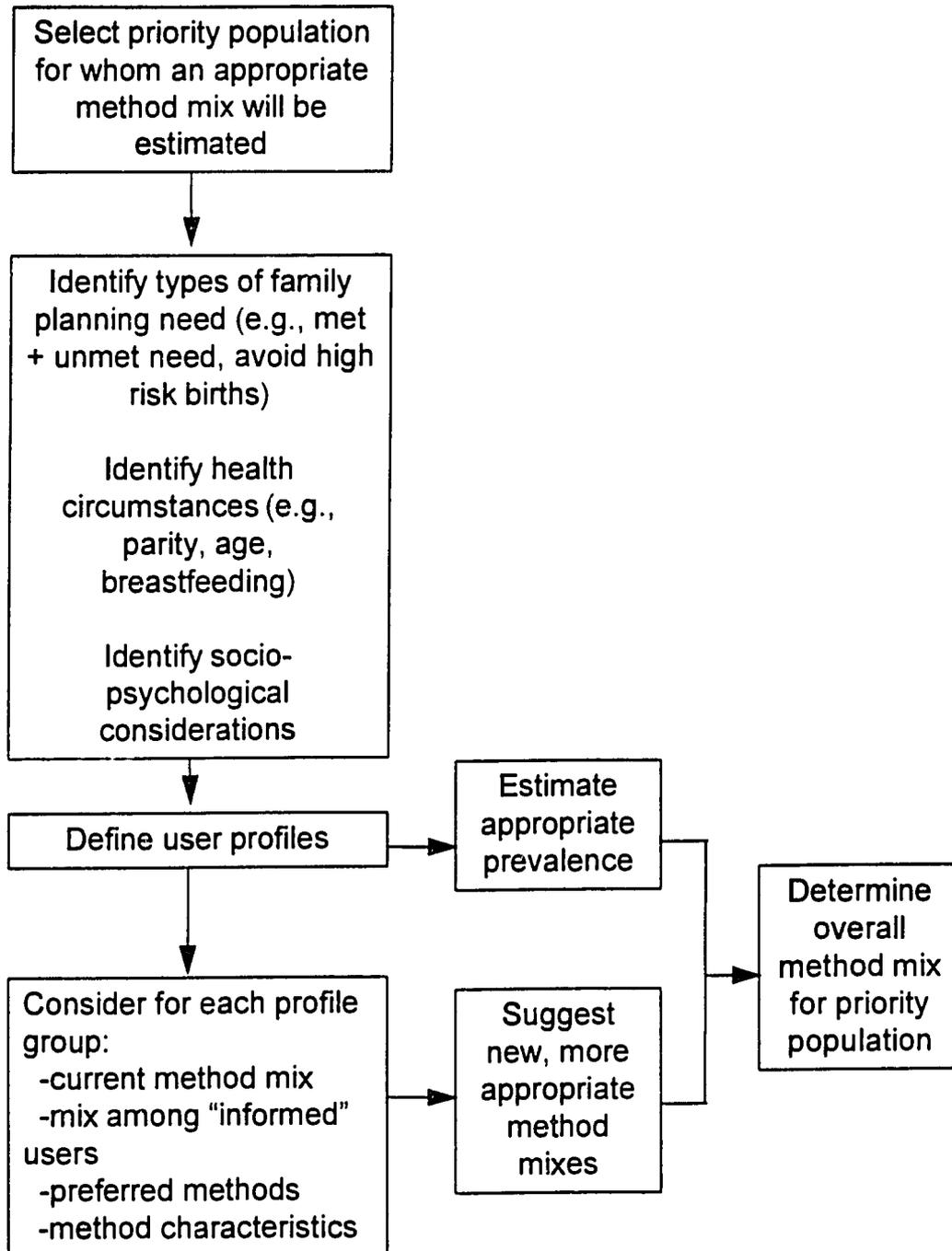
While a family planning program may aspire to provide every method in abundance, financial constraints and the time involved in establishing an infrastructure with trained personnel will prohibit this. Policymakers need to prioritize the types of services to be expanded. As contraceptive methods are diverse in requirements and modalities of delivery, thought must be given to which methods will be expanded. Some methods require lengthy counselling, some require an aseptic operating theater with trained medical professionals, and other methods can be sold on a street corner. A better understanding of appropriate contraceptive method mix is important to plan service delivery modalities, anticipate training needs and procurement requirements, and to design service delivery and information efforts. It is hoped that this type of analysis will help policymakers and managers make better resource allocation decisions.

This chapter describes a methodology for determining an appropriate method mix for a country-level program, based on the desires and needs of women as revealed by a DHS. The analysis first identifies groups of women with similar fertility desires and needs. Then, it identifies appropriate methods for each profile group of women. Next, an appropriate mix for the whole population of women can be calculated based on weighting the distribution of methods for each group of women by the percent of women who are in each profile group. After calculating the difference between the appropriate mix and the actual mix, relevant programmatic responses can be considered.

## A. Analysis Flow Chart

The analysis described in this chapter uses DHS data to determine an appropriate contraceptive method mix. A flow chart outlining the steps in the analysis is presented in Figure 1.

Figure 1  
Client-oriented Method Mix Analysis



## **B. Summary of Questions, Analyses, Possible Findings and Programmatic Actions Addressed in this Chapter**

### *Policy or programmatic questions*

- Does the current method mix serve the needs of the population?
- Which methods need to be provided more readily?
- Which types of users do not use an appropriate method?
- How might the method mix change with the introduction of new methods?

### *Illustrative DHS analyses*

- Examine women's characteristics and fertility preferences to define needs for contraceptive methods.
- Compare women's method needs with the methods they are currently using.
- Determine a more appropriate method mix based on method characteristics, the method choices of women with better information and access, and women's stated preferences for methods to use in the future.

### *Possible findings*

- Certain methods are under-used or overused compared to what would be an appropriate mix.
- Women who want no more children are using short-term methods.
- Women who want to space are not using any method.
- Among women with similar fertility preferences, women who are familiar with a range of methods use different methods than women who are less informed.

### *Possible policy or programmatic actions*

- Increase IEC, training and resource allocation toward under-represented methods.
- Examine legal/regulatory barriers, and provider incentives for under-represented methods.
- Direct future service delivery and IEC efforts to the population with the largest gap between actual and appropriate mix.
- Analyze possible reasons for non-use or use of less appropriate methods and design actions to address these factors, or project the resources required to achieve the more appropriate mix.

## II. A FRAMEWORK FOR DETERMINING AN APPROPRIATE METHOD MIX

Many persons contribute to the development of a family planning program, leading to diverse perspectives on how to improve the method mix. A national family planning manager may strive for a distribution strategy that reduces costs, makes use of the existing infrastructure, or has the most impact on fertility. A provider may favor method allocation that reduces the risk of doing harm, or that reduces discontinuation. A client will favor the method mix that is best suited to her individual needs and characteristics. This analysis focuses on defining a contraceptive method mix that is "appropriate" for the client. Therefore, the term "appropriate" is used in this paper to represent the client's perspective.

This analysis also focuses specifically on identifying a method mix that suits women. This perspective was chosen for several reasons: only women can become pregnant; women are most often the actual user of the contraceptive method; and nearly all DHS interview data is derived from women rather than men. Therefore, in this chapter, the terms "client," "user" and "woman" are interchangeable.

Three key definitions provide the framework for this chapter's approach to determining an appropriate contraceptive method mix.

- **An appropriate contraceptive method mix** is the distribution of methods that a population of women uses when every woman who needs contraception is using contraception, and when every woman is using the method best suited to her and her partner's needs and characteristics.
- **An appropriate contraceptive prevalence rate** is the percentage of women using contraception when the total need for family planning is being met. Ideally, all women who have a need to control their fertility should be enabled to do so, without jeopardizing their health. The definition of "need" can vary. In some cases, need includes women who state a desire to avoid a pregnancy, in other cases, it can include all women who should avoid having an additional child because they are too old, have had four or more births or because they already have a baby less than 15 months old.
- **A contraceptive method appropriate for an individual user** is suited to that user's type of need for family planning, physical health circumstances, and socio-psychological considerations.

*Type of need for family planning* refers to a woman's motive for regulating her fertility. For example, some women who would like to have children in the future use contraception to delay pregnancy until marriage or until their current children grow older. Women who never want to become pregnant may also have varying motives: some may have had all of the children they desire while others may be avoiding pregnancy for health reasons. Women's type of need for family planning can be said to be for "spacing," "postponing" or "limiting" pregnancies.

*Physical health circumstances* are the physical characteristics, medical conditions, lifestyle and potential exposure to diseases that make some methods more or less conducive to good health than others for a particular woman. Women may be medically "contraindicated" from using some methods (i.e., certain cardiovascular problems may be exacerbated by hormonal pill use, especially after age 35). Women who have multiple partners—or whose partners have multiple partners—can avoid transmitting or becoming infected with sexually transmitted diseases (STDs) by using condoms. The decision to match a woman with a particular method is often based on indications that one method is better suited than another for protecting the woman's overall health.

*Socio-psychological considerations* are all of a woman's personal, familial and cultural reasons for choosing one method over another. Sterilization may be contrary to a woman's religious beliefs; for some women, any modern method is sacrilegious. The men in some women's lives may refuse to cooperate in or condone family planning, limiting women's method choices to those that are woman-dependant or concealable.

A woman's personal beliefs can also affect how important a method's effectiveness will be to her when selecting a method. To a woman who would not consider an abortion, effectiveness can be of the utmost importance. On the other hand, to a woman who would be willing to have an abortion, effectiveness may be a less important factor in method choice. Of course, the availability of safe and affordable abortion might also affect that woman's willingness to use a method of lower effectiveness.

DHS data reveal only a small fraction of the information that is needed to thoroughly understand appropriate method mix. The data gathered in a DHS interview would never be adequate for assigning a method to an individual woman. In terms of the three aspects of methods that are important for the client, the DHS reveals almost nothing about the health status of the woman, the diseases she may be exposed to, or her psycho-social perspective on methods. In addition to these aspects, the information available from DHS on fertility preferences is not sufficient for determining a woman's willingness to use an intervention that would affect her fertility. A woman's statement that she does not desire a child cannot be interpreted as a commitment to use contraception.

Epidemiological information on women's health status, other information on her perceptions of different contraceptive methods, and financial administrative information on service delivery itself, such as might be available from a situational analysis survey or service statistics, would all help to round out the picture on appropriate method mix.

### III. METHODOLOGY

This analysis uses DHS data. Unfortunately, the information needed to fully identify what would be an appropriate method mix for a given population goes far beyond that available from a DHS. In fact, some of the most important information for matching users with an appropriate method is not available from a DHS at all. For example, this analysis does not identify women's contraindications of certain methods (e.g., a history of pelvic inflammatory disease, high blood pressure, cigarette smoking). The results should be approached with the caveat that the method mix an analyst will develop does not take into account the whole picture of what is appropriate for the client. Nevertheless, a DHS provides valuable information on several points that are pivotal to determining an appropriate mix of methods. The analyst can at least feel confident that the salient discrepancies between the current and appropriate method mix indicated by this approach may be valid concerns for future programmatic responses.

The methodology used here draws on previous work by Galway (1991), Choe and Bulatao (1992), and Foreit (1992). The appropriate method mix methodology consists of three steps.

Step 1. Identify user profiles and appropriate contraceptive prevalence.

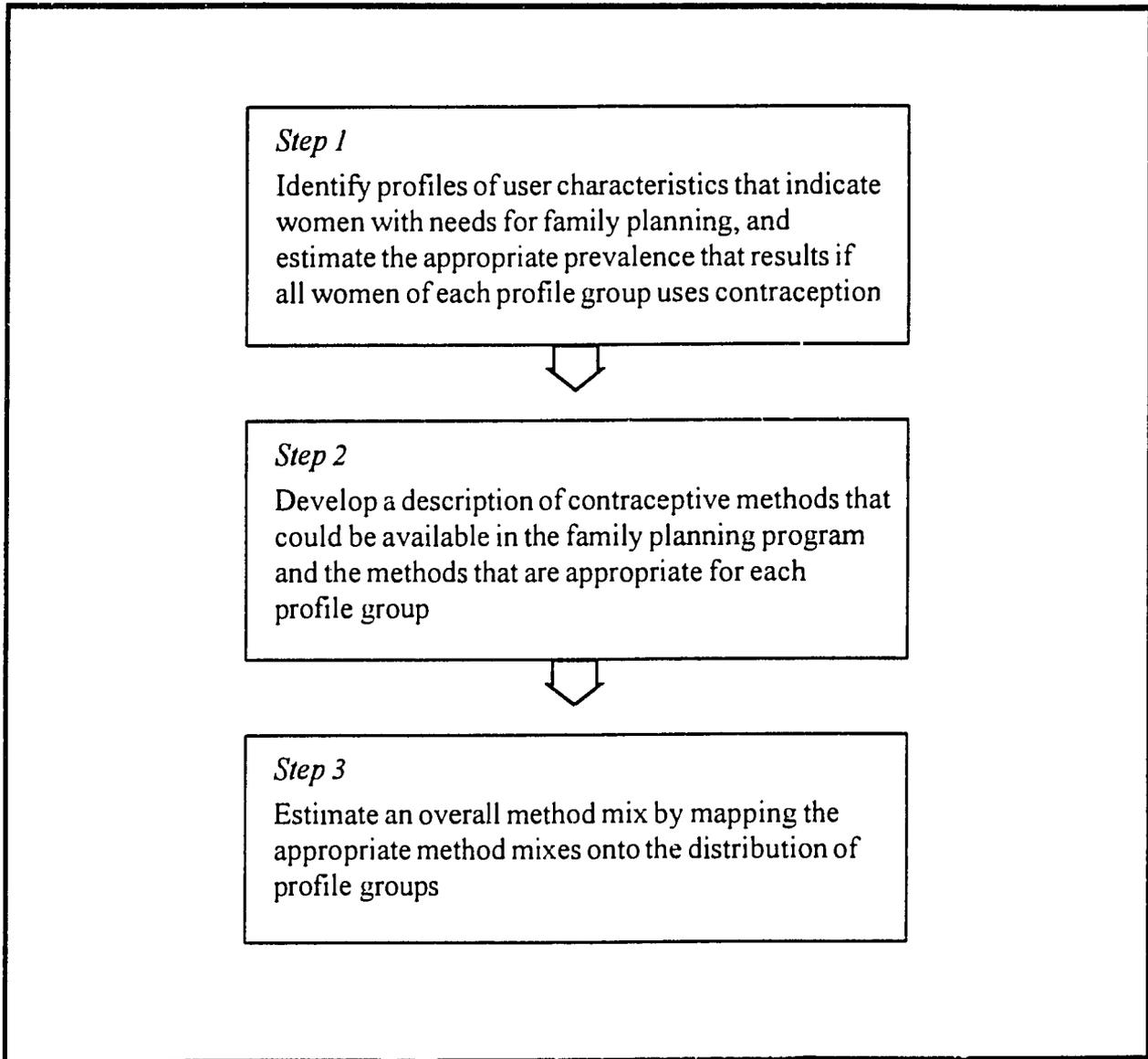
Step 2. Define an appropriate distribution of methods for each profile group.

Step 3. Map the appropriate methods with the numbers of women of each profile.

This overall analysis plan is illustrated in Figure 2. The following sections describe each of these steps in detail. It is important to note that every woman may need contraception at some point in her life. This analysis is only concerned with the cross-section of women who are clients at a single point in time. Analysts need not be concerned about women who may want contraception in six months. When one woman discontinues contraception to have another child, another woman will probably begin using again. From the standpoint of the program, the total number of users is the same. Also, the method mix that follows from this analysis is designed to suit the population as a whole. This is not an approach for matching a method with an individual woman. Individual method choice should be left to the fully-informed user, based on principles of informed consent and informed choice.

Figure 2

Overview of Three Analysis Steps to Determine an Appropriate Contraceptive Method Mix

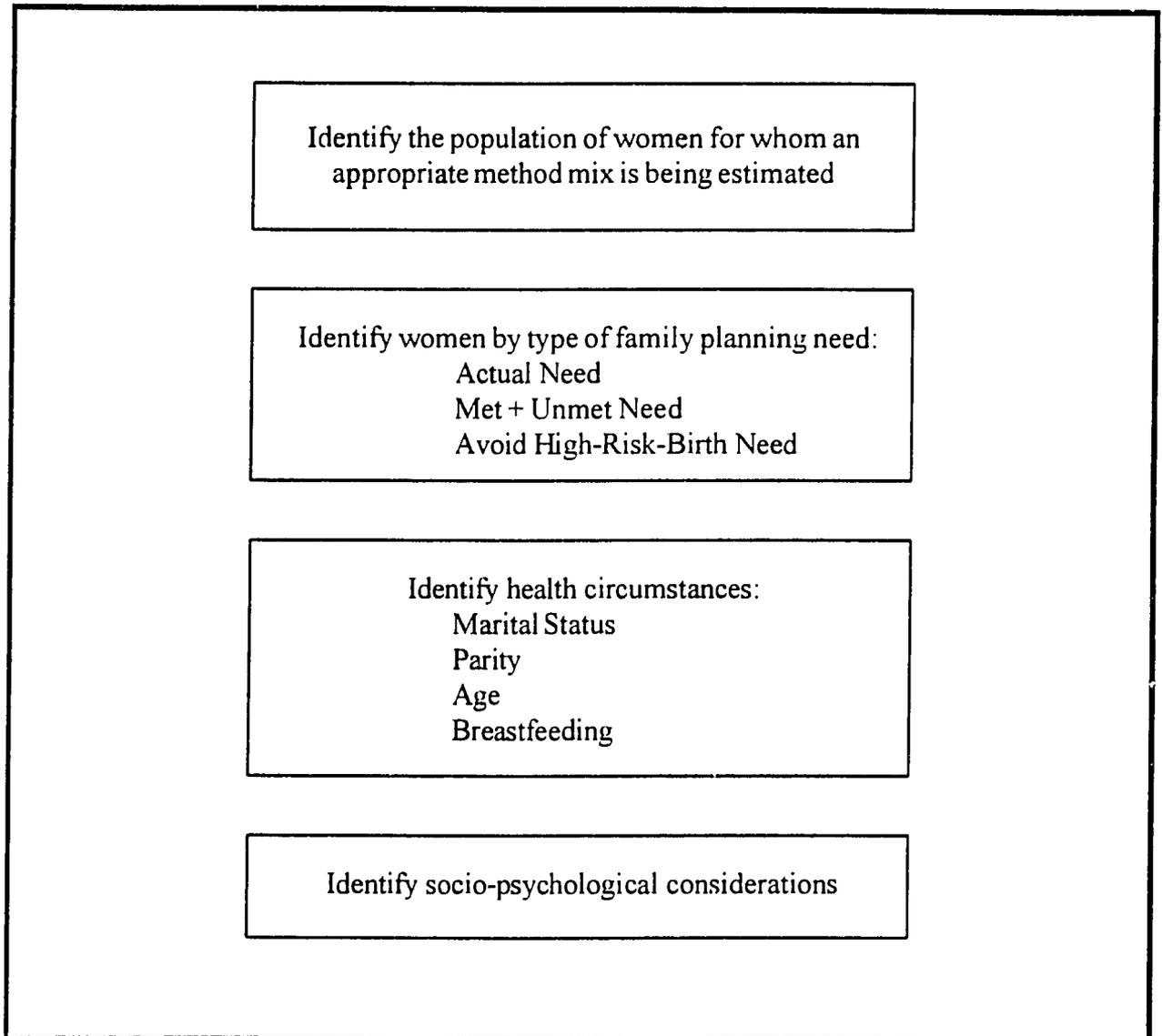


**A. Step 1: Identify User Profiles and Appropriate Prevalence**

The following discussion explains in detail how to develop user profile groups and identify an appropriate level of prevalence. The four actions within Step 1 are depicted in Figure 3. The first action (identify the population for whom a mix is being estimated) is relatively simple. The next three actions (identify: types of family planning needs, health circumstances and socio-psychological considerations) are the complicated elements of the process. DHS data provide

information for identifying types of family planning needs; there is less information about the other two issues relevant to a woman's choice of a method: her health circumstances and socio-psychological considerations. Although the major portion of this section is devoted to identifying type of family planning need, it is not more important than the other two factors.

Figure 3  
Step 1: Identify User Profiles and Appropriate Prevalence



### *Identify the population of women for whom an appropriate method mix is being estimated*

This methodology is described for the entire population, however the same approach could be used to determine an appropriate method mix for portions of the population, such as urban residents or women of a special age group. Some countries may want to give priority to certain women, such as adolescents or older women with high parity, and want to be sure that the methods needed by these women are available. The main constraint to doing an analysis of a portion of the population is that the DHS survey may not have a large enough sample size to permit meaningful results. An essential consideration, which is too often overlooked, is whether the analysis should be of all women or only of married women. In many countries there is a substantial need for family planning for not married women. Even in countries with very low prevalence a large portion of the users may be not married (e.g., in Togo half of all users are not married).

### *Identify type of family planning need*

A woman's need for contraception is likely to vary throughout her childbearing years. A woman may not need contraception because she is trying to become pregnant, is sexually inactive, or is infecund. A woman who is already pregnant or amenorrheic from a recent birth is also not exposed to a new conception. These women are identified as wanting a birth or being not exposed. Women who have a need for contraception can be distinguished as having a need to "space" or "limit". **Spacers** want another birth at some time in the future, but not within the next two years. Spacers who are delaying their first birth are called **postponers**. **Limiters** are women who do not want another birth. Spacers and limiters can be matched with methods that are more or less appropriate to short-term and permanent fertility control.

The key issue in identifying type of family planning need is to identify who needs spacing or limiting methods of contraception. Ideally, the analyst wants to identify how many spacers and how many limiters there would be if every woman bore the number of children she wanted at the times she wanted them. This pattern of childbearing, and the resulting cross-sectional shape of need is very difficult to discern. Many women have had children far sooner than they would have desired, and have had more children than they wanted. These women are at a different point in their fertility than they would have been if family planning services had been more accessible and of higher quality. As the family planning program meets needs of today, the shape of needs will change. Therefore the following methodology presents three approaches to identify the number of spacers and limiters. The first approach merely reflects the current situation. The second approach is slightly retroactive, trying to assess needs for contraception if at least the most recent birth had been wanted. The third approach identifies an additional group of women who have a "need" for contraception to avoid an elevated mortality risk, but who may not recognize that need. This third approach is also retroactive. Women who are pregnant or amenorrheic with a "high-risk" birth are identified as candidates for contraception on the assumption that, had their needs been met, they would not have become pregnant.

The retroactive estimates of need re-identify women who are currently breastfeeding as not breastfeeding if their child was mistimed, unwanted or "high risk." The same principle applies: had their needs been met all along, they would not have had their last birth, and they would not be currently breastfeeding. This is an important distinction to estimate correctly the need for contraception. Breastfeeding has a significant contraceptive value, and if the current percentage of women breastfeeding is assumed to continue, even when fertility declines, the true increase in contraception needed will be underestimated.

The first approach, **Actual Need**, identifies women to be in need if they stated during the DHS interview that they are exposed to becoming pregnant and want to delay or avoid having another birth (see Appendix A, Figure A-1). Providing these women with contraception addresses the current, Actual Need, however, it ignores the needs of many women who are pregnant and amenorrheic with births they would have preferred to delay or not have. The second approach, **Met+Unmet Need**, includes these women as having a need for contraception (see Appendix A, Figure A-2). The estimate of women in need includes some pregnant and amenorrheic women as users (the methodology for married women is drawn from Westoff, 1988). The third approach, **Avoid High-Risk Birth (HRB) Need**, is based on including women who have a higher than average risk of death for their child and themselves because they are very young or very old, have had many births, or have had a birth recently (see Appendix A, Figure A-3). These women are identified as needing contraception even if they stated that they want another birth soon.

The three definitions of need are hierarchical. All women defined as having Actual Need are included as having a need according to the Met+Unmet Need definition; and all women with Met+Unmet Need are included in Avoid HRB Need.

#### *Identify type of need for family planning*

The list of women's characteristics provided in Figure 4 is used to identify type of need. A detailed explanation follows that describes how women are identified as having a type of family planning need. For each definition of need, the level of appropriate prevalence is the percent of women who have been identified as having a need. In any particular country, only some of these women are actually using contraception; if all women with a need for contraception actually used it, prevalence would increase. Note that different questions are used to identify need for married and unmarried women. DHS questionnaires do not ask unmarried women about their desire for another birth, or when they would want that next birth.

**Figure 4**  
**Summary of Women's Characteristics Used to Identify**  
**Type of Need for Family Planning**

1. Infecund
2. Pregnant
  - wanted pregnancy then
  - wanted pregnancy later
  - did not want another pregnancy
3. Amenorrheic
  - wanted birth then
  - wanted birth later
  - did not want another birth
4. Sexually active
5. Wants no more children, or  
Has at least as many surviving children as she thinks is ideal
6. Wants to wait before having a birth, or  
Is undecided about having another birth, or  
Would be unhappy to become pregnant  
(or apply the percentage of unmarried women who wanted their  
last birth later as the percent of exposed women who want to wait)
7. Too old (over age 35)
8. Too young (under age 18)
9. Too many (has had four or more children)
10. Too soon (has had a birth within the last 15 months)
11. Is using contraception
12. Wants a child now, or  
Would be happy to become pregnant

The characteristics in Figure 4 are considered sequentially below. In each item, some women are placed into a need category while others are left unclassified. Only women who are still unclassified are considered in the next item. By the time all 12 items are completed, only a few women will remain unclassified.

### 1. Infecund

A woman who is infecund cannot become pregnant and, therefore, does not need contraception to avoid pregnancy. Some women may be infecund because they are post-menopause, others are sterile for other reasons. All DHS include a question that can be used to identify if a married woman believes she is infecund. One of the possible responses to the question "Would you like to have (another) child or would you prefer not to have any (more) children?" is that the woman cannot become pregnant. The infecund category may also include women who have not had a birth in the last five years, have not used any form of contraception in the past five years, and are sexually active. The advantage of this implied definition is that self-declared infecundity may be underestimated (and therefore the need for contraception is overestimated). The disadvantage is that some of the women who did not have a birth actually had a pregnancy that ended prematurely through a miscarriage or abortion. These women should actually be classified as fecund.

### 2. Pregnant

Women who state that they are now pregnant are not immediate candidates to begin using contraception. The Met+Unmet Need definition includes women who are pregnant as needing contraception if they state that they did not want the current pregnancy. If the woman states that she wanted the pregnancy later, she is classified as a spacer; if she states that she did not want the pregnancy at all, she is classified as a limiter.

### 3. Amenorrheic

Women who report that they are now amenorrheic are not exposed to becoming pregnant and, therefore, are not immediately in need of contraception. As with pregnant women, the Met+Unmet definition includes amenorrheic women who stated that they did not want their recent birth when it occurred, or that they did not want any more children at all. These women are identified as spacers or limiters respectively (and they are identified as if they are not breastfeeding).

### 4. Sexually active

Women can be defined as sexually active or not based on their responses to several questions. Marital status is the most common way to identify sexual activity: women who are married are assumed to be sexually active, and women who are not married are assumed to be celibate. However, this is not always accurate. Women can be

categorized as sexually active more directly. The DHS includes the question "Have you ever had sexual intercourse?" If the answer is "no," the woman is classified as not sexually active. In addition, some women may have had intercourse in the past, but may not be active at the time of the survey. This can be determined from responses to the question: "When was the last time you had sexual intercourse?" Generally, a woman is considered to be sexually active only if she has had intercourse during the last four weeks. However, it may be appropriate in some countries to use a longer period than four weeks. The distribution of responses to this question should be examined to determine if a cut-off period of longer than four weeks should be used. The analyst may choose to include both marital status and sexual activity, for example including all married women as well as unmarried women who are sexually active, or only the married women who are active. If unmarried women are included in the analysis, level of sexual activity is essential information to identify who may need contraception.

The first four items serve to identify women who are not currently exposed to the risk of pregnancy. All the remaining women are exposed to the risk of becoming pregnant. They are identified based on fertility desires, and then by excess maternal-and-child-survival risks.

#### 5. Wants no more children

For married women this step uses responses to the question "Would you like to have a (another) child or would you prefer not to have any (more) children?" If the woman responds that she does not want any (more) children, she is identified as a limiter. In high contraceptive prevalence countries, the DHS I questionnaire includes the question "Would you say that you definitely do not want to have (more) children, or are you not sure?" This question can be used to further specify limiters as "certain" or "uncertain." Women who have received a sterilization or whose husband is sterilized are automatically classified as wanting no more children. For unmarried women there is no specific information on desire to have any more children. The analyst may choose to leave unmarried women unclassified in this step. Alternatively, women can be inferred to want no more children if their ideal number of children is equal to, or greater than, the number of living children that they have.

#### 6. Wants to wait before having a (another) birth, or does not know if she wants a (another) birth

Married women who state that they want to have a (another) child are asked how long they want to wait before the birth. Some women want a birth as soon as possible. If they want to wait two or more years, they are identified as spacers. Some countries may choose to include women who only want to wait one year as a spacer. Some women do not know how long they want to wait, or are not even sure whether they want another child or not. These women may be included as having a spacing need based on the logic that they can wait until they are sure they want a birth before becoming pregnant. There is no direct information about the desired timing for a birth among unmarried women.

There are three ways a woman can be identified as a spacer. First, all unmarried women could be assumed to not want a birth soon and could be grouped as spacers. Second, the percent of unmarried women who wanted their last birth but said it was too soon can be applied as the percent of unmarried women who would not want a pregnancy soon. The drawback with this option is that it does not infer from each woman's characteristics what she would want, but rather designates a percentage of the whole group. However, this does not have an impact on the analysis as all that is needed is the distribution of women by type of need. Third, DHS I questionnaires ask women how they would feel if they become pregnant. If the woman responds that she would be unhappy to become pregnant, then she can be classified as a spacer. The second and third approaches usually provide similar percentages of unmarried women who want their next birth to be soon or delayed.

Women who did not state a desire to delay or not have a next birth might still be in need of contraception if they have an elevated risk of maternal or child mortality which could be avoided by delaying or avoiding another birth. The next four steps are used only if the analyst wants to identify women as needing family planning to avoid a "high-risk birth."

The first item in this part of the analysis is to develop a definition of high mortality risk. Though many health factors of a woman can cause an elevated mortality risk for a next birth, DHS most readily provides information on risks according to a woman's age, parity and time since last birth. The criteria used by USAID to identify women with a high child mortality risk is as follows:

- Too old—older than 35 years old;
- Too young—younger than 18 years old;
- Too many—has had four or more births; or
- Too soon—would give birth less than two years after the last birth.

Some country programs may have adopted guidelines that differ from these. Each country should determine definitions appropriate for its populace.

In some cases, it may not be desirable to include women with a high-risk birth characteristic in this analysis. When included, these women are identified as in need of contraception, despite their stated fertility preferences. Program managers should consider the feasibility of launching a program that intends to alter fertility desires. In some high-fertility countries, the majority of women may be at risk because of high parity and short birth intervals. Mortality risk can be excluded from the definitions of reproductive life stages by skipping the next four items. Or, it may be appropriate to skip items 7, 8, and 9 but include step 10. The "too soon" classification identifies women in need of spacing methods in order to prevent a short birth interval, a factor that has been shown to have a significant impact on child survival rates. The rest of the analysis would then proceed from step 11 as described below, whether health risk is included or not. As all births defined as "high risk" are disallowed with this definition, all women who are pregnant, amenorrheic or breastfeeding a child that was a "high-risk" birth are

re-identified as not breastfeeding and exposed to becoming pregnant, and in need of contraception.

7. Too old

If a woman is over age 35 she is grouped as a limiter, because it is recommended that she not have any more children. It should be noted that by this stage of the analysis, all women who are not exposed to becoming pregnant have already been identified as not exposed. Therefore, this item groups as limiters only those women over the age of 35 who are exposed to the risk of pregnancy and did not state a desire to cease childbearing.

8. Too young

If a woman is under age 18 she is identified as a spacer.

9. Too many

If a woman already has had four or more children, she is identified as a limiter because her next birth would be high risk. A different parity level can be used as the cut off.

10. Too soon

If a woman has had a birth within the last 15 months, then her next birth should be delayed to avoid a birth interval of less than two years. These women are identified as spacers.

After items 1 through 10, there may be some remaining women who have not yet been identified by expressed fertility desires or health risk. Some of these women can be grouped due to their use of contraception.

11. Is using contraception

If a woman has not yet been identified as needing contraception but is actually using some form of contraception, she is identified as a spacer because her use of contraception implies a desire to control her fertility. All women who are using sterilization are grouped as limiters.

12. Wants a child now

Most women who have not yet been classified want a birth now. This should be confirmed from the question on desired timing of the next birth, and, for unmarried women, attitude to becoming pregnant.

Once these 12 items are completed, most women will have been identified as having one of the following family planning needs: not exposed to conception, spacer, limiter, wants a child now. Postponers can be identified as the subgroup of spacers who have not yet had a birth.

### *Identify health circumstances*

In addition to matching methods with women based on whether they would be using contraception to delay a birth or terminate childbearing, it is important to match methods with the woman's particular health circumstances. These include her health status, medical conditions and exposure to disease and infection. The list of women's health characteristics that should be considered to assure that her health is not jeopardized is far more extensive than the information provided by a DHS. The characteristics that are available from a DHS that can be used in a country are: in a stable union (i.e., married); has had a birth; age 35 or older; and breastfeeding status. If the woman has never had a birth, she may be recommended to avoid using an IUD. If she is breastfeeding she should not use a combined hormonal pill that includes estrogen. Women who are not in a stable union may be exposed to sexually transmitted diseases and would be wise to make sure their partner used a condom during intercourse, and perhaps to avoid using an IUD. Women who are over 35 are often advised not to use pills, especially if they smoke.

The analyst can choose to use more detailed profiles of women than merely spacers and limiters. If the sample size allows, spacers can be grouped separately by whether or not they are married, have had a birth or are breastfeeding. In most cases the number of women who are limiters and have never had a birth will be quite small. All unmarried women could be grouped together as a separate category. The group of limiters can be subdivided to under age 35 and age 35 and older. Figure 5 suggests different groupings of women that can take into account both type of need for family planning and health circumstances. Which grouping is used should depend on two factors: the number of women with each characteristic (e.g., are many women sexually active before and after marriage, what portion of spacers are breastfeeding); and the degree of concern about the hazard (e.g., is HIV/AIDS prevalent, how common is cigarette smoking among women 35 and older). The proportion of women in each group will differ from country to country, varying with cultural characteristics. If there are very few women of a particular profile of characteristics, they can be grouped with women with similar characteristics, such as type of need.

Figure 5  
Suggestions of Profile Groups



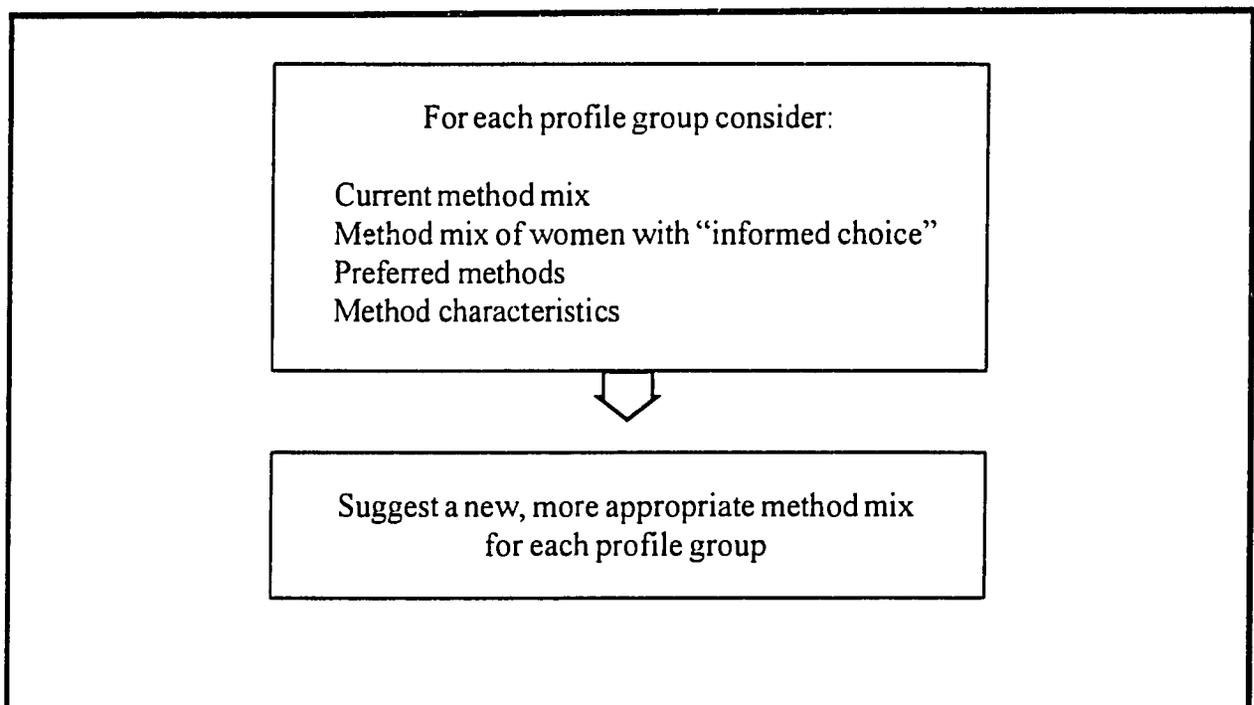
*Identify socio-psychological considerations*

Consideration of socio-psychological factors will help the analyst to make a more insightful estimate of an "appropriate" method mix for the population. While the amount of systematic information on women's attitudes toward different methods provided by the DHS is limited, the information that is provided can be quite useful in method mix analysis. For example, DHS questions about women's perceptions of problems with different methods provide valuable information for identifying those methods that women are reluctant to use. Information on the husband's attitude toward family planning and whether or not the couple has discussed the subject may serve as indicators of the potential effectiveness of methods that require male participation. The likelihood of using specific methods, such as periodic abstinence, by different groups of women (e.g., younger women versus older women) also might be considered.

**B. Step 2: Define an Appropriate Method Mix by Profile Group**

Once profile groups have been defined, the next step is to determine an appropriate method mix for each group's particular needs and characteristics. There are at least four different approaches that might be used to accomplish this. None of these approaches is perfect. In most cases, information from all four approaches should be combined to determine what would be an improved mix for service delivery. The four approaches are depicted in Figure 6 and described below.

Figure 6  
Step 2: Define an Appropriate Method Mix for Each Profile Group



### *Current method mix*

Examine the current method mix of women of each profile group who are currently using contraception, and apply this as the distribution of methods women with those characteristics would use if they were to practice contraception. The advantage of this approach is that it reflects actual use patterns; the disadvantage is that current use patterns may be caused by limited access to certain methods or problems with quality of provision. Moreover, there may be few current users. No matter what definition of type of need for family planning is being used to identify appropriate prevalence, current use for spacing or limiting should be based on the Actual Need profile. This distribution can be applied to any different definition of who *would be* a spacer or limiter.

### *Method mix of women with "informed choice"*

For each profile type, examine the method mix of a subgroup of women who may be in a position to make an "informed choice." Women who are urban, educated, and currently use family planning may represent such a group. The assumption behind this approach is that urban, educated women are likely to be knowledgeable about family planning methods and have access to a range of providers (including private sector providers) who could supply a choice of methods. Therefore, their choice of methods might indicate the mix of methods that would be chosen by other women if methods were well known and easily available. The disadvantage to this approach is that women with different backgrounds may not choose the same methods even if they had the same level of knowledge and availability. This information is most valuable in high prevalence countries, because in low prevalence countries, which are also probably quite rural and have low levels of educational attainment, the number of urban, educated women using contraception may be quite small. Alternatively, women who know about the main contraceptive methods may represent a more informed group. In this case, the method mix of current users who know some number of modern methods (perhaps four or five) may be a guide to a method mix based on "informed choice."

### *Preferred methods*

Examine the method mix for each profile group based on which methods they say they prefer. The DHS questionnaires provide several pieces of information relating to preference. In every survey women who are not currently using contraception, but intend to use it in the future, are asked which method they would prefer to use. This information may be most useful in low prevalence countries, because only women who are not using are asked this question.

Caution should be used in interpreting this information. Women who are spacers may only intend to use contraception when they have reached their family size. If so, the method they name as their preferred method is for limiting, not for spacing, and is therefore not indicative of their current characteristics. In a few surveys (e.g., Indonesia) women are asked what method they think is best for spacing and for limiting. Caution is also needed before using these choices as a woman's personally preferred method. Many respondents may answer what

they think is best "theoretically" rather than what they would actually want to use. Responses to questions about what are the problems with each method can identify methods that women may dislike.

The disadvantage to examining women's current preferences is that these are influenced by the same availability and quality problems associated with current method use. Moreover, a woman may indicate a method choice for a different time in her life, and hence this does not provide information about a good choice based on her current characteristics.

### *Method characteristics*

This approach is prescriptive; it does not rely on what women are actually choosing or stating they prefer. This approach develops a method mix for each profile of users based on matching characteristics of the method with selected characteristics of the women. The advantage of this approach is that it is not slanted by the country's current situation of method accessibility and quality of provision. The disadvantage is that it presumes that the analyst can determine what is best for someone else. Of the four approaches discussed here, the method characteristics approach relies most on the subjective judgement of the analyst.

The first step in the method characteristics approach is to develop a list of all methods that might be available. Each method on the list should be described in terms of its characteristics and contraindications. One such list is shown in Table 1. Once the methods are described, the next step is to determine which methods are appropriate for each profile group. This is a two-stage process. First, the most and least appropriate methods are listed for each profile group. Second, a recommended proportion of use is assigned to each appropriate method within each profile group. Table 2 is an example of identifying the most and least appropriate methods for different profile characteristics. This table identifies certain methods as most appropriate, some as adequately appropriate and others as inappropriate. How the family planning program considers methods will differ from country to country.

Once a table identifying appropriate and inappropriate methods has been developed, it is necessary to specify the mix of methods for each profile group. For example, according to the information in Table 2, the most appropriate methods for women who have had a birth, want to delay their next birth, and are not breastfeeding are oral pills, an IUD, implant or injectable. Condoms are also appropriate. The question is "What proportion of spacers should use each of these methods?" This might be based purely on the judgment of the analyst, or by examining the current or the preferred mix and adjusting it as necessary to make it "appropriate."

The information in Table 1 suggests important characteristics of methods that can affect whether they would be acceptable to women and men with specific fertility preferences and personal and life-style characteristics. In general, contraception offers a health benefit to women by protecting them from ectopic pregnancy and a whole range of morbidity and mortality risks associated with pregnancy and delivery. (Because this health benefit applies to all methods, it is not noted for each method individually.) The higher the effectiveness of a method, the greater is its effectiveness in protecting a woman from the morbidity and mortality of pregnancy and its sequela. Also, for all methods there may be a whole range of local stipulations to their access and use that affects their desirability in the eyes of a potential client. For example, if husband's permission, physical examinations, laboratory analyses, waiting periods, or clinic revisits are required for certain methods their desirability may decrease for certain women. Program managers need to consider the impact that quality, access and medical policy issues have on the prediction of which methods will be more or less desirable.

A special issue in countries where HIV/AIDS is a concern is the use of condoms. Any woman who is at risk of contracting HIV should be using a condom to protect herself and her partner (as most HIV-infected people are unaware of their infection). In these cases, the appropriate prevalence for condoms might be based on the proportion of men and women who have multiple partners. Those who do not have a mutually monogamous relationship should be using condoms. For many women at risk of HIV infection, it may be appropriate to use two methods—condoms for protection from HIV and a more effective method for protection from pregnancy. Given the generally high failure rate of condoms, it is inappropriate for a woman to be using that method alone if she wishes to have more effective contraceptive protection. Use of an additional method would depend on her willingness to risk a pregnancy and/or her access to safe abortion. Unfortunately, that information is not available from DHS interview data.

**Table 1**  
**Characteristics of Contraceptive Methods**

	<b>Condom</b>	<b>Vaginal Barrier Methods</b>	<b>Spermicide</b>
<u>Process of use:</u>	sheath is placed on erect penis before intercourse	rubber cup is lodged over cervix before intercourse (cap covers only cervix; diaphragm covers cervix and rear wall of vagina); spermicide may be added before and/or after device insertion; should be left in place 6 hours after intercourse	tablet or sponge, or syringe of jelly, cream or foam is inserted into vagina at least 10 minutes before intercourse
<u>Duration of action:</u>	as long as the condom is in place during intercourse	as long as cap or diaphragm is in place during intercourse; cap can be left in place for two days and diaphragm for 12 up to 24 hours but only effective for 6 hours after placement	as long as spermicide is in place during intercourse
<u>Effectiveness (per year):</u>	20 pregnancies per 100 users	3-28 pregnancies per 100 users	20 pregnancies per 100 users
<u>Conditions and skills for use:</u>	ability to put on a condom correctly; discipline to always do so	skill to correctly place in vagina so it covers cervix and stays in place during intercourse; discipline to always use; ability to wash and store correctly	discipline to always use, and to wait before intercourse
<u>Sexual and gender issues:</u>	man accepts to use this apparatus; lowered sensitivity for men; interrupts sex	usually women dependent; not good for women who are uncomfortable touching themselves; may be felt by either partner; dislike of smell, taste and slimyness of spermicide; no interruption of love-making	postpones sex; dislike of smell, taste and slimyness
<u>Access issues:</u>	constant supply of condoms is needed	correctly sized cap or diaphragm is needed (initial fitting by a trained provider); training to insert and maintain is needed; constant supply of spermicide (if used)	constant supply of spermicide is needed
<u>Ethical considerations:</u>	condom use is sometimes associated with prostitution and both men and women may not view it as a respectful method	none	none
<u>Health benefits:</u>	reduces transmission of sexually transmitted diseases including HIV/AIDS, and substances that may cause cervical cancer and other ailments	reduces transmission of sexually transmitted diseases (effect on HIV/AIDS is not clear); decreases risk of cervical cancer; reduced risk of PID	reduces transmission of sexually transmitted diseases (effect on HIV/AIDS is not clear)
<u>Contraindications:</u>	allergy to latex; other materials such as gut are available (do not provide as much protection against STDs)	allergy to rubber or polyurethane (or spermicides); known or suspected link to uterine or cervical cancer	allergy to chemicals
<u>Common side-effects:</u>	none	increased risk of urinary tract infections; risk of toxic shock syndrome	mildly inflamed vulva

**Table 1**  
**Characteristics of Contraceptive Methods (cont.)**

<b>Calendar-based Periodic Abstinence (Rhythm Method)</b>	<b>Cervical Mucus-based Periodic Abstinence (Billings Method)</b>	<b>Periodic Abstinence (Sympto-thermal Method)</b>	<b>Withdrawal</b>
observe menstrual cycles and predict date which is 14 days prior to menstruation; abstain from intercourse during fertile days	distinguish different consistencies of cervical mucus during menstrual cycle and identify the clear viscous consistency that indicates ovulation; abstain from intercourse during 10 days following that observation	measure exact body temperature at rest and identify days when temperature is elevated; abstain from intercourse during the five days following that observation	man withdraws penis before ejaculation
as long as the couple is periodically abstinent	as long as the couple is periodically abstinent	as long as the couple is periodically abstinent	as long as the man withdraws
10-30 pregnancies per 100 users	10-30 pregnancies per 100 users	10-30 pregnancies per 100 users	10-30 pregnancies per 100 users
discipline to abstain; ability to track body functions; regular menstrual cycles	discipline to abstain; healthy vagina and willingness to touch oneself; ability to track daily changes in mucus (e.g., a yeast infection changes consistency of mucus)	discipline to abstain; no conditions affecting body temperature; opportunity to take resting temperature (after waking and before moving or becoming agitated or excited)	good predictability of when ejaculation will occur; discipline to withdraw
women tell men when intercourse is acceptable and men agree to abstain; reduces opportunities for intercourse	women tell men when intercourse is acceptable and men agree to abstain; not good for women who are uncomfortable touching themselves	women tell men when intercourse is acceptable and men agree to abstain	men are responsible to withdraw; interrupts sex
no supplies or clinical contact required; training by counseling or reading needed; totally user dependent	no supplies and clinical contact required (glass slides may be useful to analyze mucus); training by counseling or reading needed; totally user dependent	an accurate thermometer is needed; no clinical contact required; training by counseling or reading needed; totally user dependent	no supplies or clinical contact needed
acceptable to Catholics	acceptable to Catholics	acceptable to Catholics	acceptable to Catholics
none	none	none	may reduce transmission of diseases transmitted from sperm
none	none	none	none
none	none	none	none

**Table 1**  
**Characteristics of Contraceptive Methods (cont.)**

	<b>Intrauterine Device (IUD)</b>	<b>Female Sterilization</b>	<b>Male Sterilization</b>
<u>Process of use:</u>	woman has device inserted into uterus via cervix; prevents pregnancy immediately	woman has her fallopian tubes severed; prevents conception immediately (an existing pregnancy can come to term)	man has his vas deferens severed; prevents conception after 20 ejaculations
<u>Duration of action:</u>	as long as it is in place; the in-utero life of an IUD is 6 years; fertility will return after a delay of up to six months	permanent	permanent
<u>Effectiveness (per year):</u>	less than 1 pregnancy per 100 users	less than 1 pregnancy per 100 users	less than 1 pregnancy per 100 users
<u>Conditions and skills for use:</u>	woman needs to feel thread especially in the first month of use	acceptability of permanent loss of fertility	acceptability of permanent loss of fertility
<u>Sexual and gender issues:</u>	women dependent; thread hanging from cervix can be evident	women dependent; not evident to partner after the scar heals	man dependent; not evident to partner after the scar heals
<u>Access issues:</u>	trained provider in a clinic-like setting required for insertion and removal (local anesthesia typically used); one time device with no resupply; the most invasive method for women adverse to being seen and touched; should not be inserted between day 1 and 6 weeks postpartum	minor surgical procedure by trained provider in a clinic setting; local anesthesia required	minor surgical procedure by trained provider in a clinic setting; local anesthesia required
<u>Ethical considerations:</u>	fertilization can occur	permanent sterility may be unacceptable to certain individuals and religious groups	permanent sterility may be unacceptable to certain individuals and religious groups
<u>Health benefits:</u>	IUDs that contain hormones may decrease menstrual blood loss and reduce the incidence of PID	none	none
<u>Contraindications:</u>	recent or recurrent PID; active STDs; acute cervical infections; cancer of the reproductive tract; vaginitis; severe anemia; poorly controlled diabetes; history of ectopic pregnancy; severe closure of the cervical canal	severe pelvic infection; heart disease; uncontrolled diabetes; severe anemia; local infection in the operative area	infection in the operative area
<u>Common side-effects:</u>	heavy bleeding; increased menstrual cramping; increased risk of PID	none	none

**Table 1**  
**Characteristics of Contraceptive Methods (cont.)**

<b>Combined Oral Contraceptives</b>	<b>Progestin Only Oral Contraceptives</b>	<b>Injectables</b>	<b>Implants</b>
woman swallows a pill every day in 28-day cycles (placebos or iron tablets are often provided for days 22-28); prevents pregnancy if taken consistently and after one cycle	woman swallows a pill every day in 28-day cycles (placebos or iron tablets are often provided for days 22-28); prevents pregnancy if taken consistently and after one cycle	woman has deep intramuscular injection once every two or three months; prevents pregnancy from within one week of first injection	woman has small rubber rods surgically implanted under the skin of the upper arm; prevents pregnancy from within 1 week of first implant
as long as pills are being taken; ovulation will resume	as long as pills are being taken; ovulation will resume	2 or 3 months depending on the hormones; fertility will return after a delay of up to 6 months after last dose	5 years; fertility will return after a delay of up to two months after rods are removed
3-8 pregnancies per 100 users	1-13 pregnancies per 100 users	less than 1 pregnancy per 100 users	1-3 pregnancies at the end of 5 years with initial 100 users
remember to take pill everyday and know what to do if a pill is forgotten; not compatible with breastfeeding	remember to take pill everyday and know what to do if a pill is forgotten; requires high degree of regularity to be effective (very sensitive to pill intake timing); acceptability of irregular menstrual bleeding; compatible with breastfeeding	remember time for next injection; appropriate while breastfeeding	acceptability of irregular menstrual bleeding; remember when five years is up; compatible with breastfeeding
women dependent; if packet can be hidden, use can be concealed	women dependent; if packet can be hidden, use can be concealed	women dependent; no physical evidence, so is easily concealed	women dependent; not usually visible but can readily be felt beneath skin
constant supply of pills is needed; regulations often require that the initial prescription (and resupply) be obtained from a medically certified provider; other stipulations may also apply	constant supply of pills is needed; regulations often require that the initial prescription (and resupply) be obtained from a medically certified provider; other stipulations may also apply	injection needed each two or three months; regulations often require that the initial prescription (and resupply) be obtained from a medically certified provider; other stipulations may also apply	minor surgical procedure (local anesthesia) by trained provider in a clinic-like setting required for insertion and removal; other stipulations may also apply; one time device with no resupply; removal may be difficult
none	conception can occur	none	none
decreased risk of ovarian and uterine cancer, uterine fibroids, ovarian cysts, benign breast disease; decreased menstrual blood loss and cramps; reduced incidence of iron deficiency anemia; reduced acne	decreased risk of ovarian and uterine cancer, decreased menstrual blood loss and cramps; reduced incidence of iron deficiency anemia	decreased risk of ovarian and uterine cancer, and uterine fibroid and ovarian cysts; decreased menstrual blood loss and cramps; reduced incidence of iron deficiency anemia	decreased risk of ovarian and uterine cancer, and uterine fibroid and ovarian cysts; decreased risk of PID; decreased menstrual blood loss and cramps; reduced incidence of iron deficiency anemia
breast cancer; stroke; heart attack; embolism; acute liver disease; smoker over 40; pregnancy; hypertension; undiagnosed vaginal bleeding; taking rifampicin or anti-convulsants	breast cancer; amenorrhea not related to breastfeeding; active thromboembolic disease or heart disease; pregnancy; acute liver disease; undiagnosed vaginal bleeding	breast cancer; amenorrhea not related to breastfeeding; active thromboembolic disease or heart disease; pregnancy; acute liver disease; undiagnosed vaginal bleeding	breast cancer; amenorrhea not related to breastfeeding; active thromboembolic disease or heart disease; pregnancy; acute liver disease; undiagnosed vaginal bleeding; acne
nausea; weight gain; headache; depression; rare cardiovascular complications; increased risk of benign liver tumors	weight gain; increased risk of developing ovarian cysts	weight gain; depression; breast tenderness; increased risk of osteoporosis	headaches; weight gain; mood changes; breast tenderness; increased risk of osteoporosis

Table 2  
Examples of Identifying Methods' Appropriateness by User Profile

METHOD	POSTPONERS	SPACERS		LIMITERS	
		NOT BREAST-FEEDING	BREAST-FEEDING	AGE < 40 yrs.	AGE ≥ 40 yrs.
COMBINED OCs	A	A	a (when lactation is well established)	A	a/A (non-smokers only)
PROGESTIN ONLY OCs	a (especially if combined OCs are not suitable)	a (especially if combined OCs are not suitable)	A	a	a
INJECTABLES	a (if planning to postpone at least 2 years)	A	A	A	A
NORPLANT®	A	A	A	A	A
IUD	N (especially when high-risk for STDs and PID)	A	A	A	A
VAGINAL METHODS  (if used properly and consistently preferably with condoms)	a	a	a	a	a
CONDOMS  (if used properly and consistently)	a	a	a	a	a
MALE VSC	N	N	N	A	A
FEMALE VSC	N	N	N	A	A
TRADITIONAL	N	a	a	N	N

Key: A=Very appropriate; a=Appropriate; N=Not recommended

### C. Step 3: Determine an Appropriate Method Mix

Once the appropriate method mix is defined for each profile group, an appropriate method mix for the entire population can be determined by weighting the appropriate mix for each profile group by the percentage of users in that profile group. The results are then summed over all profile groups to obtain the mix for the entire population of users. This calculation is illustrated in Figure 7. To obtain the appropriate prevalence of each method, the appropriate method mix for the entire population of users would then have to be multiplied by the overall appropriate prevalence rate. It is important to note that the new appropriate mix is based on two factors, both of which are subject to change. First, the distribution of women with a certain profile of characteristics can change, thereby shifting the proportions using each distribution of methods. Second, the desired methods may also change. Norplant® has become popular among teens, the IUD has fallen from grace in many countries, and the condom has gained renewed acceptability. The overall mix of methods that a program should strive to provide will need to be flexible. In order to remain responsive to the current pattern of women's needs, managers will need to repeat this analysis periodically.

Figure 7  
Step 3: Determine an Appropriate Method Mix

$$\left( \begin{array}{l} \% \text{ of women in} \\ \text{profile group A} \end{array} \times \begin{array}{l} \text{method mix for} \\ \text{that profile group} \end{array} \right) + \left( \begin{array}{l} \% \text{ of women in} \\ \text{profile group B} \end{array} \times \begin{array}{l} \text{method mix for} \\ \text{that profile group} \end{array} \right) = \begin{array}{l} \text{overall appropriate} \\ \text{method mix for the} \\ \text{population of users} \end{array}$$

## IV. INTERPRETATION

The final step is to compare the appropriate method mix with the actual mix, which will often point out discrepancies between the actual mix and an appropriate mix. Large gaps between current prevalence and appropriate prevalence, and big differences in levels for certain methods indicate the need for further investigation. For example, if the analysis shows the need for more sterilization, it may mean that the program does not offer sterilization at enough sites or that the program needs to do more to increase awareness of the benefits of sterilization. This may indicate areas where the program is inadequately serving the population. The remedies will depend on the reasons for the mismatch. Why do these differences exist? How can they be reduced? Some of these questions are explored in Chapter 3, "Identifying Barriers to the Use of Appropriate Methods of Contraception."

These results might also be used in an analysis to calculate future resource requirements. Chapter 4, "Designing an Appropriate Mix of Sources for Contraceptive Methods and Services," provides valuable information about the number of clients who would need various types of services based on their method use, and about the number of clients who might be able to pay for some or all of the cost of their method. The Target-Cost Model projects the number of users and the resources required to reach a future goal specified in terms of an appropriate contraceptive prevalence rate. This type of analysis can be used to calculate the impact on the resources required to achieve the goal if the program could move from the present method mix to the appropriate mix within a given time period. (For more information on this type of analysis, see Stover et al., 1991.)

The results from an appropriate method mix analysis also may be used to evaluate current program strategies. For example, the current program strategy may focus on recruiting more young women to use temporary methods such as the oral pill. If the analysis determines that the biggest gap between the current and appropriate mixes is among older women needing long-term methods, then the focus of the current strategy might be questioned.

## V. SOFTWARE

Computer software is necessary to perform the analysis proposed here. Any of a number of off-the-shelf packages could be used, such as SAS, SPSS or STATA. For the convenience of the analyst, the SPSS code used in the analysis of the Kenya country example is included in Appendix B. Analysts can obtain a copy of this on diskette by contacting the OPTIONS II Project at The Futures Group International. ISSA and EASEVAL, both created specifically for the analysis of DHS data, would also be suitable for performing this analysis. The Futures Group has also developed a customized computer program for analyzing questions concerning method mix. This program, called MIX, can be obtained by writing to The Futures Group.

## VI. COUNTRY EXAMPLE: KENYA, 1988-89 DHS

This type of analysis is applied to the Kenya 1988-89 DHS. This example should be considered illustrative. A full analysis of the method mix situation in Kenya would involve Kenyan experts. This analysis was conducted using the 1988-89 Kenya DHS standard recode file and SPSS/PC for DOS to produce the tabulations. The SPSS commands used to generate these results are presented in Appendix B.

Kenya is an East African country with a population of about 25 million persons. It has been one of the most politically stable countries in Africa since its independence in 1963. The Kenyan economy has also been one of the better performers in the region. Life expectancy at birth is relatively high for Africa at about 61, but infant mortality is still high

at 70. The total fertility rate reached a high of over 8 in the early 1980s but declined to 6.7 by 1984-88 and to 5.4 by 1990-93. Contraceptive prevalence among married women has increased from about 7 percent in 1977/78, 17 percent in 1984, 27 percent in 1989, and to 33 percent in 1993.

The 1988-89 DHS found that contraceptive prevalence among all women was 23 percent. Kenya's level of contraceptive prevalence is one of the highest in sub-Saharan Africa. The use of modern contraceptive methods was 18 percent among married women and 15 percent among all women. Orals, IUDs, injectables and tubal ligation accounted for most of this total; vaginal methods, condoms, and vasectomy together accounted for less than one percentage point of prevalence. Traditional and other methods were the most common method; over half of spacers and one-fourth of limiters use these methods. Current method mix and prevalence for all women at the time of the 1988-89 survey are shown in Table 3; summary information on overall prevalence for married women is also presented there.

Table 3  
Current Method Mix and Method Prevalence for Spacing and Limiting Births

All Women	Method Mix		
	Space	Limit	Total
Pill	24.1	17.0	19.8
IUD	10.9	14.4	13.0
Injectable	8.6	13.5	11.6
Vaginal	0.9	1.9	1.5
Condom	2.9	1.0	1.7
Female Sterilization	—	25.5	15.5
Male Sterilization	—	0.3	0.2
Other	52.6	26.3	36.7
Total	100.0	100.0	100.0
Prevalence:			
All Women			23.1
Married women			26.9

## A. Step 1: Identify User Profiles and Appropriate Prevalence

*Identify the population of women for whom an appropriate method mix is being estimated*

This analysis includes unmarried as well as married women. The reasons for doing so are numerous: unmarried women can be tremendously burdened by an unwanted pregnancy, are more likely have multiple partners, and are likely to be adolescents. Furthermore, the results of the Kenyan DHS indicate that the need among these women for family planning is great. Of all unmarried women in the DHS, 16.6 percent were classified as spacers and an additional 8.1 percent were limiters (Table 4). This means that nearly one in four unmarried Kenyan women has an Actual Need for family planning methods.

Table 4  
Percent Distribution of Women by "Actual" Family Planning Need and Marital Status

"Actual" FP Need	Marital Status		Not Married Women as a Percent of All Women
	Married	Not Married	
Wants a birth soon	13.5	4.4	14.0
Postponer/spacer	15.0	16.6	35.6
Limiters	32.6	8.1	11.6
Not exposed	38.7	70.5	47.7
Unknown	0.2	0.4	53.0
Column totals	100.0	100.0	33.4
Number	4765	2385	

*Identify type of family planning need*

The methodology for identifying women's type of family planning need was applied to Kenya with only one country-specific modification of the suggested standard values. The distribution of responses to the question on time since last intercourse indicate that about seven percent of women had no intercourse during the last month, but did have intercourse during the last two months. Because this is a significant portion of the sample, the definition of being sexually active was adjusted to include all women who had intercourse during the last two months, rather than the more standard definition of one month.

Table 5 shows the distribution of types of need that results from the Actual Need, Met+Unmet Need, and Avoid HRB Need definitions. It also shows the appropriate prevalence for each of those definitions of Need (the sum of spacing and limiting need). This information is graphically presented in Figure 8. The current contraceptive prevalence of 23 percent would have to be increased by 17 percentage points for appropriate

prevalence to meet Actual Need at 40 percent. Meeting Met+Unmet Needs (52 percent) would require a further increase of 12 points of prevalence, and reaching Avoid HRB Need (63 percent) would require an additional increase of 11 points of prevalence.

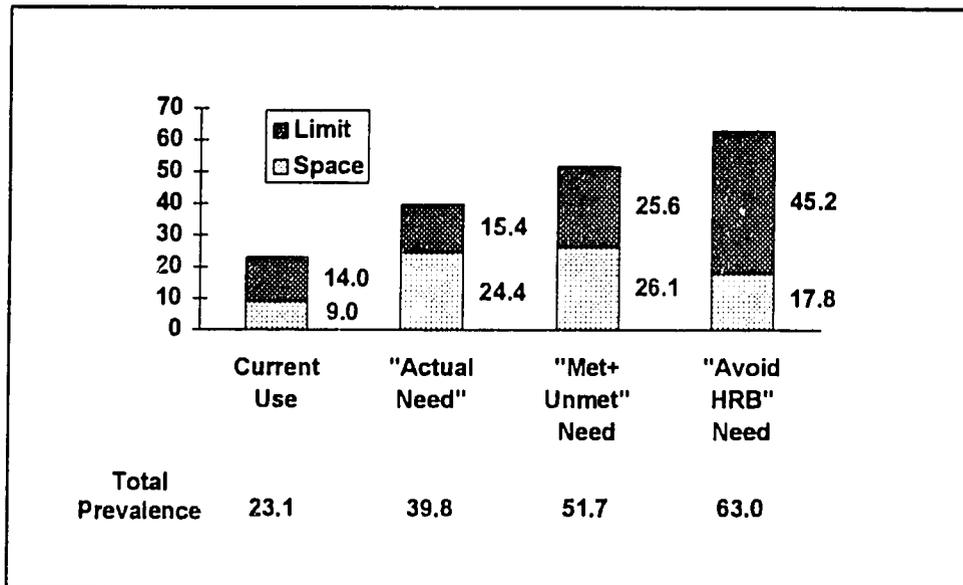
The relative levels of each type of family planning need (spacing and limiting) are shown in Figure 8. The prevalence increase from current use to Actual Need would be mostly due to increases in contraceptive use for spacing. The prevalence increase from Actual Need to Met+Unmet Need is almost entirely due to an increase in the percentage of women who want to limit their births; the percentage of spacers stays quite the same. The increase in prevalence from Met+Unmet Need to Avoid HRB Need is entirely toward limiting; the percentage of women who are spacing actually decreases. This is due to Kenya's recent history of high fertility: many women have already had four births, yet the desire to have more is still common.

Table 5  
Percent Distribution of all Women by Type of Family Planning Need

	"Actual" Need	"Met +Unmet" Need	"Avoid HRB" Need
Wants a birth soon	10.4	10.4	5.2
Spacer	15.4	26.1	17.8
Limitier	24.4	25.6	45.2
Not exposed	49.3	37.6	31.6
Unknown	0.3	0.3	0.3
Column totals	100.0	100.0	100.0
Appropriate prevalence (space+limit need)	39.8	51.7	63.0
Number	7150	7150	7150

What, then, would be a realistic appropriate prevalence for the Kenya family planning program to strive for? This is a very important question to resolve with country experts and policymakers. In this analysis, appropriate prevalence will be considered as the prevalence required to meet women's needs to avoid high-risk births (i.e., 63%). Kenya has relatively high infant and maternal mortality, and policymakers may want to encourage family planning as a maternal and child health intervention. It is perhaps commendable, though doubtfully feasible, for the family planning program to be so ambitious as to strive to provide the services and information required to reach all these women.

**Figure 8**  
**Current and Appropriate Prevalence by Type of Need for Family Planning**



*Identify health circumstances*

Whether or not a woman is in a stable union, has ever had a birth, is breastfeeding, or is older than age 35 are important factors that affect which methods may be better contraceptive choices in terms of her overall health. Nulliparous women are usually recommended to choose a method other than an IUD; breastfeeding women should not use combined oral contraceptives. The family planning program should be able to provide these women with appropriate alternatives. The distribution of spacers and limiters who would have the above characteristics is indicated in Table 6. Of the total need for contraception, approximately 8 percent of all women have a need and have not had a birth, and less than five percent are in need and breastfeeding. This is lower than the current percentage of women who are breastfeeding. The Avoid HRB definition recommends lower levels of fertility, and therefore fewer women would be breastfeeding. As this is a relatively small portion of women, it does not seem necessary to develop a separate profile group for their needs. Hopefully, the family planning program will provide a range of methods and adequate counseling so that women can avoid selecting a method inappropriate to their needs.

A substantial percentage of all women are unmarried and in need of contraception (11.4%). Unmarried women constitute over 18 percent of the total need for family planning services. These women may want to use condoms and avoid using an IUD as HIV/AIDS is a serious and growing problem in Kenya. In some regions of the country, over 20 percent of adults

are infected with HIV. With such a high prevalence of HIV in the population, anyone who has multiple partners, or whose partner has multiple partners, is at risk of HIV infection. Although the proportion of adults with multiple partners is not known precisely, several studies indicate that it is about 30 percent for men and about 10 percent for women. Any sexually active person who is at risk of communicating or contracting HIV should use a condom.

According to the DHS data, condom use is very low in Kenya. However, the low reported prevalence may be the result of how the question was asked. The DHS questionnaire only asks which method the woman uses to avoid becoming pregnant. Since it is men who use the condoms, women may under-report condom use as a contraceptive method. Also, it is possible that many women are using condoms, but think of them as a disease-prevention measure not as their primary contraceptive. Because HIV is a serious health circumstance, the subsequent analysis needs to pay special attention to women with a characteristic profile that signals a risk of sexually transmitted diseases. Therefore, prevalence of condom use is estimated for both contraceptive and health purposes.

Women over age 35 with a need for family planning make up 23 percent of all women and over one-third of all limiters. It is very important for these women to have an alternative to the pill as a method choice. Given that pill use is such an important method in Kenya, pill users should be looked at separately. A logical definition of profile groups seems to be one that distinguishes limiters under and over age 35. The following analysis will proceed with three groups of need: spacers, limiters under age 35, and limiters age 35 and older.

#### *Identify socio-psychological considerations*

The analyst is encouraged to consider the socio-psychological characteristics of the population when analyzing the method mix. For example, if Moslem women consider irregular menses disruptive and Catholic women consider modern methods unacceptable, the analyst may want to look at the proportion of women in need who are of each religion. Information on husband-wife communication also can be used to indicate the likelihood of increased use of methods that require husband's cooperation. If women state that their husband disapproves of contraception, or that he wants more children than she does, methods that can be concealed, such as injectables, may need to be given priority.

**Table 6**  
**Percent Distribution of Women with a Need for Family Planning**  
**(based on the appropriate prevalence for the Avoid HRB group)**

	<b>Percent</b>	<b>Number</b>
All Women	100.0	7150
In Need	63.0	4501
Not married	11.4	818
Nulliparous	8.4	599
Breastfeeding	4.4	313
Age 35 and older	22.9	1639
Spacers	17.8	1270
Not married	7.2	517
Nulliparous	7.7	554
Breastfeeding	2.8	199
Age 35 and older	0.0	3
Limiters	45.2	3231
Not married	4.2	301
Nulliparous	0.6	45
Breastfeeding	1.6	114
Age 35 and older	22.9	1636

Note: Percentages of women not married, nulliparous, breastfeeding, and age 35 and older are not additive; women may have none or more than one of these characteristics.

## **B. Step 2: Define an Appropriate Method Mix by Profile Group**

Analysts are recommended to begin this step by examining the contraceptive method mix that is currently being used by women of each profile group. This is the base from which a new distribution of method use will evolve. The analyst also is encouraged to be somewhat realistic about what the available infrastructure can support.

Table 7 presents the distribution of methods used and methods preferred by Actual Need spacers and limiters under and over age 35. Women are identified as a spacer or limiter based on their Actual Need, not their Avoid HRB Need. Methods chosen by women should be matched with the actual need that influenced the woman's choice. The first column shows the method mix currently being used. The second and third columns show the method mix of women who may have better information and access (i.e., urban/educated women, and women who could recognize a description of at least four methods among pill, IUD, injectable, condom, and female and male sterilization). Note that urban/educated women are a small sample. The fourth column presents the distribution of methods that non-users who intend to eventually use said they would prefer to use.

A feature that is striking for all spacers and limiters of both age groups is the amount of use of traditional and other methods compared to what nonusers say they would prefer to use. While over half of spacers currently use traditional or other methods, only 7 percent of non-using spacers prefer these methods. This indicates that women are aware of the benefits of modern methods though they do not play a large role in the current mix. For both spacers and limiters, the percentage using traditional methods should decrease. Moderate use of traditional methods has been retained in the appropriate method mix because the Kenyan family planning program has included training for women in the correct use of natural family planning methods.

It is interesting to note the increased role of injections in the preferred method mix. For both women with a spacing need or a limiting need more than forty percent of women would choose this method. The unpopularity of the IUD is evident nonusers. However, in each profile group, IUDs are used more by urban/educated women than by current users. Between the two age groups of limiters, women who are knowledgeable about methods are slightly more likely to use an IUD than the current mix would indicate. In the past there have been a number of problems with IUDs that have contributed to a negative image among the population. The popularity of injection is due partly to its being seen as a substitute for the IUD. Given the popularity of injectables, it is likely that Norplant® may also become a highly-regarded method when it becomes more widely available. (Accessibility may actually increase in the near future as Kenya is adding the method to its family planning program.) That women did not mention it as a preferred method is most likely attributable to the fact that it was unavailable when the DHS was conducted. Norplant® is not included in the suggested appropriate method mix, but it can be added to future assessments as soon as it becomes a more widely-used method.

Table 7  
Current and Preferred Method Mix by Profile Group<sup>1</sup>

**"ACTUAL" NEED SPACERS**

Method	Current Mix	Mi.: of Urban/Educated	Mix of Knowledgeable	Preferred Method
Pill	24.1	36.9	28.2	38.2
IUD	10.5	20.2	13.3	8.2
Injectable	8.6	7.1	7.0	42.8
Vaginal	0.9	0.8	1.0	0.6
Condom	2.9	4.0	3.8	0.3
F. Sterilization	0.0	0.0	0.0	2.6
M. Sterilization	0.0	0.0	0.0	0.0
Other	52.6	31.0	46.6	7.4
Number	653	162	503	250

**"ACTUAL" NEED LIMITERS YOUNGER THAN AGE 35**

Method	Current Mix	Mix of Urban/Educated	Mix of Knowledgeable	Preferred Method
Pill	25.4	34.7	25.9	22.4
IUD	14.2	25	15.7	14.2
Injectable	16.2	13.2	15.8	39.1
Vaginal	1.3	0.7	1.5	0
Condom	1.3	0.7	1.5	5
F. Sterilization	16.9	9	17.1	17.1
M. Sterilization	0	0	0	0
Other	24.6	16.7	22.4	2.1
Number	465	93	490	144

**"ACTUAL" NEED LIMITERS AGE 35 AND OLDER**

Method	Current Mix	Mix of Urban/Educated	Mix of Knowledgeable	Preferred Method
Pill	9.8	13	8.3	12.4
IUD	14.6	29.3	16.5	4
Injectable	11.2	5.4	12	47.8
Vaginal	2.4	4.3	2.7	0
Condom	0.7	2.2	0.6	0.6
F. Sterilization	33	38	36.6	25.5
M. Sterilization	0.6	0	0.7	0.6
Other	27.8	7.6	22.6	9.1
Number	538	59	458	120

<sup>1</sup> Women who did not indicate a preferred method are not included in the column "Preferred Method." "Educated" includes women who had any education at all. "Knowledgeable" includes women who were able to recognize a description of at least four methods among pill, IUD, injectable, condom and female or male sterilization.

The difference in method use between women under 35 and those 35 and older is somewhat encouraging. Older women are much less likely to use the pill than younger women. Older women are also less likely to use injectables, but are considerably more likely to use female sterilization. Based on method characteristics, there seems to be a logical difference in method use by age. An anomaly is the low prevalence of male sterilization. This may be due to a history of inaccessibility or to an unwillingness of men to have a vasectomy.

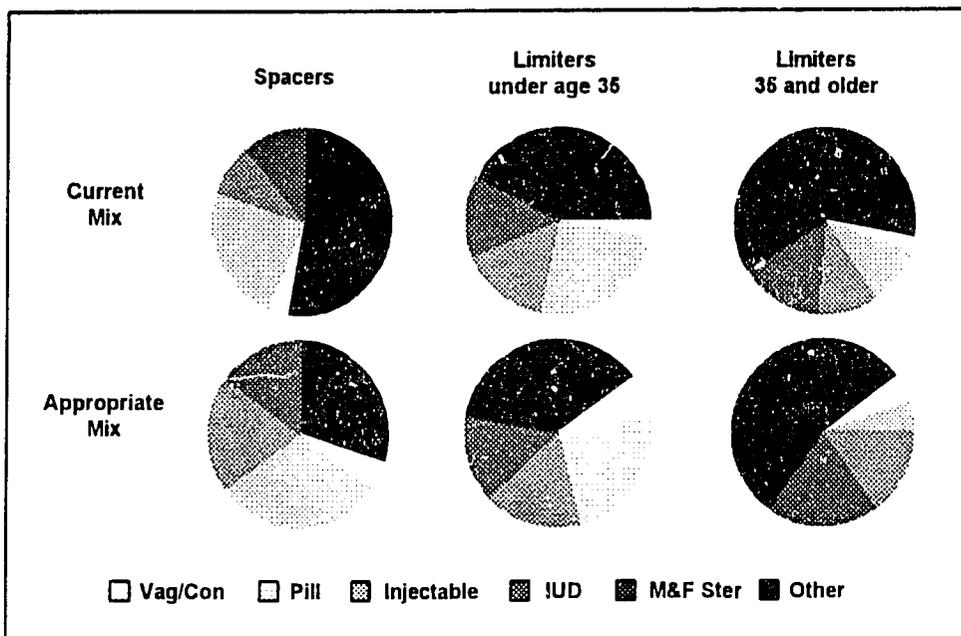
Table 8 presents a suggested appropriate method mix; Figure 9 presents this information visually and compares what is suggested with the actual method use of women with those characteristics. The appropriate method mix that was adopted for this analysis is a relatively small variation on the current mix rather than a distant ideal. This provides a perspective for planning for roughly the next five years. If a longer range of planning was needed, an alternative estimate of the distribution of women also would be needed. This is especially true because the age distribution can change substantially. Each method was considered, in terms of its characteristics, prevalence and priority as a preference. The percentage of pill users remains the same for limiters under 35 and halves for women age 35 and older. Pill use increases for spacers as it is an appropriate alternative from traditional methods. IUD use increases for spacers and limiters over age 35, but not as much as it would have if sexually transmitted diseases were not such a concern. The largest increase is in injectables, basically because they are so popular as a preferred method, and because there are women who will need contraception while they continue to breastfeed. Vaginal methods and condoms do not increase substantially as a method of contraception. Despite the fact that few women chose it as a preferred method, female sterilization has been increased in the suggested appropriate method mix because of its popularity among the "informed choice" women, which indicates that it may become more popular as more women become empowered to make informed choices. Because of the aforementioned health considerations, a large increase in condom use is proposed outside of the distribution of primary methods. Male sterilization is given a small increase in anticipation of greater efforts to stimulate interest in this very safe and effective method.

The analysis of method mix in Kenya illustrates an application of the above methodology. It does not constitute a recommended path for the family planning program to follow. The analysis ideally should be undertaken by in-country analysts working in tandem with program managers. The analyst is encouraged to use creative, realistic thinking, rather than a predetermined algorithm to come up with the "appropriate" method mix.

**Table 8**  
**Suggested Appropriate Method Mix for Spacers**  
**and Limiters Younger and Older than 35**

	<b>Spacers</b>	<b>Limiters under 35</b>	<b>Limiters 35 and older</b>
Pill	30	26	5
IUD	15	15	20
Injectable	20	17	15
Vaginal	1	2	2
Condom	4	3	3
Female Sterilization	0	20	35
Male Sterilization	0	2	5
Other	30	15	15
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

**Figure 9**  
**Comparison of Current and Appropriate Mix Spacers**  
**and Limiters Under and Older than 35**



*Additional condom use for health*

The method mixes among married and unmarried women are compared in Table 9. The method mix of married and not married limiters is relatively similar. The salient difference in method use of spacers is that not married women are more likely to use traditional methods. Condom use among unmarried women is disturbingly low. Because of the high prevalence of STDs and HIV/AIDS the appropriate mix should contain at least 15 percent condom among all women. For women who are not married, the proportion of condom use is set to 50 percent, under the assumption that unmarried women change partners more frequently. Condom use is set at 10 percent for married women.

Table 9

Comparison of Method Mix of "Actual" Need Spacers and Limiters by Marital Status

Method	Spacers		Limiters	
	Married	Not Married	Married	Not Married
Pill	26.3	20.5	16.0	23.7
IUD	12.9	7.5	14.3	15.1
Injectable	9.8	6.7	13.7	12.6
Vaginal	0.6	1.5	2.1	0.5
Condom	3.5	1.8	1.0	0.7
F. Sterilization	0.0	0.0	25.7	24.7
M. Sterilizatio	0.0	0.0	0.0	2.4
Other	47.0	62.1	27.2	20.3
TOTAL	100.0	100.0	100.0	100.0
Number	411	242	871	132

**C. Step 3: Determine an Appropriate Method Mix**

The results of applying the suggested appropriate method mixes for spacers and limiters younger and older than age 35 to the percentage of women who would be a spacer or limiter younger and older than age 35 are presented in Table 10. Essentially, the overall appropriate method mix is obtained by weighting the method mix for each profile group by the percentage of women in that profile group and summing those results over all profile groups. Figure 10 illustrates a comparison of the current method mix with the suggested method mix for women to avoid high-risk births. The first two columns of Table 10 compare the current and appropriate method mix; the second set of two columns compares the current and appropriate prevalence. For comparison, the appropriate mix for each of

the three scenarios of need and the appropriate prevalence is presented in Figure 11. In an actual country context, the analyst would examine only the distribution of need that was agreed to as the appropriate prevalence.

The extra row at the bottom of Table 10 indicates the percentage of contraceptive users who should also use a condom for health purposes as a second method, and the percentage of all women who should use them. The estimate of condom use for health was calculated by multiplying the number of married women in need by 10 percent, and the number of not married women in need by 50 percent. This indicates the total number of women in need of using a condom. The number of women who should use a condom as a second method for health is the difference between the total number of potential condom users and the number who already use a condom as their main method of contraception. Use of condoms for health by all women would actually be somewhat greater than indicated here. This table indicates condom use among sexually active women who need contraception. Women who are sexually active and are pregnant, amenorrheic or infecund do not need contraception, but they do need condoms for health.

Table 10  
Current and Appropriate Method Mix and Method Prevalence

	Method Mix		Method Prevalence	
	Current	Suggested Appropriate (HRB Need)	Current	Suggested Appropriate (HRB Need)
Pill	19.8	19.2	4.6	12.3
IUD	13.0	15.0	3.0	10.6
Injectable	11.6	20.0	2.7	10.8
Vaginal	1.5	1.7	0.3	1.1
Condom	1.7	2.6	0.4	2.1
Female Sterilization	15.5	21.5	3.6	12.5
Male Sterilization	0.2	0.7	0.0	1.6
Other	36.7	19.2	8.5	12.1
Total	100.0	100.0	23.1	63.0

	Percent of Contraceptive Users Using Condoms for Health		Percent of All Women Using Condoms for Health	
	Current	Suggested Appropriate	Current	Suggested Appropriate
Condoms for Health	NA	14.7	NA	3.0

58

Figure 10  
 Current and Appropriate Method Mix  
 (based on Avoid HRB Need)

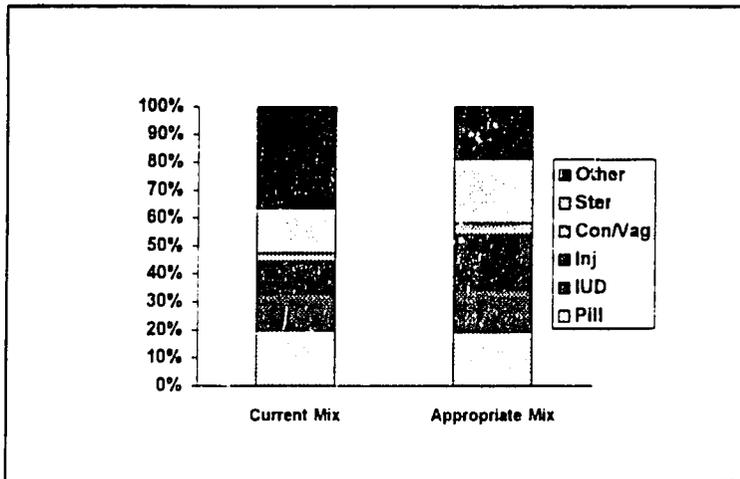
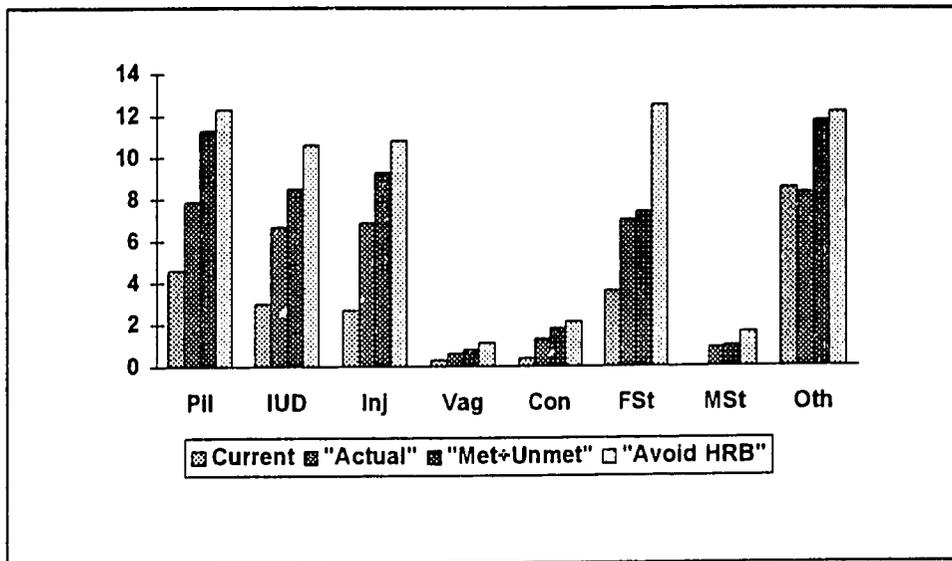


Figure 11 highlights the importance to overall method mix of the definition of need selected in Step 1 of the analysis. The difference in how women's needs are defined makes a large difference in the appropriate method mix. The scenario that addresses high-risk births has a large portion of limiters, which is evident from the prevalence of sterilization. Program managers need to be aware of the changes in the population base they are serving.

Figure 11  
 Current and Appropriate Prevalence by Method and  
 Type of Need for Family Planning



#### **D. Discussion of Results**

A comparison of the actual method mix with the appropriate mix (Table 10) shows several key differences. Over one-third of all current users are using traditional and "other" methods; the appropriate mix would have far fewer users of traditional methods. A large increase in condom use would be warranted because of the need for protection from HIV/AIDS. The current method mix undoubtedly under-reports actual condom use because the DHS only asks women about use of methods for contraception and not for disease protection. (The number of condoms distributed in Kenya is much higher than reported condom prevalence in the DHS would suggest.) There is also a large increase for injectables. This clearly has the potential to become a major method in the Kenyan family planning program. Unfortunately, much of the popularity of injection may be due to dislike and misconceptions about the IUD based on past problems with this method. Program effort could be directed to improving the quality of services and providing better information and counseling about side effects.

A comparison of actual method prevalence with the appropriate method prevalence reveals several additional insights. Actual prevalence of all methods is just 23 percent of married and sexually active women. Prevalence of modern methods is just 15 percent. In order to meet the reproductive desires of women and provide protection from high-risk births, the modern method prevalence should be about 51 percent with a total prevalence around 63 percent. This is an extremely high figure, due, at least in part, to the high fertility Kenya has experienced over the last 20 years. This high fertility, coupled with recent declines in desired family size, means that most women have already met or exceeded their fertility desires, and therefore are candidates for contraception.

These results indicate that the number of modern method users would have to increase by 36 percentage points in order to meet all the contraceptive needs of Kenyan women. It will be a major challenge to the family planning program to train enough service providers, ensure high quality of care for all clients and allocate the necessary resources. Moreover, the population continues to grow rapidly, and the absolute number of users is increasing.

This analysis suggests several areas that should receive special attention from the family planning program. First, encourage women to switch from traditional methods to more effective, modern methods. This should be preceded by analyses to determine the reasons why so many women currently rely on traditional methods. Second, address issues about condom use versus other contraceptive methods among people who may be at risk of HIV. Third, place greater emphasis on improving the quality of care associated with the IUD, and developing alternatives to the IUD, such as injections or implants. Fourth, understand the reasons for the large gap between actual use of contraception and fertility preferences. Based just on stated fertility preferences (ignoring health risks) the prevalence in Kenya should be 52 percent. Actual prevalence at the time of the DHS was only 23 percent. The reasons for this large gap need to be understood so that actions can be taken to improve the ability of the program to responsively serve those in need of family planning services.

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## APPENDIX A

### COMPARISON OF WOMEN BY DIFFERENT TYPES OF FAMILY PLANNING NEED

Analysis Charts A-1, A-2 and A-3 show the detailed plan of how each type of need is derived. Tables A-1 and A-2 show cross-tabulations of women identified by the three definitions of need. These tables are not necessary for the analysis, but are included here to illustrate how each of the "Need" definitions differ, and how women are "moved" from one definition to the next.

Table A-1 shows the difference between the Actual and Met+Unmet Need definitions. The main difference is that some women identified as Not Exposed (because they are already pregnant or amenorrheic) are re-categorized as having a need for contraception because their birth was too soon or not wanted. A few women who are limiters in the Actual Need definition are reclassified as limiters in the Met+Unmet Need definition; these can be women who now want no more, however they did not want their last birth so soon, and may still have been a spacer had contraception been more accessible.

Table A-2 shows the difference between the Met+Unmet and Avoid HRB definitions. Women in the Actual Need profile are reclassified as having a greater need for family planning: half of women who want a birth soon are reclassified as a spacer or limiter; two of every five spacers are reclassified as limiters; and a few women who are not exposed are reclassified as spacers or limiters. While the difference between the Actual and Met+Unmet definitions is to shift a few pregnant and amenorrheic women to contraceptive use; the Avoid HRB definition of need is more encompassing. The Avoid HRB definition shifts women from every profile group to greater contraceptive use.

**Figure A-1**  
**Definition of "Actual" Need for Family Planning**

**“Actual” Need for Family Planning Definition**

<u>Characteristics and Desires</u>	<u>Type of Need</u>
Wants a birth soon; would be happy to become pregnant	Wants a birth soon
Wants a birth later; is undecided about having another child; would be unhappy to become pregnant; is using a temporary method of contraception; (apply percent of unmarried who wanted last birth, but not so soon)	Spacer
Wants no more births; number of surviving children equals or exceeds ideal number of children; is using sterilization	Limiter
Infecund; pregnant; amenorrheic; not sexually active	Not exposed
None of the above	Unknown

---

*Note: Only married women are asked if they want a birth now, later, or not at all; all of the other information is asked of all women.*

**Figure A-2**  
**Definition of "Met and Unmet" Need for Family Planning**

**“Met & Unmet” Need for Family Planning Definition**

<u>Characteristics and Desires</u>	<u>Type of Need</u>
Wants a birth soon; would be happy to become pregnant	Wants a birth soon
Is pregnant or amenorrheic with a child she did not want so soon; wants a birth later; is undecided about having another child; would be unhappy to become pregnant; is using a temporary method of contraception; (apply percent of unmarried who wanted last birth, but not so soon)	Spacer
Is pregnant or amenorrheic with a child she did not want at all; wants no more births; number of surviving children equals or exceeds ideal number of children; is using sterilization	Limiter
Infecund; pregnant; amenorrheic with a child she wanted soon; not sexually active	Not exposed
None of the above	Unknown

---

*Note: Only married women are asked if they want a birth now, later, or not at all; all of the other information is asked of all women.*

**Figure A-3**  
**Definition of "Avoid High-Risk Birth" Need for Family Planning**

**“Avoid High-Risk-Birth” Need for Family Planning  
 Definition**

Characteristics and Desires

Type of Need

Wants a birth soon or would be happy to become pregnant and her child will be born when she is age 18-35, has had only 3 births and has not had another birth in 15 months

Wants a birth soon

Is younger than 18 or had a birth within the last 15 months; is pregnant or amenorrheic with a child she does not want so soon or that will be born before age 18 or within 24 months of her last birth; is using a temporary method of contraception; (apply percent of unmarried who wanted last birth but not so soon)

Spacer

Is at least 35 or parity 4; is pregnant or amenorrheic with a child she does not want at all or that will be born after age 35 or parity 4; number of surviving children equals or exceeds ideal number of children; is using sterilization

Limiter

Infecund; pregnant; amenorrheic with a child she wants soon and that will be born when she is age 18-35, has had only 3 births previously and did not have another birth less than 2 years before; not sexually active

Not exposed

None of the above

Unknown

---

*Note: Only married women are asked if they want a birth now, later, or not at all; all of the other information is asked of all women.*

**Table A-1**  
**Distribution of All Women by "Actual" Need Versus "Met+Unmet" Need**

"Actual"	"Met + Unmet"					Row total
	Wants a birth soon	Spacer	Limiter	Not exposed	Unknown	
Wants a birth soon	10.4					10.4
Spacer		15.5				15.5
Limiter		1.2	23.2			24.4
Not exposed		9.3	2.4	37.8		49.3
Unknown					0.3	0.3
Column total	10.4	26.1	25.6	37.8	0.3	100.0

**Table A-2**  
**Distribution of All Women by "Met+Unmet" Need Versus "Avoid HRB" Need**

"Met+Unmet"	"Avoid HRB"					Row total
	Wants a birth soon	Spacer	Limiter	Not exposed	Unknown	
Wants a birth soon	5.2	1.8	3.5			10.4
Spacer		15.2	10.9			26.1
Limiter			25.6			25.6
Not exposed		0.8	5.2	31.6		37.6
Unknown					0.3	0.3
Column total	5.2	17.8	45.2	31.6	0.3	100.0







1 "Urban"  
 2 "Rural"  
 /V106  
 0 "No education"  
 1 "Primary"  
 2 "Secondary"  
 3 "Higher"  
 /V213  
 0 'No or unsure'  
 1 'Yes'  
 /V301  
 0 "Knows no method"  
 1 "Knows only trad. meth"  
 2 "Knows modern method"  
 /V302  
 0 "Never used"  
 1 "Used only trad. meth"  
 2 "Used modern method"  
 /V303  
 0 "Doesn t know source"  
 1 "Knows sourc.mod.meth"  
 /V304pil  
 V304iud  
 V304inj  
 V304vag  
 V304con  
 V304fst  
 V304mst  
 V304PA  
 V304wdr  
 V304oth  
 V304\$11  
 V304\$12  
 0 "No"  
 1 "Yes, spontaneously"  
 2 "Yes, probed"  
 8 "Not asked"  
 /V312  
 0 'Not using'  
 1 'Pill'  
 2 'IUD'  
 3 'Injections'  
 4 'Diaphragm/Foam/Jelly'  
 5 'Condom'  
 6 'Female Sterilization'  
 7 'Male Sterilization'  
 8 'Periodic Abstinence'  
 9 'Withdrawal'  
 10 'Other'  
 11 'Norplant'  
 12 'Abstinence'  
 13 'Specific method 1'  
 14 'Specific method 2'  
 15 'Specific method 3'  
 /V323  
 96 "Not able to show"  
 /V363  
 0 'Not using'  
 1 'Pill'  
 2 'IUD'  
 3 'Injections'  
 4 'Diaphragm/Foam/Jelly'

5 'Condom'  
 6 'Female Sterilization'  
 7 'Male Sterilization'  
 8 'Periodic Abstinence'  
 9 'Withdrawal'  
 10 'Other'  
 11 'Norplant'  
 12 'Abstinence'  
 13 'Specific method 1'  
 14 'Specific method 2'  
 15 'Specific method 3'  
 /V367  
 1 'Wanted then'  
 2 'Wanted later'  
 3 'Wanted no more'  
 8 'Don t know'  
 /V404  
 0 'No'  
 1 'Yes'  
 /V405  
 0 'No'  
 1 'Yes'  
 /V501  
 0 'Never married'  
 1 'Married'  
 2 'Living together'  
 3 'Widowed'  
 4 'Divorced'  
 5 'Not living together'  
 /V525  
 0 "Not had intercourse"  
 97 "Inconsistent"  
 98 "Don t know"  
 /V527  
 995 'Within last 4 weeks'  
 996 'Before last birth'  
 998 'Don t know'  
 /V528  
 31 "31+ days"  
 95 "Within last 4 weeks"  
 96 "Before last birth"  
 97 "Inconsistent"  
 98 "Don t know"  
 /V601  
 1 'Another (definitely)'  
 2 'Another (not sure)'  
 3 'Undecided (another)'  
 4 'Undecided (not sure)'  
 5 'Undecided (no more)'  
 6 'No more (not sure)'  
 7 'No more (definitely)'  
 8 'Regret ster. (anoth)'  
 9 'Regret ster.(no/uns)'  
 10 'Sterilized no regret'  
 11 'Sterilized (missing)'  
 12 'Declared infecund'  
 /V602  
 1 'Have another'  
 2 'Undecided'  
 3 'No more'  
 4 'Sterilized'  
 5 'Declared infecund'

```

/V604
  0 '< 12 months'
  1 '1 year'
  2 '2 years'
  3 '3 years'
  4 '4 years'
  5 '5 years'
  6 '6+ years'
  7 'Non-numeric'
  8 'Don t know'
/V606
  1 'Happy'
  2 'Unhappy'
  3 'Would not matter'
  8 'Don t know'
/V607
  1 'Partner objects'
  2 'Too costly'
  3 'Menop/subfecund'
  4 'No method'
  5 'Diff to get'
  6 'Infreq sex'
  7 'Religion'
  8 'Breastfeeding'
  9 'Fear side effects'
 10 'Opposed FP'
 11 'Other'
/V613 96 "Non-numeric response"

```

MISSING VALUE

V106 (9)

/V304pil

V304iud

V304inj

V304vag

V304con

V304fst

V304mst

V304PA

V304wdr

V304oth

V304\$11

V304\$12 (9)

/V312 (99)

/V323 (99)

/V363 (99)

/V367 (9)

/V501 (9)

/V527 (999)

/v528 (99)

/V601 (99)

/V602 (9)

/V604 (9)

/V606 (9)

/V607 (99)

\* Weight data file.

COMPUTE wgt = V005/1000000.

WEIGHT BY wgt.

\* Make a variable of married and cohabiting or never married, divorced and widowed.

```
compute notmar=1.
if (v501=1 or v501=2) notmar=0.
val lab notmar 0 'Married/cohab' 1 'not married'.
```

- \* The next 2 recodes are for the tabulation of women with informed choice.
- \* This identifies women who are both urban and educated.

```
compute urbed=0.
if (v102=1 and v106 ne 0) urbed=1.
compute parous=0.
if v201 > 0 parous=1.
```

- \* Count the number of methods among pill, iud, injection, condom, male and female sterilization that a woman could name spontaneously or recognize; recode to 1 if she knew 4-6; recode to 0 if she knew 0-3.

```
count know4mth= V304pil v304iud v304inj v304con v304fst v304mst (1 2).
recode know4mth (0 1 2 3 =0) (4 5 6 =1).
Var lab know4mth 'knows 4+ among piicmf'.
Val lab know4mth 0 'knows 0-3' 1 'knows 4+'.
```

- \* Pregnancy wantedness status, kenya has no question on wantedness of the current pregnancy so it is assumed that she wanted it unless she had a previous birth that was not wanted then or not wanted at all; then pregnancy takes that attribution.

```
Compute pregwant = v213.
If (v213=0) pregwant = 0.
If (v213=1 and v367=2) pregwant = 2.
If (v213=1 and v367=3) pregwant = 3.
Var lab pregwant 'pregnancy status'.
Val lab pregwant 0 'not pregnant' 1 'preg-wantnow/dk'
                2 'preg-wanted later' 3 'preg-did not want'.
```

- \* Amenorrhea wantedness status.

```
Compute amenwant = v405.
If (v405=1 and v367=2) amenwant = 2.
If (v405=1 and v367=3) amenwant = 3.
Var lab amenwant 'amenorrhea status'.
Val lab amenwant 0 'not amenorrheic' 1 'amen-wantnow/dk'
                2 'amen-wanted later' 3 'amen-did not want'.
```

- \* Sexual activity status, either not within 2 months or never.

```
Compute active = 9.
If ((v527 ge 100) and (v527 le 208)) active = 1.
If (v527=301 or v527=302 or v527=995) active = 1.
If (v527 ge 209 and v527 le 300) active = 0.
If (v527 ge 303 and v527 le 900) active = 0.
If (v527 = 996) active = 0.
If (v525 = 0) active = 0.
Var lab active 'sexual activity status'.
Val lab active 9 'unknown' 1 'active 2 mths' 0 'not active'.
```

- \* Determine desired timing for next child, Assumes does not know = wants soon; and if she is not sure about having a child at all she should wait.

```
Compute timing = 9.
If (v604=0 or v604=1 or v604=2) timing = 1.
If (v604=7 or v604=8 or v604=9) timing = 1.
If (v604=3 or v604=4 or v604=5 or v604=6) timing = 2.
if (v602=2) timing = 2.
Var lab timing 'when respondent wants next child'.
Val lab timing 1 'soon' 2 'wait 2+ yrs/undec child' 9 'unknown'.
```

- \* If becoming pregnant does not matter, assume it is ok.

```
Compute unhapreg = 9.
```

If (v606=2) unhapreg = 1.  
 If (v606=1 or v606=3) unhapreg = 0.  
 Var lab unhapreg 'unhappy if became pregnant'.  
 Val lab unhapreg 9 'unknown' 1 'unhappy preg' 0 'happy/no matter'.

\* Set up need definitions for actual preference, retroactive met+unmet need and avoid HRB retroactive need.

\* Set up profile of actual preference, this is similar to unmet need except preg-amen women are not moved retroactively.

compute actualpr=9.  
 if (v602=5 and v312=0) actualpr=8.  
 if ((v213=1 or v405=1) and v312=0) actualpr=8.  
 if (actualpr=9 and v602=3) actualpr=5.  
 if (actualpr=9 and notmar=1 and (v218 ge v613)) actualpr=5.  
 if (actualpr=9 and timing=2) actualpr=1.  
 if (actualpr=9 and notmar=1 and unhapreg=1) actualpr=1.  
 if (v312=6 or v312=7) actualpr=5.  
 if (actualpr ge 8 and v312>0 and v367=3) actualpr=5.  
 if (actualpr ge 8 and v312>0) actualpr=1.  
 If (active=0 and v312=0 and v213 ne 1 and v405 ne 1) actualpr=8.  
 if (actualpr=9 and timing=1) actualpr=0.  
 if (actualpr=9 and unhapreg=0) actualpr=0.  
 var lab actualpr 'Actual preference'.  
 Val lab actualpr 0 'wants child now' 1 'spacer' 5 'limiter'  
 9 'unknown' 8 'not exposed'.

\* Set up profile of retroactive met+unmet preference, assign labels; save categories 2,3,4,6 for further subcategories.

\* Women who are infecund, or who are pregnant or amenorrheic and wanted it are not exposed to pregnancy; woman is limiter if she is preg or amen but did not want pregnancy; woman is spacer if she is preg or amen but wanted it later; remaining unmarried women are limiters if their number of living children has reached or exceeded their ideal number; of children; woman is moved to spacer if she is not already a limiter and is using any contraception; if woman is not sexually active she is not exposed to pregnancy, however users and pregnant and amenorrheic women stay at spacer or limiter; woman wants child now if she is not yet classified and she wants soon, or is happy/accepting to be pregnant.

Compute metunmet = 9.  
 If (v602=5 or pregwant=1 or amenwant=1) metunmet = 8.  
 If (metunmet=9 and (pregwant=3 or amenwant=3)) metunmet = 5.  
 If (metunmet=9 and (pregwant=2 or amenwant=2)) metunmet = 1.  
 If (metunmet=9 and v602=3) metunmet = 5.  
 if (metunmet=9 and notmar=1 and (v218 ge v613)) metunmet = 5.  
 If (metunmet=9 and timing=2) metunmet = 1.  
 If (metunmet=9 and notmar=1 and unhapreg=1) metunmet = 1.  
 If (metunmet ne 5 and v312 gt 0) metunmet=1.  
 If (v312=6 or v312=7) metunmet = 5.  
 If (active=0 and v312=0 and v213 ne 1 and v405 ne 1) metunmet = 8.  
 If (metunmet=9 and timing=1) metunmet = 0.  
 If (metunmet=9 and unhapreg=0) metunmet = 0.  
 Var lab metunmet 'retroactive preference'.  
 Val lab metunmet 0 'wants child now' 1 'spacer' 5 'limiter'  
 9 'unknown' 8 'not exposed'.

\* This gives detail of breastfeeding and postponing to spacers and limiters if the birth she wanted later was her first she goes to postponer;

similarly, the number of women breastfeeding declines.

compute metunme2=metunmet.

```

If (metunme2=1 and (v201 > 1 or (v201=1 and v367=1))) metunme2=3.
If ((metunme2=3 and v404=1) and v367=1) metunme2 = 4.
If (metunme2=5 and (v201 > 1 or (v201=1 and v367 ne 3))) metunme2 = 5.5.
If (metunme2=5.5 And v404 = 1 and v367=1) metunme2=6.
var lab metunme2 'Retroactive pref detail'.
Val lab metunme2 0 'wants child now'
    1 'postponer' 3 'spacer-not bf' 4 'spacer-bf'
    5 'limiter-no births' 5.5 'Limiter-not bf' 6 'limiter-bf'
    9 'unknown' 8 'not exposed' .

```

\* On the base of womens met+unmet need to space and limit women are re-identified as having a need to reduce hi-risk births.

\* Woman is a postponer/spacer if she is under 18 years and wants soon or had a birth or pregnancy, or had a birth within 15 months and wants a child now or is already pregnant again.

```
compute avoidhrb=metunmet.
```

```
If (v012 < 18 and (avoidhrb=0 or pregwant=1 or amenwant=1)) avoidhrb = 1.
```

```
If (v222 le 15 and (avoidhrb=0 or pregwant=1)) avoidhrb = 1.
```

\* Woman is a limiter if she is over 35 years or has had 4 or more births, and wants soon, later or is pregnant, or if she is amen on 5th plus parity; a fifth plus birth should not have occurred so she would not be amen now if she had followed all the rules.

```
If ((v012 > 35 or v201 ge 4) and (avoidhrb le 1 or pregwant=1)) avoidhrb = 5.
```

```
if ((v012 > 35 and amenwant=1) or (v201 ge 5 and amenwant=1)) avoidhrb = 5.
```

```
var lab avoidhrb 'Retroactive hi-risk need'.
```

```
Val lab avoidhrb 0 'wants child now' 1 'spacer' 5 'limiter'
```

```
    9 'unknown' 8 'not exposed'.
```

\* Regroup to postponere vs spacers, and breastfeeding.

\* Woman is a spacer not bf if she had a birth; else she stays as postponer.

```
compute avoidhr2=avoidhrb.
```

```
If (avoidhr2=1 and (v201 > 1 or (v201=1 and v367=1)) and v012 > 17) avoidhr2=3.
```

\* Woman is spacer-bf if she is a spacer, bf and wanted birth then.

```
If ((avoidhr2=3 and v404=1) and v367=1) avoidhr2 = 4.
```

\* Woman is limiter not bf if she had a birth; else she stays as lim no birth.

```
If (avoidhr2=5 and (v201 > 1 or (v201=1 and v367 ne 3))) avoidhr2 = 5.5.
```

\* Woman is limiter breastfeeding if she had a birth and is breastfeeding

women who had a multiple birth on fourth delivery are miscoded.

```
If (avoidhr2=5.5 And v404 = 1 and v367=1 and v012 < 36 and v201 < 5) avoidhr2=6.
```

```
var lab avoidhr2 'Retroactive need detail'.
```

```
Val lab avoidhr2 0 'wants child now'
```

```
    1 'postponer' 3 'spacer-not bf' 4 'spacer-bf'
```

```
    5 'limiter-no births' 5.5 'Limiter-not bf' 6 'limiter-bf'
```

```
    9 'unknown' 8 'not exposed' .
```

\*Save outfile = 'c:\kenyadhs\kenyamix.Sav'.

\*get file = 'C:\kenyadhs\kenyamix.Sav'.

Weight by wgt.

\* this is a temporary recode to group all traditional and others into one.

```
recode v312 v363 (8 9 10 11 12 13 14 =10).
```

```
value labels /V312
```

```
    0 'not using'
```

```
    1 'pill'
```

```
    2 'iud'
```

```
    3 'injections'
```

```
    4 'diaphragm/foam/jelly'
```

```
    5 'condom'
```

```
    6 'female sterilization'
```

7 'male sterilization'  
10 'other' .

- \* This provides information on the of distribution of women by need groups and preferred method.

Crosstab /tables

```
actualpr metunmet avoidhrb avoidhr2 pregwant amenwant by notmar  
/actualpr by metunmet  
/metunmet by avoidhrb /avoidhrb by avoidhr2  
/v312 by actualpr /v363 by actualpr /urbed by know4mth  
/v363 by actualpr by urbed know4mth  
/cells=count row column total /format= nobox avalue.
```

- \* This selects on users only to see what the sum-to-100-percent method is, and women informed choice women use.

Temporary.

select if v312 > 0.

```
Crosstab /tables v312 by notmar parous v404 by actualpr  
/v312 by actualpr /v312 by actualpr by urbed know4mth  
/cells=count row column total /format= nobox avalue.
```

- \* This is to look at limiters only; the compute makes a group who are older and younger than 35.

select if actualpr = 5.

compute over34 = v012.

recode over34 (lowest thru 34 = 0) (35 thru highest = 1).

val lab over34 0 '34 or younger' 1 '35 or older'.

- \* This select is a convenience to look at the sum-to-100-percent preference of womens methods; otherwise many women say they do not know.

temporary.

select if (v363 lt 90).

```
crosstabs v363 by over34/cells=count column /format= nobox avalue.
```

select if v312 > 0.

```
crosstabs /v312 by over34 by urbed know4mth
```

```
/cells=count row column total /format= nobox avalue.
```

## Chapter 3

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## CHAPTER 3

### IDENTIFYING BARRIERS TO THE USE OF APPROPRIATE METHODS OF CONTRACEPTION

#### I. INTRODUCTION

Women and men have different needs for family planning at different stages of their reproductive lives. As ideal family size declines, women will spend increasingly long intervals trying to avoid pregnancy; however, they will need different methods at different times, depending on their future fertility aspirations, current reproductive intentions, and personal preferences.

It is not difficult to reach consensus on the kinds of methods that are most appropriate to the needs of different groups. Women and men who want more children are best served by reversible methods, while those who already have all the children they want are best served by longer-lasting methods with lower failure rates. Special populations, such as breastfeeding women or young people with more than one partner, have special, often short-term, needs.

To guarantee freedom of choice, family planning programs strive to make a wide variety of contraceptive methods available in a variety of settings, and to inform the population about their availability. Nevertheless, in many developing countries, large numbers of women who would like to regulate their fertility, or for whom a new pregnancy would pose serious health risks, use either no contraception or methods that would appear less appropriate to their needs. This often results in unwanted or high-risk pregnancies. Understanding the factors and barriers that contribute to non-use and use of less appropriate contraceptive methods enables policymakers and program managers to develop strategies that promote informed consent and freedom of choice in family planning and reproductive health.

This chapter seeks to identify various factors that inhibit appropriate contraceptive use among women who would like to delay their next pregnancy, who would like to stop childbearing altogether, or for whom a new pregnancy would pose serious health risks. The chapter examines non-use and use of less appropriate methods in terms of women's stated fertility intentions, their awareness of appropriate methods, awareness of methods and sources of supply of methods, experience with certain methods, perceived problems with methods, and reasons for discontinuation.

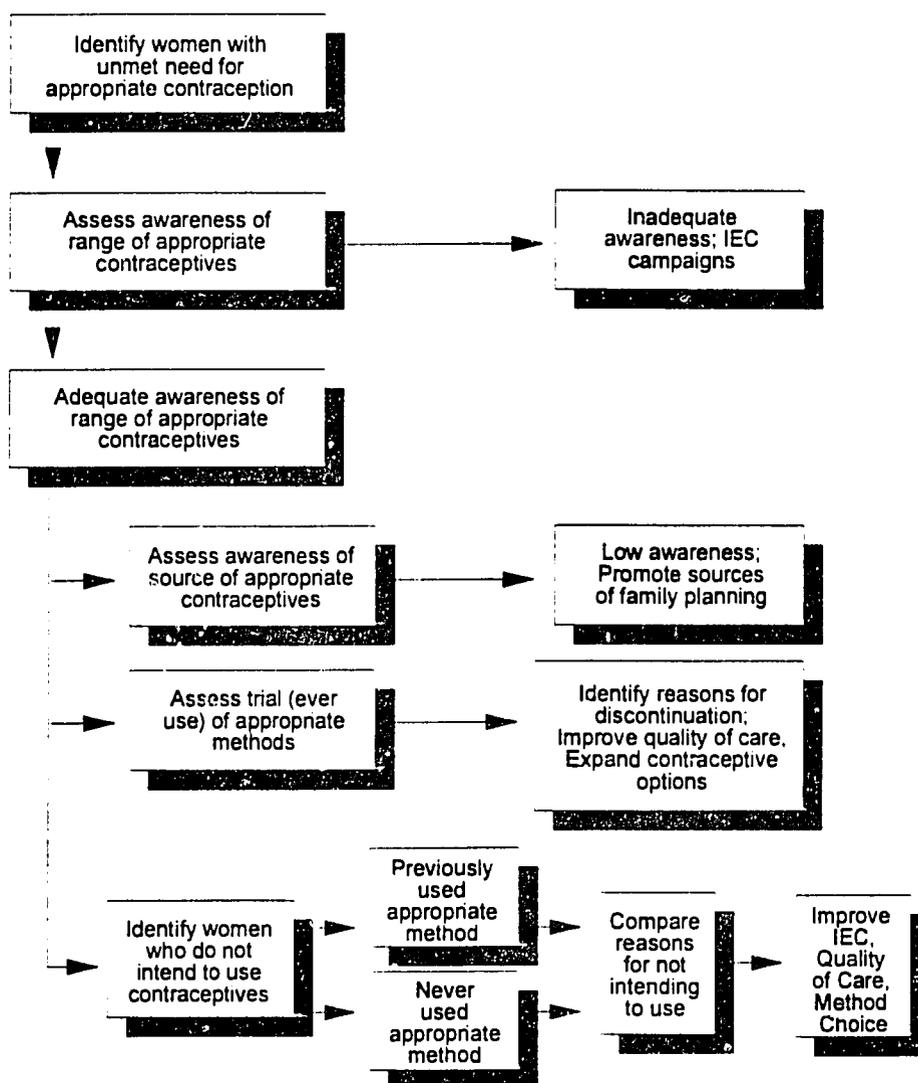
The purpose of the analysis is to develop targeted family planning strategies. For example, areas with low awareness of contraceptive methods could benefit from educational campaigns covering a wide range of contraceptive methods. Areas with moderate awareness levels but low ever-use often need greater dissemination of method-specific

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information and promotion of family planning outlets to encourage women and men to try a contraceptive method. Areas with high levels of awareness, ever-use, and discontinuation need to address the concerns of former users. Such a targeted approach can improve program success in promoting appropriate use of contraceptive methods.

### A. Analysis Flow Chart

The analysis described in this chapter uses DHS data to assess key barriers to appropriate contraceptive use, the magnitude of these problems, and the groups affected. Questions on fertility preferences, awareness of methods and sources, ever-use and perceived problems with methods, reasons for discontinuation, and reasons for not intending to use contraception are used in the analysis. A flow chart outlining the steps in the analysis is presented below.



## **B. Summary of Questions, Analyses, Possible Findings, and Programmatic Actions Addressed in this Chapter**

### *Policy or programmatic questions*

- Why do women who would like to regulate their fertility not use contraception?
- Why do women use methods that would appear less appropriate to their reproductive needs and preferences?
- Why do users discontinue methods?

### *Illustrative DHS analyses*

- Compare levels of awareness and previous use of contraception among women at different stages of their reproductive lives, who are and are not currently using family planning.
- Examine levels of awareness, previous contraceptive use, and discontinuation among women who use less appropriate methods.
- Examine problems and reasons for discontinuation of methods.

### *Possible findings*

- Women who use less appropriate methods lack awareness of methods, or are more likely to express husband's disapproval or religious objections to family planning than women who previously used or currently use contraception.
- Women who use less appropriate methods lack awareness of affordable supplies/services for long-term methods.
- Women who use less appropriate methods have experienced problems in the past with a modern method.

### *Possible policy or programmatic actions*

- Expand IEC activities; promote a wide range of contraceptive methods and address issues of male responsibility and church support.
- Expand distribution of supplies/services. Investigate possible method biases among providers.
- Improve training of providers, counseling of users, and method choice.

## II. OVERVIEW OF THE ANALYSIS

In order to develop effective family planning programs, program planners need country-specific information about barriers to the use of contraception. This is an important issue because non-use of contraception and the use of less appropriate methods may lead to unwanted and high-risk pregnancies and the associated national problems of excess fertility, higher rates of maternal and infant mortality, and in some cases high rates of abortion and teenage pregnancy. Program planners need to know the magnitude of these barriers to contraceptive use, the most appropriate programmatic responses, and key characteristics of the groups who should be targeted for interventions.

This chapter describes a method for obtaining an assessment of some of these factors based on the information in a DHS. The benefits of this methodology are that it can be performed relatively quickly, and the data are population-based and readily available. The results of this analysis can then be used to focus attention on the most significant barriers and to guide additional research into the problem areas. Since different problems require different responses, it is important to identify the key problem areas. For example, it would make little sense to launch a general family planning awareness campaign if the major problem were one of availability and accessibility to supplies. Similarly, it would not be highly effective to put large amounts of resources into expanding the distribution system if the primary problem were opposition by the Church.

The methodology has six major parts: (A) identify subgroups of the women surveyed by the DHS that have similar fertility desires and needs; (B) determine contraceptive methods that are more appropriate and those that are less appropriate for meeting the fertility desires of each group; (C) subdivide groups based on use or non-use of these methods; (D) determine the main factors that seem to be influencing method use or non-use; (E) determine appropriate programmatic responses to address these factors; and (F) profile the target groups for these responses. Parts A, C, D, and F rely heavily on questions from the DHS questionnaire.

The objective of **Part A** is to identify relatively large subgroups of women surveyed in the DHS who are similar in terms of their need for family planning. These groups are termed "profile groups." The women in the DHS are classified into profile groups based on their responses to survey questions related to exposure to the risk of pregnancy, their expressed fertility desires, their use of contraception, and any health risks that would be associated with an immediate pregnancy. Generally, women who are at risk of pregnancy would be grouped first according to their desire to have another birth immediately or to space or limit births. These groups may be further subdivided based on other characteristics such as breastfeeding status, elevated risk for maternal or infant mortality, or marital status.

In **Part B**, contraceptive methods that are "more appropriate" and those that are "less appropriate" for each profile group are determined. This determination may be based on

several factors, including medical contraindications, method preferences of women, characteristics of each method, analysts' judgment, and current patterns of method use.

In **Part C**, the lists of "more appropriate" and "less appropriate" methods for each profile group are compared to actual use of methods, and subgroups are created for women who are using more appropriate methods, those who are using less appropriate methods, and those women who are not using a method at all.

The objective of **Part D** is to identify the major reasons for use of less appropriate contraception and non-use in the profile groups identified in Part A. Separate analyses are performed for each of several common reasons for non-use: high desired family size, lack of awareness of contraceptive methods, disapproval of contraception by the woman, disapproval by her partner, lack of awareness of a source of contraception, and prior experience with contraception. As in Part A, these analyses rely on the women's responses to questions in the DHS.

In **Part E**, the analyst identifies programmatic responses that address the major barriers to contraceptive use that were identified in Part D.

In **Part F**, a socio-demographic profile is constructed for the profile groups. These profiles can be used to determine which service delivery approaches and information, education, and communication (IEC) strategies are likely to be most useful. Also, information about the geographic location of the women will determine the location and geographic scope of IEC and service delivery efforts.

The next section presents an overview of the methodology, followed by a detailed explanation of the methodology and two examples of the analysis as applied to Kenya and Ghana.

### **III. DETAILED ANALYSIS AND INTERPRETATION OF RESULTS**

This section provides a more detailed explanation of the logic involved in each of the six parts of the analysis. In actual practice, the methodology must be customized based on the particular country situation and the questions available in the DHS questionnaire. Consequently, the discussion that follows does not present a "cookbook" type of approach. Rather, it presents a generalized framework that should guide the analyst in making the necessary judgments when applying the methodology.

The analyst must become familiar with the questions available in the DHS in order to properly apply the methodology. The DHS questionnaire varies somewhat from country to country for a number of reasons. First, there are two different versions of the standard DHS questionnaire, one for "low" prevalence countries and one for "high" prevalence countries. In addition, there have been three different phases or versions of these



questionnaires. Finally, each country customizes its questionnaire by adding questions and removing questions that are deemed too sensitive or inappropriate, such as questions on sexual activity. Consequently, not all questionnaires contain questions pertaining to approval of contraception, perceived problems with methods, and reasons for discontinuation, which can be used in Part D. Some surveys include all women of reproductive age, while others, primarily in the Near East, are limited to ever-married or currently married women. Therefore, the usefulness of this methodology is partly determined by the questions available on the questionnaire.

#### **A. Identify Subgroups of Women for Analysis**

The objective of Part A is to identify relatively large groups of women who are similar in terms of their need for family planning. The approach is to classify all women in the DHS based on their responses to survey questions related to exposure to the risk of pregnancy, their expressed fertility desires, their use of contraception, and any health risks that would be associated with an immediate pregnancy.

As women are successively classified based on each question, the number of distinct groups will become successively larger and the size of the groups will become successively smaller. Since the objective here is to identify large groups of women, at some point the analyst will decide that all major groups have been identified and, therefore, no further refinement of groups is necessary. The reason for focusing on large groups is that the analysis of groups will be meaningless for groups with very small numbers. As a general guideline, a group should contain at least 10 percent of the surveyed women who are exposed to the risk of pregnancy in order to be used for further analysis. The analysis will typically proceed as described below.

##### *Classifying women based on exposure to the risk of pregnancy*

Initially, all women in the survey must be classified based on whether they are exposed to the risk of pregnancy. Women are considered exposed if they are fecund, sexually active, not pregnant, and not amenorrheic. Sexual activity status can be determined by the time since last intercourse, if that information was asked in the questionnaire. For example, a woman may be classified as sexually active if she has had intercourse in the last four weeks. This time period may need to be increased if a significant percentage of women are sexually active outside of this time period. If there is no question on time since last intercourse, it may be possible to use a question that asks if the woman is currently abstaining from sexual relations. If there is no such question, then the analyst may have to assume that women who are married or in union are sexually active and that all other women are not sexually active. Questions about pregnancy and amenorrhea are always available in the DHS questionnaire. Women who are exposed to the risk of pregnancy are further classified as described below.

### *Classify exposed women based on fertility desires*

Next, classify the exposed women based on their expressed fertility desires. The DHS contains several questions related to the desire for more children, desired timing of the next child, and whether the last child was wanted at all or wanted later. These questions can be used to classify women into three categories based on the need for family planning. The first category consists of women who want a child now. The second category, referred to as "spacers," consists of women who want to wait a year or more before having a child. (The time period used to designate a spacer may be extended, for example, to two years). The third category, referred to as "limiters," consists of women who do not want to bear any more children.

In some countries, only married women are asked questions about fertility desires, even though a significant portion of unmarried women are sexually active. When this is the case, fertility desires can be inferred for some women based on current method use. Women who are sterilized can be assumed to be limiters, while women who are using other methods can be assumed to be spacers. If women who want a child now are found to be a significant percentage of all exposed women, then it may be desirable to subdivide this group based on health risks as described below.

### *Classify women who want a child now based on health risks*

Women who are very young, older, have already given birth to many children, or have their births spaced closely together run the risk of elevated infant and maternal mortality. Those women who do not express a desire to delay or limit their childbearing and who have at least one of these risk factors are defined as having an unrecognized health risk. It may be useful to consider these women as having a "need" for contraception and to include them in this analysis to determine why they do not use contraception. It should be recognized, however, that this group is different from those who are classified as "in need" based on their own stated desires to space or limit births.

It may be desirable to look only at a subset of the risk factors. For example, experience in Africa indicates that women are more likely to be receptive to messages about spacing births than to messages about limiting births because they are "too old" or already have "too many" children. Therefore, the analyst may decide to look only at the risk of a short birth interval.

The standard definition used by USAID to identify women with a high mortality risk is:

- Too old — older than 35 years of age;
- Too young — younger than 18 years of age;
- Too many — has had four or more births; or
- Too close — would give birth less than two years after the last birth.

Some country programs may have adopted guidelines that differ from these. The definition used should be appropriate for the particular country. The information needed to classify women by these risk factors is readily available in every DHS.

### *Classify women based on other relevant characteristics*

Additional classifications may be useful, depending on the pattern of childbearing in the country or other factors that may affect method use or choice. For example, in countries where sexual activity outside of marriage is common, it may be desirable to classify unmarried women separately from married women. In addition, women may be classified according to whether they are breastfeeding, whether they are nulliparous, and, for limiters, whether they are certain that they do not want additional children.

## **B. Identify Methods for Relevant Profile Groups**

Once the profile groups of women are established, the next step is to determine the methods that would be more appropriate and those that would be less appropriate to use for women in each group. This step is only concerned with those profile groups in which there is a desire to regulate fertility (spacers, limiters and subgroups of either category). The objective here is to separate these women by method use so that women using certain methods can be compared with women using other methods and women using no method at all. This part of the methodology requires thoughtful consideration about what method choices are of most concern for the country under analysis. In one country, the concern may be that few women are using modern methods; therefore, we would be interested in finding out why more women are not using modern methods to help them fulfill their fertility desires. Spacers and limiters may be separated into groups of women using modern methods, using traditional methods, and not using any method. In another country, the concern may be that pill use is very high among limiters; here we would be interested in finding out why women are not using one of the methods that are generally considered better suited for long-term use, such as sterilization and Norplant®. In this case, all limiters may be separated into pill users, users of other modern methods, users of traditional methods, and non-users. Alternatively, traditional method users could be combined with other modern method users. In most cases, there will be two lists for each group or subgroup of spacers and limiters: a list of more appropriate methods and a list of less appropriate methods. However, as the second example illustrates, some analyses may require more than two lists.

An approach to determining appropriate methods is described in Chapter 2, entitled "Determining an Appropriate Contraceptive Method Mix." A summary is provided here. A determination of appropriate methods of contraception should include a consideration of the desires and preferences of women and the characteristics of methods, such as medical contraindications. The desires of women might best be measured by what women actually choose to use. In most circumstances, however, their choices may be limited by access or knowledge. As an alternative, it may be useful to examine the methods actually

used by urban, educated women in each profile group, since these women may be assumed to have good knowledge of methods and good access through either public or private channels. The drawback to this approach is that there may not be many such women in a profile group. An alternative is to look at the choices of all women who know at least four modern methods of contraception. In this approach, women's choices are not constrained by knowledge, but they may be constrained by access. Another possibility is to look at the stated method preferences of women in each group. Unfortunately, not all DHS questionnaires include questions on preference.

Methods may be assumed more appropriate or less appropriate based on characteristics of the method. For example, combination oral pills are not recommended for women who are breastfeeding. In addition, some methods are generally assumed more appropriate for spacing (pills, injections) and others more appropriate for limiting (sterilization). The disadvantage to developing lists of more appropriate and less appropriate methods based on such assumptions is that these assignments may ignore the preferences of women.

In most cases, the best approach will be to examine the lists of appropriate methods that would be generated by these approaches and then reconcile them into a single list for each profile group, taking into account both method characteristics and the stated desires of women in each group.

### **C. Subdivide Profile Groups Based on Method Use**

Once the lists of more appropriate methods and less appropriate methods have been determined, the lists are compared with current method use for each woman in those profile groups in which there is a desire to regulate fertility (spacers, limiters, and subgroups of either category). These profile groups are then subdivided into groups of women who are using more appropriate methods, those who are using less appropriate methods, and those who are not using any method. Alternatively, women using less appropriate methods could be grouped with non-users.

A note is in order regarding the comparison of current method with a list of "more appropriate" methods. The reason for the comparison is to identify women whose choice of method may be driven more by existing barriers than by personal preference. This is not to say that all women would or should use a "more appropriate" method if all barriers were removed. However, it is possible that many of these women would; and these women and the barriers that affect them should be the concern of the family planning program.

At the conclusion of Part C in the methodology, the analyst will have identified several profile groups of women for further analysis. These groups may include one or more of the following:

- All women who want a child now
- Women who want a child now but have a risk factor for infant or maternal mortality
- Spacers who are not using contraception
- Spacers who are using less appropriate contraception
- Spacers who are using more appropriate contraception
- Limiters who are not using contraception
- Limiters who are using less appropriate contraception
- Limiters who are using more appropriate contraception

In Part D, the analyst will examine factors that influence contraceptive use to determine which are most important for the survey being analyzed.

#### **D. Determine the Main Reasons Influencing Contraceptive Use**

The objective of Part D is to identify the main reasons for use of less appropriate contraception and non-use in the profile groups previously identified. Separate analyses are performed for several of the common reasons for non-use: high desired family size, lack of awareness of contraceptive methods, disapproval of contraception by the woman, disapproval by her partner, lack of awareness of a source of contraception, and prior experience with contraception. These analyses rely on the women's responses to questions in the DHS. Generally, comparisons will be made among the responses of women who are using more appropriate methods, less appropriate methods, and non-users.

In many cases, as successive reasons are examined, the relative importance of each successive reason will decrease. Since the objective is to identify main reasons, at some point the analyst will recognize that the major reasons have been identified and, therefore, this part of the analysis can be halted. For example, if awareness of contraceptive methods is low, then it will not be necessary to examine awareness of sources of methods. The analysis will typically proceed as described below.

##### *Desired family size*

In many developing countries, there is a high desired family size and, consequently, very little interest in fertility regulation or the use of contraception. The DHS questionnaire contains a question about ideal number of children that should be examined for all profile groups. It is important to consider all groups of women, not just those with a desire to control their fertility. If the average desired number of children is close to the actual total fertility rate, then it would appear that the main reason for non-use is a desire for many children. In many low-prevalence countries, there also may be a high percentage of women giving a non-numeric response to this question, such as "It's up to God." This also indicates a lack of demand for contraception. If the average ideal number of children is much higher for certain subgroups of women, such as for women who want a child now, pregnant

women or amenorrheic women, then desired family size may be an important factor for those groups only.

### *Awareness of contraceptive methods*

Even when there is an interest in fertility regulation, women cannot take action unless they have knowledge of contraceptive methods. Therefore, the next aspect to examine is knowledge or awareness of appropriate methods. Generally, this and subsequent analyses are limited to those profile groups in which there is a desire to regulate fertility (spacers and limiters).

Knowledge and awareness are not the same concept. Knowledge of a method implies a greater level of understanding than does awareness. A woman would be considered aware of a method if she merely knew its name, even if she did not know anything about how it works, how it is used, its cost, or its side effects. In order for a woman to make an informed choice to use a method of contraception, she must have knowledge, not just awareness. The DHS provides information on awareness of methods only, not knowledge. However, one can assume that the level of knowledge of methods is lower than the level of awareness indicated by the DHS.

In the DHS interview, awareness is assessed in two ways. First, women are asked to name any methods of contraception that they know. The methods mentioned spontaneously are recorded. Then, the questioner goes through a list of descriptions of modern and traditional methods and specifically asks the respondent if she has ever heard of each method (except for those methods known spontaneously). The methods known when "prompted" are recorded separately from those known spontaneously.

In this step, awareness of methods is examined for the relevant profile groups. The methods to be included would depend on the method choices that are of concern for the country example. For instance, the methods to be included could be all modern methods available in the particular country or a subset such as those considered most appropriate for the analysis group. That is, if the analysis group were limiters using a less appropriate method, the list of methods could be the more appropriate methods for limiters, which might include IUD, implant, male sterilization, and female sterilization.

For purposes of this analysis, it is useful to look separately at spontaneous awareness of methods and at an awareness variable that includes both spontaneous and prompted awareness. This is done by calculating the percentage in each group who had spontaneous awareness of each method and calculating the percentage who had spontaneous or prompted awareness of each method. It also is useful to calculate the percentage who had awareness of any one or more of the methods.

[If less than 75 percent of a profile group has spontaneous awareness of any of the methods, or less than 90 percent of a profile group has prompted awareness of any of the

methods, this signals that awareness of methods is a major obstacle to family planning program expansion; however, one could argue that these cutoffs should be set higher or lower.]

### *Approval of contraception*

Even if a woman is very knowledgeable about contraceptive methods, she may not approve of the use of contraception. Some DHS questionnaires contain a question that asks the respondent if she approves of the use of family planning. This question can be used to calculate the percentage of respondents who disapprove of family planning in each of the profile groups. It also may be useful to look at whether approval of family planning is higher among women who know of methods compared with women who do not.

### *Partner's approval of contraception*

Even if a woman is knowledgeable about and approves of contraception, she may not use it if her partner disapproves. Some DHS questionnaires also contain a question that asks the respondent if her partner approves of the use of family planning. Note that this is the partner's attitude as perceived by the respondent. This question can be used to calculate the percentage of respondents who believe their partner disapproves of family planning in each of the analysis groups.

### *Awareness of a source of contraceptive methods*

Awareness of a method is futile if the user does not know where to go to obtain the method. Therefore, it is important to examine awareness of sources of supply for contraceptive products and services.

In the DHS, awareness of sources is assessed by asking the respondent if she knows of a source for each method of contraception that she knows. In this step, awareness of sources is examined for each analysis group using the same method lists used in analyzing awareness. For each group, the percentage who have knowledge of a source is calculated for each method. For purposes of this analysis, it is also useful to calculate the percentage who have awareness of any one or more of the methods.

[If less than 75 percent of a profile group has awareness of a source for any of the methods, this signals that awareness of methods is an obstacle to family planning program expansion. One could argue, however, that this cutoff should be set higher or lower.]

### *Levels of prior use of contraception*

Women who are not currently using contraception, or an appropriate method of contraception, may have never done so in the past. Alternately, they may have done so in

the past and discontinued usage for some reason. If prior use is high, it indicates that there may be a problem with the quality of family planning services.

In the DHS questionnaire, prior use is assessed by asking the respondent if she has ever used each method of contraception. In this step, prior use is examined for each profile group. For each group, the percentage who have ever used is calculated for each method. For purposes of this analysis, it also is useful to calculate the percentage who have ever used any one or more of the methods. If there is a high level of past use among current non-users, then the reasons for discontinuation should be examined if these questions are included in the DHS.

At the conclusion of this part in the methodology, the analyst will have identified some major barriers to the use of contraception or appropriate contraception. For example, knowledge of methods may be low and respondents' approval of contraception may also be low. Or the respondent may have knowledge and approve, but the partner's disapproval may be an important barrier. This knowledge could be supplemented by an examination of other research, particularly qualitative research. The next part of the analysis reviews some of the programmatic responses that would be indicated by the findings thus far.

#### **E. Recommended Programmatic Responses**

The objective of Part E is to use the information from Parts A to D to identify programmatic responses that address the major barriers to contraceptive use or appropriate contraceptive use. Many of the recommendations involve expanded efforts in IEC.

##### *Large desired family size*

If desired family size is large, then contraceptive use will always remain low, especially if the total fertility rate is close to the desired family size. This can be addressed by IEC programs that promote the benefits of smaller families, the health risks of having many children spaced closely together, and support for other demand-generating activities such as increased female education and improvements in the status of women.

##### *Lack of awareness of more appropriate methods*

To improve awareness, IEC activities could promote the range of methods that are available to women with different needs. In addition, specific groups could be targeted with more method-specific knowledge. For example, family life educators in schools could emphasize the use of condom for young spacers, while clinic staff and field workers could emphasize longer-term methods for older limiters. An effort could be made in IEC activities to go beyond simple method awareness to include as much detailed and actionable method-specific information as possible. In some countries, awareness of appropriate methods may be low because those methods are not included in the family planning program. In this case, there may be a need to expand the range of methods offered.

### *Lack of awareness of sources*

This problem can be addressed by general IEC activities and also by social marketing advertising campaigns. It also may be necessary to expand the distribution system by extending social marketing to rural areas, adding mobile clinics and field workers, or introducing employer-based programs.

### *Disapproval of family planning by the respondent*

If approval is significantly higher among women who know methods of family planning than among those who do not, it may be possible to address this with a campaign to improve knowledge of family planning methods. Generally, it will be necessary to have more information about why women disapprove before developing a programmatic response. For example, if religious objections are an important reason for disapproval, it will be necessary to identify the specific religious objection, which religious leaders are opposed, and which ones are the most influential. Then, the family planning program can use that information to seek support and involvement from religious leaders.

### *Disapproval of family planning by the respondent's partner*

Again, it will be necessary to have more information about why men disapprove before developing a programmatic response. Is it due to lack of knowledge, desire for a large family, belief that contraception encourages promiscuity? Possible programmatic responses include using male responsibility themes and male role models in IEC activities, and training counselors to address these issues with men and women.

### *High prior use of contraception*

If prior use is high compared with current use, then it will be important to obtain more information about the problems and reasons that caused women to discontinue methods. Did they experience unpleasant side effects? Did their male partners dislike using condoms? Possible programmatic responses include improving the training of providers, the counseling of users, and the quality of point-of-purchase materials.

At the conclusion of this part of the methodology, the analyst will be able to recommend some programmatic responses that are appropriate for the barriers identified and/or areas for further research.

## **F. Profiling**

The purpose of this part of the analysis is to identify socio-demographic characteristics of the groups identified in Parts A and C and analyzed in Part D. These profiles are important for several reasons. First, the characteristics of the women will determine which IEC and service delivery approaches are likely to be most useful. For example, if all groups

have a low level of literacy, then an information campaign based on newspapers and posters is likely to have limited impact. Second, information about the geographic location of the women will determine the target areas for IEC and service delivery efforts.

Some of the most important characteristics to examine include: type of place of residence (urban versus rural); region; level of education; literacy; marital status; religion; ethnicity; employment status; and use of radio, newspapers, and television. The DHS questionnaire contains information about all these characteristics. These questions can be used to calculate the percentage of respondents who fall into each category (e.g., region, education level) within each of the analysis groups.

#### IV. SOFTWARE AND DATA REQUIREMENTS

The analysis described in this paper requires the use of a statistical software package. Although the analysis was performed using SPSS for Windows on a personal computer, it could be performed on a mainframe as well or with a different statistical software package, such as SAS, STATA, or ISSA. For the convenience of the analyst, a printout of the SPSS code that was used to perform the Kenya country example is included in Appendix A at the end of this chapter. This code also can be obtained on diskette by contacting the OPTIONS Project at The Futures Group International. (See the diskette request form in Chapter 1, Appendix B.) The diskette will contain two versions of the code, one for use with SPSS for Windows and one for use with SPSS for DOS.

To reproduce this analysis using the SPSS code supplied, the analyst must first obtain a copy of the DHS data in recode format. This is done by mailing or faxing a data request form to the DHS data archive. A copy of the data request form is included in Chapter 1, Appendix A.

To illustrate how this methodology can be applied, two country analyses are described in sections V and VI below. The first example uses the 1993 Kenya DHS III, and the second example is based on the 1988 Ghana DHS. These are only intended as examples of the methodology. They are not comprehensive analyses of the family planning situation in those countries and have not been developed with country counterparts, which would be crucial to a real application. The examples are only intended to illustrate the approach and types of results that might be expected. It should be noted that the results vary widely across countries. The results obtained for Ghana and Kenya are generally quite different from those that might be obtained from a similar analysis for a high prevalence country.

## V. COUNTRY EXAMPLE: KENYA, 1993 DHS

The 1993 Kenya DHS sampled all women aged 15-49 (N = 7540). In addition, there was a complementary male survey that sampled all men aged 20-54. The women's questionnaire was based on the Model B questionnaire for countries with low contraceptive prevalence. The data were from the standard recode file and were analyzed using SPSS for Windows.

### A. Identify Subgroups of Women for Analysis

The first step was to identify relatively large subgroups of surveyed women who were similar in terms of their need for family planning. The results are shown in Figure 1.

#### *Exposure*

We began by looking at exposure. First, we identified women who were not exposed to the risk of pregnancy because they were already pregnant, postpartum amenorrheic, or infecund. Then women who were postpartum abstaining were identified.

Next, we sought to identify women who were not exposed to the risk of pregnancy because they were not sexually active. For women who were not pregnant, amenorrheic or infecund, we calculated the percentage of women who had sexual intercourse within the last month, the last two months, the last three months, and the last twelve months. We found that 56 percent were sexually active within the past month, an additional 8 percent only within the past two months, and an additional 3 percent only within the past three months. The decision was made to classify as not sexually active all women who had not had sexual intercourse within the past two months and to classify the remaining women as exposed to the risk of pregnancy.

#### *Fertility desires*

Next, exposed women were reclassified into new categories based on their expressed fertility desires. Women who did not want another child were reclassified into the "limiter" category. Women who said they wanted another child "soon" or within the next twelve months were reclassified into the "wants now" category. Women who wanted to wait more than 12 months or who did not know whether they wanted another child were reclassified into the "spacer" category. Women who wanted a child but did not know when or gave a non-numeric response for when they wanted one were not reclassified. Unfortunately, women who were not married and those who were living together with a male partner were not asked these questions and, therefore, sexually active unmarried women could not be classified by this logic. Based on the definition of sexually active used in this analysis, 28 percent of sexually active women were not married or living together with a male partner. These women constituted 27 percent of all women who were not married or living together.

After applying the above logic, there were many exposed women who were not reclassified based on fertility desires. Therefore, for these women we looked at use of contraception. We assumed that women using sterilization were limiters, while women using any other method (including traditional or folkloric methods) were spacers.

Finally, for women still remaining classified as exposed, we examined a question on whether they wanted their last child; this question was only available for women who had given birth within the last five years. Those women who said they had wanted no more children at the time the last child was born were classified as limiters.

At this point, exposed women had been classified based on all available questions on fertility desires. Of all women surveyed, 5 percent were exposed but had unknown fertility desires. Of these women, 95 percent were not married or living together and, therefore, had not been asked about their fertility preferences. For DHS in other countries, the questionnaire may contain additional questions on fertility desires that could be used. For example, the Kenya DHS I questionnaire asked unmarried women if they would be unhappy if they were to become pregnant in the next few weeks.

#### *Health risks*

The next step was to examine health risk factors for those women previously classified as wanting a child now and those women remaining in the exposed category. For this analysis, we used the standard USAID definition of health risk discussed in the methodology section. Women who had any health risk factor were put into separate groups from those who did not have any health risk factor.

#### *Other characteristics*

We did not feel it was necessary to subdivide women based on breastfeeding status, parity, or marital status because (as discussed below) the analysis was not focusing on any method for which use would be contraindicated by any of these conditions.

At this point, Part A of the methodology was completely implemented for Kenya. As shown in Figure 1, 24 percent of surveyed women were not sexually active, an additional 24 percent were not exposed either due to pregnancy or amenorrhea, and 14 percent were infertile. Thus, 38 percent of surveyed women, or 2,827 women, were exposed to the risk of pregnancy. Of these exposed women, 10 percent wanted a child "soon" or within the next twelve months, but only 7 percent had no associated health risk. For 12 percent of exposed women, it was not possible to determine their fertility desires, but only 7 percent had no associated health risk. Among exposed women, 35 percent were classified as spacers and 42 percent were classified as limiters. These were the focus of most of the rest of the analysis.

Figure 2 provides more detail on which health risk factors were faced by the two groups with health risks. The most significant risk factor for women who wanted a child now was that they had at least four births already. For women whose fertility desires were unknown, the most common risk factor was that they were under 18 years of age. This was not surprising since most of the women in this category were unmarried women.

#### **B. Identify Appropriate Methods for Relevant Profile Groups**

The next step in the methodology was to identify contraceptive methods that could be considered more appropriate in helping women achieve their fertility desires. Because Kenya has a fairly good method mix (i.e., women use a variety of methods), we did not think that it was necessary to single out any particular method for scrutiny for being overused or under-used. The main concern was that modern method use seemed low at 43 percent of spacers and 62 percent of limiters. We decided that, for purposes of this analysis, all modern methods were more appropriate for both spacers and limiters. All traditional and folkloric methods were considered less appropriate in helping women to achieve their fertility desires.

#### **C. Subdivide Profile Groups Based on Method Use**

Current method use was examined for spacers and limiters, and these two groups were subdivided into three groups each based on contraceptive use: women not using contraception, women using a less appropriate method, and women using a more appropriate method. The percentage and numbers of women in each group are shown in Figure 3. For spacers, the percentage of women not using and the percentage using a more appropriate method were about the same, while for limiters, the percentage using more appropriate methods was about double the percentage not using. The percentage of limiters using more appropriate methods (62%) was much higher than the corresponding percentage of spacers (43%). For spacers, almost two-thirds of the more appropriate method use was pill use, while three other methods made up the balance of method use. For limiters, no one method dominated the method mix.

#### **D. Determine the Main Reasons Influencing Contraceptive Use**

The next step was to determine the main reasons for non-use of the more appropriate methods. Initially, we looked at mean ideal number of children and the percentage of non-numeric responses for all profile groups of women identified in the first step. The results are shown in Figure 4. Among both spacers and limiters, women who were using more appropriate methods tended to desire slightly smaller families than women using less appropriate methods and women who were not using. For spacers, non-users also had a higher desired family size than women using less appropriate methods. Women who wanted a child now tended to have a higher desired family size, especially those women who also had a health risk. The percentage of non-numeric responses was small for all groups, although slightly larger for non-users than for users. Since the variations in the

responses to this question were small in magnitude, it seemed that ideal family size had only a weak association with contraceptive use. More importantly, for all groups the mean ideal family size was about one to two children less than the total fertility rate of 5.4 reported in the DHS final report. Thus, it appeared that ideal family size was not a key barrier to contraceptive use. It also was important to note that ideal family size was still well above replacement level.

Next, **awareness** of more appropriate methods was examined. For this and subsequent analyses, the analysis was limited to the three groups of spacers and the three groups of limiters. Using the variables in the DHS data that indicated spontaneous and prompted awareness of methods, the percentage of women in each group who had spontaneous awareness and the percentage who had spontaneous or prompted awareness were calculated for each method in a list of methods. Also the percentage who had awareness of at least one method was calculated. For limiters, the list of methods included all modern methods. For spacers, the list included all modern methods except sterilization and Norplant®. The reasons for excluding Norplant® and sterilization were that knowledge of these methods would not be very helpful in achieving fertility desires for most spacers. Although Norplant® might have been appropriate for some spacers who wished to postpone the next birth for five years or more, generally this was a small percentage of spacers.

The results of this analysis are shown in Figure 5. Although both spontaneous and overall awareness were very high among all the profile groups, non-users tended to have lower awareness than less appropriate users, who had lower awareness than more appropriate users. Furthermore, awareness was not limited to one or two methods; in all but one group, overall knowledge was 80 percent or more for at least four modern methods. Therefore, we concluded that awareness of methods was not a barrier to use of more appropriate methods in Kenya.

Because awareness of methods was not identified as a barrier, it was necessary to examine **approval of contraception by the respondent**. The Model B questionnaire contained a question that was asked of all respondents on whether the respondent approved of couples using a method to avoid pregnancy. For each of the six profile groups, the frequency of the responses was calculated. The results are shown in Figure 6A. Approval was found to be very high even among non-users where it was at least 88 percent. Therefore, we concluded that respondent's approval of family planning was not a barrier to the use of more appropriate methods in Kenya.

Next, **approval of contraception by the respondent's partner** was examined. The Model B questionnaire also contained a question about whether the respondent thought her partner approved of couples using a method to avoid pregnancy, which was asked of all women who were married or in union. For each profile group, the percentage of women giving each of the possible responses was calculated and the results are shown in Figure 6B. There was a definite decrease from more appropriate users to less appropriate users to non-users in

the percentage of respondents who believed that their partner approved of family planning. Only 49 percent of non-using spacers and 60 percent of non-using limiters thought their partner approved of family planning; the rest either thought their partner disapproved or did not know. It appeared that perceived partner's approval could be a significant barrier to the use of more appropriate methods.

Since a men's survey was also conducted in Kenya at the same time as the women's survey, we had the opportunity to examine the accuracy of women's perceptions. The men's questionnaire contained the same two questions about approval of family planning that were in the women's questionnaire. Using the information in the DHS Final Report, we calculated the frequency of the responses of married men to these two questions. We also recalculated the frequency of women's responses looking at all married women instead of just the spacer and limiter profile groups (in order to make the male responses and the female responses as comparable as possible). The results are shown in Figure 7. The level of male approval of family planning was actually slightly higher than the level of female approval. Although both men and women tended to underestimate spousal approval, the level of spousal approval reported by men lagged 9 percentage points behind the actual level of female approval, while the level of partner approval reported by women lagged 29 percentage points behind the actual level of male approval. It appeared that a large portion of women who believed their partner disapproved of family planning were incorrect. Thus, it appeared that the problem of perceived spousal disapproval was due more to a lack of communication than to actual partner disapproval.

Since perceived partner's disapproval did not seem to account for all non-use, we next examined awareness of a source for more appropriate methods. Using the variables in the DHS data that indicated knowledge of a source for various methods, the percentage of women in each profile group who knew of a source was calculated for each more appropriate method. Also the percentage who knew of a source for at least one or more appropriate methods was calculated. The results are shown in Figure 8. In general, awareness of sources was only slightly less than awareness of methods. Clearly, awareness of sources was not a major barrier to the use of more appropriate methods in Kenya.

Next, prior use of more appropriate methods was examined. The survey contained a series of questions which indicated, for each method, if the respondent had ever used the method. For each profile group, for each more appropriate method, we calculated the percentage who had ever used the method. In addition, we calculated the percentage who had ever used any one or more of the more appropriate methods. The results are shown in Figure 9. The percentages indicate that a majority of less appropriate users and a majority of non-users had never used a more appropriate method. For example, 77% of spacers using less appropriate methods had never used a more appropriate method, and 77% of spacers not currently using had never used a more appropriate method. However, a substantial minority of less appropriate users and non-users had used one or more appropriate methods in the past and had discontinued usage. For example, 23% of spacers using less appropriate methods had used a more appropriate method in the past and

discontinued usage, and 23% of spacers not using any method had used a more appropriate method in the past and discontinued usage.

Both the never-users and the discontinuers should be a concern of the family planning program. This information is also shown graphically in Figure 10 as the percentage of spacers and limiters who were currently using a more appropriate method, the percentage who never used one, and the percentage who were not currently using one but had used one in the past. In order to better understand the intentions of non-users, a variable on **intention to use** was examined. This variable was based on questions asked of women who were not using any method of family planning (including traditional methods). The results are shown in Figure 11A. About 60 percent of non-using spacers and limiters said they intended to use in the future, most of them within the next 12 months. However, a significant minority said they did not intend to use in the future.

Those women who said they did not intend to use in the future were asked to give the main reason why. A variety of reasons were given, as shown in Figure 11B. Unfortunately, a major limitation of the DHS for the purposes of our analysis was that not all non-users were asked the reason for their non-use. In other countries, women who do not intend to use may be a large majority of all non-users; however, in Kenya they were a minority of all non-users. Thus, the responses shown must be interpreted with caution; clearly, they cannot be assumed to be representative of the responses of all non-users. Because of these limitations to the DHS, in order to really understand reasons for non-use it would be necessary to supplement the information in the DHS with information from other studies.

Figure 11B shows that for both spacers and limiters, side effects and health concerns were important issues. One would like to know specifically what methods and what side effects or health concerns women were thinking of. Unfortunately, this information was not available in the DHS. Also, 21 percent of spacers and 5 percent of limiters with no intention to use family planning in the future gave "wants children" as the reason, since these women were classified into the spacer and limiter categories based on their desire to regulate their fertility. There are several possible explanations for this apparent anomaly, including inconsistencies in women's responses, errors in filling out the questionnaire, and misunderstandings about the temporary nature of contraception.

Figure 12 summarizes the key findings of this analysis. To review, almost 8 percent of exposed women who did not express a desire to regulate their fertility had a health risk. Of all spacers and limiters, 13 percent believed their husband disapproved of family planning. Also, 33 percent of all spacers and limiters had never tried a modern method, while 13 percent had tried and discontinued.

#### **E. Recommended Programmatic Responses**

The majority of exposed women with an expressed fertility desire wanted to either space or limit their births. However, among the 10 percent of exposed women who wanted a

child soon, 30 percent of these would have a high-risk birth if they were to become pregnant immediately. In most cases, this was due to having four or more births already. Among the 12 percent whose fertility desires were unknown, most of whom were unmarried, 40 percent of these would also have a high-risk birth if they were to become pregnant immediately. In most of these cases, this was due to being less than eighteen years of age. This indicates that there is still a subset of the population that needs to be targeted for family planning messages about high-risk births, particularly the benefits of postponing the first birth. Furthermore, unmarried women need to be within the target audience for these messages.

For almost all profile groups, the average ideal number of children was in the range of three to four children, which was about one to two children below the total fertility rate of 5.4. This indicated a large unmet demand for effective family planning, which was consistent with the large percentages of non-using spacers and limiters. Thus, it appears that family planning could be promoted very effectively as a means to achieve desired family size.

Perceived husband's disapproval seemed to be an important barrier to the use of more appropriate contraception. However, an examination of male approval as reported in the male survey indicated that, in most cases, this perception was probably inaccurate. This indicates a need for IEC programs focusing on communication between husbands and wives.

Although most spacers and limiters who were not using a more appropriate method had never used one, a significant proportion had used one in the past and discontinued. This may indicate a problem with the quality of service delivery or other program limitations that prevent women from being satisfied with their experience. A better understanding of the reasons for discontinuation may lead to some useful programmatic actions. The family planning program needs to consider both never-users and discontinuers and consider separate strategies for reaching each group.

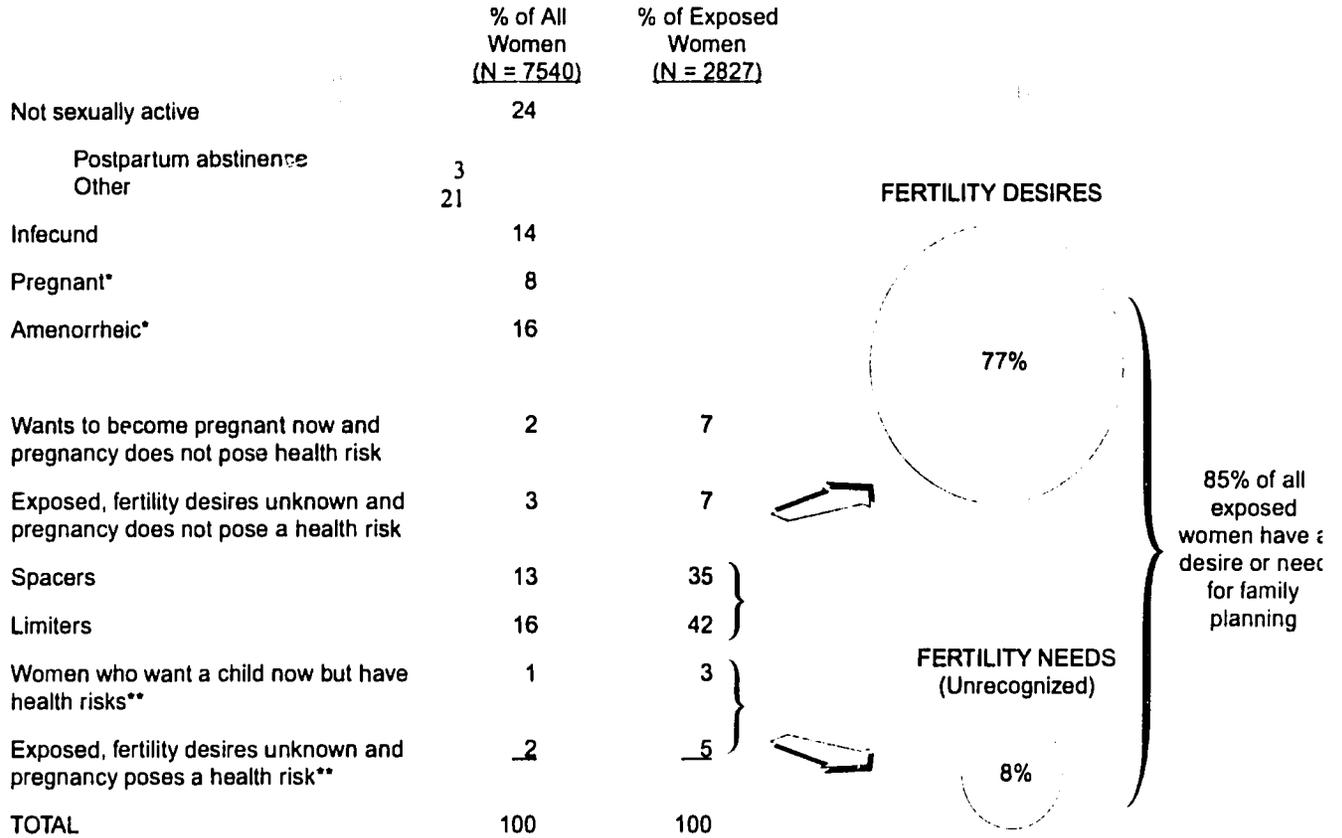
Clearly, we need more information about women's reasons for non-use, particularly health risks and side effects. Based on this analysis, both of these appear to be important but there was not enough information in the DHS to really understand the problem. Additional information might be found in other fertility surveys or from focus group research. Another major limitation of the DHS was that it did not ask any questions about fertility preference of women who were not married or in union. Because of this, about 12 percent of exposed women could not be classified as being either spacers or limiters and thus were excluded from most of the analysis.

## F. Profiling

Next, in order to better understand the patterns of perceived partner's disapproval, spacers and limiters were profiled on several characteristics: education, region, area of residence (urban/rural), religion, and ethnicity. For each category of each characteristic, we calculated the distribution of responses to the question on husband's disapproval. The results are shown in Figure 13. Also, for each characteristic, the percentage of respondents in each category is shown at the bottom of the figure; response categories with small percentages should be interpreted with caution. As might be expected, perceived approval rose with education and was somewhat higher in urban areas. It also varied by ethnicity and region: highest in the Eastern region and lowest in Nyanza. It seemed to vary little by religion, except that it was much lower for women who report "no religion," but this category contained only a small number of women. This suggests that IEC efforts should be aimed at reaching less educated women and women in rural areas.

Next, we performed a similar analysis looking at usage instead of partner's approval. The results are shown in Figure 14. Discontinuation varied little except by ethnicity. This suggests that discontinuation is widespread throughout Kenya. As might be expected, current use increased as education increased, while never use decreased as education increased, and current use was higher and never use was lower in urban areas. Again, there was little variation based on religion, but some variation based on region and ethnicity. This suggests that efforts to stimulate first-time use of contraception should be targeted toward less educated women and women in rural areas as well as certain regions and ethnic groups where never use is more common.

**Figure 1**  
**Fertility Desires and Needs**  
**(Kenya)**



\*All women who are currently pregnant or amenorrhic are not exposed to the risk of pregnancy. They, consequently, have been kept as separate categories for this analysis.

\*\*Women who have no stated desire to control their fertility but who have an elevated health risk if they become pregnant have been separated out for this analysis.

**Figure 2**  
**Health Risk Factors for Women With a Health Risk Who Want a Child or Whose Fertility Desires are Unknown**  
**(Kenya, N=226)**

**% WITH RISK FACTOR**

Risk Factor	Want Now (N = 83)	Desires Unknown (N = 143)
Too Many Births	59	23
>34	13	16
<18	28	73
Too Soon	22	10

Note: Percentage total to more than 100% because some women have multiple risk factors.

**Figure 3**  
**Contraceptive Prevalence by Type of Method**  
**(Kenya)**

SPACERS (N = 999)			LIMITERS (N = 1187)		
Type of Method	%	N	Type of Method	%	N
<b>More Appropriate</b>	<b>44</b>	<b>434</b>	<b>More Appropriate</b>	<b>62</b>	<b>737</b>
Pill	26		Pill	17	
IUD	5		IUD	11	
Injection	9		Injection	14	
Condom	3		Condom	2	
			Female Sterilization	18	
<b>Less Appropriate</b>	<b>16</b>	<b>157</b>	<b>Less Appropriate</b>	<b>9</b>	<b>101</b>
Periodic Abstinence	14		Periodic Abstinence	7	
Withdrawal	1		Other	1	
Other	1				
<b>None</b>	<b>41</b>	<b>408</b>	<b>None</b>	<b>29</b>	<b>348</b>

Note: Less appropriate methods are traditional methods.  
 More appropriate methods are all modern methods.

**Figure 4**  
**Mean Ideal Number of Children**  
**(Kenya)**

**MEAN IDEAL NUMBER OF CHILDREN AND  
 PERCENT NONNUMERIC RESPONSES BY PROFILE GROUP**

Profile Group	Mean	% Nonnumeric
Pregnant	3.8	6
Amenorrheic	4.0	8
Postpartum Abstinent	3.5	4
Exposed, Fertility Desires Unknown and No Health Risk	3.1	4
Exposed, Fertility Desires Unknown and Has a Health Risk	3.5	7
Wants Now and Has No Health Risk	4.1	6
Wants Now and Has a Health Risk	5.2	6
Spacer -- Using More Appropriate Methods	3.1	2
Spacer -- Using Less Appropriate Methods	3.5	2
Spacer -- Not Using	4.2	7
Limitier -- Using More Appropriate Methods	3.4	2
Limitier -- Using Less Appropriate Methods	4.0	3
Limitier -- Not Using	3.7	5

Note: The total fertility rate for Kenya was 5.4 (1990-1992) according to the Kenya DHS Final Report.

**Figure 5**  
**Awareness of More Appropriate Methods**  
**(Kenya)**

Method	Spacers		Limiters	
	Spontaneous	Spontaneous or Prompted	Spontaneous	Spontaneous or Prompted
<b>More Appropriate Method Users</b>	(N = 434)		(N = 737)	
Ever heard of any more appropriate method	99	100	100	100
Pill	97	100	96	100
Injection	79	100	81	99
IUD	75	96	75	95
Condom	64	98	57	94
Other Barrier	20	66	21	63
Implant			18	77
Female Sterilization			51	97
Male Sterilization			13	59
<b>Less Appropriate Method Users</b>	(N = 157)		(N = 101)	
Ever heard of any more appropriate method	90	98	96	100
Pill	87	96	88	100
Injection	61	93	64	92
IUD	51	80	55	87
Condom	53	94	51	92
Other Barrier	12	48	11	48
Implant			51	96
Female Sterilization			33	95
Male Sterilization			10	40
<b>Nonusers</b>	(N = 408)		(N = 348)	
Ever heard of any more appropriate method	83	96	92	99
Pill	79	94	86	98
Injection	64	92	71	97
IUD	43	77	55	84
Condom	36	84	40	89
Other Barrier	7	34	11	40
Implant			13	72
Female Sterilization			28	89
Male Sterilization			7	47

**Figure 6**  
**Approval of Family Planning by Respondent and Her Partner**  
**(Kenya)**

**6A. Female Respondent's Approval**

Type of Method	Spacers % Approving (N = 999)	Limiters % Approving (N = 1187)
More Appropriate	99	99
Less Appropriate	96	97
None	88	89

**6B. Partner's Approval (as perceived by the respondent)**

Type of Method	Spacers (N = 744)			Limiters (N = 951)		
	% Disapproving	% Approving	% Don't Know	% Disapproving	% Approving	% Don't Know
More Appropriate	7	90	3	7	90	3
Less Appropriate	19	69	12	15	75	10
None	28	49	23	23	60	17

**Figure 7**  
**Approval of Family Planning by Married Men and Women**  
**(Kenya)**

**7A. Respondent's Approval**

	Male Survey (N = 1623)	Female Survey (N = 4355)
% Approving	91	87
% Disapproving	9	11

**7B. Partner's Approval (as perceived by the respondent)**

	Male Survey (N = 1623)	Female Survey (N = 4355)
% Approving	78	62
% Disapproving	7	19
% Don't Know	15	19

Note: Data for the male survey is taken from the Kenya DHS final report.

**Figure 8**  
**Awareness of Source for More Appropriate Methods**  
**(Kenya)**

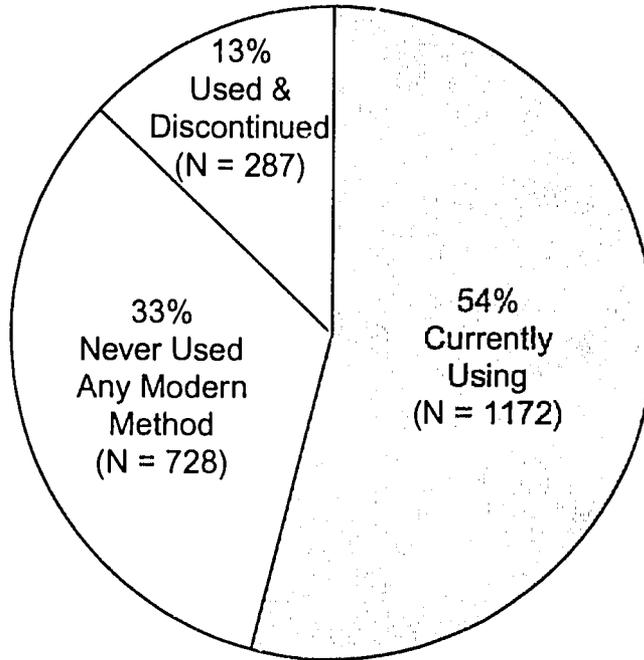
Method	% Aware	
	Spacers	Limiters
<b>More Appropriate Method Users</b>	<b>(N = 434)</b>	<b>(N = 737)</b>
Aware of source for any more appropriate method	100	100
Pill	99	98
Injection	97	96
IUD	92	93
Condom	94	90
Other Barrier	63	60
Implant	--	20
Female Sterilization	--	93
Male Sterilization	--	53
<b>Less Appropriate Method Users</b>	<b>(N = 157)</b>	<b>(N = 101)</b>
Aware of source of any more appropriate method	97	97
Pill	92	97
Injection	90	89
IUD	76	81
Condom	88	83
Other Barrier	44	45
Implant	--	17
Female Sterilization	--	89
Male Sterilization	--	33
<b>Nonusers</b>	<b>(N = 408)</b>	<b>(N = 348)</b>
Aware of source of any more appropriate method	88	96
Pill	86	91
Injection	85	92
IUD	71	80
Condom	74	82
Other Barrier	32	38
Implant	--	12
Female Sterilization	--	82
Male Sterilization	--	43

**Figure 9**  
**Ever-use of More Appropriate Methods**  
**(Kenya)**

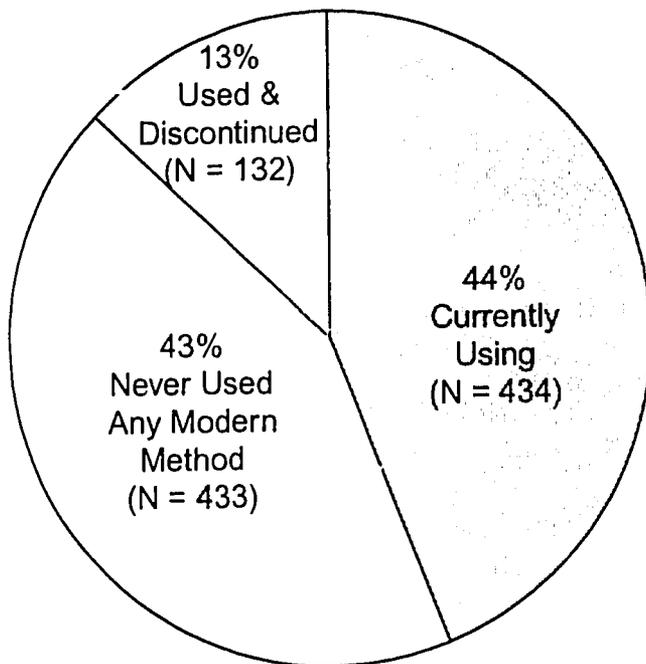
Method	% Ever Used	
	Spacers	Limiters
<b>More Appropriate Method Users</b>	(N = 434)	(N =737)
Ever use of any more appropriate method	100	100
Pill	76	61
Injection	28	33
IUD	19	29
Condom	20	14
Other Barrier	5	7
Implant	<1	<1
<b>Less Appropriate Method Users</b>	(N = 157)	(N = 101)
Ever use of any more appropriate method	23	22
Pill	10	15
Injection	3	6
IUD	4	7
Condom	14	6
Other Barrier	4	5
Implant	0	1
<b>Nonusers</b>	(N = 408)	(N =348)
Ever use of any more appropriate method	23	38
Pill	16	26
Injection	6	11
IUD	5	12
Condom	5	7
Other Barrier	1	1
Implant	0	0

**Figure 10**  
**Use and Discontinuation of More Appropriate Methods**  
**(Kenya)**

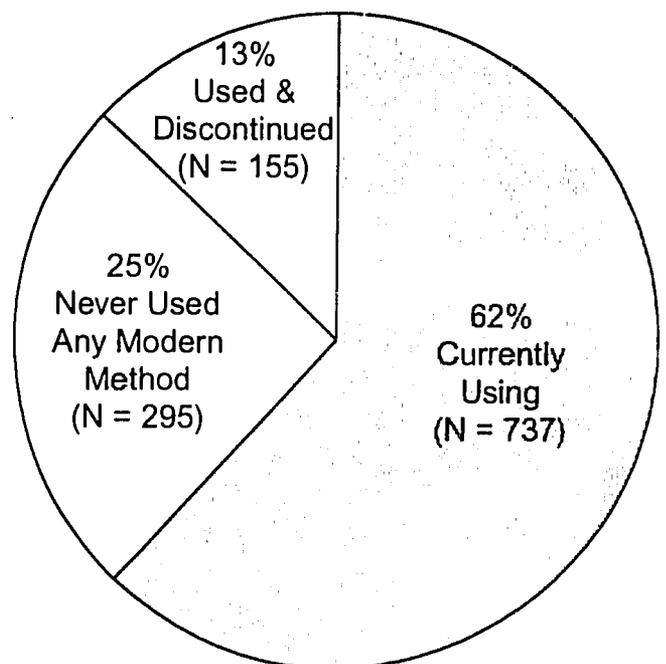
All Spacers and Limiters (N = 2186)



Spacers Only (N =999)



Limiters Only (N =1187)



**Figure 11**  
**Intentions to Use a Method and Reasons for Non-use**  
**(Kenya)**

**11A. NONUSERS OF ANY METHOD**  
**(MODERN AND TRADITIONAL) (% Responding)**

Intention to Use Any Method (Modern or Traditional)	Spacers (N = 408)	Limiters (N = 316)
Intend to Use	62	61
In Next 12 Months	44	53
Later	13	6
Unsure	6	2
Do Not Intend to Use	26	34
Don't Know	12	5

**11B. MAIN REASON FOR NOT INTENDING TO USE (% Responding)**

Main Reason Do Not Intend to Use a Method of FP	Spacers (N = 106)	Limiters (N = 117)
Wants Children	21	5
Lack of Knowledge	12	0
Partner Opposed	12	2
Side Effects	9	37
Health Concerns	8	14
Religion	4	11
Difficult to Become Pregnant	10	16
Opposed to Family Planning	6	5
Infrequent Sex	5	0
Inconvenient	5	4
Other Reasons	5	4
Don't Know	3	2

**Figure 12**  
**Summary of Findings**  
**(Kenya)**

Problem	% of Exposed Women (N = 2827)		
Unrecognized Need (Health Risk)	8	--	--
	% of Spacers and Limiters (N = 2186)	% of Spacers (N = 999)	% of Limiters (N = 1187)
Husband Disapproves	13	15	11
Never Tried a Modern Method	33	43	25
Tried and Discontinued a Modern Method	13	13	13

**Figure 13**  
**Selected Characteristics of Spacers and Limiters by**  
**Perceived Partner's Approval of Family Planning**  
**(Kenya)**

	Education				Region								Area		Religion					Ethnicity									
	No Education	Primary	Secondary	Higher	Nairobi	Central	Coast	Eastern	Nyanza	Rift Valley	Western	Urban	Rural	Catholic	Protestant/Other Christian	Moslem	No Religion	Other	Kalenjin	Kamba	Kikuyu	Kisii	Luhya	Luo	Meru/Embu	Mijikenda/Swahili	Somali	Taita/Taveta	Other
Disapprove	27	17	10	25	8	12	19	12	21	22	20	9	18	17	15	17	29	22	24	16	13	12	19	25	5	23	0	9	1
Approve	55	70	85	75	81	81	63	83	59	64	68	83	70	73	74	78	26	67	56	78	81	79	69	56	89	51	100	82	6
Don't Know	18	13	5	0	11	7	18	6	20	14	13	8	12	12	11	5	45	11	20	6	7	10	12	19	6	26	0	9	10
% of Respondents in Category	15	56	28	1	8	19	8	22	12	19	13	18	82	30	62	5	2	1	11	14	26	6	14	10	9	4	<1	1	1

**Figure 14**  
**Selected Characteristics of Spacers and Limiters by Use of a Modern Method**  
**(Kenya)**

Method Use	Education				Region							Area		Religion				Ethnicity											
	No Education	Primary	Secondary	Higher	Nairobi	Central	Coast	Eastern	Nyanza	Rift Valley	Western	Urban	Rural	Catholic	Protestant/Other Christian	Moslem	No Religion	Other	Kalenjin	Kamba	Kikuyu	Kisii	Luhya	Luo	Meru/Embu	Mijikenda/Swahili	Somali	Taita/Taveta	Other
Currently Using	43	51	63	72	67	70	45	51	45	44	48	64	51	54	54	57	13	61	39	43	69	62	52	36	70	36	72	49	41
Never Used	46	36	24	8	21	18	44	32	42	45	38	21	37	32	33	26	74	23	57	40	19	29	34	44	16	56	0	34	37
Discontinued	12	13	14	20	13	12	11	16	14	11	12	14	13	14	13	17	13	16	5	16	12	9	14	20	14	8	28	17	22
% of Respondents in Category	15	55	29	1	9	20	7	21	12	19	12	21	79	31	62	5	2	1	11	15	28	6	13	10	8	4	<1	1	4

## VI. COUNTRY EXAMPLE: GHANA, 1988 DHS

The 1988 Ghana DHS consisted of a sample of all women aged 15-49 (N = 4488). The women's questionnaire was based on the Model B questionnaire for countries with low contraceptive prevalence. Only the highlights of the analysis are presented here.

Figure 15 shows the classification of women based on fertility desires and needs. At the time of the survey, 39 percent of women in Ghana were exposed to the risk of pregnancy, and 23 percent wanted to limit their fertility. Only 5 percent wanted another child now and had no health risk, while 7 percent wanted another child now but had an elevated health risk because of age, birth interval, or parity.

Figure 16 shows that a sizable proportion of women who wanted to limit their fertility (but were not currently using contraception) did not approve of family planning. This certainly indicates that a better understanding of reasons for disapproval could lead to useful programmatic actions.

Figure 17 shows that spontaneous awareness of modern methods of contraception was low. However, when prompted, a majority of women had heard of at least one appropriate method. This suggests that women had only a passing familiarity with methods, not a real understanding. It further suggests that they probably did not know how to select a method or which methods would have been best for them.

Figure 18 shows that awareness of source was not a large problem among those women who knew methods; more than two-thirds knew a source for an appropriate method.

Ever-use of appropriate methods was quite low, as shown in Figure 19. At the time of the survey, approximately one-third of women currently using less appropriate methods (primarily traditional methods) had tried a modern method in the past. The fact that a substantial minority of less appropriate methods users had tried and discontinued a modern method represents a potential problem for the program. It probably indicates a problem with the quality of service delivery, particularly in counseling and management of side effects. The major reasons for discontinuation are shown in Figure 20. Health concerns head the list, along with wanting to have another child.

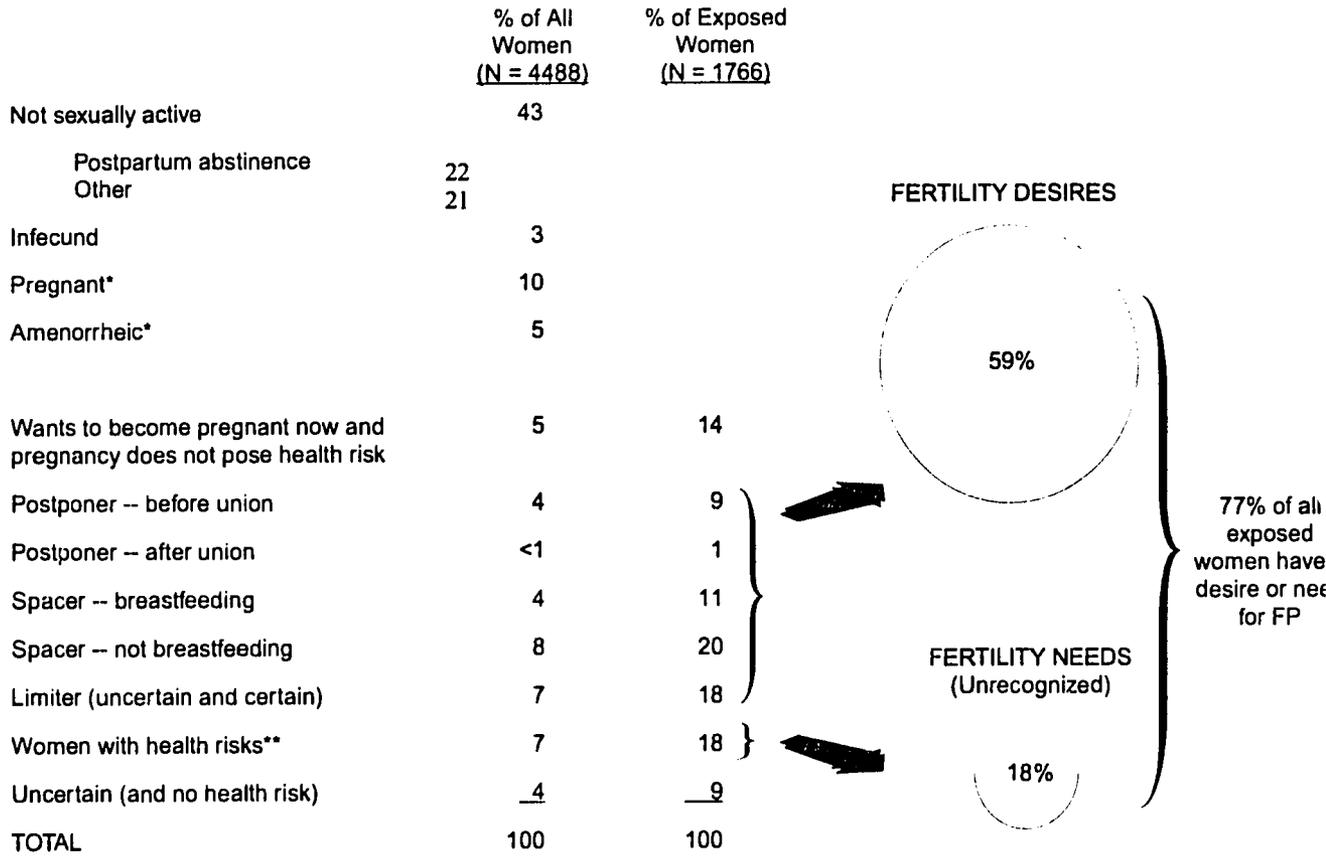
Figure 21 looks at intentions to use modern contraception in the future. Only about one-third of non-users intended to use in the near future. The major reasons given for not wanting to use contraception were "desire for more children, lack of knowledge, and health concerns.

Figure 22 examines perceived problems with the contraceptive methods. Once again health problems dominated. Also, a significant proportion answered "Don't know." This suggests that people had only a superficial understanding of the various methods.

Finally, Figure 23 profiles those women who disapproved of family planning. Although disapproval was widespread, more rural uneducated women disapproved. This suggests that IEC efforts should be targeted to the outlying areas and prepared with illiterate audiences in mind.

Three major factors emerged from this brief look at Ghana. First, a significant proportion of women did not approve of family planning, even though they wanted to limit their fertility. An in-depth understanding of reasons for disapproval could indicate new program interventions. Second, although prompted awareness was high, spontaneous awareness was quite low, suggesting that women did not have much real understanding of modern methods. Finally, a significant number of women who had used modern methods had reverted to traditional methods. A more in-depth examination of the reasons for this switch could reveal program limitations that prevented women from being satisfied with their experience.

**Figure 15**  
**Fertility Desires and Needs**  
**(Ghana)**



\*All women who are currently pregnant or amenorrhic are not exposed to the risk of pregnancy. They, consequently, have been kept as separate categories (and are not included in the lifestage groups) for this analysis.

\*\*Women who have no stated desire to control their fertility but who have an elevated health risk if they become pregnant have been separated out for this analysis.

**Figure 16**  
**Approval of Family Planning Among Non-users**  
**(Ghana)**

**SPACERS**  
 (Nonusers, N = 447)

Attitude toward FP	%
Approves	71
Disapproves	29

**LIMITERS**  
 (Nonusers, N = 208)

Attitude toward FP	%
Approves	77
Disapproves	23

**Figure 17**  
**Awareness of Appropriate Methods**  
**(Ghana)**

**SPACERS**

Method	% Aware			
	Nonusers (N = 447)		Less-Appropriate Users (N =207)	
	Spontaneous	Prompted	Spontaneous	Prompted
Ever heard of any appropriate method	29	79	50	94
Orals	26	53	44	87
Injection	5	28	9	64
IUD	8	27	19	62
Condom	6	37	15	85
Other Barrier	13	35	20	77

**LIMITERS (UNCERTAIN AND CERTAIN)**

Method	% Aware			
	Nonusers (N =208)		Less-Appropriate Users (N = 81)	
	Spontaneous	Prompted	Spontaneous	Prompted
Ever heard of any appropriate method	25	81	47	96
IUD	14	54	37	81
Implant	NA	NA	NA	NA
Female Sterilization	2	62	1	80
Male Sterilization	1	13	1	16
Condom	6	49	15	86
Injection	11	57	15	70

**Figure 18**  
**Awareness of Source of Supply for Appropriate Methods**  
**(Ghana)**

**SPACERS**

Method	% Aware	
	Nonusers (N = 447)	Less-Appropriate Users (N = 207)
Aware of any source	68	90
Orals	53	77
Injection	39	57
IUD	33	55
Condom	48	70
Other Barrier	39	70

**LIMITERS (UNCERTAIN AND CERTAIN)**

Method	% Aware	
	Nonusers (N = 208)	Less-Appropriate Users (N = 81)
Aware of any source	73	90
IUD	45	70
Implant	NA	NA
Female Sterilization	56	73
Male Sterilization	11	16
Condom	33	73
Injection	50	67

**Figure 19**  
**Ever-use of Appropriate Methods**  
**(Ghana)**

**SPACERS**

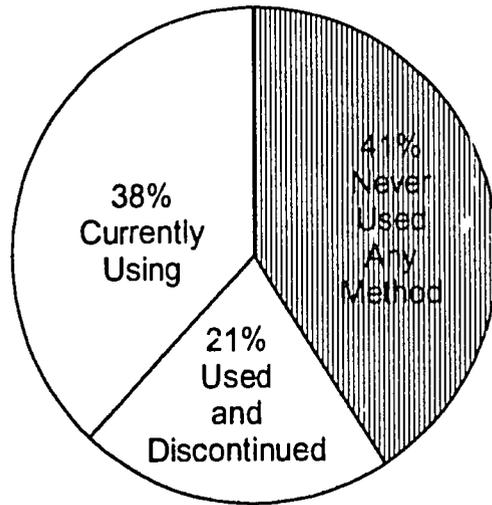
Method	% Ever Used	
	Nonusers (N = 447)	Less-Appropriate Users (N = 207)
Ever tried any appropriate method	19	34
Orals	14	19
Injection	0	1
IUD	1	0
Condom	6	9
Other Barrier	8	25

**LIMITERS (UNCERTAIN AND CERTAIN)**

Method	% Ever Used	
	Nonusers (N =208)	Less-Appropri Users (N = 81)
Ever tried any appropriate method	8	21
IUD	3	7
Implant	NA	NA
Condom	3	15
Injection	2	2

Figure 20  
Discontinuation  
(Ghana)

USE OF METHODS  
(All Lifestage Groups, N = 1048)



REASONS FOR DISCONTINUING  
(N = 217)

Reason	% Giving Reason
Health concerns	25
Wanted a child	25
Partner disapproved	10
Inconvenient	6
Not effective	6
Difficult to obtain	2
Costs too much	<1
Other	20
Don't know	6

**Figure 21**  
**Intentions to Use a Method and Reasons for Non-use**  
**(Ghana)**

SPACERS (Nonusers)		LIMITERS (UNCERTAIN AND CERTAIN) (Nonusers)	
Intention to use a method	% Responding (N = 447)	Intention to use a method	% Responding (N = 208)
Intend to use	39	Intend to use	38
Do not intend to use	48	Do not intend to use	54
Don't know	13	Don't know	8
Main reason do not intend to use	% Responding (N = 201)	Main reason do not intend to use	% Responding (N = 105)
Wants children*	47	Lack of knowledge	19
Lack of knowledge	23	Health concerns	16
Health concerns	10	Wants children*	11
Partner disapproves	3	Religious reasons	8
Religious reasons	6	Partner disapproves	8
Other	9	Other	39
Disapproves of FP	46	Disapproves of FP	37

\*Postponers, spacers and limiters were classified based on their desire to delay or cease childbearing. It is, therefore, so interesting that "wants children" was given as a reason, by nonusers, for not wanting to use a method of family planning. survey results suggest that some local terms being used for family planning imply stop having births, which could be a misunderstanding about the permanent nature of modern contraceptives.

**Figure 22**  
**Perceived Problems With Methods**  
**(Ghana)**

**NONUSERS**  
**(% Giving Reason)**

Method	Don't Know	No Problem	Health Concerns	Not Effective	Inconvenient to Use	Costs Too Much	Partner Disapproves	Access/Availability	Method Permanent	Other
Condom	58	27	3	7	5	<1	1	<1	..	<1
Other Barrier	51	35	7	5	3	<1	1	<1	..	<1
Orals	50	22	21	5	1	<1	1	<1	..	<1
Injection	64	26	8	2	1	<1	<1	<1	..	<1
IUD	58	17	21	2	2	<1	<1	<1	..	<1
Implant	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Female Sterilization	58	27	12	<1	1	<1	<1	..	..	1
Male Sterilization	68	25	5	<1	<1	1	1	..	..	1

**LESS-APPROPRIATE USERS**  
**(% Giving Reason)**

Method	Don't Know	No Problem	Health Concerns	Not Effective	Inconvenient to Use	Costs Too Much	Partner Disapproves	Access/Availability	Method Permanent	Other
Condom	51	24	3	12	8	1	1	..	..	<1
Other Barrier	44	37	8	4	4	2	..	..	..	..
Orals	42	22	28	5	2	..	<1	..	..	1
Injection	63	22	9	2	4	..	<1	..	..	<1
IUD	54	13	28	3	3	..	..	..	..	..
Implant	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Female Sterilization	58	26	12	1	2	1	..	..	..	1
Male Sterilization	71	17	8	..	3	..	..	..	..	2

**MOST APPROPRIATE AND OTHER APPROPRIATE USERS**  
**(% Giving Reason)**

Method	Don't Know	No Problem	Health Concerns	Not Effective	Inconvenient to Use	Costs Too Much	Partner Disapproves	Access/Availability	Method Permanent	Other
Condom	38	40	1	10	11	..	..	..	..	..
Other Barrier	31	48	4	5	8	..	..	..	..	..
Orals	17	36	39	7	1	..	..	..	..	..
Injection	62	22	12	1	1	1	..	..	..	..
IUD	37	51	16	4	4	..	..	..	..	..
Implant	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Female Sterilization	51	31	12	..	3	1	..	..	..	2
Male Sterilization	81	19	..	..	..	..	..	..	..	..

**Figure 23**  
**Profile of Women Who Disapprove of Family Planning**  
**(Ghana)**

**MAGNITUDE OF PROBLEM**

Problem	% of Exposed Women (N = 1766)
Unrecognized need (Health risk)	18
	% of Lifestage Groups (N = 1048)
Disapprove of FP	18
Unaware of any appropriate method	10
Unaware of any source	22
Never tried an appropriate method	73
Tried and discontinued an appropriate method	15

**PERCENT OF LIFESTAGE GROUPS WHO DISAPPROVE OF FAMILY PLANNING (N = 1048)**

	Area		Education				Religion					Region					Ethnic Group							
	Urban	Rural	No Education	Primary	Secondary	Higher	Catholic	Other Christian	Muslim	Traditional	No Religion	Western	Central	Greater Accra	Eastern	Volta	TW	Fante	Other Akan	Ga-Adangbe	Ewe	Other Ghanalan	Other African	
Approval																								
Disapprove	12	23	30	15	8	8	20	11	27	36	9	27	24	4	17	27	10	22	30	4	16	0	40	
Approve	88	77	70	85	92	92	80	89	73	64	91	73	76	96	83	73	90	78	70	96	84	100	60	

## REFERENCES

- Macro International, Inc. 1994. *Description of the Demographic and Health Surveys Individual Recode Data File, DHS II, Version 1.0*. Calverton, Maryland: Macro International.
- National Council for Population and Development (NCPD), Central Bureau of Statistics (CBS) (Office of the Vice President and Ministry of Planning and National Development [Kenya]), and Macro International Inc. (MI). 1994. *Kenya Demographic and Health Survey 1993*. Calverton, Maryland: NCPD, CBS, and MI.
- National Council for Population and Development (NCPD), Ministry of Home Affairs and National Heritage, and Institute for Resource Development/Macro Systems Inc. (IRD/Macro). 1989. *Kenya Demographic and Health Survey, 1989*. Columbia, Maryland: NCPD and IRD/Macro.



V306\$01 24-24  
V304\$02 26-26  
V305\$02 27-27  
V306\$02 28-28  
V304\$03 30-30  
V305\$03 31-31  
V306\$03 32-32  
V304\$04 34-34  
V305\$04 35-35  
V306\$04 36-36  
V304\$05 38-38  
V305\$05 39-39  
V306\$05 40-40  
V304\$06 42-42  
V305\$06 43-43  
V306\$06 44-44  
V304\$07 46-46  
V305\$07 47-47  
V306\$07 48-48  
V304\$08 50-50  
V305\$08 51-51  
V306\$08 52-52  
V304\$09 54-54  
V305\$09 55-55  
V306\$09 56-56  
V304\$10 58-58  
V305\$10 59-59  
V306\$10 60-60  
V304\$11 62-62  
V305\$11 63-63  
V306\$11 64-64  
V304\$12 66-66  
V305\$12 67-67  
V306\$12 68-68  
V304\$13 70-70  
V305\$13 71-71  
V306\$13 72-72  
V304\$14 74-74  
V305\$14 75-75  
V306\$14 76-76  
V304\$15 78-78  
V305\$15 79-79  
V306\$15 80-80  
/  
V312 21-22  
V362 60-60  
V363 61-62  
V376 77-78  
/  
M10\$1 60-60  
/  
/  
/  
/  
/  
/  
V404 19-19  
V405 20-20  
V406 21-21  
/  
/  
/

129



/V102 "Type of place of residence"  
 /V106 "Highest educational level"  
 /V108 "Literacy"  
 /V109 "Reads newspaper once a week"  
 /V110 "Watches TV every week"  
 /V111 "Listens to radio every day NA"  
 /V112 "Listens to radio every week"  
 /V130 "Religion"  
 /V131 "Ethnicity"  
 /V139 "De jure region of residence"  
 /V140 "De jure type of place of res."  
 /V201 "Total children ever born"  
 /V208 "Births in last five years"  
 /V213 "Currently pregnant"  
 /V215 "Time since last menstrual perd"  
 /V218 "Number of living children"  
 /V222 "Last birth to interview"  
 /V302 "Ever use of any method"  
 /V304\$01 "Knows method"  
 /V305\$01 "Ever used method"  
 /V306\$01 "Source known for method"  
 /V304\$02 "Knows method"  
 /V305\$02 "Ever used method"  
 /V306\$02 "Source known for method"  
 /V304\$03 "Knows method"  
 /V305\$03 "Ever used method"  
 /V306\$03 "Source known for method"  
 /V304\$04 "Knows method"  
 /V305\$04 "Ever used method"  
 /V306\$04 "Source known for method"  
 /V304\$05 "Knows method"  
 /V305\$05 "Ever used method"  
 /V306\$05 "Source known for method"  
 /V304\$06 "Knows method"  
 /V305\$06 "Ever used method"  
 /V306\$06 "Source known for method"  
 /V304\$07 "Knows method"  
 /V305\$07 "Ever used method"  
 /V306\$07 "Source known for method"  
 /V304\$08 "Knows method"  
 /V305\$08 "Ever used method"  
 /V306\$08 "Source known for method"  
 /V304\$09 "Knows method"  
 /V305\$09 "Ever used method"  
 /V306\$09 "Source known for method"  
 /V304\$10 "Knows method"  
 /V305\$10 "Ever used method"  
 /V306\$10 "Source known for method"  
 /V304\$11 "Knows method"  
 /V305\$11 "Ever used method"  
 /V306\$11 "Source known for method"  
 /V304\$12 "Knows method"  
 /V305\$12 "Ever used method"  
 /V306\$12 "Source known for method"  
 /V304\$13 "Knows method"  
 /V305\$13 "Ever used method"  
 /V306\$13 "Source known for method"  
 /V304\$14 "Knows method"  
 /V305\$14 "Ever used method"  
 /V306\$14 "Source known for method"  
 /V304\$15 "Knows method"  
 /V305\$15 "Ever used method"

/V306\$15 "Source known for method"  
 /V312 "Current contraceptive method"  
 /V362 "Intention to use"  
 /V363 "Preferred future method"  
 /V376 "Main reason not to use a meth."  
 /M10\$1 "Time wanted pregnancy"  
 /V404 "Currently breastfeeding"  
 /V405 "Currently amenorrheic"  
 /V406 "Currently abstaining"  
 /V501 "Current marital status"  
 /V503 "Number of unions"  
 /V512 "Years since first marriage"  
 /V525 "Age at first intercourse"  
 /V527 "Time since last intercourse"  
 /V528 "Time since last intercourse(g)"  
 /V602 "Fertility preference"  
 /V603 "Preferred waiting time"  
 /V604 "Preferred waiting time (grpd)"  
 /V605 "Desire for more children"  
 /V610 "Husband approves FP"  
 /V612 "Respondent approves FP"  
 /V613 "Ideal number of children"  
 /V623 "Exposure"  
 /V625 "Exposure (definition 2)"

MISSING VALUE

V106 (9)  
 /V108 (9)  
 /V109 (9)  
 /V110 (9)  
 /V111 (9)  
 /V112 (9)  
 /V130 (9)  
 /V131 (99)  
 /V139 (99)  
 /V140 (9)  
 /V215 (999)  
 /V304\$01 (9)  
 /V305\$01 (9)  
 /V306\$01 (9)  
 /V304\$02 (9)  
 /V305\$02 (9)  
 /V306\$02 (9)  
 /V304\$03 (9)  
 /V305\$03 (9)  
 /V306\$03 (9)  
 /V304\$04 (9)  
 /V305\$04 (9)  
 /V306\$04 (9)  
 /V304\$05 (9)  
 /V305\$05 (9)  
 /V306\$05 (9)  
 /V304\$06 (9)  
 /V305\$06 (9)  
 /V306\$06 (9)  
 /V304\$07 (9)  
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 /V306\$07 (9)  
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 /V306\$08 (9)  
 /V304\$09 (9)

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/V306\$10 (9)  
/V304\$11 (9)  
/V305\$11 (9)  
/V306\$11 (9)  
/V304\$12 (9)  
/V305\$12 (9)  
/V306\$12 (9)  
/V304\$13 (9)  
/V305\$13 (9)  
/V306\$13 (9)  
/V304\$14 (9)  
/V305\$14 (9)  
/V306\$14 (9)  
/V304\$15 (9)  
/V305\$15 (9)  
/V306\$15 (9)  
/V312 (99)  
/V362 (9)  
/V363 (99)  
/V376 (99)  
/M10\$1 (9)  
/V501 (9)  
/V503 (9)  
/V525 (99)  
/V527 (999)  
/V528 (99)  
/V602 (9)  
/V603 (999)  
/V604 (9)  
/V605 (9)  
/V610 (9)  
/V612 (9)  
/V613 (99)  
/V623 (9)  
/V625 (9)

VALUE LABELS

V101

- 1 "Nairobi"
- 2 "Central"
- 3 "Coast"
- 4 "Eastern"
- 5 "Nyanza"
- 6 "Rift Valley"
- 7 "Western"

/V102

- 1 "Urban"
- 2 "Rural"

/V106

- 0 "No education"
- 1 "Primary"
- 2 "Secondary"
- 3 "Higher"

/V108

- 1 "Reads easily"
- 2 "Reads with difficult"
- 3 "Cannot read"

/V109

0 "No"  
 1 "Yes"  
 /V110  
 0 "No"  
 1 "Yes"  
 /V112  
 0 "No"  
 1 "Yes"  
 /V130  
 1 "Catholic"  
 2 "Protest/Oth Cristian"  
 3 "Muslim"  
 4 "No religion"  
 5 "Other"  
 /V131  
 1 "Kalenjin"  
 2 "Kamba"  
 3 "Kikuyu"  
 4 "Kisii"  
 5 "Luhya"  
 6 "Luo"  
 7 "Meru/Embu"  
 8 "Mijikenda/Swahili"  
 9 "Somali"  
 10 "Taita/Taveta"  
 11 "Other"  
 /V139  
 1 "Nairobi"  
 2 "Central"  
 3 "Coast"  
 4 "Eastern"  
 5 "Nyanza"  
 6 "Rift Valley"  
 7 "Western"  
 /V140  
 0 "Abroad"  
 1 "Urban"  
 2 "Rural"  
 /V215  
 994 "In menopause"  
 995 "Before last birth"  
 996 "Never menstruated"  
 997 "Inconsistent"  
 998 "Don't know"  
 /V302  
 0 "Never used"  
 1 "Used only folkloric"  
 2 "Used only trad. meth"  
 3 "Used modern method"  
 /V304\$01  
 0 "No"  
 1 "Yes, spontaneously"  
 2 "Yes, probed"  
 8 "Not asked"  
 /V305\$01  
 0 "No"  
 1 "Yes"  
 /V306\$01  
 0 "No"  
 1 "Yes"  
 /V304\$02  
 0 "No"

1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$02  
0 "No"  
1 "Yes"  
/V306\$02  
0 "No"  
1 "Yes"  
/V304\$03  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$03  
0 "No"  
1 "Yes"  
/V306\$03  
0 "No"  
1 "Yes"  
/V304\$04  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$04  
0 "No"  
1 "Yes"  
/V306\$04  
0 "No"  
1 "Yes"  
/V304\$05  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$05  
0 "No"  
1 "Yes"  
/V306\$05  
0 "No"  
1 "Yes"  
/V304\$06  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$06  
0 "No"  
1 "Yes"  
/V306\$06  
0 "No"  
1 "Yes"  
/V304\$07  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$07  
0 "No"  
1 "Yes"  
/V306\$07

0 "No"  
1 "Yes"  
/V304\$08  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$08  
0 "No"  
1 "Yes"  
/V306\$08  
0 "No"  
1 "Yes"  
/V304\$09  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$09  
0 "No"  
1 "Yes"  
/V306\$09  
0 "No"  
1 "Yes"  
/V304\$10  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$10  
0 "No"  
1 "Yes"  
/V306\$10  
0 "No"  
1 "Yes"  
/V304\$11  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$11  
0 "No"  
1 "Yes"  
/V306\$11  
0 "No"  
1 "Yes"  
/V304\$12  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"  
/V305\$12  
0 "No"  
1 "Yes"  
/V306\$12  
0 "No"  
1 "Yes"  
/V304\$13  
0 "No"  
1 "Yes, spontaneously"  
2 "Yes, probed"  
8 "Not asked"

/V305\$13  
 0 "No"  
 1 "Yes"  
 /V306\$13  
 0 "No"  
 1 "Yes"  
 /V304\$14  
 0 "No"  
 1 "Yes, spontaneously"  
 2 "Yes, probed"  
 8 "Not asked"  
 /V305\$14  
 0 "No"  
 1 "Yes"  
 /V306\$14  
 0 "No"  
 1 "Yes"  
 /V304\$15  
 0 "No"  
 1 "Yes, spontaneously"  
 2 "Yes, probed"  
 8 "Not asked"  
 /V305\$15  
 0 "No"  
 1 "Yes"  
 /V306\$15  
 0 "No"  
 1 "Yes"  
 /V312  
 0 "Not using"  
 1 "Pill"  
 2 "IUD"  
 3 "Injections"  
 4 "Diaphragm/Foam/Jelly"  
 5 "Condom"  
 6 "Female Sterilization"  
 7 "Male Sterilization"  
 8 "Periodic Abstinence"  
 9 "Withdrawal"  
 10 "Other"  
 11 "Norplant"  
 12 "Abstinence"  
 13 "Specific method 1"  
 14 "Specific method 2"  
 15 "Specific method 3"  
 /V362  
 1 "In next 12 months"  
 2 "Use later"  
 3 "Unsure about timing"  
 4 "Unsure about use"  
 5 "Does not intend"  
 /V363  
 1 "Pill"  
 2 "IUD"  
 3 "Injections"  
 4 "Diaphragm/Foam/Jelly"  
 5 "Condom"  
 6 "Female Sterilization"  
 7 "Male Sterilization"  
 8 "Periodic Abstinence"  
 9 "Withdrawal"  
 10 "Other"

11 "Norplant"  
 12 "Abstinence"  
 13 "Specific method 1"  
 14 "Specific method 2"  
 15 "Specific method 3"  
 98 "Don't know"  
 /V376  
 1 "Wants children"  
 2 "Lack of knowledge"  
 3 "Partner opposed"  
 4 "Cost too much"  
 5 "Side effects"  
 6 "Health concerns"  
 7 "Hard to get methods"  
 8 "Religion"  
 9 "Opposed to FP"  
 10 "Fatalistic"  
 11 "Other people opposed"  
 12 "Infrequent sex"  
 13 "Difficult to be preg"  
 14 "Menopausal, had hyst"  
 15 "Inconvenient"  
 16 "Not married"  
 17 "Other"  
 98 "DK"  
 /M10\$1  
 1 "Then"  
 2 "Later"  
 3 "No more"  
 /V404  
 0 "No"  
 1 "Yes"  
 /V405  
 0 "No"  
 1 "Yes"  
 /V406  
 0 "No"  
 1 "Yes"  
 /V501  
 0 "Never married"  
 1 "Married"  
 2 "Living together"  
 3 "Widowed"  
 4 "Divorced"  
 5 "Not living together"  
 /V503  
 1 "Once"  
 2 "More than once"  
 /V525  
 0 "Not had intercourse"  
 96 "At first union"  
 97 "Inconsistent"  
 98 "Don't know"  
 /V527  
 995 "Within last 4 weeks"  
 996 "Before last birth"  
 998 "Don't know"  
 /V528  
 31 "31+ days"  
 95 "Within last 4 weeks"  
 96 "Before last birth"  
 98 "Don't know"

```

/V602
  1 "Have another"
  2 "Undecided"
  3 "No more"
  4 "Sterilized"
  5 "Declared infecund"
/V603
  994 "Soon, now"
  996 "Other, Non-numeric"
  997 "Inconsistent"
  998 "Don't know"
/V604
  0 "< 12 months"
  1 "1 year"
  2 "2 years"
  3 "3 years"
  4 "4 years"
  5 "5 years"
  6 "6+ years"
  7 "Non-numeric"
  8 "Don't know"
/V605
  1 "Wants within 2 years"
  2 "Wants after 2+ years"
  3 "Wants, unsure timing"
  4 "Undecided"
  5 "Wants no more"
  6 "Sterilized"
  7 "Declared infecund"
/V610
  0 "Disapproves"
  1 "Approves"
  8 "Don't know"
/V612
  0 "Disapproves"
  1 "Approves"
  8 "Don't know"
/V613
  94 "Any number"
  95 "God's plan/knows"
  96 "Non-numeric response"
  98 "DK"
/V623
  0 "Fecund"
  1 "Pregnant"
  2 "Amenorrheic"
  3 "Infecund, menopausal"
/V625
  0 "Fecund"
  1 "Pregnant"
  2 "Amenorrheic"
  3 "Infecund, menopausal"

```

```

* Weight data file.
compute wgt = v005/1000000.
weight by wgt.

```

```

save outfile='c:\kenyadhs\kenya.raw'.
set printback=on.

```

\* PART A: IDENTIFY SUBGROUPS OF WOMEN FOR ANALYSIS.

**\* CLASSIFY WOMEN BASED ON EXPOSURE TO THE RISK OF PREGNANCY.**

\* Create a variable for "profile groups" of women.

compute profile=99.

val lab profile 0 'Not Sexually Active' 1 'Pregnant' 2 'Amenorrhic'  
3 'Infecund' 4 'PP Abstinent' 5 'Exposed' 99 'Unknown'.

\* Use the calculated exposure status variable (definition 2) to determine if pregnant, amenorrhic or infecund.

if (v625=1) profile=1.

if (v625=2) profile=2.

if (v625=3) profile=3.

\* NOTE: The above variable is only available in DHS II and III recodes; For DHS I recodes, the following code may be substituted.

\* Note: this will produce a smaller proportion of infecund women because it doesn't take into consideration women who have been exposed to the risk of pregnancy for the past five years (without using contraception) and did not get pregnant.

\*if (v213=1) profile=1.

\*if (v405=1) profile=2.

\* women who declared themselves infecund when asked their fertility preference.

\*if (v602=5) profile=3.

\* women who report that they are menopausal.

\*if ((profile=99) and (v215=994)) profile=3.

\* women who report that they have never menstruated.

\*if ((profile=99) and (v215=996)) profile=3.

\* women whose last period was before the last birth and who are not already classified as amenorrhic.

\*if ((profile=99) and (v215=995)) profile=3.

\* women who haven't had a period in at least six months and are not using contraception; the response to the question may be in units of days, weeks, months or years; the first digit of this three digit variable indicates the units of the answer: 1=days, 2=weeks, 3=months, 4=years; the last two digits indicate how many of those units; a first digit of 9 indicates a special answer.

\*if ((profile=99)and(v215 > 180)and(v215 < 200)and(v312=0))profile=3.

\*if ((profile=99)and(v215 > 226)and(v215 < 300)and(v312=0))profile=3.

\*if ((profile=99)and(v215 > 305)and(v215 < 400)and(v312=0))profile=3.

\*if ((profile=99)and(v215 > 399)and(v215 < 900)and(v312=0))profile=3.

\*freq profile.

\* Determine if postpartum abstaining.

if ((profile=99) and (v406=1)) profile=4.

\*freq profile.

\* Determine if sexually active from time since last intercourse; set up a variable to look at how many women were sexually active in the last month, last two months, last three months and the last year.

Compute active = 9.

\* The response to the question may be in units of days, weeks, months or years; the first digit of this three digit variable indicates the units of the answer: 1=days, 2=weeks, 3=months, 4=years; the last two digits indicate how many of those units; a first digit of 9 indicates a special answer.

\* Handle units in days.

If ((v527 ge 100) and (v527 le 131)) active = 1.

If ((v527 ge 132) and (v527 le 162)) active = 2.

If ((v527 ge 163) and (v527 le 193)) active = 3.

If ((v527 ge 194) and (v527 lt 199)) active = 4.

\* Handle units in weeks.

If ((v527 ge 201) and (v527 le 204)) active = 1.  
 If ((v527 ge 205) and (v527 le 208)) active = 2.  
 If ((v527 ge 209) and (v527 le 213)) active = 3.  
 If ((v527 ge 214) and (v527 le 252)) active = 4.  
 If ((v527 ge 253) and (v527 lt 299)) active = 0.  
 \* Handle units in months, years and special answers.  
 If (v527=301 or v527=995) active = 1.  
 If (v527=302) active = 2.  
 If (v527=303) active = 3.  
 If ((v527 ge 304) and (v527 le 312)) active = 4.  
 If ((v527 ge 313) and (v527 le 900)) active = 0.  
 If (v527 = 996) active = 0.  
 \* Women who have never had intercourse.  
 If (v525 = 0) active = 0.

Var lab active 'sexual activity status'.  
 Val lab active 9 'unknown' 1 'w/in 1 mths' 2 'w/in 2 mths'  
 3 'w/in 3 mths' 4 'w/in 12 mths' 0 'not active'.  
 temporary.  
 select if (profile=99).  
 freq active.  
 \* Check what percentage of unmarried women are sexually active.  
 compute MarrOrLT=v501.  
 recode MarrOrLT (1 2 = 1) (else = 0).  
 cross active by MarrOrLT /:cells=count row col total.

\* For Kenya, women who are in the profile group "unknown" and who have not been sexually active within the past two months are coded as not sexually active; this cutoff is chosen because an examination of the frequency of the above variable shows that a significant proportion of women are not sexually active within the past month, but are within the past two months; for other countries, a different cutoff may be more appropriate.  
 if ((profile=99)and((active=1)or(active=2)))profile=5.  
 if ((profile=99)and((active=3)or(active=4)or(active=0)))profile=0.  
 \*freq profile.

\* Note: Not all countries include questions about sexual activity; when this is the case, use marital status as a proxy for sexual activity (i.e., assume that women who are married or living together are sexually active and that all other women are not sexually active); the code above is then replaced by the code below.  
 \*if ((profile=99) and ((v501=1) or (v501=2))) profile=5.  
 \*if ((profile=99) and (v501 > 2)) profile=0.  
 \*freq profile.

**\* CLASSIFY EXPOSED WOMEN BASED ON EXPRESSED FERTILITY DESIRES.**

\* This logic reclassifies exposed women based on questions that are only asked of women who are currently married or in union; Women who are not currently married but are exposed (profile=5) will remain classified as exposed.  
 \* Women who want a child within the next year are called "Wants Now"; women who want to wait more than a year or more are called "Spacers"; women who want no more children are called "Limiters".  
 add value labels profile 6 'Wants now' 7 'Spacer' 8 'Limiter'.

\* Use the fertility preference question to identify women who say they want no more children.  
 if ((profile=5) and (v602=3)) profile=8.

\* Use the same question to identify women who don't know if they want more children; these women are classified as Spacers.  
 if ((profile=5) and (v602=2)) profile=7.  
 \*freq profile.

\* For women who want a(nother) child, use a question on when they want the (next) child to determine if a Spacer or Wants Now.  
 \*temporary.  
 \*select if (profile=5).  
 \*freq v603.  
 \* Women who want a(nother) child in 12 months or less are coded as Wants Now.  
 if ((profile=5) and (v603 < 113)) profile=6.  
 \* Women who say they want a child "soon" are coded as Wants Now.  
 if ((profile=5) and (v603=994)) profile=6.  
 \* Women who want a(nother) child in more than 12 months are coded as spacers.  
 if ((profile=5) and (v603 < 994)) profile=7.  
 \* Women with other responses (don't know or non-numeric) remain the same.  
 \*freq profile.

\* Kenya has many unmarried women who are exposed who are not asked any questions about fertility preference.  
 \*

\* For women still classified as exposed, look at contraceptive use; classify users of sterilization as limiters, classify all other users as spacers.  
 \*temporary.  
 \*select if (profile=5).  
 \*freq v312.  
 if ((profile=5) and ((v312=6) or (v312=7))) profile=8.  
 if ((profile=5) and (((v312 >= 1) and (v312 <= 5)) or (v312 >= 8))) profile=7.

\* For women still classified as exposed, look at whether they wanted their last child born in the past five years; women who wanted no more children at the time the last child was born are classified as limiters.  
 \*temporary.  
 \*select if (profile=5).  
 \*freq m10\$1.  
 if ((profile=5) and (m10\$1=3)) profile=8.  
 \*freq profile.

\* See what percentage of women remaining in the exposed category are not married or living together.  
 cross profile by MarOrLT /cells=count row col.

**\* CLASSIFY WOMEN WHO WANT A CHILD NOW OR WHOSE FERTILITY PREFERENCES ARE UNKNOWN BASED ON HEALTH RISKS.**

\* Women who are less than 18, more than 35, have already had 4 births, or have had a birth within the last 15 months have an elevated risk of infant or maternal mortality if they get pregnant now; reclassify women who want a child now or whose fertility preference is unknown (profile=exposed).  
 add value labels profile 9 'Hlth Risks-WN' 9.1 'Hlth Risks-Exp'.

\* Use the question on current age to determine if too old or too young.  
 compute tooold=0.  
 value labels tooold 0 'Not too old' 1 'Too old'.  
 if (v012 > 34) tooold=1.  
 compute tooyoung=0.

value labels tooyoung 0 'Not too young' 1 'Too young'.  
if (v012 < 18) tooyoung=1.

if ((profile=5) and (tooyoung=1)) profile=9.1.  
if ((profile=5) and (toold=1)) profile=9.1.  
if ((profile=6) and (tooyoung=1)) profile=9.  
if ((profile=6) and (toold=1)) profile=9.

\* Use the question on number of children ever born to determine if she is at risk due to her number of births.  
compute toomany=0.  
value labels toomany 0 'Not too many' 1 'Too many'.  
if (v201 > 3) toomany=1.  
if ((profile=5) and (toomany=1)) profile=9.1.  
if ((profile=6) and (toomany=1)) profile=9.

\* Use the question on the time since the last birth to determine if she would have a high risk birth if she were to get pregnant immediately.  
compute toosoon=0.  
value labels toosoon 0 'Not too soon' 1 'Too soon'.  
if (v222 < 15) toosoon=1.  
if ((profile=5) and (toosoon=1)) profile=9.1.  
if ((profile=6) and (toosoon=1)) profile=9.

\* Generate data for Figure 1.

\* All women.  
freq profile.  
\* Exposed women.  
temporary.  
select if (profile >= 5).  
freq profile.

\* Look at which risk factors are most significant among all women who have health risks; this is the data for Figure 2.  
temporary.  
select if (profile >= 9).  
cross toold to toosoon by profile /cells=count col.

\* PART B: IDENTIFY APPROPRIATE METHODS FOR EACH PROFILE GROUP.

\* Appropriate methods are any modern method for limiters and any modern method except sterilization or Norplant for spacers; less appropriate methods are all traditional or folkloric methods.

\* PART C: DETERMINE WOMEN WHO ARE USING LESS-APPROPRIATE METHODS.

\* Spacers.  
add value labels profile 7 'Sp-Appr.' 7.1 'Sp-Less' 7.2 'Sp-Not'.

\* Identify women who are using traditional or folkloric methods.  
if ((profile=7) and ((v312 >= 8) and (v312 ne 11))) profile=7.1.  
\* Identify women who are non-users.  
if ((profile=7) and (v312=0)) profile=7.2.  
\* The rest of spacers are using modern methods.

\* Limiters.  
add value labels profile 8 'Li-Appr.' 8.1 'Li-Less' 8.2 'Li-Not'.  
\* Identify women who are using traditional or folkloric methods.  
if ((profile=8) and ((v312 >= 8) and (v312 ne 11))) profile=8.1.  
\* Identify women who are non-users.  
if ((profile=8) and (v312=0)) profile=8.2.  
\* the rest of limiters are using modern methods.

freq profile.

\* For convenience, set up an indicator variable for the three groups of Spacers and the three groups of Limiters.

compute spacer=0.

if ((profile=7) or (profile=7.1) or (profile=7.2)) spacer=1.

compute limiter=0.

if ((profile=8) or (profile=8.1) or (profile=8.2)) limiter=1.

\* Create data for Figure 3.

temporary.

select if (spacer=1).

freq profile.

temporary.

select if (limiter=1).

freq profile.

\* This provides detail on methods for Figure 3.

temporary

select if (spacer=1).

cross v312 by profile /cells=count total.

temporary.

select if (limiter=1).

cross v312 by profile /cells=count total.

**\* PART D: DETERMINE THE MAIN REASONS FOR NON-USE OF APPROPRIATE CONTRACEPTION.**

**\* EXAMINE IDEAL NUMBER OF CHILDREN.**

\* Look at mean ideal number of children by profile group (for women with numeric responses).

\* This generates the data for Figure 4.

temporary.

select if (v613 lt 90).

means v613 by profile.

\* Also look at the percentage of non-numeric responses.

\* More data for Figure 4.

compute resptype=v613.

value labels resptype 0 'numeric' 1 'non-numeric'.

recode resptype (0 thru 89=0) (90 thru highest=1).

cross profile by resptype /cells =count row.

\* Look at approval and partner's approval for all women who are married or living together (this must be done before restricting the analysis to Spacers and Limiters).

\* This generates the data for Figure 7.

temporary.

select if (v501 < 3).

freq v610 v612.

\* The rest of the analysis is confined to Spacers and Limiters.

select if ((spacer=1) or (limiter=1)).

**\* EXAMINE AWARENESS OF METHODS.**

compute pill=v304\$01.

compute iud=v304\$02.

compute inj=v304\$03.

compute barrier=v304\$04.

compute condom=v304\$05.

compute fster=v304\$06.

compute mster=v304\$07.

compute norplant=v304\$08.

\* For spacers, don't count sterilization and Norplant; Norplant is not generally an appropriate method for spacers since most are spacing for less than five years; therefore, having knowledge of Norplant (or sterilization) does not help a spacer in using an appropriate method.

\* Count the number of modern methods that are known spontaneously.

count spspon= pill to condom (1).

count lispon= pill to norplant (1).

\* Count the number of modern methods that are known either spontaneously OR when prompted.

\* For spacers, don't count sterilization and Norplant.

count spknow= pill to condom (1 2).

count liknow= pill to norplant (1 2).

\* This code creates the data for Figure 5.

temporary.

select if (spacer=1).

cross spspon spknow by profile /cells=count col.

temporary.

select if (limiter=1).

cross lispon liknow by profile /cells=count col.

\* Examine knowledge of individual methods.

\* This code creates the data for Figure 8.

\* This code shows spontaneous knowledge of methods separately from prompted knowledge.

cross pill to norplant by profile /cells=count col.

\* This code combines spontaneous and prompted knowledge together into one category.

recode pill to norplant (1 2=1).

cross pill to norplant by profile /cells=count col.

\* EXAMINE RESPONDENT'S APPROVAL OF CONTRACEPTION.

\* The question used here is only available in the Model B questionnaire (for low prevalence countries).

cross profile by v612 /cells=count row.

\* EXAMINE PARTNER'S APPROVAL OF CONTRACEPTION.

\* The question used here is only available in the Model B questionnaire (for low prevalence countries).

\* Generate data for Figure 6.

cross profile by v610 /cells=count row.

\* EXAMINE AWARENESS OF A SOURCE FOR CONTRACEPTION.

\* Count the number of modern methods for which the respondent knows of a source.

\* For spacers, don't count Norplant and sterilization.

count spsource= v306\$01 v306\$02 v306\$03 v306\$04 v306\$05 (1).

count lisource= v306\$01 v306\$02 v306\$03 v306\$04 v306\$05 v306\$06 v306\$07 v306\$11 (1).

\* Generate data for Figure 8.

temporary.

select if (spacer=1).

cross spsource by profile /cells=count col.

temporary.

select if (limiter=1).

cross lisource by profile /cells=count col.

- \* Look at knowledge of a source for individual methods.
- \* Each question on knowledge of a source for a method was only asked of women who knew of the method; for our calculations, we want to know the percentage of all women in the profile group who knew of a source (i.e., the base is a larger group of women than were actually asked the question); therefore we must set up a new variable for each method to ensure the correct base is used for the calculation of the percentage.

```

compute pillsrc=0.
if (v306$01=1) pillsrc=1.
compute iudsrc=0.
if (v306$02=1) iudsrc=1.
compute injsrc=0.
if (v306$03=1) injsrc=1.
compute barrsrc=0.
if (v306$04=1) barrsrc=1.
compute condsr=0.
if (v306$05=1) condsr=1.
compute fstersrc=0.
if (v306$06=1) fstersrc=1.
compute mstersrc=0.
if (v306$07=1) mstersrc=1.
compute norpsrc=0.
value labels pillsrc to norpsrc 0 'Don't know' 1 'Know'.
if (v306$11=1) norpsrc=1.
* More data for Figure 8.
cross pillsrc to norpsrc by profile /cells=count col.

```

**\* EXAMINE LEVELS OF PRIOR USE OF MODERN CONTRACEPTION AND DISCONTINUATION.**

- \* Count the number of modern methods which the respondent has used before.
- \* For spacers, don't count sterilization.

```

count spused= v305$01 v305$02 v305$03 v305$04 v305$05 v305$11 (1).
count liused= v305$01 v305$02 v305$03 v305$04 v305$05 v305$06
v305$07 v305$11 (1).

```

```

* Generate data for Figure 9.
temporary.
select if (spacer=1).
cross spused by profile /cells=count col.
temporary.
select if (limiter=1).
cross liused by profile /cells=count col.

```

- \* Examine use of individual methods.
- \* Each question on use of a method was only asked of women who knew of the method; for our calculations, we want to know the percentage of all women in the profile group who ever used the method (i.e., the base is a larger group of women than were actually asked the question); therefore we must set up a new variable for each method to ensure the correct base is used for the calculation of the percentage.

```

compute pilluse=0.
if (v305$01=1) pilluse=1.
compute iuduse=0.
if (v305$02=1) iuduse=1.
compute injuse=0.
if (v305$03=1) injuse=1.
compute barruse=0.
if (v305$04=1) barruse=1.
compute conduse=0.

```

if (v305\$05 = 1) conduse = 1.  
 compute fsteruse = 0.  
 if (v305\$06 = 1) fsteruse = 1.  
 compute msteruse = 0.  
 if (v305\$07 = 1) msteruse = 1.  
 compute norpuse = 0.  
 value labels pilluse norpuse 0 'Not Used' 1 'Used'.  
 if (v305\$11 = 1) norpuse = 1.  
 \* More data for Figure 9.  
 cross pilluse to norpuse by profile /cells=count col.

\* Look at distribution of spacers and limiters by three categories:  
 current users of modern methods, never users, women who used and discontinued.

compute use = 9.  
 value labels use 0 'Currently' 1 'Never' 2 'Discontinued'  
 9 'Unknown'.  
 if ((profile = 7) or (profile = 8)) use = 0.  
 if ((use < > 0) and (spacer = 1) and (spused > 0)) use = 2.  
 if ((use < > 0) and (spacer = 1) and (spused = 0)) use = 1.  
 if ((use < > 0) and (limiter = 1) and (liused > 0)) use = 2.  
 if ((use < > 0) and (limiter = 1) and (liused = 0)) use = 1.

\* Generate data for Figure 10.

freq use.  
 temporary.  
 select if (spacer = 1).  
 freq use.  
 temporary.  
 select if (limiter = 1).  
 freq use.

\* Note: in the model A questionnaire, there is a question about reasons for discontinuation of the last method discontinued in the last five years which could be used in this analysis (v360).

**\* EXAMINE INTENTION TO USE IN THE FUTURE FOR NON-USERS.**

\* Examine intention to use a method in the future (asked of non-users).

\* Generate data for Figure 11A.

cross v362 by profile /cells=count col.

\* Examine preferred future method (asked of non-users who say they intend to use a method in the future (v362).

temporary.  
 select if (spacer = 1).  
 freq v363.  
 temporary.  
 select if (limiter = 1).  
 freq v363.

\* Examine the reason for not intending to use a method in the future (asked of non-users who say they do not intend to use a method in the future - i.e., v362 = 5).

\* Note: this question is not in DHS I questionnaires.

\* Generate data for Figure 11B.

cross v376 by profile /cells=count col.

\* Note: in the DHS I questionnaire there is a question on perceived problems with contraceptive methods which could be used in this analysis.

**\* PROFILE THE GROUPS OF WOMEN.**

\* For Kenya, examine the distribution of husband's approval of

contraception across other variables; the variables of interest are education (v106), region of usual residence (v139), type of place of usual residence (i.e., urban or rural)(v140), religion (v130) and ethnicity (v131).

\* Note: variables v139 and v140 are available only in DHS II and III; for DHS I, substitute v101 (region in which the respondent was interviewed) and v102 (type of place of residence where the respondent was interviewed).

\* Generates data for Figure 13.

cross use by v106 v139 v140 v130 v131 /cells=count row col.

\* For Kenya, examine the distribution of non-users who have never used a modern method across other variables; the variables of interest are education (v106), region of usual residence (v139), type of place of usual residence (i.e., urban or rural)(v140), religion (v130) and ethnicity (v131).

\* Note: variables v139 and v140 are available only in DHS II and III; for DHS I, substitute v101 (region in which the respondent was interviewed) and v102 (type of place of residence where the respondent was interviewed).

\* Generates data for Figure 14.

cross use by v106 v139 v140 v130 v131 /cells=count row col.

save outfile='c:\kenyadhs\kenya.sav'.

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## CHAPTER 4

### DESIGNING AN APPROPRIATE MIX OF SOURCES FOR CONTRACEPTIVE METHODS AND SERVICES

#### I. INTRODUCTION

Freedom of choice in family planning requires that women and men have a variety of contraceptive methods appropriate to their individual needs and preferences. Quality of care requires that a variety of service outlets be available to provide the attention needed to safely and effectively deliver different contraceptive methods, counsel prospective clients, and assist users with side effects. Equity requires that financial assistance be provided for those who cannot afford to pay, so that price is not a constraint to choosing an appropriate contraceptive method.

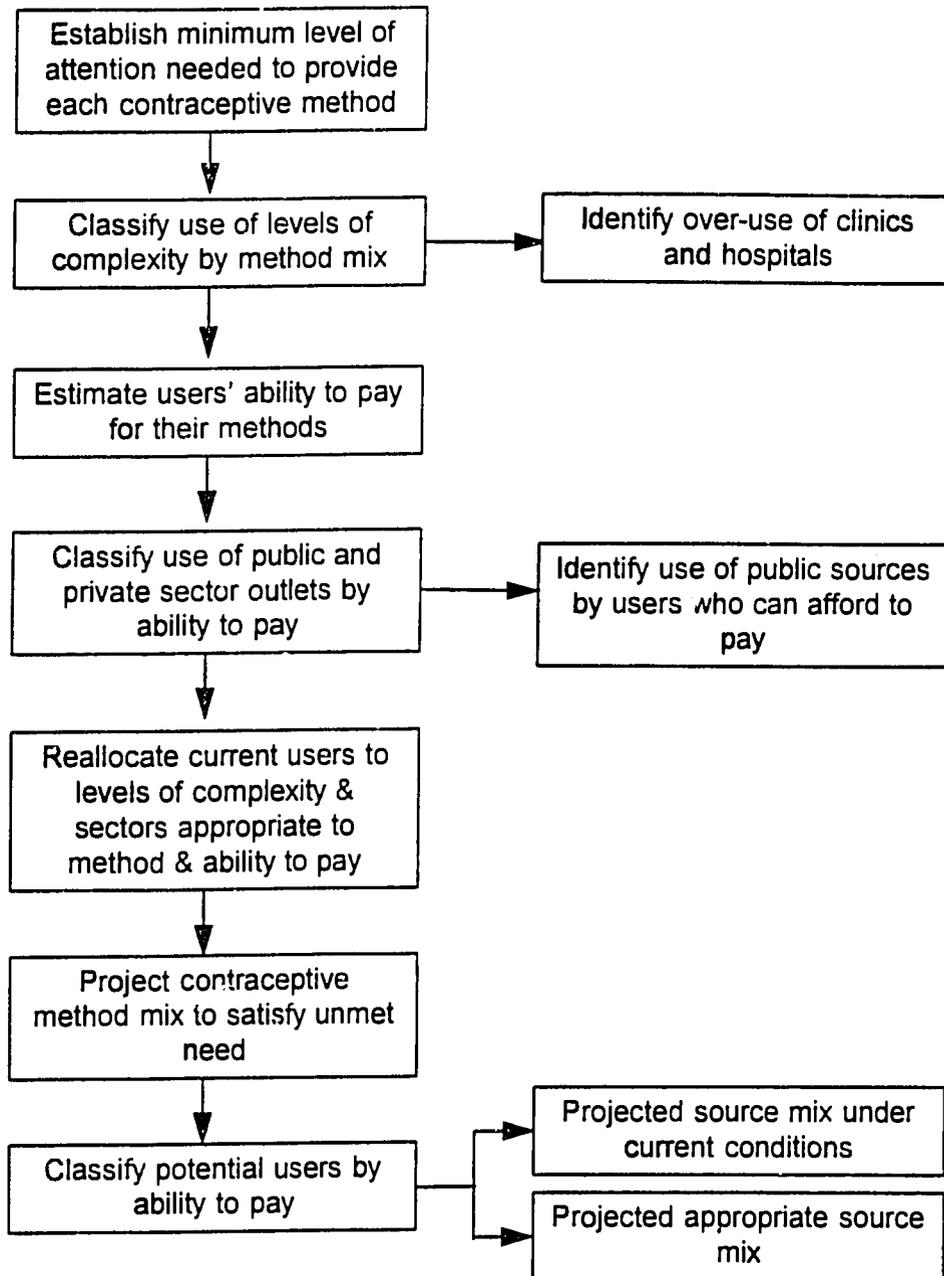
Few developing countries have enough public resources to serve their entire population with appropriate family planning. Prospects for family planning program sustainability are diminished when clients use specialized medical facilities and personnel for contraceptive methods that could be obtained from less specialized outlets, or programs extend subsidies to users who could afford to pay for their methods.

This chapter addresses the issue of family planning source mix, in terms of the level of complexity of outlets (hospital, clinical, nonclinical) and the sector to which they belong (public, nongovernmental, commercial). It analyzes existing source mix and factors to consider in devising efficient delivery strategies that maximize program efficiency and minimize costs to both user and provider. Approaches are provided to estimate the mix of clinical and nonclinical family planning outlets needed to deliver the number and mix of contraceptive methods, and to apportion these outlets among the public, nongovernmental (NGO), and private commercial sectors considering such factors as existing capacity, consumer buying preferences, and willingness and ability to pay.

#### A. Analysis Flow Chart

The analysis described in this chapter uses DHS data to identify an appropriate source mix for contraceptive methods and services. A flow chart outlining the steps in the analysis is presented in Figure 1.

**Figure 1**  
**Flow Chart for Analyzing Contraceptive Source Mix**



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## **B. Summary of Questions, Analyses, Possible Findings and Programmatic Actions Addressed in this Chapter**

### *Policy or programmatic questions*

- Are publicly-funded services being targeted toward users who cannot pay for their methods?
- Are subsidized services being delivered as cheaply as possible?
- What kinds of outlets and subsidies would be needed to increase total prevalence and improve method mix?

### *Illustrative DHS analyses*

- Classify current contraceptive users by the sector from which they obtained their method and their ability to pay.
- Classify current contraceptive users by type of method and level of complexity of the outlet.
- Analyze existing capacity to deliver goods and services. Estimate appropriate source mix by sector and level of complexity for projected method mix.

### *Possible findings*

- Many users of subsidized sources could afford to pay a market price for their method.
- Users of nonclinical methods are using clinical or hospital facilities for supply; users of clinical methods are using hospital facilities.
- Even with appropriate source mix, projected demand for subsidized clinical outlets will exceed installed capacity.

### *Possible policy or programmatic actions*

- Institute means tests and sliding fee scales.
- Encourage use of primary and secondary health care facilities through differential pricing schemes. Re-allocate program resources.
- Develop capital development plans to build or remodel new facilities and train additional medical personnel.

## II. A FRAMEWORK FOR DESIGNING AN APPROPRIATE SOURCE MIX

Family planning programs endeavor to make a wide range of contraceptive methods available and provide financial assistance for users who cannot afford to pay for their methods. When resources are limited, programs must find the cheapest way to deliver services and encourage as many users as possible to pay.

This chapter will consider two aspects of family planning source mix: sector and level of complexity. **Sector** is usually classified as public or private, but actually encompasses two components—funding and administration, both of which in turn may be classified as public or private. Private funds are provided by the users of the service; public funds (or subsidies) are provided by government or donors. Independent of who pays, services may be administered publicly (by government) or privately. **Level of complexity** refers to the environment in which services are delivered, in terms of the facilities and training of the service providers. The appropriateness of sector mix will be assessed in terms of clients' ability to pay; appropriateness of level of complexity mix will be assessed in terms of the type of contraceptive methods used by clients.

Different contraceptive methods require different environments. The more complex the procedure and the greater the training of the providers, the more expensive it is to provide the method. Clinical methods such as IUDs need minimum basic equipment and trained personnel for application. Nonclinical methods such as pills and condoms can be effectively prescribed in nonclinical surroundings by nonmedical personnel who have received less training.

Price should not be a constraint to choosing an appropriate contraceptive method. Therefore, public subsidies may be needed to guarantee equal access to different methods by clients who cannot afford to pay. The choice of outlet for family planning should be determined by the user's desired contraceptive method and her/his ability to pay.

Paradoxically, more successful family planning programs may show greater latent demand for public resources. This is because women who are not using contraception tend to be poorer than those who have already adopted family planning, and they often need clinical or surgical methods, which are more expensive to provide than supply methods. Unnecessary use of specialized medical facilities and personnel for methods that could be obtained from less specialized outlets, and extending subsidies to users who could afford to pay for their methods may prevent programs from reaching this latent demand.

- **An appropriate source mix for a given program is one that makes the greatest possible use of private funding and the most efficient use of publicly-funded outlets.**

*If publicly-funded services are not sufficient to serve the entire population, they should be targeted toward users who are less able to pay. Users who are able to pay should be encouraged to use private sources, or public sources should set higher prices for wealthier*

users. By examining use of subsidized outlets by socioeconomic group, we can see if the government and NGOs could better target their services or raise their prices for wealthier users.

*Publicly-funded providers should deliver services in the least expensive manner possible.* Users should be directed to the lowest level of complexity appropriate for their method. By analyzing what levels of complexity are being used for specific contraceptive methods, we can see if it might be possible to reduce program costs.

*Programs should project future needs for outlets and subsidies.* Many programs want to increase total prevalence and the use of more effective contraceptive methods. A better method mix might also imply a different source mix. By simulating an appropriate method mix, we can project the number and type of family planning sources that would be required in the future.

Most family planning programs make use of both public and private sector outlets. The most common public sector provider is a Ministry of Health. The private sector may include both commercial outlets such as pharmacies and private physicians, as well as NGOs funded by donors or other public sources. Some countries also have Social Security or other parastatal health systems, which are privately funded through payroll taxes but publicly administered.

Family planning sources also vary by level of complexity. Primary health care facilities such as health posts and pharmacies staffed by nurse auxiliaries, pharmacists, and outreach workers, should be capable of distributing pills and barrier methods. Secondary facilities such as health centers staffed by physicians and nurse/midwives, should be able to administer clinical methods, such as IUDs and implants. The tertiary level, which includes hospitals and their associated outpatient clinics and other surgical facilities, should be able to offer voluntary surgical contraception (VSC).

Figure 2 demonstrates various possible configurations of family planning outlets. Not all countries will have all types of outlets. Note that sources are classified by funding: thus NGOs are grouped with Ministry of Health under public funding, and Social Security with commercial sources under private funding. Alternatively, sources could be classified by administration, in which case Social Security would be grouped with Ministry of Health under public administration, and NGOs with commercial sources under private administration.

**Figure 2**  
**Classification of Family Planning Sources and Availability of Contraceptive Methods**

Level of Complexity/ Contraceptive Methods	Funding			
	Public		Private	
	Ministry of Health	NGO	Social Security	Commercial
<b>Primary Nonclinical methods</b>	MOH health post Health promoter Community volunteer	NGO health post Community distributor Social marketing	Social Security dispensary	Pharmacy Store
<b>Secondary Clinical methods</b>	MOH health center Mobile clinic	NGO clinic	Social Security clinic	Private physician
<b>Tertiary Surgical methods</b>	MOH hospital Mobile clinic	NGO clinic	Social Security hospital	Private hospital

The first consideration in analyzing the appropriateness of the family planning outlet is the kind of service, or level of complexity, that is needed to deliver the desired contraceptive method. While all family planning providers should be able to provide counseling about all contraceptive methods, some providers will not be qualified to actually furnish some of them. Conversely, other providers will be "over-qualified" to furnish some methods. The distinction between minimal and over-qualification has important implications for quality of care and costs.

Quality of care requires that higher-level facilities be available for users who want to change methods, present counter-indications, or experience side effects. However, to keep costs down, we would like users to go to the lowest possible level appropriate for their contraceptive method (e.g., outreach workers or health posts for nonclinical methods, etc). This may be less of a problem among users who pay for their methods and try not to pay more than is necessary, but may pose a challenge for subsidized outlets.

The second consideration in analyzing the appropriateness of the outlet is who pays and what prices are charged. Since different methods require different levels of complexity, some methods are inherently more expensive to provide than other methods.<sup>1</sup> In the self-

---

<sup>1</sup> In this discussion, we refer to "one-time" charges rather than to life-time method prices. For example, it costs more to insert an IUD than to deliver one cycle of pills. Over an extended period of use, the IUD may wind up costing less than repeated cycles of pills, but the initial cost of the IUD is higher.

financed commercial sector, cost differences are usually reflected in different prices: a cycle of pills is usually priced lower than an IUD insertion, which in turn is usually priced lower than surgical contraception. In the subsidized sector, the different costs associated with delivering different methods may or may not be reflected in different prices.

Just as not all providers are appropriate for all methods, not all consumers will be able to pay for all methods. At the extremes, the very poorest users will not be able to pay for any method, and the very richest will be able to pay for all of them. In the middle, we may find users who can afford to pay a full price for the cheapest methods, but who will need subsidies for the more expensive ones.

Family planning source mix should be determined by users' desired contraceptive methods and socioeconomic status. Where public, NGO, and commercial outlets co-exist, they should differ in terms of price, convenience, amenities, etc., leading clients to select their outlet on the basis of income, opportunity costs (e.g., transportation time, waiting time, etc.) and personal preferences. Public sector and donors may distort the market by extending subsidies to clients willing and able to pay higher prices. Further inefficiencies of resource allocations occur if subsidies induce users to go to higher levels of complexity than they need.

Promoting commercial enterprise for those who can afford to pay allows the government to focus its limited resources on people who cannot pay for their desired method or who live in areas not served by the private sector. The expected role of NGOs should be clearly defined: some programs may rely on NGOs to circumvent political opposition to family planning, while others may expect NGOs to serve clients who can pay something, but not a full market price.

### III. ANALYSIS

The analysis includes three principal topics: (A) current availability of contraceptive methods and outlets; (B) current patterns of use by levels of complexity and sectors; and (C) future needs for outlets required by increased prevalence and/or better method mix. The sections that follow present table shells for the analysis. Sections VI and VII contain country examples of the analysis for Peru and Indonesia.

#### A. Current Availability of Contraceptive Methods and Outlets

Question: Is the full range of contraceptive methods available to satisfy current and potential users' desires to space or limit their fertility, and is the range of outlets sufficient to attend users according to their desired method and ability to pay?

In order to answer this question, the analyst needs to know what methods are available in the country (or region), from what outlets, and what restrictions are placed on who can provide the methods and who can use them. For example, the contraceptive implant is not yet available in many countries; some countries may not allow commercial retail outlets to sell hormonal methods; or surgical contraception may be restricted to women satisfying certain health or parity criteria.

Table 1 describes the availability of contraceptive methods in the country or region. Traditional methods such as withdrawal have not been included, since they are not obtained from a "source;" periodic abstinence (Billings, sympto-thermal, etc.) should be included only if there are outlets that teach couples to use the method. The analyst should write down all the sources where each of the methods available in the country can be obtained and note any restrictions prohibiting or limiting the use of that method from that source.

After Table 1 is filled in, it should be compared with Figure 2. We want to ascertain to what extent each method is available in all sectors (public, NGO, and commercial), and at each level of complexity. For example, if IUDs are not available in the commercial sector, users would be forced to use subsidized outlets no matter what their ability to pay. Similarly, if hormonal methods are available only in secondary outlets, the public sector could reduce costs by allowing primary outlets to provide them as well.

A related issue is that of installed capacity. It is not enough to know that a method is available at a particular kind of outlet; we also need to know if these outlets are available throughout the country or only in some regions, and how many family users the outlets can serve. For example, every community may have a primary care health post; however, if the posts are staffed by a single nurse auxiliary who also has to provide other services, the capacity to provide family planning will still be very low.

The standard DHS has a limited number of questions relating to availability of services at the community level, and most surveys do not include assessment of installed capacity. This information may be provided by other studies, such as situational analysis. The natural complement to estimating need for services is to determine whether the family planning program has the capacity to deliver those services. Given the data limitations of the DHS, such a comparison is beyond the scope of this chapter. Comparing the results of the preliminary assessment of availability with the estimation of current and future needs may suggest further areas of inquiry.

**Table 1**  
**Availability of Contraceptive Methods**

CATEGORY	METHOD	TYPE OF OUTLETS				RESTRICTIONS
		MOH	NGO	Soc Sec	Commercial	
Primary: Nonclinical	Periodic abstinence					
	Lact. Amenorrhea					
	Condom	ex: health posts	ex: CBD promoters		ex: pharmacies	
	Spermicide					
	Diaphragm					
	Pill					ex: Only physicians can prescribe
	Injectable					
Secondary: Clinical	Implant					
	IUD					
Tertiary: Surgical	Tubal ligation					
	Vasectomy					

**B. Appropriateness of Current Source Mix**

Questions: How is the current family planning market distributed among sectors and levels of complexity? Is the current source mix appropriate for the observed method mix and users' ability to pay? What source mix would be more appropriate for the observed method mix and users' ability to pay?

The first step in the analysis is to describe how users are distributed among sectors and levels of complexity. We classify current users by their source of goods and services, disaggregating source by sector and level of complexity. Only current users who name an outlet will be considered; "self-supplied" users, including users of traditional methods, will be excluded. Periodic abstinence may or may not be included in the analysis, depending on availability of instruction in the organized health sector.

**Step 1** Classify last source of supply or service for current users by level of complexity and by sector. Cross-tabulate current family planning users by level of complexity and sector of their family planning source.

**1a** Classify last source of supply or service for current users by level of complexity (primary, secondary, tertiary). Variable 326, standard recode file. Family planning users whose source was coded as "don't know" or "missing" are not included in the analysis.

The DHS question on source of supply contains two pieces of information—level of complexity and sector. Since both are needed for the analysis, the analyst should create two new variables from the original source variable (e.g., COMPUTE LEVEL=V326; COMPUTE SECTOR=V326). The new variables can be recoded as appropriate for the country application, using country-specific codes. The DHS standard recode source variable (V327) does not distinguish between secondary and tertiary levels of complexity.

Not all DHS questionnaires permit this classification (see Appendix A). If the analyst wishes to examine level of complexity and the questionnaire does not make this distinction, it will be necessary to supplement the DHS with other data sources, such as family planning service statistics and commercial sales figures.

**1b** Classify last source for current users by sector (public, NGO, commercial). Variable 326, standard recode file.

The analyst should create a new variable from the source variable (e.g., COMPUTE SECTOR=V326) and recode the new variable as appropriate for the country application. Most of the recent questionnaires include explicit codes for the three sectors. However, users' responses may sometimes be ambiguous. In Bangladesh, it is difficult to distinguish between government and NGO field workers. In this case, a clear-cut sector classification is not possible. Some countries have a subsidized social marketing (CSM) pill brand available through both NGOs and retail outlets. If the analyst wishes to assign CSM pills to the NGO sector, the question on pill brand (variables 323-324) should be included (IF (V324 EQ 1) SECTOR=[value for NGO]). In Honduras and Peru, NGOs use public facilities after normal operating hours; however, users may name the facility as their source rather than the NGO which operated the session. In such cases, it may be possible to distinguish between the public and NGO sessions through the brand of pills used and/or the price paid (variable 325). When a new survey is being designed, input from local family planning specialists is invaluable in formulating additional coding categories or questions to help pinpoint source more precisely—for example, time of day (morning or afternoon) that the user usually attends the facility, exact name or address of the facility, etc.

- 1c** Cross-tabulate current family planning users by current level of complexity and sector of current source.

Table 2 presents this cross-tabulation. It shows the proportion of all current users who use each sector (Column Total) and each level of complexity (Row Total), and the distribution of users simultaneously by sector and level of complexity (Total Percent).

Table 2 (Part B, step 1c)  
Observed Source Mix:  
Current Family Planning Users

Level of Complexity	Sector			Row Total
	Public	NGO	Commercial	
Primary	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Secondary	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Tertiary	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Column Total				100%

**Interpretation:** Because it does not take into account contraceptive method or user's ability to pay, the table does not tell us if the current market distribution is appropriate or not. Instead, it serves as a baseline against which we can project the impact of program interventions.

**Step 2** Classify current family planning users by type of contraceptive method and by socioeconomic status or ability to pay. Cross-tabulate type of method by level of complexity. Cross-tabulate users' socioeconomic status by sector and ability to pay.

- 2a** Classify current family planning users by type of contraceptive method (nonclinical; clinical nonsurgical; surgical). Variable 312, standard recode file.

In low prevalence countries and in subnational analyses of higher prevalence countries, the number of users will be too small to permit analysis of individual contraceptive methods. In these cases, current method (V312) should be recoded as nonclinical, clinical or surgical. The analyst may prefer to create a new variable for method (COMPUTE METHOD=V312) and recode the new variable. Country-specific regulations (Table 1) should be used to classify methods; for example, if a physical examination is required for

pill use, pills may be classified as a clinical method. Similarly, if pharmacists are permitted to administer injections, injectables may be classified as a nonclinical method.

**2b** Cross-tabulate type of method by level of complexity.

The format of this analysis is presented in Table 3. If the number of users permits, the analysis can be repeated separately for each sector or for each method.

**Table 3 (Part B, step 2b)**  
**Current Pattern of Use of Levels of Complexity**

Method	Level of Complexity			Row Total
	Primary	Secondary	Tertiary	
Nonclinical		O	O	
Clinical	a		O	
Surgical	a	a		
<b>Column Total</b>				100 %

Legend: a: Anomalous use of level of complexity  
 O: Overuse of level of complexity

**Interpretation:** *Appropriate* use of levels of complexity is found in the shaded cells on the diagonal. These users are obtaining their methods from outlets appropriate to the method—nonclinical methods from primary outlets, clinical methods from secondary outlets, etc. The higher this percentage, the more efficient the use of program resources.

*Overuse* of facilities is found in the cells above the diagonal, marked "O". These users have received their methods from facilities at a higher level than the minimum required by the method. While some of these users may be suffering from side effects and need specialized attention, others may be wasting program resources. If significant numbers of users use a higher level than needed, the analyst should refer to Table 1 to determine whether the finding could be attributed to lack of availability of methods in lower-level outlets. Other possible reasons could be users' prejudice against using lower-level outlets if higher levels are available.

The analyst should keep in mind that the DHS asks about the *facility* in which the method was obtained and not about the *provider*. Some programs assign nonmedical providers in

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clinical facilities to serve users of nonclinical methods, or attach stand-alone family planning clinics to hospitals. The marginal cost of these family planning services may be less than in lower level facilities, and the analysis would give an erroneous impression of overuse of higher-level facilities. We recommend that the analyst discuss the results of the comparison with program managers before recommending that clients move to lower-level facilities.

Some users may indicate a source inconsistent with their method; for example, reporting that they received an IUD from a pharmacy. This *anomalous* use is indicated in the cells below the diagonal, marked "a". Careful attention should be paid to this category. Some anomalous cases may be due to the interviewee's not understanding the question. Other cases may reflect family planning program interventions which promote the use of lower-complexity levels of attention. For example, women may be able to purchase IUDs in pharmacies and have them inserted by a private physician or nurse/midwife. Similarly, NGO clinics may offer tubal ligation and/or vasectomy on an out-patient basis. If the analyst decides that anomalous results reflect problems in the application of the questionnaire, s/he may decide to treat them as errors and recode them or exclude them from the analysis. If, on the other hand, they reflect genuine program innovations, they should be maintained in the projected source mix.

2c Classify current users by socioeconomic status or ability to pay.

Ability to pay is more difficult to analyze than appropriate level of complexity, for several reasons. First, the DHS does not include explicit questions on disposable income or household expenditures. Also, the user's ability to pay may depend on her method. For example, a woman who can purchase pills in a pharmacy may not be able to afford to visit a private physician for an IUD. Second, another potentially confounding factor is the consumer's usual buying habits. In many developing countries, the "informal" sector—street vendors and the like—forms a large segment of the economy, and many consumers are more accustomed to frequent that sector than formal retail establishments, even when prices are the same. Thus a woman who usually frequents the informal sector may find it more congenial to purchase her pills from a community distributor than to go to a pharmacy, and may be willing to pay a commercial price to the community distributor. Third, health insurance coverage may be a factor to consider in determining ability to pay; many women are covered by Social Security systems or private health insurance. However, health insurance coverage is not a standard DHS question, although it is included in the Peru (DHS II) and Bolivia surveys.

The DHS does include other variables that can be used to construct a proxy scale for household income in lieu of explicit questions on income and expenditures.<sup>2</sup> The

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<sup>2</sup> An explanation of the principles of scale construction is beyond the scope of this chapter. A number of statistical techniques may be used, from simple ordinal ranking to more complicated techniques such as factor and discriminant analysis. The analyst should be guided by the quality of the data and the robustness of the derived measures.

household questionnaire includes the presence of durable goods such as radio (V120), television (V121), refrigerator (V122), and automobile (V125) and details about the construction of the dwelling such as electricity (V119), source of drinking water (V113), toilet facilities (V116), and material of the floor (V127). Other potential proxies for economic status are the woman's educational level and current employment status (V106-V107; V133; V714) and the education and occupation of her spouse (V701-V702, V715; V704-V708). Place of residence must be taken into account in determining socioeconomic status; for example, the absence of running water in an urban area may be correlated with lower income status, while in a rural area running water may be irrelevant since nobody has it. Similarly, prices of contraceptive methods may differ by place of residence.

Alternatively, we can consider where the woman gets other health services, including prenatal care and childbirth, and medical attention for children's diarrhea and respiratory infection. Women who can afford to purchase private health care should be able to purchase at least some contraceptive methods. However, health questions are asked of all contraceptive users. A woman who has not had a birth in the last five years will not be asked about prenatal and maternity care, and if her children have not had recent bouts of diarrhea or respiratory infection, sources of child health care will be missing.

To keep the analysis simple, we recommend that no more than three categories of purchasing power be defined. Health insurance coverage may be included as a separate category. Purchasing power should be defined relative to contraceptive method. Women who cannot afford to pay even a fraction of the market price of their method would be classified as "very low," women who can pay a portion of the market price as "low," and women who can afford at least the cheapest market prices as "medium-high." For example, the presence of durable goods in the household or use of private health providers may be taken as ability to pay something for family planning, but the distinction between "low" and "medium-high" ability to pay should be made in the context of local conditions and prices.

2d Cross-tabulate users' ability to pay by sector.

Depending on the number of cases, this cross-tabulation can be performed for all current contraceptive users or broken down by method. Table 4 presents the format of this analysis.

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Table 4 (Part B, step 2d)  
Current Pattern of Use of Sectors

Ability to Pay	Sector			Row Total
	Public	NGO/Subsidy	Commercial	
Very low		a	a	
Low	U		a	
Medium-High	U	U		
Column Total				100%

Legend: U: Unnecessary use of subsidies  
a: Anomalous use of private sector

**Interpretation:** As for the previous analysis, the program should want to maximize the number of cases falling on the diagonal. *Unnecessary use of subsidies* is found in the cells below the diagonal, marked "U". These users have received their methods from facilities charging lower prices than they can afford to pay. If a significant amount of unnecessary use of subsidies is found, the program may look for ways to promote the commercial sector and/or increase fees in subsidized outlets.

*Anomalous* use is indicated in the cells above the diagonal, marked "a". These users have indicated a source inconsistent with their purchasing power; if too many women are found in these cells, the classification system may not be adequately discriminating among levels of purchasing power and should be revised.

It is often difficult to assess the validity and reliability of proxy variables constructed from characteristics of the household, educational and employment levels, etc. At the very least, the analyst should expect to find a rough correlation between inferred ability to pay and use of subsidized or commercial sources. The analysis may be confounded by unavailability of one or another sector; obviously, if there are no pharmacies or retail outlets in the area, not even the wealthiest women will be able to use the commercial sector for nonclinical methods. Similarly, if subsidized services are all located in urban areas where wealthier women live, we may find that higher ability to pay is associated with higher use of subsidized outlets.

Step 3      Cross-tabulate current family planning users by type of contraceptive method and ability to pay.

The final step of the analysis of current use simulates an appropriate source mix based on contraceptive method mix and users' ability to pay for their methods. We will model what the source mix would look like if we eliminated overuse of higher levels of complexity (cells marked "O" in Table 3) and unnecessary use of subsidies (cells marked "U" in Table 4). In other words, we will assign all nonclinical method users to primary-level outlets, clinical method users to secondary-level outlets, and surgical method users to tertiary-level outlets. Similarly, only users with very low ability to pay will be assigned to public outlets, low ability to pay users to NGOs, and medium-high ability to pay to commercial outlets.

The analyst must decide what to do with the anomalous cases detected in Tables 3 and 4. Since the objective of the exercise is to maximize the use of lower levels of complexity and nonsubsidized sources, the analyst may wish to recode ability to pay and type of method for the anomalous cases to correspond to their current patterns of use. For example, if the user's ability to pay was originally classified as "low" but she reports using a commercial outlet, for the purpose of the simulation we could reclassify her ability to pay as "medium-high." If we did not recode her ability to pay, the simulation would move her out of the commercial sector into the NGO. Similarly, if the current method is IUD and the user reports having received it from a health post (primary level), for the purpose of the simulation we would reclassify the method as nonclinical.

Interpretation: Table 5 represents an approximation of an appropriate source mix for current users, assuming an appropriate use of clinical resources and that subsidized sources are used by only those who cannot pay market prices. It also assumes that all levels of complexity and all sectors are available, and that NGOs charge higher prices than public outlets. If different regions within the country vary widely in availability of different types of outlets, the analysis should be repeated at subnational levels.

The degree to which the level/sector distribution in Table 5 differs from that in Table 2 is an index of the distortion in the current family planning market. A typical finding is that primary sources could handle a greater proportion of current users, or that commercial outlets could serve a greater proportion of the market.

Many factors contribute to the unnecessary use of higher-level outlets. Program regulations may require that all pill users be seen by a physician, or that laboratory tests be completed before an IUD is inserted. Users may believe that primary care outlets do not always have contraceptives on hand, or that the quality of care given by a physician is better than that given by a nurse auxiliary or a midwife. Primary care outlets may be located only in isolated rural villages, accessible only to residents of that village, while health centers and hospitals may be located in larger market towns accessible to a larger catchment area.

Table 5 (Part B, step 3)  
Appropriate Source Mix: Current Family Planning Users

Level of Complexity (method)	Sector (ability to pay)			Row Total
	Public (very low)	NGO (low)	Commercial (medium-high)	
Primary (nonclinical)	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Secondary (clinical)	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Tertiary (Surgical)	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Column Total				100%

A finding that subsidized outlets are serving women who appear to be able to pay may be a sign that the public and/or NGO sector is "crowding-out" the commercial sector, through restrictive regulations that discourage private service provision, competition by price, etc. In this case, policy work may be directed to legal and regulatory reform, or program managers could be encouraged to explore the possibility of implementing or increasing user fees and means testing. These decisions should be based on supplementary information.

Before designing interventions to encourage use of lower levels of complexity or commercial outlets, program managers should verify that lower level and nonsubsidized outlets are capable of handling more family planning users. To make this comparison, we need to convert market share (which represents a proportion of all users) to number of users. This procedure is called extrapolation, and consists of multiplying the number of eligible women in the population by total contraceptive prevalence (excluding those methods that do not have a supply source, such as traditional methods) by the proportion to be served by type of outlet. We can then compare the user estimates with the capacity of each level to attend family planning clients,<sup>3</sup> which were derived in Part A of the analysis.

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<sup>3</sup> In the case of long-lasting methods (IUD, implant, VSC), user estimates do not correspond to clients to be attended. Users in any given year will include both new acceptors of the method and continuing users from previous years. Client loads are a function of continuation rates and service delivery norms. For example, a program may prescribe several follow-up visits for a new IUD user during her first year of use, but only one annual check-up in subsequent years.

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### C. Projecting Future Needs for Family Planning Outlets

In planning for the future, programs seek not only to maintain their current client pool, but also to reach out to provide appropriate methods to women and men whose reproductive intentions and personal needs have not yet been met. In many cases, this will result in increased contraceptive prevalence and/or a different contraceptive method mix, which means that programs will need to serve more users in the future than they do at present. Program managers need to know how many women will need which methods from which service outlets. If the current source mix includes significant overuse of clinical facilities and/or use of subsidized sources by women who can afford to pay for their methods, it may be possible to increase contraceptive prevalence and improve method mix without drastically increasing the existing family planning infrastructure. If this is not possible, program options may include expanding the capacity of existing outlets by lengthening hours or hiring additional staff, or opening new facilities.

Questions: What would be the pattern of use by levels of complexity and sectors if all potential users used an appropriate contraceptive method and followed current patterns of source mix? What would be the pattern of use of levels and sectors appropriate for desired methods and ability to pay?

Step 1 Classify current users and non-users by appropriate contraceptive method according to individual characteristics such as fertility intentions and/or reproductive health status and by their ability to pay for their appropriate method. Allocate potential users to levels of complexity and sectors, following current sector mix.

1a Assign each potential user an appropriate contraceptive method. Women currently using appropriate methods continue with the same method. Women currently using less appropriate methods or no method are randomly assigned a new method as described below.

Potential contraceptive users include current users who would continue using their current method, current users who would switch to another (more effective) method, and current non-users who would begin using an appropriate contraceptive method. In most cases, potential prevalence will be higher than current prevalence, and the potential method mix will be more heavily weighted toward clinical and surgical methods. Methodologies for deriving an appropriate method mix are discussed in Chapter 2.

Simulating future source mix is complicated by the fact that there is a range of appropriate methods for any given woman. For example, a woman who wants no more children could be equally well-served by several long-lasting methods, such as sterilization, IUD, injectable or implant. The DHS has information on personal and local preferences to enable the analyst to project the proportion of new users who might choose each method. For the sake of discussion, let us predict that 50 percent of users who want no more children would

prefer to use sterilization, 30 percent would prefer the IUD, and 20 percent injectables. How can we predict which individual women will use which methods?

If there are enough women in the survey, we can let the computer randomly assign a method for each potential user. We begin by classifying women by their category of appropriate contraceptive methods (e.g., long-lasting) and assign a method mix for each category (e.g., 50% sterilization, 30% IUD, 20% injectable). The computer then randomly assigns each woman in the category a specific method in such a way that the sum of the methods assigned adds up to the projected method mix.<sup>4</sup> If we run the simulation a second time, some women may get different methods, but the overall projected method mix will remain the same.

- 1b** Estimate users' ability to pay for their new methods. Assign users to sectors according to ability to pay and current patterns of sector use.

Table 4 cross-tabulated current users' ability to pay by sector use. We now calculate the row percentages for that table, as shown in Table 6. The first row divides users with "very low" ability to pay for their method into proportions using public, NGO, and commercial sources, respectively. The second row classifies for users with low ability to pay, and the third row those with medium-high ability to pay.

**Table 6 (Part C, step 1b)**  
**Current Pattern of Use of Sectors**

Ability to Pay	Sector			Row Total
	Public	NGO/Subsidy	Commercial	
Very low	<i>row percent</i>	<i>row percent</i>	<i>row percent</i>	100%
Low	<i>row percent</i>	<i>row percent</i>	<i>row percent</i>	100%
Medium-High	<i>row percent</i>	<i>row percent</i>	<i>row percent</i>	100%

We can use these row percentages to generate a second set of random numbers to assign sectors to new users by their ability to pay for their appropriate method. Women with very low ability to pay for their appropriate method would be given probabilities of selecting public, NGO, or commercial sources; women with low ability to pay would be given

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<sup>4</sup> SPSS and other statistical packages have "random number generators". In this example, every woman in the long-lasting method category could be given a number from 1-10. Women numbered 1-5 would be given sterilization, numbers 6-8 IUD, and numbers 9-10 injectable.

different probabilities for sector use, as would women with medium-high ability to pay. Women who would continue using their current method would continue with their current outlet.

Projected public sector use under current patterns is calculated as the sum of the joint probabilities of having very low ability to pay for the appropriate method and the row percent of current public sector use, plus the joint probabilities of having low ability to pay and its associated row percent, plus the joint probabilities of having medium-high ability to pay and its associated row percent of public sector use. Projected NGO and commercial sector use are calculated in a similar way.

1c Apply current patterns of use of levels of complexity to derive projected use by level of complexity.

In Table 3, we calculated the proportion of current users of nonclinical methods who obtain their supplies from primary, secondary, and tertiary levels of complexity, as well as the distribution of current users of clinical and surgical methods by level of complexity. As in the previous step, we use can these row percentages to generate a third set of random numbers to assign level of complexity to new users, in the same way we projected sector use above.

Step 2 Combine the results of step 1a and step 1b to produce a table that simultaneously classifies potential users by expected sector and level of complexity under current patterns of use.

The results presented in Table 7 combine continuing family planning users (i.e., current users who are not expected to change their contraceptive method) and new users. Current users are classified by level of complexity and sector of their current source. New users are classified by simulated level of complexity and simulated sector, as calculated in steps 1a and 1b above. Table 7 presents projected source mix for the potential contraceptive market, assuming current patterns of use of levels of complexity and sector.

As in Table 2, the results presented in Table 7 are meant to serve as a baseline against which to measure the impact of improving the source mix (i.e., encouraging greater use of primary outlets and nonsubsidized sectors).

**Table 7 (Part C, step 2)**  
**Projected Source Mix under Current Patterns of Use of Levels**  
**of Complexity and Sector: Potential Contraceptive Users**

Level of Complexity	Sector			Total
	Public	NGO	Commercial	
Primary				
Secondary				
Tertiary				
<b>Total</b>				100%

**Step 3** Cross-tabulate potential family planning users by appropriate contraceptive method and ability to pay for their appropriate method.

The final step of the analysis of current use simulates an appropriate source mix based on potential contraceptive method mix and users' ability to pay for these methods. Table 8 presents the results of a cross-tabulation of appropriate method and ability to pay for that method. As in Part B of the analysis, we infer use of level of complexity from method and sector from ability to pay.

**Table 8 (Part C, step 3)**  
**Projected Contraceptive Market: Appropriate Source Mix**

Level of Complexity (method)	Sector (ability to pay)			Row Total
	Public (very low)	NGO (low)	Commercial (medium-high)	
Primary (nonclinical)	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Secondary (clinical)	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
Tertiary (Surgical)	<i>total percent</i>	<i>total percent</i>	<i>total percent</i>	
<b>Column Total</b>				100%

**Interpretation:** Table 8 represents an approximation of an appropriate source mix for potential users, assuming an appropriate use of clinical resources and that subsidized sources are used by only those who cannot pay market prices. As in earlier analyses, it may be worthwhile to repeat the simulation at subnational levels.

Comparing Tables 7 and 8 shows decision-makers the kinds of client loads they can expect if steps are not taken to improve the source mix. The results can be extrapolated to simulate numbers of users; cost estimates by sector and level of complexity can be added to estimate cost savings that might result from a more appropriate source mix. As in most projections of this type, the greater the number of users to be served (by increasing prevalence and/or improving method mix), the greater the anticipated savings.

#### IV. INTERPRETATION

Identifying problems in use of subsidies and specialized outlets is only the first step in designing an appropriate source mix. Correcting them may require difficult policy decisions, such as implementing means tests in public outlets and charging for services that were previously provided for free. Such decisions cannot be made in isolation from the rest of the health care system.

It is important to keep in mind that an appropriate source mix for current users may look very different than an appropriate source mix for potential users. In low and medium prevalence countries, it is usually the case that women who are not using any contraception or who are using less appropriate methods are poorer than current users of appropriate methods. An appropriate source mix for current users may show less use of subsidized sectors and of higher levels of complexity than is currently observed.

The point of moving users to less subsidized sectors and less complex levels of attention is not so much to save money *per se*, which would mean closing down the facilities that were no longer needed, but to free facilities currently used inappropriately (by women who do not need the subsidy or who could be adequately served by lower levels of complexity) to serve new users who will probably be poorer than current users and increasingly need clinical and/or surgical methods.

Therefore, it is not unusual to find that the appropriate market share for the commercial sector of potential users is no greater than its current market share of current users, despite efforts to move users who can afford to pay out of the public/NGO sectors and into the commercial sector. Market share is not the same as market size. For this reason, we need to extrapolate to numbers of users—if the total number of contraceptive users increases, even a smaller market share can result in serving more people.

## **V. SOFTWARE**

Original DHS files are stored in ISSA format, a data entry and analysis package developed by the DHS Project. Household information (durable goods, structural characteristics of the dwelling, etc.) is stored in a separate file from information on the individual woman, but the woman's information can be linked to the information on her household.

ISSA files can be transformed ("exported") to formats compatible with such statistical packages as SPSS and SAS. All of the construction and recoding of new variables described in this chapter can be carried out in SPSS with the SELECT, COMPUTE, and RECODE commands, and analysis limited to FREQUENCIES, CROSSTABS, and MEANS. Projections are easily performed in LOTUS. Copies of the SPSS program files (SPSS/PC for DOS) for the Peru example are available by writing to the OPTIONS Project. (See the diskette request form in Chapter 1, Appendix B). The SPSS code is not included in this chapter because of the classification of source of contraceptive methods and the derivation of a socioeconomic variable representing ability to pay are unique to the 1991-92 Peru DHS.

Alternatively, most of the analyses described in this chapter can be performed with EASEVAL, a user-friendly program developed by the EVALUATION Project, which works directly with the original ISSA files.

## **VI. COUNTRY EXAMPLE: LIMA, PERU, 1991-92 DHS**

Peru is the third largest country in South America after Brazil and Argentina. Its estimated population in 1990 was 21.6 million, with an annual growth rate of 2.0 percent. Total fertility fell from 6.0 births/woman for the period 1970-75 to 3.6 births for the period 1990-95; life expectancy at birth rose from 56 to 65 years during the same interval.

Rhythm is the most widely used method (21% use), and the IUD is the most widely used modern method (13% use). There is considerable geographic variation in contraceptive use, method mix, and source mix. Prevalence in metropolitan Lima is 73 percent, with 47 percent modern method use (IUD 23%), while in the Sierra highlands, prevalence is 50 percent with 20 percent modern method use (IUD 9%).

The challenge to the National Family Planning Program is to provide long-lasting methods to under-served populations, principally poorer women in peri-urban and rural areas. The public sector already serves 48 percent of all modern method users, including 64 percent of the users of female sterilization and 56 percent of IUD users. Providing long-lasting methods to poorer women will place an increased burden on already over-extended public resources.

The 1991-1992 DHS included the standard individual questionnaire, more detailed questions on last source of current method, and an expanded services availability module. The case study is based on the results of the Lima region, which included 226 sampling points (segments) and 3015 households. A total of 4060 women ages 15-49 were interviewed; the analyses that follow are based on 1790 women in union (unweighted).

The public sector health system in Peru includes the Ministry of Health (MOH), Social Security, and the Police and Armed Forces. The proportion of family planning provided by the Police and Armed Forces is negligible. However, Social Security is an important provider. Therefore, the exercise included four sectors: public (MOH), NGO, commercial, and Social Security.

#### **A. Current Availability of Contraceptive Methods and Outlets**

Question: Is the full range of contraceptive methods available to satisfy current and potential users' desires to space or limit their fertility, and is the range of outlets sufficient to attend users according to their desired method and ability to pay?

From this table we see that a wide range of contraceptive methods and outlets are available in Peru. There are few restrictions on method use, except for the case of surgical contraception, which is limited to women who satisfy the Ministry of Health's criteria for high reproductive risk. However, the criteria are broad enough that half of the women who want no more children meet them without even a medical examination.

The table does not indicate the number or capacity of outlets offering family planning. A supply study has been added to the 1991-92 DHS to answer this question. By assessing outlets in the same communities where the individual questionnaire was applied, it will be possible to estimate the capacities of the various sectors and levels of complexity, as well as to measure the impact of availability of outlets on contraceptive use.

**Table 9**  
**Availability of Contraceptive Methods in Peru**

<b>CATEGORY</b>	<b>METHOD</b>	<b>TYPE OF OUTLETS</b>	<b>RESTRICTIONS</b>
Nonclinical	Condom	Pharmacies MOH health posts, centers hospitals Social Security polyclinics, hospitals NGO distributors, clinics	
	Spermicide	Pharmacies MOH health posts, centers, hospitals Social Security polyclinics, hospitals NGO distributors, clinics	
	Pill	Pharmacies MOH health posts, centers hospitals Social Security polyclinics, hospitals NGO distributors, clinics	Women < 35 yrs old
	Injectable	Pharmacies Some MOH centers, hospitals	
Clinical	Implant	Introduction trials	
	IUD	Private physicians MOH centers, hospitals some health posts Social Security polyclinics, hospitals NGO itinerant posts, clinics	
Surgical	Tubal ligation	Private physicians, hospitals MOH hospitals, some centers Social Security hospitals Some NGO clinics	Limited to cases of high reproductive risk
	Vasectomy	2 NGO clinics Some private physicians	Limited to cases of high reproductive risk

## B. Appropriateness of Current Source Mix

Questions: How is the current family planning market distributed among sectors and levels of complexity? Is the current pattern of use of levels of complexity and sectors appropriate for the observed method mix and users' ability to pay? What pattern of use of levels of complexity and sectors would be more appropriate for the observed method mix and users' ability to pay?

Peru is one of the few countries that show fairly high contraceptive prevalence and high use of traditional methods (the Philippines is another). Because most use of traditional methods is "self-supplied," users of these methods were excluded from analysis.

Step 1 Classify last source of supply or service for current users by level of complexity and by sector. Cross-tabulate current family planning users by current level of complexity and current sector of attention.

The question on family planning source in the Peru 1991-92 DHS allows distinctions to be made by level of complexity for the commercial, NGO, and Ministry of Health sectors. In addition, Social Security outlets were classified as secondary or tertiary; from service statistics it is known that most dispensaries (primary level) do not offer family planning.

In Table 10, we see that the family planning market is dominated by the Ministry of Health and the commercial sector, which together account for three quarters of all contraceptive users. As mentioned earlier, this figure does not include users of traditional methods, who do not have a source of supply. The commercial sector includes both pharmacies and other retail outlets, which account for the majority of pill and condom users (analysis not shown), and private physicians and clinics, which account for a significant proportion of IUD and surgical contraception. NGOs account for only 8 percent of the family market.

We also see that use of levels of complexity is weighted in favor of use of tertiary outlets. Since surgical contraception accounts for less than one-third of all modern method use (analysis not shown), this leads us to suspect that there is an overuse of hospital family planning services.

Table 10 (Part B, step 1c)  
 Classification of Current Source Mix as a Function of  
 Level of Complexity and Sector

Level of Complexity	Sector				Row Total
	Min Health	NGO	Commercial	Social Sec.	
Primary	.088	.009	.223	--	.320
Secondary	.052	.070	.172	.019	.313
Tertiary	.162	--	.082	.124	.367
<b>Column Total</b>	.301	.079	.476	.144	1.00

Step 2      Classify current family planning users by type of contraceptive method and by ability to pay. Cross-tabulate type of method by level of complexity. Cross-tabulate users' socioeconomic status by sector.

2a      Classify current family planning users by type of contraceptive method.

2b      Cross-tabulate type of method by level of complexity.

Following the analysis scheme, we classify current users of modern methods into three categories: nonclinical, clinical nonsurgical, and surgical. Because pills and injectables are available in pharmacies, both are classified as nonclinical.

Table 11 demonstrates that 70 percent of current modern method users can be considered to be using an appropriate level of complexity, and 22 percent are using a higher level than necessary. Only 8 percent of modern method users showed anomalous use of levels of complexity, mostly IUD users who had obtained their method from a Ministry of Health health post (analysis not shown). The greatest overuse of levels of complexity was attributed to IUD users served by Social Security; practically all of these women reported receiving their method from a hospital (analysis not shown). Review of service statistics found that Social Security family planning services were functioning well only in hospital outpatient clinics and had not been implemented in the multi-source out-patient clinics (polyclinics).

Table 11 (Part B, step 2b)  
Current Pattern of Use of Levels of Complexity

Method	Level of Complexity			Row Total
	Primary	Secondary	Tertiary	
Nonclinical	.266	.037	.032	.335
Clinical nonsurgical	.060	.257	.156	.474
Surgical		.015	.175	.191
<b>Column Total<sup>5</sup></b>	.327	.310	.364	1.000

**2c** Classify current users by ability to pay.

In developing scales for ability to pay, we adapted a classification system that had been previously developed under a study of standards of living financed by the World Bank and USAID/Peru. The system considers both disposable income and structural assets of the dwelling. As a proxy for disposable income we used the kinds of artifacts present in the household (radio, TV, refrigerator, car). Structural assets included piped water, electricity, some kind of floor, and sewer. We also took into account whether the woman was covered by Social Security and/or private health insurance.

Ability to pay was defined individually for each kind of contraceptive method. For example, for a woman whose purchasing power was considered to be "medium" and dwelling structural assets to be "high," the appropriate sector if she used pills was considered to be commercial, for IUD an NGO, and for surgical contraception, the Ministry of Health. A fourth category was defined for Social Security beneficiaries. Details of the classification methodology are presented in Appendix B.

**2d** Cross-tabulate users' ability to pay by sector.

Table 12 should be interpreted in two stages. First, consider the inner square bounded by the first three rows (Ability to pay = very low to medium-high) and the first three columns (Sector = Ministry of Health to Commercial). Within this subgroup of women who do not

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<sup>5</sup> The minor variations in row and column totals between tables are caused by differences in missing cases, that is, interviews in which one or another question was not answered. Totals do not always sum exactly due to rounding errors.

have access to Social Security, unnecessary use of subsidies is relatively low—in fact, more women whose ability to pay was judged to be low or very low are using the commercial sector. There is some evidence to suggest that subsidized outlets (especially NGOs) could consider implementing user fees for their wealthier clients.

Table 12 (Part B, step 2d)  
Current Pattern of Use of Sectors

Ability to Pay	Sector			
	Min Health	NGO	Commercial	Social Sec.
Very low	.178	.018	.101	.010
Low	.030	.013	.021	.001
Medium-high	.039	.022	.275	.037
Social Security	.054	.028	.079	.094

The more striking findings pertain to Social Security. The women represented in the last column above the shaded cell (attended by Social Security but not Social Security beneficiary) are anomalous cases. Although they did not have coverage at the time of the DHS interview, we may assume that they were beneficiaries at the time they received the service. Since most of these women use long-lasting methods, the interpretation is plausible.

Now consider the women in the bottom row to the left of the shaded cell. These are Social Security beneficiaries who obtained their method from another source, and significantly outnumber the proportion of beneficiaries who were served at Social Security outlets. While it is true that some of them may have obtained their method prior to enrolling in Social Security, we suspect that due to the restricted availability of family planning within the Social Security system, many of them opted for other sectors. There are two policy implications for this interpretation: first, that Social Security should be more active in offering family planning to its beneficiaries. Second, to the extent that family planning becomes more widely available in Social Security, we may expect the NGOs to lose a portion of their already small market share. This loss of market share from the NGOs would probably be heightened if NGOs charge higher user fees, which would have negative implications for long-term financial sustainability of the NGO sector.

**Step 3** Cross-tabulate current family planning users by type of contraceptive method and ability to pay.

Since we found a relatively large number of anomalous cases of sector use relative to inferred ability to pay, we decided to recode ability to pay and type of method for the anomalous cases to correspond to their current patterns of use, as described earlier. We also recoded anomalous use of primary outlets for IUD insertion to correspond to the user's report.

**Table 13 (Part B, step 3)**  
**Appropriate Source Mix as a Function of**  
**Current Contraceptive Method and Ability to Pay**

Contraceptive Method	Ability to Pay				Row Total
	Very Low (MOH)	Low (NGO)	Medium-High (Commercial)	Social Sec.	
Nonclinical (Primary)	.069	.019	.274	.033	.395
Clinical (Secondary)	.070	.043	.149	.167	.430
Surgical (Tertiary)	.045		.070	.060	.175
<b>Column Total</b>	.183	.063	.494	.260	1.000

The results in Table 13 should be compared with Table 10. Imposing an appropriate source mix on current users of modern methods would reduce the use of MOH outlets by 39 percent (from 30% to 18%) and increase the use of Social Security outlets by 80 percent (from 14% to 26%). Use of tertiary levels of complexity would decline by 52 percent (from 37% to 18%). The greatest overall impact would be on Social Security; its over-reliance on limited tertiary facilities is probably an important reason why Social Security provides family planning to so few of its eligible beneficiaries.

If we wish to see what this market re-allocation would imply for number of users to be served by different outlets, we extrapolate to the population of eligible women. In 1992, the population of women in union of reproductive age in Lima was estimated at 867,000. Prevalence of use of modern methods was 46.4 percent, or some 402,600 users. Applying the percentages in Tables 10 and 13 to this user population produces the results summarized in Table 14.

Table 14 (Part B, step 3)  
 Estimated Modern Method Users Served by Sector and Level of Complexity  
 Under Current Patterns and Appropriate Source Mix  
 (1,000 Users)

Level of Complexity	Sector							
	MOH		NGO		Commercial		Social Security	
	Current	Approp	Current	Approp	Current	Approp	Current	Approp
Primary	35.4	27.8	3.6	7.6	89.7	110.6		13.3
Secondary	20.9	28.2	28.2	17.3	69.2	59.9	7.6	67.2
Tertiary	65.2	18.1			33.0	28.6	49.9	24.1
<b>Total</b>	<b>121.4</b>	<b>74.0</b>	<b>31.8</b>	<b>24.9</b>	<b>191.8</b>	<b>199.1</b>	<b>57.5</b>	<b>104.5</b>

**C. Projecting Future Needs for Family Planning Outlets**

Questions: What would be the pattern of use by levels of complexity and sectors if all potential users used an appropriate contraceptive method and followed current patterns of source mix? What would be the pattern of use of levels of complexity and sectors if all potential used outlets appropriate for their desired methods and ability to pay? How does that compare with the pattern that would be expected under current use of levels of complexity and sectors?

Step 1 Classify current users and non-users by appropriate contraceptive method according to individual characteristics such as fertility intentions and/or reproductive health status and by their ability to pay for their appropriate method. Apply current patterns of levels of complexity and sectors to estimate future needs for family planning outlets.

1a Classify current users and non-users by appropriate contraceptive method according to individual characteristics such as fertility intentions and/or reproductive health status. Apply current patterns of use of levels of complexity to derive projected use by level of complexity.

To simulate appropriate method use, we considered each woman's reproductive intentions (interest in limiting childbearing, delaying the next birth, or having the next birth soon) and her reproductive health risk as defined by Ministry of Health norms. Women who wanted another birth in the next two years were assumed to continue using their present contraceptive method or continue not using any method, depending on their current status.

Women who wanted to space their next birth and who were already using some method were assumed to continue using that method; women who wanted to space and were not using any method were assigned a nonclinical method, principally pills. Finally, women who wanted no more children and were already using a long-lasting method (IUD, injection, or surgical contraception) were assumed to continue using that method. Women who wanted to limit and who were either using a short-term method or no method at all, were assigned a long-term method in keeping with their reproductive health risk. Women with medium or low risk were assigned IUDs or injectables; women with high risk were assigned surgical contraception, IUDs, or injectables. Assignment of method followed local preferences (emphasizing IUD).

As can be seen in the following table, appropriate method mix differs considerably from current method mix. For the purpose of comparison, all method users (including traditional methods) are included in the table. Use of nonclinical methods, principally traditional methods would fall by three quarters, use of clinical methods, principally IUD, would almost double, as would use of surgical contraception. Since contraceptive prevalence in Lima was already high, it was not expected to increase significantly.

Table 15  
Comparison of Current and Appropriate Contraceptive Method Mix

Scenario	Total Prevalence	Contraceptive Method Mix			
		Traditional	Nonclinical	Clinical Nonsurgical	Surgical
Current method	70.6%	.343	.222	.309	.126
Appropriate method	75.9%	.061	.146	.566	.227

In Table 11 we examined use of levels of complexity among all modern method users. For example, we found that 33.5 percent of all users used nonclinical methods, of whom 26.6 percent are served by primary outlets. We could also represent these data individually by method (row percents in an SPSS printout): 79.4 percent of nonclinical method users are served by primary outlets (26.6/33.5), etc. To estimate future use of levels of complexity, we multiply the proportion who would use each type of method by the current pattern of use of levels of complexity. This calculation is presented in Table 16. The entries in Column F are obtained by multiplying the entries in Column B by Column C; in Column G by multiplying Column B by Column D, etc. Note that the proportions represented in column B differ from Table 15 because we have eliminated users of traditional methods.

Table 16  
Projected Use of Levels of Complexity Based on Current Trends

Appropriate Method	Proportion all use (B)	Current Pattern Level of Complexity			Derived Pattern Level of Complexity		
		Pri. (C)	Sec. (D)	Ter. (E)	Pri. (F)	Sec. (G)	Ter. (H)
Nonclinical	.155	.794	.111	.095	.123	.017	.015
Clinical nonsurgical	.603	.127	.543	.330	.077	.327	.199
Surgical	.242	.000	.081	.919		.020	.222
Column Total					.200	.364	.436

**1b** Classify current users and non-users by their ability to pay for their appropriate method. Apply observed patterns of use of sectors projected use by sector.

Using the methodology described in Appendix B, we estimate each woman's ability to pay for her appropriate contraceptive method.

Table 17  
Comparison of Ability to Pay for  
Current and Appropriate Contraceptive Method Mix

Scenario	Modern Method Prevalence	Ability to Pay			
		Very low	Low	Medium-High	Social Security
Current method	46.4%	.307	.065	.373	.255
Appropriate method	71.3%	.385	.074	.248	.293

Table 17 shows that expanding contraceptive use will mean attracting poorer women to the family planning program. Apparent ability to pay a full market price may fall by 33 percent, and the proportion of the market requiring a full subsidy (very low ability to pay) may increase by 25 percent. Among potential new users (i.e., those women who are currently using either an inappropriate method or no method at all), only 22 percent

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appear able to pay a full market price for their appropriate method and 41 percent appear to need a full subsidy (analysis not shown).

In the analysis of use of sector by apparent ability to pay among current users, we found that almost a third of those women who appeared to need a subsidy (ability to pay very low or low) nevertheless obtained their method from the commercial sector. It is doubtful that this proportion could be maintained among potential new users because their method mix would be more heavily weighted toward clinical and surgical methods. Anomalous sector use (i.e., using commercial sector despite apparent inability to pay) is lower among low-income users of clinical and surgical methods (22% and 27%, respectively) than among low-income users of nonclinical methods (58%; analysis not shown). Therefore, we felt that applying current patterns of sector use to the projected family planning market would overestimate the proportion likely to use commercial sources.

Step 2        Combine the results of step 1a and step 1b to produce a table which simultaneously classifies potential users by expected sector and level of complexity under current patterns of use.

This analysis was not performed for the reasons described in the preceding step.

### Step 3

Approximately half (49%) of the projected modern method contraceptive users (appropriate method mix scenario) are current users whose method was judged to be appropriate for their individual characteristics. In the analysis of sector use by current users, we found appreciable use of the commercial sector by women who apparently would have needed subsidies. While we could not predict how many apparently low-income-group new users would also be able to pay a full market price, it seems safe to assume that if a woman continues to use the same method in the future (i.e., her current method would be classified as appropriate) and if in the past she obtained that method from the commercial sector, she would continue to use the commercial sector in the future, regardless of her apparent purchasing power. Therefore, we modified the classification of ability to pay for appropriate method to take into account these "anomalous" cases.

In a similar fashion, we recoded level of complexity for current users of clinical methods who had obtained their methods from primary level outlets. Table 18 presents appropriate source mix for the projected family planning market, and Table 19 extrapolates these rates to the 1990 population of women 15-49 (in union) using modern contraception in Lima.

Table 18 (Part C, step 3)  
 Appropriate Source Mix as a Function of  
 Projected Contraceptive Method and Ability to Pay

Appropriate Contraceptive Method	Ability to Pay for Appropriate Method				Row Total
	Very Low (Min of Health)	Low (NGO)	Medium-High (Commercial)	Social Sec.	
Nonclinical (Primary)	.050	.011	.113	.014	.188
Clinical (Secondary)	.182	.065	.148	.189	.584
Surgical (Tertiary)	.081		.067	.079	.227
<b>Column Total</b>	.313	.076	.329	.282	1.000

Table 19  
 Estimated Modern Method Users Served by Sector and Level of Complexity  
 Under Appropriate Source Mix  
 (1,000 Users)

Level of Complexity	Sector			
	MOH	NGO	Commercial	Social Security
Primary	30.9	7.4	69.9	8.7
Secondary	112.5	40.2	91.5	116.8
Tertiary	50.1		41.4	48.8
<b>Total</b>	193.4	47.6	202.7	174.3

#### **D. Discussion and Programmatic Conclusions**

At the time of the 1991-1992 DHS, approximately 402,600 women in union of reproductive age in Lima were using modern contraceptive methods. Analysis of their use of family planning outlets suggested overuse of tertiary levels of complexity in the public sector, especially in the Social Security system, and under-utilization of Social Security outlets by eligible beneficiaries. Reallocating current users to appropriate sources would significantly reduce the caseload in Ministry of Health and Social Security hospitals. The commercial sector could increase its total market share by 2 percentage points (a relative increase of 4%), and the NGO market share would contract by 1.6 percentage points (a 20% relative decline). The NGO market loss would be due largely to the loss of Social Security beneficiaries, who would be more appropriately served by Social Security.

Unmet need for appropriate contraception in Lima is fairly high. Satisfying all of the unmet need for appropriate contraception would raise prevalence of modern methods from 46 percent to 71 percent and increase the number of modern method users from 402,600 to 618,100 (without including population growth).

Most of the potential new users need clinical and surgical methods, and most need some kind of subsidy. Consequently, applying an appropriate source mix to the projected contraceptive market would drastically reduce the current commercial market share (from 48% to 33%) and increase the market share of Social Security (14% to 28%). The Ministry of Health and NGO market shares would be largely unaffected.

In terms of market size, however, all sectors would grow. The subsidized sectors would show the greatest growth in terms of numbers of users: Social Security (203%); Ministry of Health (59%); NGOs (50%). The commercial sector would grow by only 6 percent, and the market for nonclinical methods among women in union might actually shrink.

The programmatic challenge is to prepare all sectors, especially subsidized outlets, to receive these numbers of new users of clinical and surgical methods. Clearly, institutional efficiency must be enhanced, since large increases in operating and capital budgets will probably not be forthcoming. This means that users must be encouraged to use the lowest levels of complexity possible. For example, if family planning services were improved at the primary and secondary levels, Social Security could absorb the 203 percent increase in total clients while actually reducing hospital client load by 2 percent.

## VII. COUNTRY EXAMPLE: INDONESIA, 1991 DHS

Indonesia has an explicit policy to reduce fertility to replacement level and has made tremendous progress toward this goal: total fertility dropped by more than two births in the last two decades, from 5.6 in 1971 (census data) to 3.0 in 1991 (DHS data). Recently, the family planning program has taken on a new orientation, away from an exclusive focus on demographic targets, to a strategy of "demand fulfillment," which emphasizes understanding families' needs and expanding family planning practice through satisfying unmet need for contraception.

Satisfying unmet need will require sufficient family planning outlets to provide counseling, services, and methods to current and new contraceptive users. In some cases, this may mean expanding existing infrastructure. In addition to its goal of demand fulfillment, the national program is promoting "family planning self-reliance" to encourage couples to contribute to the cost of their family planning. The program considers three levels of self-reliance: (a) *full self-reliance*, in which the user assumes the entire cost of her/his method and obtains it from the private sector; (b) *partial self-reliance*, in which the user obtains a program-donated method from a private sector provider, pays for the service, and receives the method free; and (c) *subsidized program*, in which the user receives her/his method from a public sector output. Private sector providers are allowed to set their own prices for services and nonprogram methods. Public sector outlets are not allowed to charge for services or for program methods; they charge a token administrative fee, which can be waived for clients too poor to pay, and offer nonprogram brands of pills, IUDs, and barrier methods at a commercial price.

The purpose of this exercise is to project the mix of family planning outlets or sources that will be needed to achieve demand fulfillment under conditions of family planning self-reliance. Therefore, the analyses will focus on patterns of use by sectors (public/private); use of levels of complexity will not be considered.

This analysis is based on the 1991 DHS for Indonesia and makes use of the unrecoded data file. The variable names referred to in the analysis pertain to variables that come from the Model A questionnaire for high prevalence countries.

### A. Current Availability of Contraceptive Methods and Outlets

Questions: Is the full range of contraceptive methods available to satisfy current and potential users' desires to space or limit their fertility, and is the range of outlets sufficient to attend users according to their desired method and ability to pay?

**Table 20**  
**Availability of Contraceptive Methods in Indonesia**

CATEGORY	METHOD	TYPE OF OUTLETS	RESTRICTIONS
Nonclinical	Condom	Pharmacies; retail outlets Public health posts, centers, hospitals Private physicians and midwives	
	Spermicide	Pharmacies Public health posts, centers, hospitals Private physicians and midwives	Very limited quantities available in country
	Pill	Pharmacies Public health posts, centers, hospitals Private physicians and midwives	
Clinical	Injectable	Public health posts, centers, hospitals Private physicians and midwives	
	Implant	Public health centers, hospitals Private physicians	
	IUD	Private physicians and midwives Public health posts, centers, hospitals	
Surgical	Tubal ligation	Private physicians, hospitals Public hospitals	Tubal ligation is not an official program method
	Vasectomy	Private physicians, hospitals Public centers, hospitals	

Table 20 shows that a wide range of contraceptive methods and outlets are available in Indonesia. There are effectively no restrictions on method use. The table does not indicate the number or capacity of outlets offering family planning. Injectables are considered a clinical method and are not available in pharmacies. Midwives are trained to provide barrier methods, pills, injectables, and IUDs and are encouraged to offer them in their private practices. The government provides a small subsidy for voluntary surgical contraception (VSC) which does not cover all of the provider's costs; for political/religious reasons, VSC is not considered an official program method.

**B. Appropriateness of Current Source Mix**

**Questions:** How is the current family planning market distributed between private and public sector outlets? Is the current pattern of use of sectors appropriate for users' ability to pay? What pattern of use of sectors would be more appropriate to the program's goal of self-reliance?

**Step 1** Classify last source of supply or service for current users by sector (public or private).

We now create a new variable from the source variable (COMPUTE SECTOR=Q323) and recode the new variable for sector. The recoding scheme follows in Table 21.

Table 21 (Part B, step 1b)  
Creation of New Variable for Sector

SECTOR	ORIGINAL CATEGORIES	
Public	Government hospital (#1) Health post - Posyandu (#5) Fieldworker - PLKB (#7)  FP safari (#14)	Health Center - Pusk. (#3) FP post/VCDC/Paguyu (#6) FP mobile-TKBK/TMK (#8)
Private	Pharmacy/Drug store (#9) Private hospital (#2) Private doctor (#10)	Friends/relatives (#13) Private clinic (#4) Private midwife (#11)

The public sector is the largest provider for the principal modern methods, ranging from 94 percent of implant (Norplant®) users to 60 percent of injectable users. These findings are presented in Table 22. Note that in these analyses, all subsidized outlets are classified as public sector.

Table 22  
Classification of Family Planning Source by Method

SECTOR	CURRENT CONTRACEPTIVE METHOD			
	Pill	IUD	Injectable	Implant
Public	.85	.78	.60	.94
Private	.12	.21	.39	.04
Not classified	.03	.01	.01	.02
<b>TOTAL</b>	1.00	1.00	1.00	1.00

Step 2      Classify current family planning users by socioeconomic status. Cross-tabulate users' socioeconomic status by sector, controlling for contraceptive method.

2a and 2b Not relevant for the Indonesian example.

2c      Classify current users by socioeconomic status.

In this analysis, we will look at current users with young children and compare where they get maternal/child health care (MCH) with their family planning source. We will include source of prenatal care for the last live birth, where the birth took place, and source of treatment of diarrhea and respiratory infection for all children under five years of age. Each woman is classified by the highest (presumably most expensive) health source she has used.<sup>6</sup> For example, if she used a public outlet for maternity care and a private physician to treat her child's illness, her classification would reflect the use of the private physician. Women who received no prenatal care, delivered at home, and reported no child health care are classified as "none." The resulting scale includes four groups ranging from no MCH care to use of private practitioners, as shown in Table 23.

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<sup>6</sup> The DHS does not ask for information about prices paid for MCH care. In this analysis, we assume that public sector outlets charge less than private sector, and that retail outlets charge less than private practitioners and hospitals/clinics.

**Table 23**  
**Creation of New Variable for Maternal/Child Health Care (MCH)**

MCH CLASSIFICATION	ORIGINAL CATEGORIES	
	QUESTION	RESPONSES
None	Q405\$01 Antenatal care	9 Nowhere
	Q411\$01 Place of delivery	1 Private home      8 Other
	Q461\$01-06 Resp. infection Q477\$01-06 Diarrhea treatment	Blank (no treatment given)
Public	Q405\$01 Antenatal care	1 Govt hospital      3 Health Ctr. 4 Health post
	Q411\$01 Place of delivery	2 Govt hospital      5 Health Ctr.
	Q461\$01-06 Resp. infection	A Govt hospital      C Health Ctr.
	Q477\$01-06 Diarrhea treatment	E Health post      H Health cadre
Retail	Q461\$01-06 Resp. infection Q477\$01-06 Diarrhea treatment	I Trad healer      J Pharmacy K Shop
	Q405\$01 Antenatal care	2 Priv. hosp.      5 Priv. clinic 6 Private doctor      7 Priv. midwife
Private Practitioner	Q411\$01 Place of delivery	3 Priv. hosp.      4 Maternity hosp. 6 Doctor/priv. clinic      7 Midwife/priv. clinic
	Q461\$01-06 Resp. infection	B Private hospital      D Private clinic
	Q477\$01-06 Diarrhea treatment	F Private doctor      G Nurse/midwife

Because these questions are asked only of respondents who reported at least one live birth in the five years previous to the interview, women who had had no live births and women whose youngest child was older than five could not be classified. The proportion of women who could not be classified ranged from 18 percent for users of injectables to 48 percent for IUD users. These results are presented in Table 24.

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Table 24  
Distribution of Socioeconomic Status as Measured by Source of MCH Care

SOURCE OF MCH CARE	CURRENT CONTRACEPTIVE METHOD			
	Pill	IUD	Injectable	Implant
No MCH care reported	.08	.04	.07	.12
Public only	.28	.24	.35	.40
Private retail	.06	.04	.06	.06
Private practitioner	.16	.20	.35	.13
Not classified	.42	.48	.18	.30
<b>TOTAL</b>	1.00	1.00	1.00	1.00

2d Cross-tabulate users' source of MCH care by sector (source of family planning).

Table 25 presents family planning sector use for the major reversible contraceptive methods: pills, injectables, IUD, and implant. The shaded cells on the diagonal indicate users whose MCH care coincides with their family planning source. Women who have not had a live birth in the previous five years are excluded from the analysis.<sup>7</sup> Those below the diagonal, in italics, are women who probably pay more for MCH than for family planning. Those above the diagonal, in parentheses, use more expensive sources for family planning than for MCH.<sup>8</sup>

<sup>7</sup> A number of women could not be classified for MCH care because they had had no births in the last 5 years or did not answer the MCH questions. The percentages range from 16% (public sector injectable users) to 49% (public sector IUD users).

<sup>8</sup> We have not included voluntary surgical contraception (female sterilization and vasectomy) in this analysis for a number of reasons. In the case of vasectomy, the number of cases detected in the DHS is too small for meaningful analysis. In the case of female sterilization, the number of cases is sufficient for analysis, but we can detect an association between the procedure and childbirth. Forty percent of currently sterilized women reported having undergone the operation within one month of delivery, and many of these operations were probably done at the time of delivery. Furthermore, female sterilization is strongly associated with caesarian section delivery, which in turn is associated with hospital delivery. Twelve percent of women's last births in the 5 years before the interview took place in a medical setting; among these institutional births, only 5 percent were delivered by caesarian section. Among women with a hospital birth, sterilized women are almost four times more likely to have had a caesarian section delivery (19%) as the population at large. Women with a caesarian section delivery are almost five times more likely to be sterilized than women with

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Table 25 (Part B, step 2d)  
Family Planning Sector Use\* by Use of MCH Services

MCH CARE	FAMILY PLANNING		TOTAL
	Public	Private	
Public/none	.49	(.06)	.55
Private	.25	.20	.45
<b>TOTAL</b>	.74	.26	1.00

MCH CARE	URBAN			RURAL		
	FAMILY PLANNING		TOTAL	FAMILY PLANNING		TOTAL
	Public	Private		Public	Private	
Public/none	.27	(.06)	.34	.60	(.06)	.66
Private	.27	.39	.66	.24	.10	.34
<b>TOTAL</b>	.55	.45	1.00	.84	.16	1.00

\* Pills, IUD, injectables, and implant

Table 26 presents the same data broken down by contraceptive method at the national level. Within each family planning source, users are classified by their source of MCH services. Women whose MCH use could not be classified because they had had no live birth within the last five years showed the same general distribution of public and private providers by method as women who could be classified. Contraceptive implants (Norplant®) are not included because they were virtually unavailable in the private sector.

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a hospital-attended vaginal delivery (14% vs 3%). The close associations among female sterilization, childbirth, and type of delivery bias the findings regarding level of attention and sector for this family planning method.

Table 26  
Family Planning Sector Use by Use of MCH Services  
(by method)

Use of Maternal/Child Health services	Source of Pill		Source of IUD		Source of Injectable	
	Public	Private	Public	Private	Public	Private
None/public	.59	(.04)	.50	(.03)	.39	.11
Private	.28	.09	.26	.20	.22	.28
<b>TOTAL</b>	.87	.13	.77	.23	.61	.39
Not classified	.89	.11	.80	.19	.58	.42

Women are more likely to use public family planning than public MCH services: two-thirds of family planning users obtain their methods and MCH care from the same sector (shaded cells of the table, .59 + .09 for pills), and a quarter obtain their family planning methods from the public sector but their MCH care from the private sector (.28/1.00 for pills, etc.). The same basic pattern is observed in urban and rural areas.

Assuming that women who use retail outlets or private practitioners for MCH needs are wealthier than women who fail to obtain MCH care or use public sector services, we see that public sector outlets draw poorer women and private sector outlets draw richer women. Nevertheless, roughly one-third of public sector users of pills, IUD, and injectables obtain their MCH care from the private sector (.28/.87 for pills, etc.). These percentages vary little by method.

The goal of family planning self-reliance is that couples pay what they can toward the costs of their family planning goods and services. Analyses of the current source mix indicate that this goal is being only partially met.

- (a) Women who purchase private health care either for themselves or their children are more likely to obtain family planning from private providers than women who obtain health care from the public sector or who do not obtain MCH care at all.
- (b) Over one-third of women who purchase private health care obtain their family planning from the public sector. This suggests that many public sector family planning users may be paying less than they can afford to pay. Because the public sector does not charge for services or program methods, wealthier family planning users can pay the same prices in public sector outlets as poorer users and, therefore, are as likely as poorer users to be exempted from payment altogether.

- (c) Larger subsidies may attract wealthier women to the public sector. The ratio of private sector to public sector prices for pills is approximately 5:1, compared to 2:1 for injectables (analysis not shown). Women who purchase private health care are twice as likely to purchase injectables from the private sector than they are to purchase pills. In other words, the higher the subsidy, the lower the self-reliance.<sup>9</sup>

Step 3 Project appropriate sector mix based on inferred ability to pay.

Let us assume that all women who purchase private MCH care, from either retail outlets or private practitioners, should be able to purchase family planning from private sector outlets as well. Women who use no MCH care or public services but who purchased private family planning are also able to pay for private sector family planning. Therefore, projected public sector family planning users should include only those poor women who currently use public sector outlets, while projected private sector users should include all private MCH users plus poor women who currently use private family planning (Projection 1).

However, the earlier analysis of ability to pay found a substantial number of women who could not be classified because they had had no live birth in the last five years. Since their patterns of public/private sector use resemble those of women whose MCH source could be classified, we could assume that the women who could not be classified show the same proportions of poor (no/public MCH) and wealthier (retail/private practitioner) as women who could be classified (see Table 23 for MCH classification). If this is true, then the nonclassified women can safely be removed from the projection.

On the other hand, it is possible that the nonclassified women are less wealthy than women who could be classified and that the nonclassified women already show appropriate sector use. In this case, appropriate public sector users would include both poor women and nonclassified women who use public outlets. Appropriate private sector users would include poor and nonclassified women who already use private sector sources plus all private MCH users (Projection 2).

Table 27 compares current sector use by method with the two projections described above: Projection 1 is based only on women with a live birth in the last five years, and Projection 2 includes all women, but does not redistribute nonclassified women.

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<sup>9</sup> Pills and injectables are comparable because the commercial sector price of one year's worth of protection is roughly the same for both methods. IUDs have the highest relative subsidy, but higher private sector use than pills. However, the IUD confers longer protection than a cycle of pills or an injection, IUD users tend to be older than users of pills and injectables, and the IUD requires more privacy for application. Therefore, IUDs may not be comparable to pills and injectables.

Table 27  
Current and Projected Family Planning Source Mix

METHOD	PUBLIC SECTOR			PRIVATE SECTOR		
	Current	Proj. 1	Proj.2	Current	Proj. 1	Proj. 2
Pills	.88	.59	.71	.12	.41	.29
IUD	.79	.50	.65	.21	.49	.35
Injectable	.60	.39	.42	.40	.61	.57
<b>TOTAL</b>	.77	.49	.60	.23	.51	.40

It appears possible to significantly increase family planning self-reliance within the population of current family planning users. To do so, the national program should identify and correct those factors that encourage women who purchase private MCH health care to use public sector family planning outlets instead of their usual private sector MCH provider.

## APPENDIX A

### EXAMPLES OF CODING CLASSIFICATIONS FOR SOURCE OF CURRENT METHOD

#### Guatemala

Private hospital  
Public hospital  
Roosevelt hospital  
Private clinic  
Health center  
Health post  
Social Security  
APROFAM (local NGO)  
Pharmacy  
Health promoter  
Community distributor  
Other

#### Bolivia

Public hospital  
Health center  
Health post  
Private MD  
Private hospital  
Social Security  
Pharmacy  
Friend/relative  
Health representative  
Family Planning center  
Medical Post  
Other

#### Ecuador

MOH hospital, health center  
Other public outlet  
APROFE (local NGO)  
CEMOPLAF (local NGO)  
Armed Forces  
Private MD/midwife  
Pharmacy  
Health promoter  
CVR  
Other  
(VSC) MOH hospital  
(VSC) Armed Forces hosp.  
(VSC) Social Sec. hosp.  
(VSC) Private hospital  
(VSC) Philanthropic hosp.

#### Peru - DHS 1

MOH hospital, health center, or post  
Other public hospital, health center, or post  
Private clinic  
Private MD, midwife  
Pharmacy  
Health promoter  
NGO  
Other

#### Peru - DHS 2

MOH hospital  
MOH health center  
MOH health post  
MOH health promoter  
Social Security hospital  
Social Security center/post  
Family Planning clinic  
Family Planning post  
Family Planning promoter  
Private MD  
Private hospital/clinic  
Pharmacy  
Store  
Church  
Friend/relative  
Other

## APPENDIX B

### ESTIMATING USER ABILITY TO PAY

The problem with inferring user ability to pay from the DHS is that the standard questionnaire does not include personal or family income or expenditures. Therefore, we must construct a proxy scale for ability to pay from other information. In the case study of Peru, we included household durable goods, construction of the dwelling, and use of private or public health services for maternity care (prenatal care and delivery).

The exercise considers three levels of purchasing power (low, medium, high) and two levels of structural assets (low, high) of the dwelling. The criteria for structural assets were previously developed under a study of standards of living financed by the World Bank and USAID/Peru. Social Security beneficiaries were treated separately, as were women covered by private health insurance. The definitions of level of purchasing power and structural assets are shown in Table B1.

Table B1  
Setting Source Targets

STRUCTURAL ASSETS	PURCHASING POWER			Social Security Beneficiary	Private Insurance Beneficiary
	Low	Medium	High		
Low	.163	.026	.024	.066	.000
High	.132	.098	.075	.261	.156

#### PURCHASING POWER

Artifact	Category
None	LOW
Radio	
TV	
Refrigerator	MEDIUM
Car	HIGH

#### STRUCTURAL ASSETS

Total Assets*	Category
0	LOW
1	
2	
3	HIGH
4	

piped water inside residence; electricity; some kind of floor (other than dirt); sewer

Table B2 shows a first approximation of sector segmentation by contraceptive method, structural assets, and purchasing power. This defines ability to pay.

Table B2  
Defining Ability to Pay

Method: Nonclinical (Barrier/Pill/Injectable)

STRUCTURAL ASSETS	PURCHASING POWER			Social Security Beneficiary	Private Insurance Beneficiary
	Low	Medium	High		
Low	MOH	NGO	NGO	Social Sec.	
High	MOH	NGO	Commercial	Commercial	Commercial

Method: Clinical nonsurgical (IUD)

STRUCTURAL ASSETS	PURCHASING POWER			Social Security Beneficiary	Private Insurance Beneficiary
	Low	Medium	High		
Low	MOH	MOH	NGO	Social Sec.	
High	MOH	NGO	Commercial	Social Sec.	Commercial

Method: Surgical (Voluntary Surgical Contraception)

STRUCTURAL ASSETS	PURCHASING POWER			Social Security Beneficiary	Private Insurance Beneficiary
	Low	Medium	High		
Low	MOH	MOH	NGO	Social Sec.	
High	MOH	MOH	Commercial	Social Sec.	Commercial

Compute STRUCT=

Compute DURABLE=

Compute ABILITY=9.

If (METHOD eq 1 and ( )) ABILITY=1.

If (METHOD eq 2 and ( )) ABILITY=2.

If (METHOD eq 3 and ( )) ABILITY=3.

Value labels ABILITY 1 'Very low' 2 'Low' 3 'Medium-high' 4 'Soc Sec'.

Frequencies variables=ABILITY.

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## GLOSSARY

### **Ability to pay**

Refers to consumer's income relative to prices charged for goods and services. Willingness to pay includes consumer's income as well as his/her willingness to use it to purchase the good or service.

**Acceptor**, see Contraceptive acceptor

**Access**, see Availability

### **Availability**

Refers to the supply of contraceptive methods and services in a community. A multidimensional concept including geographic proximity, economic affordability, administrative accessibility, and cognitive accessibility.

#### **Measures of availability**

Operational definitions usually focus on the geographic dimension, such as the proportion of communities that have a service outlet in the community; the average distance to the nearest service outlet; the average travel time to the nearest service outlet; and the number of service outlets within a fixed distance or travel time of the community.

### **Awareness of contraceptive methods**

Refers to whether the respondent has heard of various types of contraceptive methods.

#### **Prompted awareness**

Refers to the level of awareness of a contraceptive method that exists when a woman does not mention the method when asked to name methods that she has heard of, but she says she has heard of the method when a description of it is read to her.

#### **Spontaneous awareness**

Refers to the level of awareness of a contraceptive method that exists when a woman can name the method when asked to name methods that she has heard of.

### **Capacity**

Refers to the number of people that can be attended or the number of services that can be provided.

#### **Excess capacity**

A situation in which a facility is capable of attending more people than its current use levels.

#### **Installed capacity**

The number of people that can be attended or the number of services that can be provided without employing more staff, lengthening hours, or adding facilities.

**Complexity**, see Contraceptive Source

## **Confounding factor**

Characteristics that co-vary with the variable of interest and that cannot be randomly assigned. For example, women's education is often confounded with residence: college-educated women are often predominantly urban, while women with no formal schooling are often predominately rural. See also, Control for.

## **Contraceptive acceptor**

A person who for the first time receives a contraceptive method. An indicator of service utilization, which is often measured in different ways to serve different purposes.

Acceptor new to modern contraception: a person who accepts for the first time in his/her life any (program) method of contraception.

Acceptor new to the program: a person during a defined reference period (e.g., one year) who accepts a contraceptive method from a particular program, institution, or source for the first time, although he/she may have previously used methods obtained elsewhere.

New segment acceptor: a person who is initiating a new segment of contraception during a defined reference period. He/she is "new" to a particular contraceptive method or to the source during the defined reference period. He/she may have used a method, including this one, before, and may have used this source before, but was not using this method and this source at the time of acceptance.

## **Contraceptive method**

Refers to a specific behavior to avoid or prevent pregnancy.

### **Appropriate method**

Classification of a contraceptive method in terms of the user's characteristics, including her reproductive preferences, health conditions, and socio-psychological persuasions. For example, an appropriate method for a woman who wants more children would be temporary; for a woman with circulatory disorders, it would not contain estrogens.

### **Barrier method**

Methods that provide a mechanical barrier to fertilization, including condom, spermicides, and diaphragm.

### **Clinical method**

Methods that require medical personnel and clinical facilities for their application, including IUD and implants. May also include surgical methods.

### **Inappropriate method**

A method that is less likely to satisfy a user's reproductive preferences or health conditions. For example, permanent methods would be inappropriate for women who want more children.

### **Long-lasting (or long-term) method**

A method that, once applied, provides an extended period of protection against pregnancy. Includes IUD, surgical contraception, implants and sometimes injections.

**Male methods**

Methods used by men, including condoms and vasectomy (male sterilization).

**Modern method**

Includes barrier, hormonal, IUDs, and surgical methods.

**Nonclinical method**

Methods that can be applied or provided safely by nonmedical personnel and in nonclinical facilities, including barrier methods and oral contraception. In some settings, injectables may also be classified as a nonclinical method.

**Periodic abstinence**

Refraining from sexual intercourse during those days immediately preceding, during, and following ovulation, when a woman is most likely to conceive. The "fertile" days may be calculated with a calendar of menstrual cycles or according to physiological changes including basal temperature and the secretion of cervical mucus.

**Permanent method**

Surgical methods providing life-time protection against pregnancy, which can be reversed only through other surgical procedures. See also, Voluntary surgical contraception (VSC).

**Preferred method**

That method which the user would most like to use.

**Short-term method**

A method that confers only a short period of protection with each application or use, such as barrier methods or pills.

**Supply methods**

Methods that require resupply of commodities: condoms, pills, spermicide, injectables.

**Traditional method**

Pre-scientific behaviors that reduce the probability of conception, such as withdrawal and prolonged abstinence following a birth.

**Voluntary surgical contraception (VSC)**

Surgical methods producing sterility. Includes tubal ligation (female sterilization) and vasectomy (male sterilization). Require special counseling to ensure that acceptors are aware of the permanence of the method and can give voluntary, informed consent.

**Contraceptive method mix****Appropriate method mix**

The percentage distribution of contraceptive users by method that would be obtained if all users used methods appropriate to their reproductive preferences and health conditions.

**Current method mix**

The percentage distribution of current contraceptive users by method. This measure provides a profile of the relative use of different contraceptive methods. It may be derived from population-based surveys or from program service statistics. A broad method mix suggests that the population has access to many different contraceptive methods. A limited method mix may reflect limited access to different methods, or provider bias if one method is strongly promoted to the exclusion of others, or user preferences.

**Contraceptive prevalence**

The proportion of women of reproductive age who are using a contraceptive method at a particular point in time; generally reported for women married or in union. The measure takes into account all methods and all sources of supply.

**Method prevalence**

The proportion of women of reproductive age (or women in union of reproductive age) who are using a particular contraceptive method at a particular point in time.

**Contraceptive source**

Refers to specific locations or outlets offering contraceptive goods and services. Respondents familiar with different methods may be asked if they know of a source for the method, or where they would go to obtain it. Users of contraception may be asked where they obtained the method.

**Contraceptive source mix**

The percentage distribution of contraceptive users by outlet or facility where they obtained their method. In the case of users of periodic abstinence, may include the facility where they were instructed in the use of the method.

**Level of complexity**

Refers to the type of equipment present in a service facility and the training of the service providers.

**Primary**

Nonclinical outlets staffed by nonmedical personnel. Includes health posts, pharmacies, and community distributors, among others.

**Secondary**

Basic clinical facilities including examining tables, simple equipment, and sterilizers, which are staffed by nurses, trained midwives, and/or physicians.

**Tertiary**

Hospitals and their related out-patient clinics.

**Retail outlet**

Any sales point, including pharmacies, convenience stores, markets, etc.

**Contraceptive use**

Using some contraceptive method at the time of interview.

**Discontinued user**

A respondent who used contraception in the past, but is either not using any method or is not using the reference method at the time of the interview.

**Ever-user**

Whether a woman has ever used a contraceptive method, even on a trial basis.

**Control for**

Rule out the possibility that a particular factor is responsible for an observed phenomenon. Different groups of individuals often differ along several characteristics at the same time. Differences in behavior may be due to any one or a combination of those characteristics. Before attributing the difference in behavior to one of those characteristics, the investigator must demonstrate that none of the others is responsible. This may be done by holding the other variables constant; for example, measuring differences in behavior by educational attainment within rural and urban populations separately (control for residence). See also, Confounding factor.

**Cost**

Refers to the monetary value of resources used to produce or acquire a good or service, including money, time, labor, etc.

**Direct cost**

From provider's perspective, refers to costs that can be assigned to the production of a specific product or service, such as commodities, use of equipment, salaries of service providers, etc. From consumer's perspective, refers to fees charged for a good or service.

**Opportunity cost**

Cost of an alternative service that could have been produced or purchased with the same set of resources.

**Cost effectiveness**

Ratio of costs to production; cost per unit output.

**Criterion**

An observable phenomenon used to establish the presence or degree of an underlying condition. For example, the presence of durable goods (TV, refrigerator, etc.) in a household may be considered a criterion of purchasing power. A standard of judgement.

**Demand for family planning**

Refers to the desire of women or couples to control future fertility. Demand for family planning exists when the supply of children is equal to or exceeds the desired or preferred number or when women/couples wish to increase the interval between births. Women who desire to terminate childbearing are said to have a demand for limiting, while those who wish to postpone future births (but not to terminate childbearing) have a demand for spacing.

**Total demand**

The number or proportion of women currently using contraception plus those at risk of pregnancy who desire either to terminate childbearing or to postpone their next birth but who are not using any contraceptive method. [Note - this differs slightly from the EVALUATION handbook but is consistent with Westoff's definition. The EVALUATION definition would exclude current users who said they wanted a birth "soon"]

**Donor**

An individual or institution (including foreign government) that voluntarily provides a subsidy for goods or services by contributing money, technical assistance, and/or supplies.

**Economy of scale**

Refers to a common phenomenon that production costs (cost per unit produced) go down as the volume of production increases. See also, Excess capacity.

**Equity**

Economic fairness. The degree to which a beneficial good or service is equally available to all strata of a society, through differential pricing and subsidies for those who cannot pay.

**Extrapolation**

Making an estimate or inference beyond the known data on the basis of a limited sample. For example, estimating the number of users of a particular contraceptive method by multiplying the number of married women in the population by the prevalence rate obtained in a sample survey.

**Family planning**

The conscious effort of couples to regulate the number and spacing of births. Family planning usually connotes the use of contraception to avoid pregnancy, but also includes efforts of couples to induce pregnancy. (PRB)

**Family planning need**

Requiring contraception so as not to become pregnant with a birth that would arrive too soon or would not be wanted at all.

**Actual need**

Type of family planning need: women who are actually exposed to pregnancy and said they want to delay a next birth or have no more.

**Met+Unmet Need**

Type of need for contraception based on all women who actually use contraception plus all those who respond that a prospective or current pregnancy that occurs within 15 months of the previous birth is too soon or not wanted at all.

**Avoid HRB Need**

Type of need for contraception based on avoiding a pregnancy at a young or old maternal age, at a high parity, or at a short time since the last birth.

**Family planning program**

A set of activities designed to foster positive attitudes toward fertility limitation and birth spacing, improve knowledge of and access to family planning, and increase the use of contraceptive goods and services. May refer broadly to all such activities within a country, or narrowly to the activities conducted by a particular agency or organization.

**Community-based distribution (CBD)**

A service delivery mechanism relying on specially-trained nonmedical workers, who distribute or sell subsidized contraceptive methods, principally pills and/or barrier methods, to members of their community. Workers may go door-to-door or sell/distribute out of their homes or work places.

**Fecund**

Fertile.

**Fertility preference**

A woman's (or man's) stated (or inferred) preference about whether or not to have any (more) children and when to have them.

**Funding**

In the context of this manual, funding refers to the individual or entity that assumes the cost of family planning goods and services.

**Private funding**

Payment by individuals who use the good or service, either directly (e.g., out of pocket) or indirectly (e.g., private health insurance plan).

**Public funding**

Payment by government or foreign assistance donations from other governments or international organizations (e.g., USAID, UN, World Bank).

**Subsidy**

Financial support by any source other than the individual who directly uses the good or service. Subsidies may be public or private.

**Health risk factor**

Factors that put a woman at risk of having a high-risk birth.

**High-risk birth**

A birth that would have a higher risk of infant or child mortality because of the mother's age, parity, or time since last birth.

**Ideal number of children**

The number of children a woman would want to have if she could go back to the beginning of her reproductive years.

**IEC**

Information, education, and communication activities.

**Index**

An observable, quantifiable behavior or phenomenon used to measure the degree of an underlying condition. See also, Criterion.

**Indicator**

A measure composed of two or more pieces of data used to evaluate some aspect of a program.

**Limiters**

Women who do not want any more births. This group is sometimes subdivided into certain limiters (women who are sure) and uncertain limiters (women who are not sure about their decision to have any more births).

**Market, contraceptive**

Refers to the universe of all current users of contraception, regardless of method or source, or the universe of current users and those women and men who potentially might use methods if they were better informed, knew of outlets, or had access to methods priced within their ability to pay.

**Market segmentation**

The process of classifying the contraceptive market into smaller subgroups on the basis of method, ability to pay, and other individual characteristics. Yields an estimate of how many users of different methods might be served by different types of outlets.

**Market share**

The percentage of the universe of users accounted for by a specific contraceptive method or specific source or outlet. The sum of all market shares must equal 100%.

**Market size**

The number of users of a specific contraceptive method or users who obtain their method from a specific source or outlet.

**Market price, see Price****Means test**

Used in subsidized services to establish eligibility or price to be charged. Involves ranking the client by his/her income or a measure of income, such as neighborhood of residence. Higher-income clients are referred to other outlets or are charged higher prices.

**Mobile unit**

A self-contained clinical facility that can be moved from one location to another, such as an examining room, small surgery, or laboratory built into a truck or van.

**Nongovernmental organization (NGO), see Sector**

**Norm**

A set of regulations, imposed by the service provider or a separate regulatory body, governing the provision of goods and services. Norms may establish eligibility of users for different methods (e.g., age limits for combined oral contraceptives, minimum age for surgical contraception), ancillary services that must be performed (e.g., Pap smears for IUD acceptors), frequency and timing of check-ups after acceptance, minimum qualifications of service providers, etc.

**Nulliparous (zero parity)**

Having never given birth.

**Parity**

The number of children a woman has ever borne; high parity indicates some large number of births, typically more than four.

**Postponer**

Women who have not yet had a birth and want to delay having one. This group is often subdivided into married postponers and unmarried postponers.

**Price**

The amount of money charged to the user of a good or service.

**Market price**

A price assigned to a good or service that covers all the costs of producing it and allows a margin of profit to the provider.

**Profile group**

A subset of surveyed women who are similar in terms of fertility desires and/or other characteristics, and who are the subject of further analysis.

**Projection**

A conditional forecast or prediction about the future based on assumptions about controlling conditions such as mortality, fertility, use of family planning, etc.

**Proxy**

An observable variable used in lieu of or as a measure for a less-easily observable or quantifiable condition. For example, presence of household goods such as TV or refrigerator may be used as a proxy for household income and expenses, in lieu of collecting actual income or expense data.

**Proxy scale**

The use of two or more proxy variables to construct a continuous scale from low to high, for a less-easily quantifiable condition.

**Resource**

Assets that a program can use or draw upon to carry out its activities.

**Human resources**

Refers to personnel, including paid staff and volunteers.

**Resource allocation**

The process by which resources are assigned to or distributed among the different components of a program.

**Resource requirements**

Projected or estimated quantities of resources that will be needed by a program or its components in order to carry out the scope of planned activities.

**Restriction**, see Norm

**Sector**

Refers to the source of financing and management for a group or category of outlets offering family planning goods and services.

**Commercial sector**

Refers to outlets of goods and services whose costs are paid for by the users themselves or by organizations that are paid to act on their behalf (e.g., private health insurance companies with premiums paid by the beneficiaries or their employers).

**Informal sector**

A subgroup of the commercial sector, which is not formally registered with the government and that therefore escapes government regulation on salaries, working conditions, etc. May include street vendors, self-employed professionals, small businesses.

**Nongovernmental organization (NGO)**

Includes not-for-profit private voluntary organizations and other donor-funded agencies that are not managed by or part of the government, but that may be registered with the government and subject to government regulation. The World Bank defines NGOs as "private organizations that pursue activities to relieve suffering, promote the interests of the poor, protect the environment, or undertake community development".

**Private sector**

Consists of nongovernment actors that produce, distribute or retail family planning goods and services. The classification includes both nongovernmental organizations and for-profit groups. Depending on the country, the private sector may include physicians and midwives in private practice; private hospitals, clinics, dispensaries, or outlets; private family planning associations; nonprofit health providers; pharmacies, shops selling contraceptives, and vending machines; and traditional healers.

**Public sector**

Refers to outlets of family planning goods and services financed and managed directly by national, state, or local government. Depending on the country, the public sector may include the Ministry of Health, Social Security, municipal government, etc.

**Situational analysis**

A methodology developed by the Population Council to evaluate the availability, functioning, and quality of health and family planning services. It is based on the Quality of Care framework developed by Bruce and utilizes field visits to samples of service delivery points.

**Social marketing**

A family planning service delivery strategy using commercial channels and techniques such as market research and advertising to distribute low-cost contraceptives. Subsidies may be provided for advertising, distribution, and/or commodities. It is designed to increase the demand for contraception and to attract users who can afford to pay away from more highly subsidized sources.

**Socio-demographic factor**

Any one of a number of social, economic, or demographic characteristics such as age, educational level, occupation, number of children, etc., that can be used to classify individuals into larger groups. These classifications may be related to attitudes and behaviors in other areas, such as approval of mass media advertising of contraception or use of contraceptive methods.

**Socioeconomic status**

A composite index usually including such factors as income and/or expenditures, educational level, and occupational status. A predictor of a number of behaviors, including fertility and contraception, buying habits, and attitudes.

**Spacer**

Women who want to delay a (next) birth. This group is often subdivided into groups of women who have never had a birth (postponers) and into breastfeeding spacers and nonbreastfeeding spacers.

**STDs**

Sexually transmitted diseases, usually includes HIV/AIDS.

**Strategic planning**

An analytic approach to defining program objectives and allocating resources to meet them. It proceeds in stages, from assessment of the current situation, development of alternative paths and resource requirements, development and implementation of an action plan, to monitoring and evaluation of program inputs and results.

**Subsidized services, see Funding****Supply**

The amount of a good or service available for use, as opposed to demand. Assessing supply takes into account the geographic availability of the goods and services, quality, prices charged, and other costs to the consumer, such as waiting time and transportation.

**Sustainability**

The ability of development projects to continue performance with long-term benefits and impacts after donor funding and/or technical assistance ends.

**Target analysis**

Use of the TARGET computer model that projects the number of users and resources required to reach a particular fertility goal.

**Total fertility rate**

The total number of children that would be born per woman if all women were to pass through the childbearing years bearing children according to the schedule of age-specific fertility rates in the reference period.

**Union**

Generally, a long-term relationship that is akin to marriage. However, women who report that they are in union in the DHS may actually be using a less restrictive definition of "union".

**User fee**

A price charged to clients of subsidized services for the use of the facility and/or receipt of commodities. User fees generally do not cover full costs; they are often intended to produce income for the service provider or to encourage the client to use one or another facility on the basis of differential prices.

**Variable**

Something that is observed. Any particular observation is called the value of the observation; for something to be considered a variable, it must have at least two possible classes of observation. The classes must be mutually exclusive; that is, each single observation can be classified into one and only one of a number of mutually exclusive classes.

**Dependent variable**

In an experiment, a variable that is thought to be associated with or related to the independent variable. The investigator measures change in the dependent variable as he/she manipulates the independent variable.

**Independent variable**

In an experiment, the variable or variables over which the investigator has control. Those which the investigator manipulates or varies.