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**BACKGROUND PAPERS
ON
HEALTH DEMONSTRATION PROJECT**

— With Special Reference to Primary Health Care —

1978



**Korea Health Development Institute
Seoul, Korea**

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ALTERNATIVE APPROACHES AND RATIONALE
FOR
MEETING COMMUNITY HEALTH NEEDS

by

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INTRODUCTION

All countries have one basic common problem - how best to improve the health status of their entire population. The problem has become more pressing owing to changes in the needs and expectations of communities; and, at the same time, in governments' recognition of the importance of linking health improvement with socio-economic development.

During the past decade, medical science in this country progressed rapidly and made brilliant achievements. This is due to the rapid explosion of knowledge in science and medicine, and the recent trend towards specialization. However, health care service is lagging behind the health needs of our changing society. The majority of the population are not satisfied with the health care services they are receiving. The basic reasons are spiraling costs, increasing public expectations, a rapidly changing social structure, and inefficient management of the country's health industry.

Within a decade, Korea has succeeded in shifting its economic structure from a developing agricultural to an industrialized foundation. The current economy has grown to more than 10 times that of 1962. This has brought about many socio-economic changes. However, in this process, mainly because of the growing industrial economy and the urgency in building national security, the national health program was not given high priority in investment, and the Korean Government placed less emphasis on health and medical programmes. This kept Korea's medical facilities at low standards, and individual private practitioners, who require less national investment in facilities, increased. But now, with rapid economic growth, the national health needs are increasing and bringing mounting pressures upon the insufficient and inadequate medical facilities and services.

With the concepts of "growth", "balance", and "efficiency", the Government's Fourth Five-Year Plan will endeavor to meet the health needs of the people and also provide equal benefits to all. Emphasis will be placed on the systematic development of a social security system to improve the living standards and well-being of the people. In order to make health care more readily available to needy persons, the government has decided to implement several major demonstration projects of a low-cost health care delivery system.

The demonstration projects are expected to meet the rising expectations of the people. However, there have been many constraints in developing these demonstration projects, including a lack of understanding on the part of the people and a lack of experience on the part of the managers and administrators. 1/

HEALTH CARE PROBLEMS AND ISSUES

- Health Problem Formulation -

Problems appear in many forms but they always result from a perceived gap between "what is" and "what might be". There are many problems; however, one of the major problem areas is the need for an adequate diagnosis of the health problems facing the country. ^{2/} Therefore, the formulation of problems is an important element of management. For the purpose of problem analysis in the health care situation, health status based on population characteristics, health care costs and health service delivery system will be reviewed.

Analysis of Korean population patterns shows that the population is predominately young. The present population is in excess of 34.6 million, and of these around half are under the age of 20. About 29 percent range in age from 20 to 40; less than 16 percent are in the age group 40 to 60; and those over the age of 60 represent somewhat more than 5.6 percent of the population. From a fertility standpoint, census data shows that almost 77 percent of the females in Korea are under the age of 40. Of these about 40 percent are in the child-bearing age group. The census conducted in 1975 indicated that the rural population, as a percentage of the total population, declined from 75.5 percent in 1955 to 51.6 percent in 1975. This decline was mainly due to the increase of urban population in major cities which results in various side effects to the community. Table 1 shows the population structure in rural areas, as differing from urban, with population not economically active, high dependency ratio, and lower employment as well as educational levels. ^{3/}

Table 1. Selected Socio-Economic Characteristics of Population, 1975

Population Analysis Categories	Urban	Rural
Age Distribution of Population		
Percent 14 Years or Below	35.2%	41.2%
Percent 60 Years or Over	4.2	7.0
Dependency Ratios	1,137	1,385
Educational Level		
Percent Illiterate	4.3	12.0
Percent High School Graduates	11.7	4.0
Employment		
Labor Force Participation Rate	62.7	52.2
Percent Self-employed	26.5	42.1

From the health standpoint these findings indicate that a common problem lies in terms of needs related to diseases of the young and to family planning. These data also reveal that the rural population consists of the young, the old, and the under-educated, most of whom lack a basic knowledge of health care and sanitation.

To sum up, the population statistics exhibit a number of characteristics of serious concern to health planners: half the population is young, women of child-bearing age make up a high proportion of all females, more than half the population live in rural areas, either self-employed or working as a family unit. Clearly, as a consequence, the main targets for planning initially should be persons living in rural areas who are in the greatest need of health services.

- Cost of Health Care -

The economic structure of a society affects the health care system at two levels: (1) the more general level of organization, including the organization of services, the medical professions, and industrial sector; and (2) the more specific interaction that occurs between health care personnel and patients, including the health-seeking behaviour of consumers. 4/ As a free world member, Korea has adopted the free enterprise ideology of economic individualism and self-determination for the nation's economic activity. This fact, characterized by specialization in the medical field, has led to a health care system in which the fragmentation is marked and physicians are mostly in private practice.

Korea has some excellent medical specialists and hospital facilities in the major urban areas, but these are normally accessible only to a few. In the rural areas, it is estimated that only 15-20 percent of ill persons have access to hospitals or clinics. About 45 percent obtain their primary curative services from pharmacies and drug stores and 10 percent from herbalists, while 30 percent receive no treatment. 5/ This has been reconfirmed by KHDI's baseline survey in the three demonstration areas.

Traditionally health services were paid for by consumers and by some charitable organizations. However, very recently, to overcome the constraints of medical care costs, other methods of payment such as commercial insurance, industrial support and/or social insurance have been expanding rapidly. These schemes are not yet developed to cover rural community populations within the foreseeable future.

The average per capita health expenditure in Korea is only \$14 compared with \$490 in the United States. The percentage of GNP devoted to health services varied from 2.8 percent in Korea to 7.5 percent in

the United States. If we compare this amount spent for health purposes in 1974 with 2.5 percent in 1970, the present increase is still apparent. Actually, in Korea the role of social insurance in financing health care is very limited. Private consumer spending is still the major source.

In view of these limited funds to provide minimum health services to the entire population, lack of financial schemes to cover rural community people, and the low incomes in rural Korea, a low-cost health care delivery project needs to be developed for the rural villagers.

- Current System of Delivering Health Care -

Some have said that the lack of a health care system in a country provides a good opportunity to start de novo, with scant attention to what has gone before. ^{6/} However, Korea is hardly such a country; facilities, personnel, and a long history of health care, in fact, exist. Western medicine was first introduced in Korea around 1875 and small-scale hospitals and clinics were constructed by the Christian medical missions at the beginning of the 20th century. Thereafter the Korean medical sector made steady progress which continued after the Independence of Korea.

However, during the Korean War (1950-53), about 70 percent of the existing facilities were damaged or destroyed and many health care personnel lost. After the Korean War, the government developed a training program for physicians, nurses and health technicians and, in pace with this government effort, the private sector also developed rapidly. Today, medical care is provided by three separate institutions: public health service, hospitals, and private practitioners.

With respect to health care facilities, current data indicates the nation has some 12,800 facilities. However, this figure requires closer examination. There are in fact only 43 general hospitals and 151 other hospitals throughout the country. Over 6,100 facilities are classified as "clinics" and 198 as "health centers". As shown in Table 2, private hospital beds represented 73 percent of all hospital beds available in the nation. The need for facilities is made even clearer when one examines this same data in terms of distribution throughout the country - even in a cursory way. For example, the cities of Seoul and Busan account for 80 out of the total of 184 hospitals and for over 2,988 out of the 6,125 private clinics. In fact, around 50 percent of all medical facilities are located in these two cities, despite the fact that only some 27

percent of the total population is to be found there. The number of and deployment of physicians are similar to the pattern of facilities. Actually, the rural situation is even worse than these figures indicate. It is estimated that only 13 percent of the physicians and 17 percent of the medical facilities are located in the rural communities.

Table 2. Hospitals and Hospital Beds in Korea, 1973

Hospitals and Beds	Number	Percent Distribution
Hospitals, Total	6,171	100.0%
Public	62	0.1
Private	6,109	99.9
(Clinics only)	(5,994)	(97.1)
Hospital Beds, Total	40,719	100.0%
Public	11,005	27.0
Private	29,714	73.0
(Clinics only) "	(18,280)	(44.9)

Hospital Beds Per 10,000 Population		
Korea	12.2	
United States	74.4	

It is clear, therefore, that the number of hospitals, particularly in rural areas, the number of physicians, and other health workers indicates a need based simply on absolute numbers for which a project of improvement in the number and distribution of facilities and in the education of skilled and paraprofessional personnel seems to be required.

Besides the paucity of facilities and personnel for the provision of health care, the present organizational structure of the health care delivery system is considered inefficient as well as inequitable. Overlapping, conflicting and competing organizations within the health system, and decisions on the mixture of facilities and services without reference to the population needs are the typical symptoms which demonstrate the need for better management. The current health care system is, in other words, far from an integrated system in which needs and the allocation of resources are clearly coordinated.

APPROACHES AND RATIONALE FOR POPULATION COVERAGE

- Basic Options and Principles -

As illustrated above, the massive health needs and limited resources to meet these needs are a major concern in Korea. One major aspect of the problem is the insufficient provision of financial resources. Another aspect is also insufficient trained manpower. The last, but not least, is the maldistribution of available resources.

Originally it was thought that the existing pattern of governmental services would naturally be extended to more and more people as economic progress continued. Though the government has invested resources to a limited extent in health and other services, this has not occurred. Services based on older models of industrialized countries do not spread far beyond the modern sector or scattered small areas where political pull has succeeded in installing them.

For a solution to these problems, economic planners and health professionals increasingly are looking to the community itself to help in their efforts to improve health among the disadvantaged of the rural communities. They recognize that the community has many resources that have remained untapped. If the community can be mobilized to participate in improving its environment, preventing diseases and contributing workers to do frontline health care, then health patterns can be changed. Community health thus is becoming the key to insuring that scarce resources of health and medical care reach beyond the privileged few

Kenneth Newell elaborated on this idea, equating community medicine with basic health care services and community health with primary health care. He concluded that if health is to be improved the community must be involved in providing that first line health care. Only in this way do patterns of poor health and poverty change. Community health is of increasing interest because it poses a possible alternative to expensive medical care. It presents a way in which to tap community resources to provide improved health conditions for people who could not afford medical treatment. 7/

According to the Recommendations of UNICEF/WHO Joint Committee on Health policy, principles in the reorientation and development of health services to achieve extensive primary health care are as follows:

- a) primary health care services should be recognized as part of overall development, taking into account the interaction between development and health programmes;

- b) firm policies, priorities, and plans should be established for the proposed primary health services;
- c) all other levels of the health system should be reoriented to provide support (referral, training, advisory, supervisory, and logistic) to the primary health care level;
- d) communities should be involved in the design, staffing, and functioning of their local primary health care system and in other forms of support for this system;
- e) primary health care workers should be selected by the community itself, or at least in consultation with the community, and given simple training;
- f) there should be special emphasis on (i) preventive measures; (ii) health and nutrition education; (iii) health care needs of mothers and children; (iv) utilization of simplified forms of medical and health technology; (v) association with some traditional forms of health care and use of traditional practitioners; and (vi) respect for cultural patterns and felt needs in health and community development. 8/

These principles should be fully considered for adoption subject to local conditions. In KHDI health demonstration projects, the concepts and approaches for community involvement, new health manpower and re-orientation of health care system have been strongly emphasized for delivery of primary health care for the rural community.

- Community Involvement -

As one of the major challenges, the KHDI has identified the need to divert resources from conventional curative programmes, which tend to benefit only a privileged few, to community-health programmes, designed to improve the health status of the majority.

As an essential component of primary health care, special emphasis is put on the idea of community involvement and self-reliance. In order to secure community involvement, using its own resources in primary care, there should be ways of guiding self-help efforts. This could be done through existing or new community institutions, such as community development committees. These committees are an organization of the leaders of villages and are expected to identify health problems, plan and implement the programmes to deal with these problems, and promote the well-being of the population.

However, health promotion is not the only rationale. The main reason for utilizing or organizing committees is to enable rural people to see through experience what they could achieve with their own resources to solve health problems, as a step toward development in other areas. Their actual experience in working jointly to analyse problems, set priorities, and plan the use of local resources may spill over from health into other sectors or vice versa. In other words, the committee is considered not only an important instrument for improving health but as an entry point for efforts at integrated rural development. The main tasks of these committees should cover enlightening the people, mobilizing community resources in support of primary health care, encouraging health education, organizing the mass prevention of certain diseases, fostering cooperation projects, and offering incentives to the community health workers.

- New Health Manpower -

According to the Fourth Five-Year Economic Development Plan, "public health centers and sub-centers will be strengthened in order to expand the availability of health care services to rural residents. The programs and activities of health centers and sub-centers will provide primary care services to rural residents ..." However, the most obvious obstacle to achievement of these objectives is the lack of manpower at the periphery to perform the simple activities involved. Once the priority and scope of primary health care is identified locally, selected community persons should be trained to accomplish clearly defined responsibilities and assignments. The closer to their own locale these community persons can be trained, the better. In addition to the initial training, the continuous training and supervision of community persons is essential to improve their technical abilities.

These community persons, usually called community workers, need a good link to the national health care system to be able to refer cases they cannot deal with, and to receive technical information, logistical support, and supervision. Most countries are now using auxiliaries as those links whose functions are guiding and helping community workers, bringing them supplies, dealing with referred cases and problems if necessary. These functions of auxiliaries are now being carried out by existing nurse aides detailed in the sub-center.

Once medical demand is aroused, it becomes insatiable. The medical demand can only be met in the future one of two ways: (a) by increasing the number of physicians, which is strongly supported by the Ministry of Health and Social Affairs but is practical only to a limited extent,

and (b) by increasing efficiency through teaching primary health care and exposing the medical under-graduates to the rural communities, in addition to training them in a hospital-based health system, and/or delegating many traditional skills and all non-medical functions to paramedical and non-medical staff.

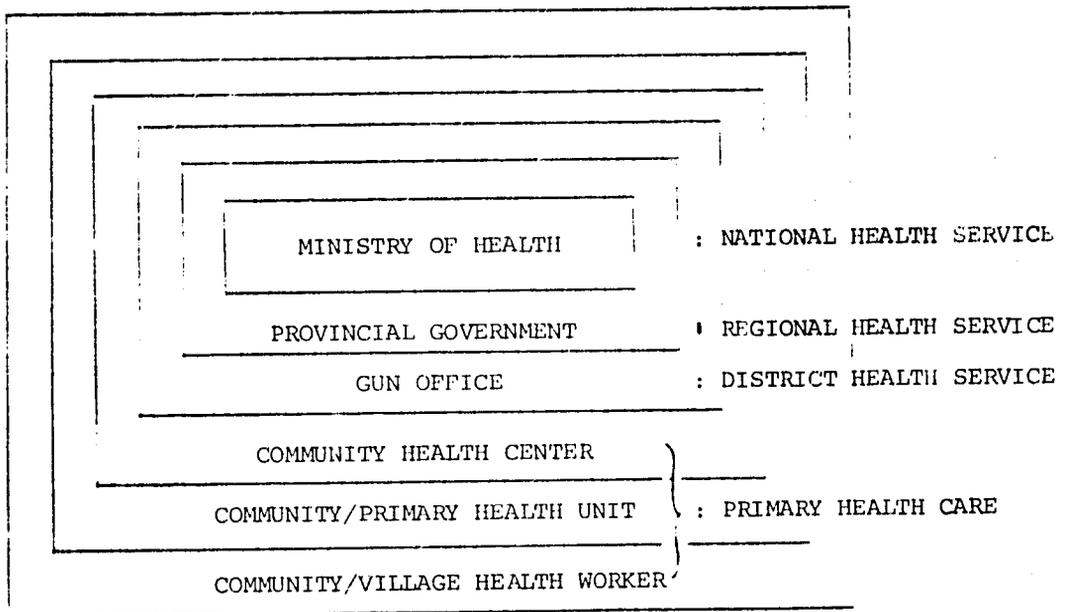
The latter approaches are new to both the medical society and communities alike. The KHDI project is experimenting with the new type of medical assistant. New medical assistants must be trained to work in tasks delegated by medical doctors. However, due to the relative ignorance of the community on the true causes of disease and of what needs to be done in the way of prevention and treatment, they should be able to teach people about health, prevention and treatment, and family planning. The aim in training, however, should be job performance rather than detailed understanding and background knowledge. Also special emphasis should be put on these workers to provide continuing motivational input and training.

- Re-orientation of Health Care System -

The dilemma confronting health administrators is that administrative technology in the form developed upto the present time is a technology of specialization, which fosters efficiency, whereas the technology needed for comprehensiveness and hence social effectiveness is still underdeveloped.⁹ We have failed to apply all of the knowledge acquired through the great achievements in the medical sciences to provide health care for the majority of the people. Furthermore, the existing system does not usually take account of changes in the community and is unable to keep pace with them.

With the recent introduction of concepts and approaches in primary health care, these changes in the community can be effectively taken into account. However, to provide effective primary health care at the village and community level, existing health services should be re-oriented and extended so as to establish an integrated and comprehensive community approach at all levels. This is based on the idea that the support of other levels of the health care system for primary health care is necessary in order for community residents to enjoy the benefits of a valid and useful technical knowledge too complex or costly to apply routinely to primary health care.

THE SYSTEM OF HEALTH SERVICES



The intrinsic nature of these health delivery systems means that both their design and their operation should be decentralized. The system at the village and community level should be altered initially and then gradually introduced into the existing organizations at the district and provincial level. Quite often there are serious problems because the system of financing, the personnel appointments, salaries, incentives, supply, program direction, evaluation, etc., are not compatible, nor adequate to maintain the new system. As the system matures, it will be more important to have district and regional health delivery organizations (public and/or private) participate in program planning with the district, provincial and central levels.

These health care organizations should, in the planning, strive to develop main output indicators such as (a) extension of health coverage to the entire population; (b) improvement in the quality of such coverage; and (c) consumer participation and satisfaction. The key word should be relevance --- relevance of the integrated development of health services and health manpower to the health needs and demands of the population.

PRIMARY HEALTH CARE DEMONSTRATION PROJECTS

- New Institutional Arrangements -

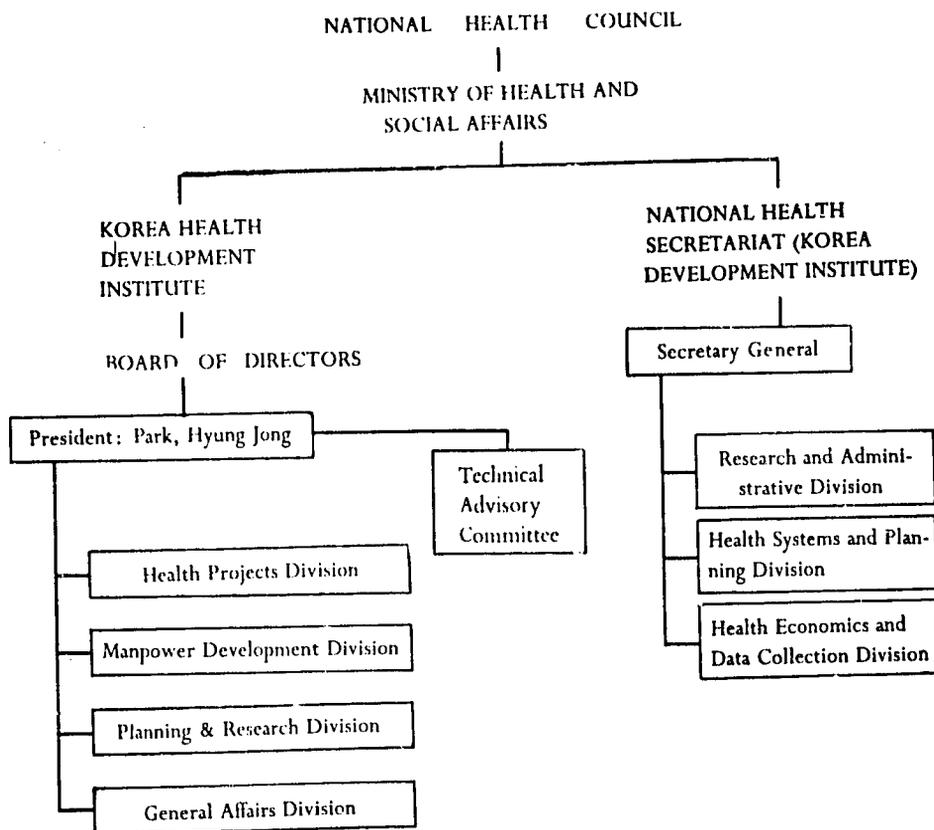
To cope with the nation's major health problems the following goals have been established for the health sector in the government's Fourth Five Year Economic Development Plan: (a) to improve the distribution of health care services through the development of a low-cost health care delivery system, (b) to secure a stable supply of medical manpower by extending and upgrading institutions for medical education, and (c) to reinforce public health and sanitary services, including extension and improvement of the piped water supply, sewerage, and anti-pollution systems.

This plan places strong emphasis especially on primary care and preventive medicine associated with a system in which personal care is widely dispersed. However, due to a lack of formal procedures for determining needs, identifying investment opportunities, preparing projects for domestic and international funding, and also to the complicated nature of the health care problems which needs more than simply providing hospitals and physicians, substantial changes will have to take place in the health care delivery system which will facilitate access to adequate care for all.

Thinking specifically about health services, change cannot be commanded by anyone. There is no manager or administrator who is omniscient and no researcher who calculates for him the consequences of the various actions open to him. In other words, no one has such authority to say "thus it shall be." In fact, there are no ideal ways of providing health care anywhere, all the time; instead, there are choices that the politician, planners and public at large have to decide or agree upon in allocating resources to meet needs. Furthermore, system development or beneficial changes of the existing systems is a new area, in which most managers or administrators lack experience. Therefore, in order to make changes in a health care system which must be ultra-stable and as of necessity must operate on a day-to-day level, a new strategy for the promotion of change has been suggested. This promotion may require that special institutions be set-up and operated differently from the way in which the services normally are operated.

To overcome these constraints and to meet the development objectives with maximum efficiency, the Korean Government has introduced an innovative approach. With the leadership from the Economic Planning Board and other relevant ministries, a National Health Council (NHC) has been established to afford an effective forum for policy coordination, planning, resource

allocation decisions, and implementation for the health sector. To provide inputs and resources to the Council for sound planning and operation, a National Health Secretariat (NHS) has also been formed. This group with the participation of economists, planners and other social scientists is the key to effective sector-wide planning and evaluation.



With strong emphasis by the government on a low-cost health care development system, the Government has established a semi-autonomous organization. This organization is the Korea Health Development Institute (KHDI), whose primary responsibility will be to ensure that field demonstration projects are effectively planned,

implemented and evaluated. These field demonstration projects are designed to develop alternative approaches to health care, and a system for primary health care that will meet the health needs of all, especially low income families. These new organization systems are very necessary to (a) successfully plan, conduct and evaluate the field demonstrations and (b) link the results of such demonstrations to the national development policy and the planning processes.

- Planning of Research and Demonstration Projects -

Demonstration projects for which the KHDI is responsible can increase the acceptability of new methods and procedures, introduce more effective production and delivery methods, and influence traditional attitudes and behavior. However, before one can successfully demonstrate a replicable health care delivery system a series of preliminary steps must be undertaken.

A population based planning approach is an appealing methodology for the development of a people oriented health systems plan, such as KHDI's demonstration projects. This emphasizes the concept of an appropriate population base or denominator for any measurement.⁹ A population base, in contrast to an institutional, disease, or diagnostic base (all essentially derived from numerator data obtained only from the users of services and excluding non-users and many under-users), is absolutely necessary for objective planning and evaluation.

The approach requires a rather long research and development effort in which one must try to (a) define problems and needs for assessment and selection of health problems to be studied, and for identification of priority goals, (b) determine available resources and study the existing system, for a measurement of the effectiveness and efficiency of the existing system and for identification of apparent inadequacies in the existing system, (c) identify programs or possible program approaches that affect the goal(s) by hypothesizing what improvements could be made in the existing system and by selecting some assumed improvements that are feasible to implement.

Established in 1976 for the implementation of several five-year demonstration projects, KHDI is tasked to organize, fund, and staff its unit (i) to make a general assessment of current health needs, activities, and opportunities, and (ii) to prepare a strategy, general five-year demonstration project plan, and a specific action plan. The Institute has initiated as one of its first operational tasks, to evaluate on-going and/or completed community based health projects in Korea and relevant foreign countries to obtain data for planning low-cost health demonstration activities. Also, major emphasis was given to manpower utilization studies.

However, as the data collection, analysis and application are still in an experimental stage in the primary care system which KHDI is trying to develop, it was not felt that the initial information needed to be overly complex; in the first instance, simple measurements have been used and collected as long as they were recordable, meaningful and/or applicable. (See the Annex 1 for the information gathered initially by the KHDI) This information was sufficient in order for KHDI to define the problem and needs, to draw up a resource inventory, to make proper use of the existing data and information system, and to further develop methods by which resource requirements could be identified.

The next step was to plan, initiate and manage a programme containing three Gun-level demonstration projects in order to develop a new low-cost, integrated health delivery system, especially for low-income groups. This system would provide for integrated primary health care and would give priority to MCH, family planning, nutrition and family health education. The KHDI is responsible for ensuring that all demonstrations (a) encompass a reporting and evaluation system, (b) include active community participation and support and (c) include appropriate emphasis on preventive and promotive, as well as curative services.

The field demonstration activities of these projects are organized and expected to address the following needs:

- (a) a need for focus on specific target populations at the community level, and to concentrate on the "high-risk" individuals within the target populations,
- (b) a need to expand outreach efforts to provide services at the village level,
- (c) a need to rationalize the utilization of health facilities and manpower by relating these to the type of health problems to be solved,
- (d) a need to provide more emphasis on health education and preventive health measures,
- (e) a need to involve both the public and private sectors in the delivery of health care,
- (f) a need to test new alternative systems for organizing and financing the delivery of health services.

PERSPECTIVE

That one can better carry out work in sequence, moving from micro-level research to selected demonstrations, in our case by the KHDI, and finally to a general implementation, usually by the national government, has been postulated by experienced health experts. In this process, the entire rationale of a demonstration project is to test the desirability of some proposed course of action.

However, as health care systems vary from country to country, each should develop their own national strategy for a replicable health care system. The two main purposes of national health care efforts are to (1) establish the capability to plan, conduct and evaluate low-cost, integrated health delivery projects and (2) demonstrate successfully a low-cost integrated health delivery system that is replicable in the other parts of the country. These two goals have developed as the result of long deliberation and effort on both the national and international level.

KHDI has been newly created in order to implement these goals. But, before this can be done there are several problems which must be solved. Such as; how to manage, coordinate, finance and evaluate research and demonstration projects in the health services. The common obstacles ahead to overcome are; lack of knowledge in how to organize, design and test the research and demonstration project systems; how to relate the research and demonstration capacity with the operating entities (usually government operated organizations); how to finance the effort; how to get comparable data from the projects in order to enable comparable analysis among them; how to go from demonstration to replication, enlisting the community's support and utilization of the services, etc.

Even with these obstacles to overcome, at the end of the five-year life span of the Projects, KHDI is expected to show the following outcomes:

- (a) New systems and procedures will have been developed to provide better health care to low-income groups without significantly increasing the financial burden.
- (b) A national health policy and programmes to better serve low-income groups will have been developed because of the results obtained from the health demonstrations.
- (c) A system will have been developed for better utilization of health professionals, and there will be more career opportunities in the field of primary health care.
- (d) About 500,000 people will have directly benefitted by improved health care provided under the demonstration activities.

We still have a long way to go in order to reach the stage where an effective health care system for all is implemented in Korea, and where the constraints mentioned above no longer represent obstacles. For now, KHDI with the collaboration of colleagues in the health field, will continue to do its best towards reaching that stage of effective health care for all.

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"Maul-Geon-Gang-Saup"
(Community Health Project)

by

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1. PROJECT BACKGROUND AND OBJECTIVE

In June 1974, the Republic of Korea Government and USAID jointly determined that it was necessary to develop a national health initiative and program which would extend health services to those citizens who were excluded from the existing health delivery system.

Korea has excellent medical specialists and hospital facilities in the major urban areas, but these are normally accessible only to a small minority of economically advantaged Koreans. In the rural areas, it is estimated that only 15-20% of ill persons have access to hospitals or clinics. About 45% obtain their primary curative services from pharmacies or drug stores and 10% from herb doctors, while 30% receive no treatment.

In order to carry out field demonstration projects to test new ways of delivering primary health care to lower-income groups, the Korea Health Development Institute was established in April 1976 under the Korean Health Demonstration Loan Project by USAID and the Government of the Republic of Korea. The Korea Health Development Institute (KHDI) started to develop its goals, objectives, organizational plan and action plan. This initial plan was drafted and then passed through the Ministry of Health and Social Affairs for comments and Transmittal to the National Health Council.

The basic goal of this project is to develop a new system for providing better health care to low-income Koreans. However, the goal must be achieved without imposing excessive financial burdens on the individual receiving services or the Korean Government. Since the delivery of "low-cost" health services is a new area of concern in most countries, experimental or demonstration activities must be undertaken to develop and field-test alternative delivery schemes appropriate for Korea. The result of such demonstrations and tests must then be objectively evaluated and passed on to national economic planners in the form of policy and program recommendations.

At the initial stage, it was expected that the KHDI develop the project which would introduce such innovations as:

- 1) training and utilizing non-physicians to actually provide selected preventive and curative services which are now available only from physicians,

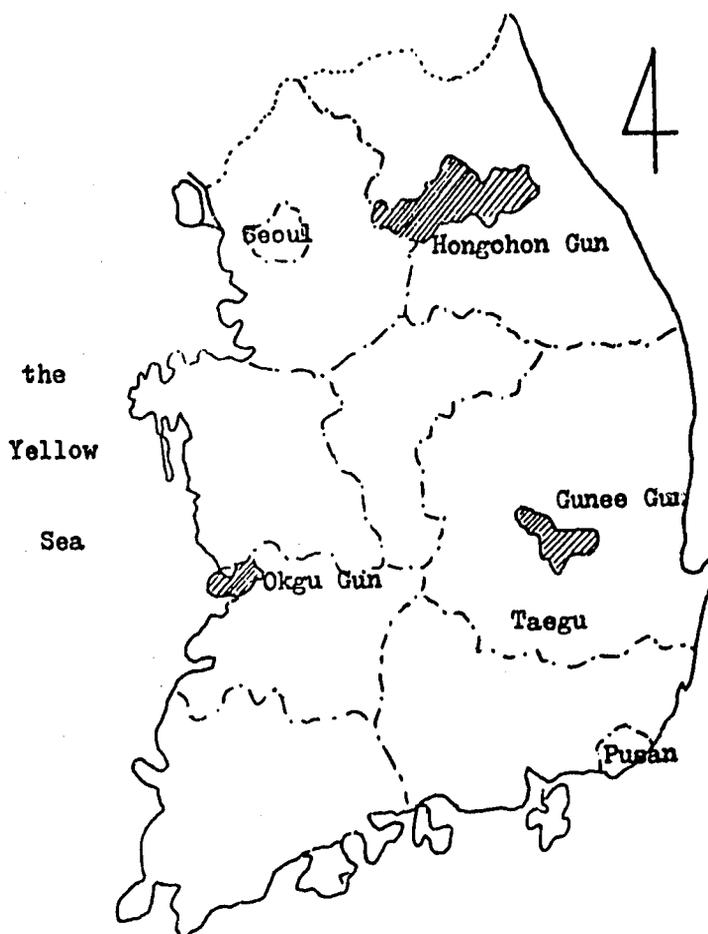
- 2) introducing integrated public health care services and making these available at the Myon and Village level,
- 3) coordinating community-wide efforts to improve environmental and personal sanitation,
- 4) conducting extensive efforts to promote good health through public information and education,
- 5) using pre-payment, health insurance, or other schemes to test alternatives for financing of community health services.

In conducting its activities, the KHDI was asked to make every effort to increase the support of private and public organizations for meeting the needs of low-income citizens in both the rural and urban areas.

2. DESCRIPTION OF THE PROJECT AREAS

In order to achieve the objectives of the project, three demonstration sites were selected in September 1976, after a thorough review and discussion of the data gathered from sixteen Guns proposed by Provincial Governments. These three project sites are: HONGCHON GUN, Gangwon Province; GUNEE GUN, Gyeongsang Buk Province; and OKGU GUN, Cholla Buk Province. (Fig. 1)

Figure 1. Location of the demonstration sites



2.1. Hongchon Gun

Hongchon Gun is situated 100 kilometers east of Seoul in Gangwon Province. 117,000 people live in a surface area of 1,719 square kilometers (population density; 69 per square kilometer). This Gun is mostly mountainous in terrain with a considerably small area of arable land. Administratively, there are one Eup and nine Myons. The farthest Myon is located 96 kilometers away from the Gun Health Center.

Table 1. NUMBER OF HEALTH PERSONNEL (PRIVATE SECTOR)
in Hongchon Gun, Gangwon Province (1977)

Eup/Myon	Population	Population Density per 1 m ²	Number of Physicians	Number of Herbalists	Number of Drug Vendors
Hongchon	29,301	330	5	8	11
Buk Bang	9,656	70	-	3	2
Nae Chon	8,530	61	1	1	1
Hwa Chon	11,600	57	1*	1	3
Du Chon	7,760	59	1	1	2
Seo Seok	10,705	51	1*	2	2
Dong	10,160	72	1*	1	4
Seo	8,295	70	1*	-	2
Nam	12,892	108	1*	2	5
Nae	8,491	20	1*	-	2
<u>TOTAL</u>	<u>117,390</u>	<u>69</u>	<u>13(6*)</u>	<u>19</u>	<u>34</u>

* : Limited Area Practitioner

Data for the population and health personnel available in Hongchon Gun are shown in Table 1.

Throughout the Gun, there were 13 physicians, out of whom 6 were limited area practitioners. Only one Myon was without any physician in this Gun. This gives a ratio of one physician to 9,000 persons. Besides these physicians, 19 herbalists (one herbalist to 6,200 persons) and 34 drug vendors (one drug vendor to 3,500 persons) were serving the population in this Gun.

2.2. Gunee Gun

Gunee Gun is situated 50 kilometers north of Taegu City, the capital of Gyeongsang Buk Province, with a population of 66,000 in a surface area of 609 square kilometers (population density; 109 per square kilometer). Administratively, there are eight Myons. The farthest Myon from the Gun Health Center is located at a distance of 33 kilometers.

Data for the population and health personnel available in Gunee Gun are shown in Table 2.

There were 5 physician; two of them were fully qualified physicians, two were residents under training, and one was a limited area practitioner. This gives a ratio of one physician to 13,200 persons. Besides these physicians, there were 11 herbalists (one herbalist to 6,000 persons) and 23 drug vendors (one drug vendor to 2,900 persons) in this Gun.

Table 2. NUMBER OF HEALTH PERSONNEL (PRIVATE SECTOR)
in Gunee Gun, Gyeongsang Buk Province (1977)

Myon	Population	Population Density per Km ²	Number of Physicians	Number of Herbalists	Number of Drug Vendors
Gunee	14,781	200	2	2	4
Sobo	9,438	86	1	2	3
Euihung	7,046	187	1	2	4
Ubo	7,418	83	-	1	2
Goro	5,969	58	-	1	2
Hyoryong	7,917	104	-	-	4
Buke	7,052	99	1*	2	3
Sansung	6,482	144	-	1	1
<u>TOTAL</u>	<u>66,103</u>	<u>109</u>	<u>5(1*)</u>	<u>11</u>	<u>23</u>

* : Limited Area Practitioner

2.3. Okgu Gun

Okgu Gun is located in the flat fertile region of Cholla Buk Province along the sea coast of the Yellow Sea, about 250 kilometers south east of Seoul. 116,000 people live in a surface area of 330 square kilometers (population density; 354 per square kilometer). There are 52 islands of which 19 are inhabited, and 7,286 people live in these 19 islands (population density; 365 per square kilometers). Administratively, Okgu Gun consists of 10 Myons. The farthest island, Ochong-do, is located 70 kilometers offshore.

Data for the population and health personnel available in Okgu Gun are shown in Table 3.

Table 3. NUMBER OF HEALTH PERSONNEL (PRIVATE SECTOR)
in Okgu Gun, Cholla Buk Province (1977)

Myon	Population	Population Density per Km ²	Number of Physicians	Number of Herbalists	Number of Drug Vendors
Okgu	23,335	409	1*	2	3
Oksan	5,842	367	-	1	1
Hoehyon	9,599	230	1*	1	2
Impee	9,069	405	1*	1	1
Seosoo	9,322	379	-	1	1
Da ya	16,902	433	1	1	7
Kaejong	8,512	499	-	-	2
Songsan	7,318	263	-	-	2
Napo	6,934	221	-	2	1
Mee	12,567	382	1*	-	1
Islands	7,286	365	-	-	2
<u>TOTAL</u>	<u>116,686</u>	<u>354</u>	<u>5(4*)</u>	<u>9</u>	<u>23</u>

* : Limited Area Practitioner

There were only five physicians in the Okgu Gun area, none on any island. Four of them were limited area practitioners. This gives a ratio of one physician to 23,300 population. 9 herbalists (one herbalist to 13,000 population) and 23 drug vendors (one drug vendor to 5,100 population) were serving the population in this Gun. Since

this Gun has two cities, Gunsan City and Iri City, in its neighbor Gun, a considerably large number of people in this Gun utilize services of physicians and herbalists in those cities.

2.4. Agricultural characteristics of each project area.

In all three Guns, agriculture is the main industry except in case of Okgu Gun, where fishermen occupy 9 per cent of total households. The following table shows their characteristics in agricultural products (Table 4.).

Table 4. MAJOR AGRICULTURAL PRODUCTS
in three project Guns (1976)

Gun	Surface Area (Km ²)	Rice (M/T)*	Silk (M/T)*	Tobacco (M/T)*	Apples (M/T)*
Hongchon	1,719	24,522	529	639	389
Gunee	609	16,833	377	224	6,517
Okgu	330	61,902	20	-	23

*M/T : Metric ton

Since Hongchon Gun and Gunee Gun are mountainous, silkworm and tobacco cultivation are noticeable other than rice production. In Gunee Gun, apple orchards are remarkable, and in Okgu Gun, rice is the major agricultural product.

3. BRIEF OUTLINE OF EXISTING HEALTH SERVICES IN A GUN

Presently, each administrative Gun has one Gun Health Center which is providing basic health services, mainly preventive in nature, to the population in the respective Gun. This Gun Health Center is staffed with a director, usually a physician, several nurses, a few technical staff and a number of administrative supporting staff to carry out the services for the whole Gun.

Every Myon of a Gun has three nurse-aides dispatched by the Gun Health Center. Each of these three workers is limited in her activity and only responsible for a single purpose duty; one for maternal and child health, one for tuberculosis control, and one for family planning. Although they are receiving directives and guidance from the Gun Health Center, since they are stationed at the Myon Office under the direct supervision of the Myon Chief, they are frequently regarded as the Myon office personnel rather than as health workers carrying out the health center programs. Where there is a public doctor in a Myon, he is sometimes designated as the Health sub-center director of the Myon. In practice, however, he is only acting as a private practitioner who runs his own private practice while he has no responsibility to look after the activities of nurse-aides assigned to that Myon.

In the field of curative services, the majority of the people in the Gun area receive care from the private practitioners who usually have their practices in an Eup or a Myon area, where the Gun Health Center is located. In a Myon area with a population of 6,000 to 10,000, one can hardly find a fully qualified physician. A limited area practitioner or a young hospital resident, dispatched by the Government for a six month mandatory period, is usually serving the people in a Myon. There are many Myons without any medical practitioner in the country.

Other than these preventive and curative health service personnel mentioned above, there exist quite a large number of herbalists, roughly one herbalist to 4,000 to 6,000 persons. Only a small proportion of them are fully qualified herb medicine practitioners and the majority are aged men approved only as herbalists who can dispense herbs for the patients.

Besides these modern medicine practitioners and herbalists, there are many drug vendors who can readily sell drugs to patients without any prescription from a physician. The only category of drugs they

cannot sell includes narcotics. Usually there is one drug vendor to an average of 3,000 to 4,000 persons.

4. MAUL-GEON-GANG-SAUP (Community Health Project)

After the contractual agreements with the aforementioned three Provinces signed by the Governors of each Province and KHDI President in February 1977, an overall outline and the scope of the project plan were prepared with minor differences in each area according to the geographical characteristics and socio-economic status.

Meanwhile, in order to facilitate the implementation of the project, Provincial and Gun Rules and Regulations for "Maul-Geon-Gang-Saup" were formulated and enacted in three demonstration areas between March and May 1977.

At the inception of the project, the specific objectives for Maul-Geon-Gang-Saup were laid out as follows:

- 1) Primary health care which consists of the advice and primary care given to a person or group of persons for preventive and therapeutic purposes, be provided to two-thirds of the population to be covered.
- 2) New types of community health workers such as Community Health Practitioners and Village Health Agents be trained and deployed in the project area.
- 3) To facilitate community involvement, health committees or forums for community participation be established in each local administrative level.

4.1. Hongchon Gun Maul-Geon-Gang-Saup

"Maul-Geon-Gang-Saup" for Hongchon Gun included restructuring the health services at the Myon level for the delivery of primary health services. A three-tiered service and referral system for primary health care was introduced with an emphasis on the Village Health Workers at the grass roots level, participating in the delivery of first contact primary health care services.

The Community Health Practitioners, who have finished their one-years' training by KHDI, are providing second phase health care to the people in remote villages from the Myon Office. The physician already

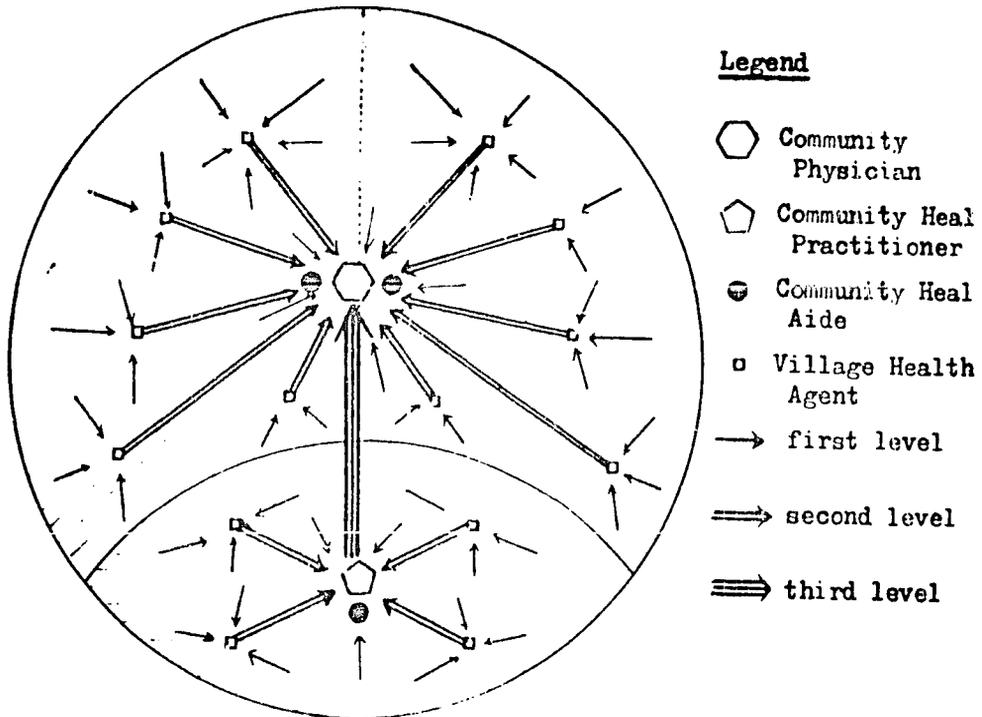
existing in each Myon is acting as the Community Physician and takes care of the patients in the Myon and those referred by the Community Health Practitioners.

The level of care in each category of health units is shown in Table 5.

Table 5. Level of services in Hongchon Gun

<u>Level</u>	<u>Health worker</u>	<u>Facility</u>	<u>Population served</u>
first	Village Health Agent	Village Health Post	Ri & Villages 500 - 1,000
second	Community Health Practitioner	Primary Health Unit	Sub-Myon 3,000 - 5,000
third	Community Physician	Community Health Center	Myon 10,000 - 15,000

Figure 2. DELIVERY OF PRIMARY HEALTH CARE
Hongchon Gun

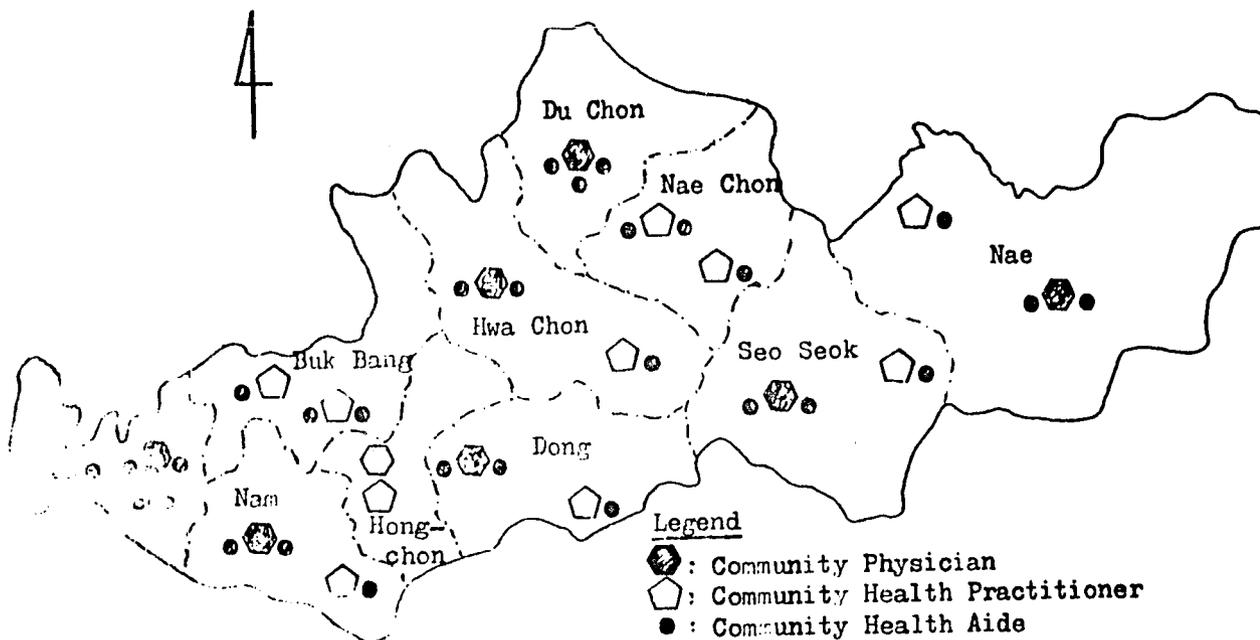


The first level of care is given by Village Health Agents at the village level. These Village Health Agents are selected by the village people and trained by the KHDI locally so as to provide simple curative services and take practical disease prevention measures under the guidance and direction of the Community Health Practitioners. These Village Health Agents refer cases to the next level of the system, the Primary Health Unit, or directly to the Community Health Center.

The second level of care is provided by a Community Health Practitioner. She provides limited medical care and preventive health services to the patients and people in several villages, and also supervises the activities of Village Health Agents in those villages. When the Community Health Practitioners cannot handle the patients within their limited capacity, the patient is referred to the Community Physician at the Community Health Center.

The third level of care is provided by the existing private physician in each Myon at the Community Health Center. This physician is designated as a Community Physician, and is responsible for the medical care of the population in the whole Myon and supervision of the activities of the Primary Health Unit staffed by a Community Health Practitioner.

Figure 3. Distribution of Maul-Geon-Gang-Saup Personnel
Hongchon Gun, Gangwon Province



Three Community Health Aides, health workers already existing at a Myon level, are trained for multipurpose work by KHDI and reassigned to a Primary Health Unit or a Community Health Center. They assist the physicians and Community Health Practitioners in providing health care and carry out the multipurpose health work in their areas.

4.2. Gunee Gun Maul-Geon-Gang-Saup

In Gunee Gun, a three-tiered health care system with main emphasis on the improvement of maternal and child health services has been introduced. In this Gun, three Community Physicians were newly recruited and assigned to head the Community Health Centers and one Community Health Practitioner is assigned to a Myon where there is no physician. Besides these two categories of health personnel, one nurse-midwife to each Myon is newly employed to head the Primary Health Post.

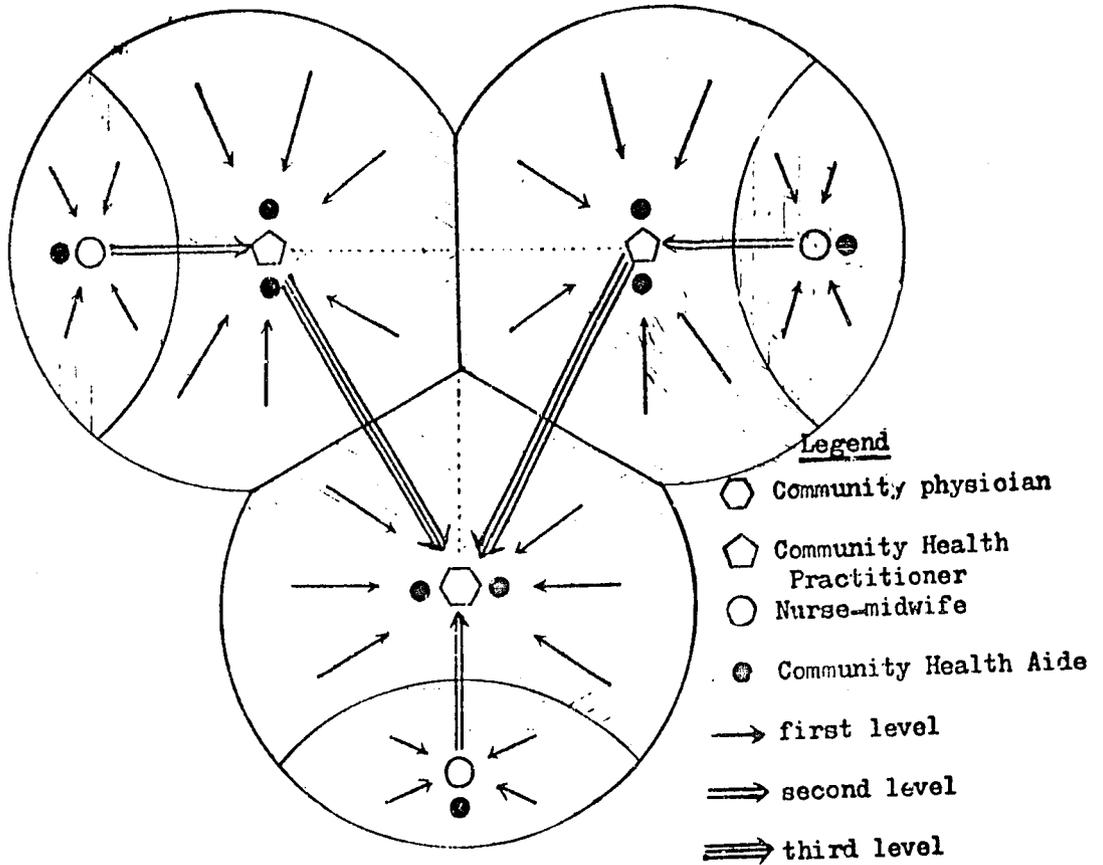
The health delivery system at each level is organized as shown in Table 6.

Table 6. The level of health services
Gunee Gun, Gyeongsang Buk
Province

<u>Level</u>	<u>Health worker</u>	<u>Facility</u>	<u>Population served</u>
first	Nurse-midwife & one CHA	Primary Health Post	2,000 - 3,000
second	Community Practitioner & two CHAs	Primary Health Unit	6,000 - 8,000
third	Community Physician & two CHAs	Community Health Center	20,000 - 25,000

The first level of care is provided at the multi-village level Primary Health Post, serving a community of about 2,000 to 3,000. A nurse-midwife and one Community Health Aide are assigned at the Primary Health Post. The nurse-midwife is providing the emergency care, first aid, and midwifery services and the Community Health Aide is doing the multipurpose preventive health work at the village level.

Figure 4. DELIVERY OF PRIMARY HEALTH CARE
Gunee Gun



The second level of care is provided at the Myon level with a Community Health Practitioner and two Community Health Aides. The Community Health Practitioner is responsible for the primary health care for the inhabitants and those referred from the Primary Health Posts. Two Community Health Aides carry out the multipurpose preventive health work for one third of the Myons respectively. Those

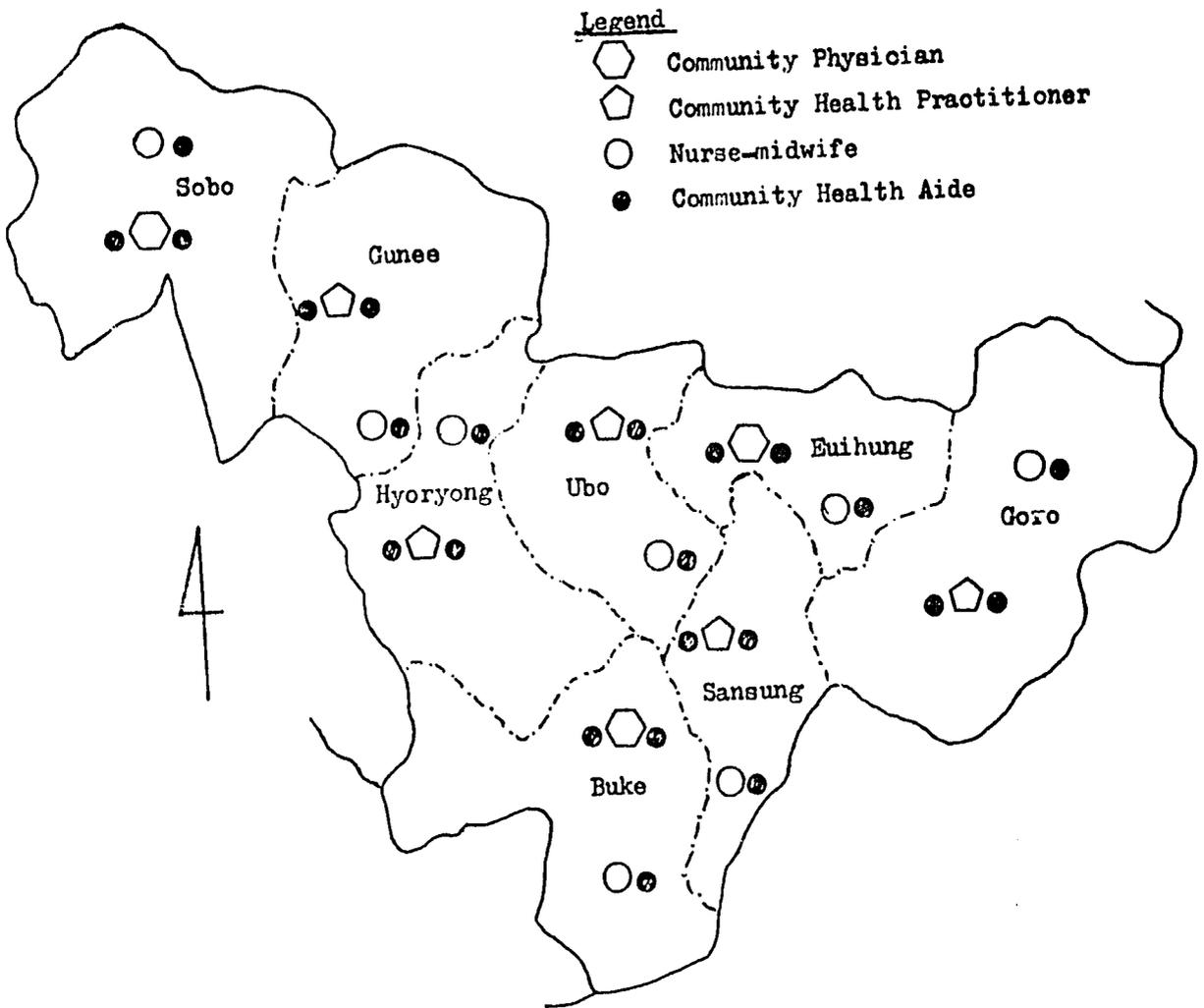
patients whom the Community Health Practitioner cannot handle are referred to the third level Community Health Center which is located at an adjacent Myon.

The third level of care is provided by the full-time Community Physician at the Community Health Center, each one covering two to three Myons. The Community Physician at the Community Health Center is responsible for the supervision of Primary Health Units and Primary Health Posts in his area.

At the village level, one health communicator from each village was selected and given three days of orientation training for the project. These Village Health Workers are going to assist the Community Health Aides when they visit the relevant village and at the same time act as health communicators for the village.

At the health center, to facilitate the project activities, one health educator, one sanitarian, one statistical officer, and one dental health worker are newly recruited by the project and added to the health center staff.

Figure 5. Distribution of Maul-Geon-Gang-Saup Personnel
Gunee Gun, Gyeongsang Buk Province



4.3. Okgu Gun Maul-Geon-Gang-Saup

In Okgu Gun, with a minor modification of the existing health center and subcenters, health care will be delivered to the population backed by the development of an insurance system which is affordable to the Government. Since this Gun has many inhabited islands scattered along the Yellow Sea, a number of Community Health Aides are deployed to islands to provide the primary health care with the assistance of Community Health Practitioners on a nearby island in the vicinity.

Okgu Gun Maul-Geon-Gang-Saup is divided into two different demonstration areas-mainland and islands

For the mainland, four Community Health Centers are established, each one serving two Myons. One qualified full-time physician designated as the Community Physician, heads the Community Health Center with one Community Health Practitioner posted in an Outreach Clinic in the second Myon. This Community Health Practitioner serves the people in the second Myon in primary care and refers those patients who require further consultation or treatment to the Community Health Center. Three Community Health Aides are utilized as multipurpose health workers, each one serving the area of one-third of a Myon under the direct supervision of the Community Physician or the Community Health Practitioner. One additional Community Health Aide is newly recruited to assist the clinic activities of the Community Physician or the Community Health Practitioner.

Figure 6. DELIVERY OF PRIMARY HEALTH CARE
Okgu Gun, Cholla Buk Province

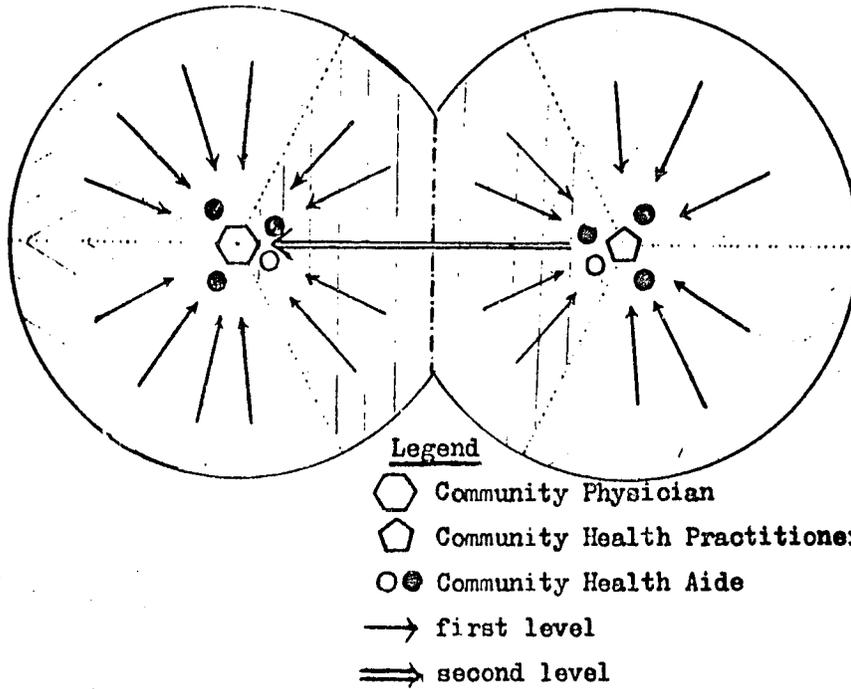
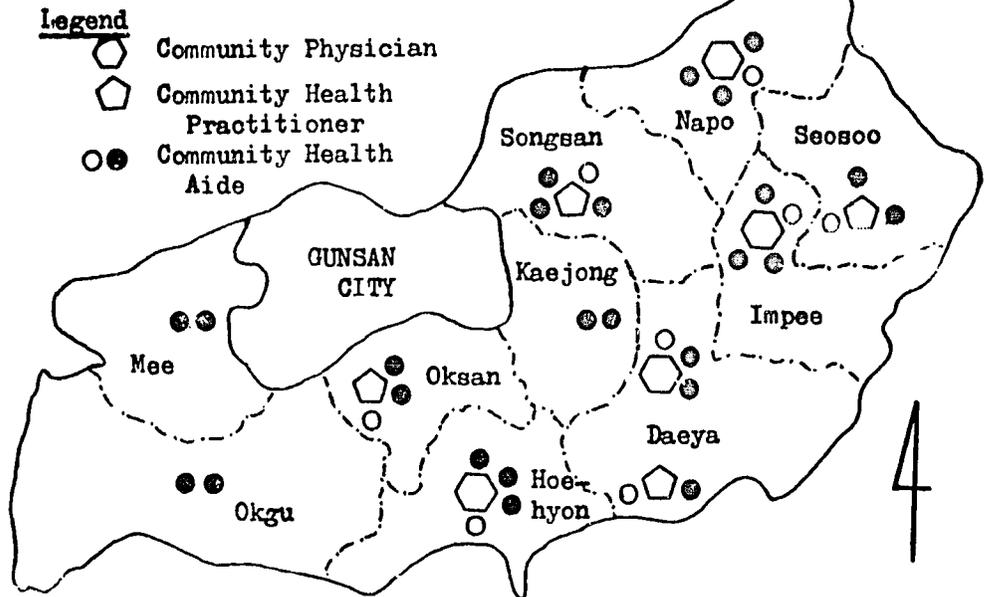


Figure 7. Distribution of Maul-Geon-Gang-Saup Personnel
Okgu Gun, Cholla Buk Province



On the islands, one Community Health Center with a qualified physician is established on Sonyu Island. To an island with a population of 700 or more, one Community Health Practitioner is assigned, and to an island with a population of less than 700, one Community Health Aide is assigned to serve the islanders. Patients from these islands will be referred to the Hospital Ship operated by the Gunsan Provincial Hospital to cover these islands.

5. COMMUNITY PARTICIPATION

In order to encourage participation of consumer representation in the project areas, various health committees were organized in three demonstration Guns.

On the recommendation of the National Health Council, through the KHDI demonstration health care project, an administrative ordinance was put into effect in three provinces to establish and operate a provincial Health Promotion Council with 14 or less members representing concerned bureaus and civic organizations or associations such as Korea Medical Association branches or Korea Nurses Association or public and civic hospital representatives, including one or two representatives of the county populace.

The principal functions of this council are to resolve provincial policy to implement Maul-Geon-Gang-Saup, coordinate mobilization, and enlist resources and participation of related agencies or sectors involved in health care services in the province.

At the county level, each Gun established a health service management committee to operate and support the KHDI project. The committee is chaired by the Gun chief and consists of 14 representatives from villagers, officials and professional or development - oriented bodies in the area. The committee coordinates and supports project planning, implementation, supervision, budget and resource mobilization and other means involved in the county's health care service.

At the Myon level, a Myon Health Development Committee was organized under the chairmanship of the Myon chief with around 14 members representing health services consumers and other professional or development-oriented bodies in the area. The function of this Myon level committee is to define the health problems and the needs of their community and resolve problems with support from outside or by themselves, or refer them to higher levels or government agencies for ultimate solution.

6. MONITORING AND EVALUATION OF THE PROJECT

6.1. Management Information System

The KHDI utilizes a "control" type management information system, whereby a limited number of pre-determined key data elements are selected for continuous observation, recording, monitoring, statistical analysis and summarizing of project activity, supplemented by a periodic statistical record survey to measure health system performance in the project area. The MIS design conceives of program management as including the function of program evaluation. With that frame of reference, the MIS can aid in both program management and evaluation even though these two functions are conceptually discrete.

The MIS's purposes are to assist managers in making decisions to

- 1) allocate current resources to improve program effectiveness and efficiency
- 2) estimate program coverage in terms of the percentages of the target populations served or not served by the program
- 3) assess program effectiveness, the degree to which a program accomplishes its goals
- 4) estimate program efficiency - the ratio of program output to input; where output can be estimated by a variety of key program indicators such as the number of contacts with patients or clients, units of performance of the various health services
- 5) identify those areas where selective supervision is likely to contribute most to program improvement.

In order to achieve those purposes, the KHDI has deviated three channels of data collection as follows:

<u>Channel</u>	<u>Frequency of data collection</u>	<u>Method</u>	<u>Contents</u>
1. Monthly Report	Monthly	PHU Report to KHDI through HC	Summaries of new occurrence-number of contacts with patients or clients by field workers
2. Quarterly Report Survey	Quarterly	Record (various data files generated by health workers while providing service) survey by surveyors visiting PHUs	Performance of the health system
3. Household survey	Once a year	Sample household interview survey	1) Consumer satisfaction with medical care service rendered by CHPS 2) Attitude towards needs and expectations of CHP 3) Checking against over-or under-recording or reporting by field workers through matching with response data by interviews

6.1.1. Monthly activity report

Since the KHDI is measuring activity levels in the project rather than effectiveness, we have to select one or two key indicators that can be observed, recorded and reported regularly without too much difficulty.

The most meaningful indicator of project activity in terms of accomplishment is the number of contacts with patients by the health workers in the system. This is based on the assumption that in order to improve performance of the health delivery system, more health workers are required to dispense advice, consultation, and/or treatment.

The type of data recorded at each level and reported to next higher level can be more or less standardized into three major categories: individual treatment or referrals, individual prevention contacts, and group contacts for education and immunization of the community target population.

These data are gathered from the primary health units through health centers with two basic types of formats, two new report forms designed by the KHDI. These data are sent to the KHDI headquarters and analyzed.

6.1.2. Quarterly record survey

Based on several types of client registration cards for different health programs, such as patient clinical chart, maternal health card, infant health card, family planning client card, and tuberculosis patient card, the quarterly record survey aids in measuring performance of the health delivery system in terms of costs, availability, accessibility, acceptability, quality and continuity.

Surveyor's visits to all primary health units in the demonstration project areas on a quarterly basis with survey schedules are being adopted. Surveyors are employed and trained by the KHDI and visit each primary health unit in the demonstration areas and search the records to enter the desirable key elements on the schedules from each client card as appropriate.

Data collected in these ways will be analyzed comparatively by primary health units in separate rank-order tables in order to measure performance of the health system.

6.1.3. Sample household interview survey

To increase the supply of medical services, a new type of health personnel, community health practitioner (CHP) is being trained and deployed by the KHDI in the demonstration areas. The increasing use of CHPs in the community served will be affected by the patient's perception and need for CHP's medical services.

The purpose of the sample household interview survey is

- 1) to collect data of patient's perceptions of the newly deployed CHP
- 2) to determine consumer satisfaction of treatment rendered by CHP
- 3) to analyze factors affecting utilization of CHP's medical service.

In addition, accuracy of service statistics will be examined by matching patient records with response data from interviews with sample households.

These household interviews will be conducted during September - October 1979 by a team approach utilizing the random sample of the population in the demonstration areas.

6.2. Internal evaluation of the project

Project evaluation is a process of comparing selected indicators of events with pre-established standards, and then analyzing the results in a prescribed manner in order to assist managers determining future courses of action.

This evaluation of the KHDI demonstration project will assess the effectiveness of the overall project, and the various sub-projects, at four "Levels" of managerial interest, as follows:

- 1 INPUT - Whether the personnel, funds, facilities and equipment planned to carry out the project were actually provided as needed - according to the amounts necessary to implement the project in a timely manner. Also whether the planning estimates themselves were sufficiently accurate, and within the reasonable resources capabilities of the KHDI to acquire.

- 2 **OUTPUT** - Whether the specific items programmed by the project manager for completion were in fact completed according to the amounts planned, in a technically adequate form, and in a timely manner.
- 3 **PURPOSE** - Whether the reason(or reasons) for undertaking the project was achieved, or whether some modification of the Outputs, or the basic design is still necessary.
- 4 **GOAL** - Whether there are indications that the broader section goals, to which the project contributes, are likely to be achieved as a result of attaining the project purpose.

6.3. External evaluation

The National Health Secretariat/Korea Development Institute is charged with the responsibility of the external evaluation of the KHDI demonstration projects. This external evaluation plan was planned in such a way that it would not be duplicated with the internal evaluation to be conducted by the KHDI.

The major focus of NHS/KDI external evaluation is the determination of program efficiency and of goals for the future. Thus, the operation of projects and internal evaluation by the KHDI will be carefully reviewed and screened by the evaluation team of NHS/KDI since these results would be used as inputs to the external evaluation by the NHS/KDI.

The NHS/KDI have developed four broad evaluation objectives:

- 1) To measure consumer accessibility to and acceptance of services in the experimental and control areas over time.
- 2) To assess the performance of health personnel and to study the operations and management of the health delivery system.
- 3) To measure the impact of services on the population's health in terms of changes occurring in base-line status indicators over time, and to compare planned targets with actual achievements.
- 4) To assess financial, social, and administrative feasibility of replicating the key features of the health delivery system of the project.

A PROPOSED PLAN
FOR
STRENGTHENING MCH SERVICES IN DEMONSTRATION AREAS

by

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- I. General
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- III. Goal
- IV. Objectives
- V. Project Strategy
- VI. Description of Project

Annex I (Risk Approach)

Annex II (Differential-Charge Scheme)

Tables (1, 2, 3, 4, 5)

Requirements for Medico-Surgical

Equipment for KHPI MCH Center

Requirements for Laboratory Equipment

Reference

I. General

Economic developments achieved during the previous three development plans were indeed remarkable in terms of GNP per capita, the expanded amount of export, domestic production, and etc. However the budgetary allocation to the health sector has been negligible except for the priority projects since 1962, of family planning, tuberculosis control, and a simplified piped water system which took a major proportion of all the financial input to the health sector.

Much to the relief of all concerned, a real input of considerable amount, has been and will continue to be made during the 4th Five-Year Economic Development Plan which stresses social development parallel to other sectors of development. This emphasis on social development for instance introduced a Medical Aid Program for the needy social strata of population, and expanded a nation-wide Medical Insurance Plan, and also initiated the KHDI Demonstration Project. And yet the share of national health expenditure for the care of the most vulnerable group of community, pregnant women and infants, is nominal compared to other lines of health activities.

The government has, however, developed latent recognition of the situation and is at present negotiating with the World Bank for substantial development loans for population projects which are likely to strengthen MCH service.

KHDI Demonstration Project in Relation to UNICEF-supported MCH Activity

The KHDI project was launched on April 19, 1976, in an attempt to explore for 5 years a low-cost primary health delivery system replicable in the context of rural Korea, following project termination. However, as the concept was not well disseminated at the time of preparation, and also due to local administrative rigidity in the demonstration areas, the institutional machinery originally established did not work to its fullest during the initial period of operation. Furthermore, the priority community concern in the demonstration areas was understandably oriented toward immediate relief of major physical symptoms rather than preventive care, for example MCH service. This priority concern of the community is probably attributable to several causes: inaccessibility to physicians, economic barriers of unaffordable medical costs even if physicians were available, limited range of services per se in the public sector, inadequate knowledge of personal preventive health measures, taboos, and etc.

All these constraints, administrative and socio-economical as well as cultural, limited provision of MCH package services in the primary health care provided in the demonstration areas.

Recognizing all these constraints related to MCH care to the underserved rural Korea, UNICEF proposed to support KHDI primarily for strengthening the MCH portion of primary health care with a contribution of approximately \$285,000 dollars for the first two years from September 1978 through August 1980.

ii. Current Status of MCH Care

A. VACCINATION STATUS

It is now widely recognized 3/ that children in developing areas need to be immunized against seven infections; tuberculosis, small pox, diphtheria, pertusis, tetanus, measles, and poliomyelitis.

The latest field survey 1/ indicated in demonstration areas prior to demonstration, the following rate of vaccination: 73.7% against polio; 46.8% against DPT; 23.7% against measles; 40.4% with BCG. When booster series are taken into account, this coverage was far lower. Another survey 2/ conducted in the Gyung-san Gun of Kyungbuk Province showed that completed rates including booster series of DPT and polio were as low as 5% and 3% respectively.

Measles vaccine is at present unavailable from the vaccine supply provided by the government, and polio vaccine is available only during October and November. This logistic inconvenience results in not only operational difficulty at the peripheral level but also vaccinating children behind schedule with consequent deterioration in effectiveness.

Low coverage of eligible children for vaccination coupled with malnutrition obviously contributes 3/ to the high level of infant mortality.

B. NUTRITION STATUS

Social and economic development made during the preceeding three five-year development plans is partly reflected 4/ in the improvement of height and weight of the preschool children throughout the country. And yet, the level of intake for a few categorical nutrients required for balanced growth of children is extremely low.

The latest field survey 5/ of pregnant women, lactating women, and weaning children in rural Korea disclosed that mean daily intake of calorie, niacin, thiamine, and ascorbic acid exceeded the recommended allowances for pregnant and lactating women, but vitamin A, riboflavin and calcium intake was low. All nutrients intake by the weaning children was deficient. Particularly low were animal protein, calcium, iron, vitamin A, riboflavin, and vitamin C, meeting only 10%-40% of the recommended level.

Frequency 6/ of anemia with hemoglobin level below 11.0% among children 6-11 month old showed the highest percentage of 86.7%.

Measurement of Weight and Height

Another study 6/ reveals that children under 5 months of age were free from malnutrition, which can be attributed to the successful breast feeding with quantity and quality of breast milk sufficient for the infant's nutrition requirement. However children older than 6 months of age showed malnutrition, with a frequency of 3.0-4.9% in weight measurement. In height measurement, only 1.6% of the children aged 36-47 months and 48-59 months showed poor nutrition.

Since weight is suggestive 7/ of calorie malnutrition and height of protein malnutrition, children in rural Korea seem to be suffering from calorie malnutrition, but not from protein malnutrition.

C. PRENATAL SERVICE

Utilization, Service Coverage and Service Component

A community based longitudinal study 8/ indicated that 28% of eligible population made first visits with-in 8 weeks of pregnancy and 50% by the end of first trimester.

Another study 9/ showed that 399 of an estimated 621 pregnant women, or 65% of the eligible population were covered for prenatal service. Of this group, 20% were seen only once. The average number of prenatal consultations was 2.6 per pregnancy. Of the pregnancy cases registered at the health center in the study area, only 8% had had the desired 5 consultations or above.

KHDI's baseline study 1/ pointed out that 72% of women who experienced pregnancy did not expect to receive prenatal service of any kind.

Major services of prenatal care currently provided by the government MCH worker assigned in the rural area are measuring blood pressure, urine examination for sugar and protein, and health counselling. However, government budgetary allocation for purchase of Urstick strips is limited to only 191,350 Urstick strips for 1978 for care of the minimum number of 440,000 rural pregnant women in the same year. Furthermore, the majority of MCH workers are not provided with sphygmomanometer, thus making questionable the quality and quantity of service being provided at present.

D. CARE OF CHILD BIRTH

The KHDI baseline study showed that 19% of child births were assisted by health professionals, and the rest were assisted by mothers-in-law and neighbors whereas institutional delivery rate was 13.7%. 4-7% of child births utilized the delivery kits provided by the government. The amount of national budgetary allocation for 1978 is for 43,015 sets.

The Yongin study ^{10/} revealed that the professionally assisted delivery rate was 12.8%. The latest longitudinal study pointed out that the institutional child birth rate was 8.3%.

An optimistic estimate of professionally assisted delivery rate plus the rate of using delivery kits seems to be 25% of all the child births in rural Korea.

E. POST-NATAL CARE

No relevant information is available.

F. MCH CENTERS

There are at present nine existing centers under the direct management of local administrations throughout the country. These centers were constructed with subsidies allocated from the national administration plus local input. As shown in the attached Table I, annual bed turnover rate is very low particularly in rural centers. Causes leading to poor utilization can be ascribed to administrative problems in terms of limited operational hours, frequent transfer and high turnover rate of personnel, inadequate location of center in view of catchment area, lack of promotional activity, and run-down facilities.

- III. 1. Goal : Develop National Strategy for Providing Low-cost MCH Service to the Underserved Rural Korea.
2. Intermediate Goal : a) Study and identify the strategy for providing essential MCH service component currently unavailable in the national health care delivery system.
- b) Develop a low-cost MCH center model affordable for the government to implement nationwide for rural Korea.
- c) Formulate an integrated approach for MCH, Family Planning, and nutrition services.
- d) Collect data pertinent to the formulation of national MCH policy for the 5th 5 Year Economic Development Plan 1982-1986.

Objectives:

The target population for the main thrust of the project is the most vulnerable group in the demonstration areas (infants and pregnant women).

Categorical target coverage of the eligible population for MCH services will be as follows:

	Target population	Annual Target Coverage
Vaccines		
Measles	Over 12 months old	50%
Polio	2, 4, 6 months old infants	50% including booster series
DPT	2, 4, 6 months old infants	50% including booster series
BCG	Infants under 4 weeks old of age	70%
Institutional delivery	Pregnant women	30% 4 months after the operation of MCH Center
Intake of Multi-Vitamins	Pregnant women	50% at least 4 months
Use of delivery kits	Full-term pregnant women with one or no children, who want home delivery	100%
Prenatal visits	Pregnant women	60% of the eligible population making visits at least 5 times or more
Growth chart (wt, ht)	0-6 year old preschool children	80% of eligible population more than national average
Family Planning	Currently married women of reproductive age	45% (Mid-year users as percent of all married women)

V. Project Strategy

- A. Introduce and apply risk approach for care of pregnant women, and for priority in family planning. See for detail annex I.
- B. Provide pregnant women with needed Vitamins and encourage pre-natal visits and nutritional guidance.
- C. Apply a differential charge system for providing Vitamins, vaccines (only measles), services of institutional delivery and laboratory tests, based on income level (yellow and green card- holder of National Medical Aid Program), and charge system for sterilization based on birth order. See for detail, Annex II.
- D. Operate an MCH Center under the direct management of KHDI.
- E. Induce institutional delivery of child birth in the catchment area of the MCH center upon its operation, and promote hygienic home delivery in the rest of the demonstration areas.
- F. Operate a 4 month pre-project trial on a small scale to identify the feasibility of the field project, and evaluate the trial including cost runs to allow for recycling of the implementation plan for the subsequent expansion of the project.
- G. Utilize all the field project personnel and household health chart to provide integrated services of MCH, family planning and nutrition.
- H. Operate the project as an action research project.
- I. Encourage mothers or her next available family member to measure weight and height of children with help of Village Health Agent.

VI. Description of Project

Target Population : Children, particularly infants and Women of reproductive age

Estimate of Target Population for specific service

Components : see the Table 2 illustrated below

Project Area : 3 Guns of KHDI demonstration project
see for detail tables 3, 4, 5 attached.

Project Period : September 1978 through August 1982 (?)

Table 2. Estimate of Target Population per month by infant, pregnant women, and area

Project Area	*Total Pop.	Estimate Per Month					
		No. of Pregnant Women			No. of Infant		
		New cases (a)	New cases + currently pregnant cases (b)	Attend- ance at Child Birth	2,4,6, months old (c)	6 thru 12 months old (d)	12 months old (e)
Hongchon Gun Gangwon Province	117,390	261	2,113	235	690	1,350	225
Gunee Gun Gyeongsang Buk Province	66,103	146	1,190	132	389	762	127
Okgu Gun Cholla Buk Province	116,686	259	2,100	233	686	1,344	224
Total	300,179	666	5,403	600	1,765	3,456	576

- (a) New cases of pregnant women based on $\text{Pop.} \times \text{CBR} \times 1/12 \div 0.9$ assuming abortion rate of 10%
- (b) No. of pregnant women per month new pregnancies + current pregnancies based on $\text{Pop.} \times \text{CBR} \times 9/12$
- (c) Based on $\text{Pop.} \times \text{CBR} \times 0.98 \times 1/12 \times 3$ assuming 50% of IMR with 40, occurring within 6 months of birth.
- (d) Based on $\text{Pop.} \times \text{CBR} \times 0.96 \times 1/12 \times 6$ assuming IMR of 40, occurring evenly throughout the latter part of first year after birth.
- (e) Based on $\text{Pop.} \times \text{CBR} \times 0.96 \times 1/12$ assuming IMR of 40
- * Gun Statistics year Book 1977, Hongchon Gun, Gunee Gun, Okgu Gun.
- + CBR is based on national 24 per 1,000 for 1978, Projection of Population by Economic Planning Board (EPB)

Number of new pregnant women (per month) is total number of new cases of pregnancy to be registered each month and also will be screened for syphilis infection.

10% of these women will be off the registry as they will eventually undergo abortion.

Number of all pregnant women (new pregnancies and current pregnancies) is the total number of pregnant women per month required to be provided with prenatal care.

Number of pregnant women in need of child birth care is the total number of child births per month, requiring professionally assisted delivery or requiring the distribution of delivery kits. These newborns are to be registered each month, and are the target population for BCG inoculation.

Number of infants aged 2, 4, 6 months is the total number of infants per month who are in need of immunization against Polio and DPT.

Number of infants aged 6 through 12 months is the total number of infants per month whose mothers will be taught to make supplementary weaning food from locally available materials.

Number of infants aged 12 months is the total number of infants per month who need immunization against measles.

All the community health practitioners (CHP) and community health aids (CHA) stationed at the community health centers, primary health unit (PHU) and primary health posts (PHP) will be key providers of package MCH services described herein, as an integrated portion of primary health care.

Correct entries in Household health chart will be made with the close cooperation of the village health agent (VHA) stationed in each village of the demonstration areas.

A. Child Health

Logistic distribution system of vaccines directly from the National Institute of Health down to the demonstration area via KHDI will be developed to insure a cold chain of vaccines. Purchase of polio and measles vaccines will be made on the market and these vaccines will be distributed to all the community health centers, primary health units and posts in the project areas.

- a. In addition to the government vaccine supply of BCG, DPT, small pox, and polio, vaccines of polio and measles will be provided to increase the level of immunity in the eligible population.

- b. The provision of measles vaccine will be charged at factory price though subject to differential charge system.
- c. Household health chart will be utilized to trace defaulters and to increase coverage of booster series.
- d. Nutritional guidance will be actively carried out with a manual being developed by UNICEF/Korea.
- e. Registering newborns and determining eligible infants for vaccination will be made with active cooperation of village health agents (VHA).
- f. An attempt will be made to have measles vaccination conditional to submission to weight measurement. Toddlers up to two years of age will be encouraged to be brought to the project facilities and will be measured for height and weight.

B. Maternal Health

Prenatal Service

- a. All the pregnant women, at the time of first visit, will be checked for blood pressure, urine for sugar and protein, and weight. Only cases with high blood pressure or edema will receive urine examination at subsequent visits.
- b. All the pregnant women at the time of earlier prenatal visits will be persuaded to give a blood specimen once for VDRL and TPHA tests. The blood specimen will be transported in a specially designed container on a local bus run to the community health centers except for Hongchon Gun, where it will be the KHDI MCH center that will receive the specimen.
- c. Amount of vitamins to be provided will be timed closely with the interval and the schedule of prenatal visits recommended by WHO.
- d. The impact of family planning on maternal and child health will be explained, and a risk approach will be applied to provide with care those who are most in need.
- e. Referral will be made immediately upon identifying a pregnant women of the highest risk as indicated in the risk approach.
- f. Village health agent (VHA) will be actively solicited to identify as indicated in the manual, at the earliest time possible, high risk cases and will be encouraged to refer to CHP and CHA.

Care at Delivery

- a. Those who live in the catchment area of Community health center (CHC) or primary health unit (PHU) will be assisted for delivery by Community physician (CP) or community health practitioner (CHP). Those who live too far from CHC or PHU and who want home delivery will be provided with delivery kits.
- b. VHA will be trained to teach mothers-in-law of full term pregnant women how to use delivery kits and the benefit of its use.
- c. Others living in the catchment area of MCH center will be encouraged for institutional delivery.

Operation of an MCH Center

- Purpose:**
- a. To experiment with the feasibility of a low-cost model of an MCH center in the context of rural Korea prior to nation-wide establishment of an MCH center attached to each health center
 - b. To provide in-service training for CHA and to train VHA in the use of delivery kits and in other related MCH activities.
- Location:** The center will be situated in Hongchon Eup (town), Hongchon County, Gangwon Province.
- Management:** KHDI will assume operation of the centre on agreement with the local administration. Its personnel consequently will be direct field staff of KHDI.
- Operation:** 24 hours a day, and open all year around
- Hours**
- Staff Requirement :** 7 KHDI direct personnel and 1 government MCH worker already assigned in the town.
- Midwife: 3 persons needed for 8-hour shift
Lab. technician: 1 person (female preferred)
Nurse-aid : 1 person
Driver : 1 person
Orderly : 1 person
- Function: of Each Staff**
- Senior Midwife:** In addition to providing the same MCH services as other midwives, she will perform administrative aspects of center operation including weekly and monthly reports.
- Ordinary Midwife :** She will be responsible for providing prenatal service, care at delivery, making final decision on eligibility for high risk category and differential charge scheme, training VHA and CHA, and nutrition guidance.

Government worker : She will be responsible for vaccinating children, providing nutrition guidance, health counselling, and assisting midwife during delivery.~

Lab. technician : In addition to performing ordinary lab. tests for care of pregnant women registered at the center, she will conduct VDRL and TPHA tests referred from all the project facilities in Hongchon demonstration areas.

Nurse-aid : She will be responsible for sorting out household health chart, taking medical history, assisting midwife, and collecting fees.

Service Component: The same service related to MCH work as described in the preceeding chapters will be provided with application both of differential charge scheme and high risk approach. The only difference will be providing care of institutional delivery, training CHA and VHA, and case detection of syphilis positive pregnant women.

Pre-test

Test Area and Duration

Pre-project trial of project strategy will be undertaken for 4 months from Sept. 1 through December 24, 1978, confined to three myons, each representing three guns of demonstration; Bukbang Myon of Hongchon Gun in Gangwon Province; Gunee Myon of Gunee Gun in Gyeongsangbuk Province; Hoehyun Myon of Okgu Gun in Chollabuk Province.

However, the operation of an MCH center and case-finding of Syphilis positive pregnant women will be excluded from this trial as the importation of obstetric and laboratory equipment will take at least four months.

Purpose

The purpose for the pre-test is to measure cost-runs and level of acceptability of differential charge scheme and risk approach by the target population. This identification by interim evaluations twice, each on November 3 and December 23, 1978 will determine the viability of the project strategy.

Contingent on the evaluation result, the strategy will either have to be modified or will be applied with support of all the required medico-pharmaceutical products to the entire three guns of demonstration to accommodate local needs.

The population status in the pre-test areas is as follows:

Pre-test Area	*Total Pop.	Pregnant women (new cases)	Pregnant women (new cases + currently pregnant cases)	+ Estimate per month		
				No. of Infants		
				2,4,6 months old	6 thru 12 months old	12 months old
Bukbang Myon	9,656	21	174	57	111	19
Gunee Myon	14,781	33	266	87	170	28
Hoehyun Myon	9,599	21	173	56	111	18
Total	34,036	75	613	200	392	65

- * Gun Statistics Year Book 1977, Hongchon Gun, Gunee Gun, Okgu Gun
- + Based on the national CBR, of 24, 1978, Projection of population by EPB.

Annex I

(11)

Risk approach

In every community, mothers and children are among those groups that are vulnerable to disease, disability, and death. Their vulnerability is a result of the possession of the special characteristics of pregnancy or young age, related to biological processes of reproduction, growth, and development.

Within these groups, certain individuals are at special risk of disease or complications because of factors in their biological make-up, their environment, or both. Such factors, called risk factors, exert their effects both singly and in combination, the relative importance of each varying with the individual and the socio-ecological conditions.

Equitable provision of health care requires special attention to vulnerable groups and, within them, to those at risk. Such attention should also facilitate the most efficient use of scarce resources for prevention, care, and cure.

The purpose for risk strategy is to provide better services for all, but with special attention to those who need them most. The following scheme, modified from the PAHO/WHO 12/ developed system will be applied to non-pregnant women, for priority in family planning, and to pregnant women, for risk allocation.

Scoring

	Characteristics	Points
Age	Under 19, over 40	4
	Between 30 and 39	2
	Between 20 and 29	0
Number of children	5 or more	4
	0 to 1	2
	2 to 4	0
Interval between deliveries	Less than 24 months since last delivery	1
	24 months or more since last delivery	0
Medical history	Previous obstetrical complications, perinatal deaths, etc.	3
	Diabetes, heart diseases, renal disease, psychosis	5

Maternal education	Illiterate	1
	Can read and write (13)	0
*Blood Pressure	160/95 mmHg and above	4
	159-140/94-90 mmHg	2
	Under 139/Under 89 mmHg	0
*Urine Analysis	2 ++ or more	2
	1 + and none	0

b. Referral

The points are added up to give a total score and decisions taken as follows:

- | | |
|--------------------------------------|------------------|
| 1. Highest risk, referral obligatory | 5 points or more |
| 2. High risk, referral recommended | 3 to 4 points |
| 3. Usual risk, usual local care | 0 to 2 points |

c. Exemption from Differential Charge System

The pregnant women at the highest risk score of 5 points or more will be provided free of charge with the applicable service components included in the differential charge system.

* This characteristics applies only to pregnant women.

Annex II

DIFFERENTIAL CHARGE SCHEME

A. Applicable Service Components:

Measles vaccine

Vitamins

Medical expenses related to the care of institutional child birth at the KHDI MCH Center

Urine examination for Sugar and Protein

B. Maximum charge will be limited to factory price or fixed fee to be determined later.

C. Contents of the Scheme

a. Case of the first child of birth order in family

A woman pregnant of first child, with a yellow or green card of National Medical Aid Program will receive free of charge, vitamins, service of urine examination, care of institutional child birth, and also her first child will be provided free of charge measles vaccination.

All the other pregnant women and their first children will receive the same advantage as the card holders, provided that her husband undergoes vasectomy during her pregnancy of first child or within one month of child birth. Otherwise, applicable service components will be charged half the price or half fixed fees. If vasectomy is undertaken within one month of child birth, fees will be refunded.

b. Case of the second child of birth order in family

A woman pregnant of second child with a yellow card, and her second child will receive the same advantage as in the case of the first child. But a green card-holder of pregnancy, and her second child will be charged half factory price or half fixed fees for the applicable service components unless her husband undergoes vasectomy during her pregnancy or within one month of child birth. If her husband has undertaken vasectomy, the same advantage will be provided.

All the other pregnant women and their second children will receive the same advantage if their husbands undergo vasectomy during the same period applied as described above. Otherwise, full factory price or full fixed fee.

c. Tubal ligation will be applied to the scheme in that half or full factory price or fixed fee will be refunded to the family in case of tubal ligation undertaken within 7-8 weeks after child birth.

The scheme is summarized in the table below.

Birth order	Sterilization	Pregnant Woman and Children		
		Card Holder		Non Card Holder
		Yellow	Green	
First Child	Under-taken	Free of charge		Free of charge
	None	Free of charge		Half factory price or half fixed fee
Second Child	Under-taken	Free of charge		Free of charge
	None	Free of charge	Half factory or half fixed fee	Full factory price or full fixed fee

Sex of Spouse	Kinds of Sterilization	Applicable time of Sterilization
Male	Vasectomy	During pregnancy of the spouse or within one month of child birth
Female	Tubal ligation	Within 7-8 weeks after child birth

Table 1: MCH Center Status by Center for 1976

Name of Center	Total Floor Space (m2)	Year of Construction	No. of Bed	M.D.	Midwife	Nurse	Nurse-aid	Others	Total	No. of deliveries	No. of Consultation for Maternal Health	Consultation for child health	Annual Bed Turn-over Rate(%)
Pusan Center	882.5	1972	9	3	4	2	3	11	23	1,573	7,681	7,534	97.4
Taegu Center	952.1	1971	12	1	6	1	1	3	12	2,414	5,337	12,338	111.8
Kwangju Center	667.8	1975	10	2	6		3	11	22	1,520	2,369	4,605	84.4
Hamyang Center	482.6	1972	16		1		2	1	3	302	591	432	10.5
Woolju Center	181.8	1971	5		1				1	270	1,323	806	30.0
Changnyung Center	171.9	1971	5		2			1	3	309	495	386	34.3
Kosung Center	165.3	1971	5		1			1	2	132	257	355	14.7
Geumsan Center	59.5	1974	3		1		1		2	131	325		24.3
Taejun Center	99.2	1975	4	1	3	3		2	9	650	3,317	-	90.3

Table 3. NUMBER OF HEALTH PERSONNEL (PRIVATE SECTOR)
in Hongchon Gun, Gangwon Province (1977)

<u>Eup/Myon</u>	<u>Population</u>	<u>Population Density per Km²</u>	<u>Number of Physicians</u>	<u>Number of Herbalists</u>	<u>Number of Drug Vendors</u>
Hongchon	29,301	330	5	8	11
Buk Bang	9,656	70	-	3	2
Nae Chon	8,530	61	1	1	1
Hwa Chon	11,600	57	1*	1	3
Du Chon	7,760	59	1	1	2
Seo Seok	10,705	51	1*	2	2
Dong	10,160	72	1*	1	4
Seo	8,295	70	1*	-	2
Nam	12,892	106	1*	2	5
Nae	8,491	20	1*	-	2
<u>TOTAL</u>	<u>117,390</u>	<u>69</u>	<u>13(6*)</u>	<u>19</u>	<u>34</u>

* : Limited Area Practitioner

Table 4. NUMBER OF HEALTH PERSONNEL (PRIVATE SECTOR)
in Gunee Gun, Gyeongsang Buk Province (1977)

<u>Myon</u>	<u>Population</u>	<u>Population Density per Km²</u>	<u>Number of Physicians</u>	<u>Number of Herbalists</u>	<u>Number of Drug Vendors</u>
Gunee	14,781	200	2	2	4
Sobo	9,438	86	1	2	3
Euihung	7,046	187	1	2	4
Ubo	7,418	83	-	1	2
Goro	5,969	58	-	1	2
Hyoryong	7,917	104	-	-	4
Buke	7,052	99	1*	2	3
Sansung	6,482	144	-	1	1
<u>TOTAL</u>	<u>66,103</u>	<u>109</u>	<u>5(1*)</u>	<u>11</u>	<u>23</u>

* : Limited Area Practitioner

Table 5. NUMBER OF HEALTH PERSONNEL (PRIVATE SECTOR)
in Okgu Gun, Cholla Buk Province (1977)

<u>Myon</u>	<u>Population</u>	<u>Population Density per Km²</u>	<u>Number of Physicians</u>	<u>Number of Herbalists</u>	<u>Number of Drug Vendors</u>
Okgu	23,335	409	1*	2	3
Oksan	5,842	367	-	1	1
Hoehyon	9,599	230	1*	1	2
Impee	9,069	405	1*	1	1
Seosoo	9,322	379	-	1	1
Daeya	16,902	433	1	1	7
Kaejong	8,512	499	-	-	2
Songsan	7,318	263	-	-	2
Napo	6,934	221	-	2	1
Mee	12,567	382	1*	-	1
Islands	7,286	365	-	-	2
<u>TOTAL</u>	<u>116,686</u>	<u>354</u>	<u>5(4*)</u>	<u>9</u>	<u>23</u>

* : Limited Area Practitioner

Requirements for Medico-Surgical and Obstetric Equipment for KHDI MCH Center

Item No.	Description	Q'ty	Unit	Unit Price (Won)	Amount
1	Examination Table	1	ea	46,000	46,000
2	Obstetric Examination Table	1	ea	190,000	190,000
3	Delivery Table	1	ea	210,000	210,000
4	Medical Instrument Cabinet	1	ea	50,000	50,000
5	Oxygen Inhaler	1	ea	46,000	46,000
6	Refrigerator (200L)	1	ea	260,000	260,000
7	Medical Instrument Table	1	ea	26,000	25,000
8	Pressure Sterilizer	1	ea	250,000	250,000
9	Patients Carriage	1	ea	18,000	18,000
10	Wash Basin Stand (Stainless steel)	1	ea	33,000	33,000
11	Examination Side Lamp	2	ea	15,000	30,000
12	Irrigation Set	2	set	14,000	28,000
13	Boilling Instrument Sterilizer	1	each	20,000	20,000
14	Baby-suction	5	ea	2,000	10,000
15	Stainless Basin	8	ea	3,000	24,000
16	Hemostate	10	ea	3,500	35,000
17	Surgical operation scissors	5	ea	4,500	22,500
18	Placenta forceps	2	ea	3,000	6,000
19	Pus-pan (Medium, Small)	4	set	2,000	8,000
20	Tray (Large, Medium)	2	set	5,000	10,000

21	Stainless Bowl (Large)	4	ea	2,000	8,000
22	"	4	ea	1,800	7,200
23	"				
24	Stool Tray	2	ea	5,000	10,000
25	Gauges Can (bowl) large, medium, small	3	set	5,000	15,000
26	Sponge Can (bowl) large, medium, small	3	set	4,000	12,000
27	Forceps, long	5	ea	3,000	15,000
28	Forceps small	5	ea	2,000	10,000
29	Forceps can	2	ea	1,800	3,600
30	Dressing scissors	2	ea	4,500	9,000
31	Dressing scissors curved	2	ea	4,500	9,000
32	Bandage scissors	2	ea	5,000	10,000
33	Enema syringe	2	set	4,000	8,000
34	Needle-holder	2	ea	5,000	10,000
35	Syringe 5cc	15	ea	460	6,900
36	Needle	10	ea	380	3,800
37	Panel Screen (3 piece)	2	ea	33,000	66,000
38	Vaginal speculum	20	each	1,800	36,000
39	Baby-weight scale	2	each	15,000	30,000
40	Measuring rod	2	each	10,000	20,000
41	Sphygmomanometer	2	each	55,000	110,000
42	Stethoscope	2	each	4,500	9,000
43	Traube	2	each	1,800	3,600
44	Pelvimeter	1	each	8,600	8,600
45	Thermometer	20	each	250	5,000

	Office Supplies (Desk, Chairs, Cabinet, etc.)				500,000
	Quilt and Sheet				100,000
	Others				50,000
46	Suction Apparatus w/cap (1, 2, 3, 4), electric type	1	set	350,000	350,000
47	Gloves, surgical, Rubber	160	pair	150	24,000
48	Typewriter	1	ea	400,000	400,000
49	Aircone, 12,000 BTU, Model GAL20, Gold Star	1	ea	269,980	269,980

Total : W3,441,180

50	"ATOM" Infant Incubator Model : V-75'MC' complete with standard acc.	1	set		US\$1,860.00
51	"ATOM" Automatic Resuscitator Model : OX-500 F type with standard accessories	1	set		\$1,075.00
52	ECHO - Sounder Model Es-102M (Ultrasonic Doppler Fetus Pulse Detection)				\$506.00

Total : \$3,441.00

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REQUIREMENTS FOR LABORATORY EQUIPMENT AND MATERIALS FOR VDRL AND TPHA TEST

<u>Nomenclature</u>	<u>Specification</u>	<u>Unit</u>	<u>Price</u>	<u>Q'ty</u>	<u>Amount</u>	<u>Remark</u>
o Serological Ring Slides, 14 mm, diameter (12s)	3 1/8" x 4 3/4"	9Kg	\$9.70	6	\$58.20	S/P, M6229-2
o Bottles, Stoppered, VDRL Antigen (12s)	30 ml	case	\$37.80	2	\$75.60	S/P, B7760
o Pipets, Serological, Accu-Red, Color-coded (18s)	1.0 ml	case	\$20.34	9	\$183.06	S/P, P4330-1X
o Pipets, Serological, Accu-Red, Color-coded (18s)	5.0 ml	case	\$23.22	6	\$139.32	S/P, P4330-5
o Tec-Tator V Rotator, 120V, 60 Hz.	8 3/8"w x 8 1/4"d x 5"h	ea	\$137.50	3	\$412.50	S/P, R4139
o Water Bath, Constant Temperature	15"w x 26"l x 16"H	ea	\$315.00	3	\$945.00	S/P, W3500
o Eppendorf Microliter Pipets, Brinkman	50 lamda	ea	\$49.50	6	\$297.00	S/P, P5062-50
o Tips, Eppendorf Microliter Pipets	1,000 x	pKg	\$48.00	6	\$288.00	S/P, P5062-900
o Racks, Eppendorf Microliter Pipets		ea	\$18.00	5	\$108.00	S/P, P5062-950
o Interval timer, General Electric	3 3/4" sq x 2"d	ea	\$15.95	5	\$95.70	S/P, C6505
o Thermometer, Dial, Centigrade, Bimetallic	-50' to 100'C	ea	\$8.00	6	\$48.00	S/P, T2220-2
o Thermometer, Dial, Centigrads, Bimetallic	0' to 250'C	ea	\$8.00	6	\$48.00	S/P, T2220-7
o VDRL Antigen, 0.5 ml x 10 with 60 ml PBS		pKg	\$5.50	13	\$ 50	S/P, B6720
o TPHA Test Kit (Treponema Pallidum Hemagglutination)	20 tests	pKg	W20,000	18	W40,000	Euji Zoki Co. Japan
o Plates Plastic, 8 to 12 hole		ea	W20,000	9	W180,000	
o Merthiolate (Thimerosal, Lilly) 7 Gm (7,000		ea	W10,000	1	W10,000	
o Test tube		ea	W50	2,800	W140,000	

o Test tube	ea	W80	1,500	W120,000
o Rack, 5 x 10, Steel	ea	W8,000	6	W48,000
o Container, Styrofoam	ea	W1,000	56	W56,000

Total \$2,769.88
W914,000

W2,257,540

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DEVELOPMENT
OF
COMMUNITY HEALTH PRACTITIONER
TRAINING PROGRAM

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I. INTRODUCTION

The rationale for introducing new primary health care manpower in the KHDI program has been eloquently explored with the actual supportive description of soundness analysis in the CP Section III.

It has been assumed that from the current development of health manpower resources and deployment patterns of health and medical manpower, there exists and will persist an acute shortage of health services at the rural community level in this country.

At the same time there is good evidence and theoretical consensus that a large portion of the health service can be delivered by some type of middle-level health workers with competency-based training to deal with common conditions of needy people. On the basis of the US/Korea loan agreement the Minister of Health and Social Affairs granted the authorization to train CHPs for health care demonstration project of KHDI.

Since this was an educational novelty for Korea-teaching specific functions to perform professional skills to create common conditions and symptoms of people-some intensive preparation took place at KHDI, including:

- Determining what role the CHP was to undertake
- Curriculum development with essential core skills
- Modular text-material development
- Trainer orientation training
- Technical consultation with advisors
- Assimilation of training materials from abroad

The program encountered many constraints, not the least of which was the short period of time (3 months) to develop and impart technical education-training to instill competent skills, to produce a multipurpose curative, promotive and preventive health-service worker.

The following is a resume of our CHP training program.

II. OBJECTIVES OF CHP TRAINING

The educational component of the training program is directed toward attainment of the following five objectives.

First to devise a training system with competency-based training to develop an innovative health worker. Toward this aim, the program has attempted to establish acceptable levels of primary health care in rural areas, with a health care delivery system which permits

progressive evaluation of clinical performance of trainees throughout training.

Second to instill necessary health care knowledge and skills for implementing the project.

Third to organize teaching content relating directly to the CHP's functions as a competent primary health care provider. In this regard, several subject areas (such as curative services including physical examination, and preventive health services regarding maternal & child health, sanitation, communicable disease control, and health education, etc), essential to performing a given function, are in- rated to deliver comprehensive community health services.

Fourth to provide a realistic environment in which to learn primary health care independently. Therefore, most of the field training was carried out in an active health care setting the primary health units in the demonstration areas.

Finally, the fifth objectives was to upgrade the quality of Community Health Practitioners to provide better health care services for the residents in rural areas.

III. MAIN FUNCTIONS OF CHP

CHPs are a new category of health personnel to Korea, and are similar to nurse practitioners or the Medex personnel now being utilized in other countries. CHPs work with physicians or independently under their direction.

Their main functions can be summarized as

a. Curative services, to

- Deliver primary and ambulatory health care including home visiting
- Identify most common disease
- Take general medical histories
- Perform physical examinations
- Handle frequently required laboratory tests
- Provide treatment for a defined range of conditions
- Provide treatment prescribed by a physician including regular follow up of chronically ill patients
- Make efficient referrals of complicated cases

b. Preventive Services, to

- Administer immunization
- Provide ante-and post-natal care
- Attend normal delivery
- Provide nutritional guidance
- Undertake public health education
- Carry out family planning
- Control communicable diseases: tuberculosis, venereal disease, etc
- Enlighten the residents about sanitation

c. Others, to

- Plan and evaluate the performance of health services
- Manage medical, health, and administrative supplies
- Educate and lead lower level health personnel
- Support and participate in the community agencies
- Supervise CHAs & VHAs
- Record & report data with accuracy

IV. SELECTION PROCEDURES

Qualified CHP applicants should be registered nurses with at least one year of work experience in the health field. Applicants are screened on the basis of applications, personal career and other documents recommended to KHDI by the Gun Health Care Steering Committee. Preference is given to residents of the pilot demonstrator area, with the first priority given to qualified nurses already working in the area.

Additionally, the CHPs to be selected for training must agree to serve for the health project "Maul Geon Gang Saup" in the assigned area for a minimum of 2 years after the training. Candidates for positions as recommended CHP's are required to face the concurrence of the provincial authorities.

Upon the recommendation of the provincial and county governor, KHDI conducts the examinations and interviews of the candidates. By reinforcing the levels of knowledge and skills of experienced candidates, it is assumed to be advantageous for KHDI to develop the new CHP in a short period of time-one year. Emphasis will be on developing competence to perform specific tasks, rather than diploma or degree. The focus of the interviews is placed on three areas: health knowledge regarding technical aspects, personal characteristics and other relevant factors.

To facilitate interview-evaluation, a rating formula sheet is prepared on each applicant which includes information on formal training, clinical experience, technical knowledge and other background information. Based on data from the summary sheet and the interview itself, the interviewers assess the candidate according to the following items:

a. Health knowledge and technical aspects

- General health knowledge
- Clinical experience
- Educational and training background

b. Personal characteristics

- Motivation to be a CHP
- Enthusiasm and desire
- Attitude
- Expression & communication
- Sincerity/honesty
- Potential

c. Other relevant factors

- Place of growth
- Age
- Health status
- Appearance

At the end of the test, each interviewer rates each candidate interviewed on a 10 point scale using a form on which the individual indicators or assessments were listed, and the final CHP candidates are selected by the order of rating from the top.

An examination regarding professional subjects such as clinical practice, internal and surgical nursing, health administration and sanitation, has been tested to preliminary screen applicants and the interview has been additionally given to the candidate.

Actually, a total of 25 CHPs was selected from three demonstration guns: 11 from Hongchon, 9 from Okgu and 5 from Gunee, 14 CHPs (5 in Hongchon, 6 in Okgu, 3 in Gunee) were grouped in "A" batch and the remaining 11 CHPs in "B" batch. The concept of two batches of trainees- "A" and "B" - provides for early field deployment of personnel, and a demonstrative impact in the community which they serve.

V. TRAINING SCHEDULE

The community health practitioner training program lasted approximately twelve months. The one year training course was separated into 3 months' classroom training, 3 months' clinical practice and 6 months' field practice. The classroom training (including orientation) was carried out in KHDI Headquarters. The clinical practice was given at the referral hospitals located in or near each demonstration area.

The field practice training regarding practical primary care and prevention of disease for communities was carried out at the community health centers and primary health units in the demonstration areas. The training program was actually divided into four phases: orientation, theoretical classroom education, clinical practice and field practice, as indicated below.

Year Month Training Phase	1977						1978					
	JL	A	S	O	N	D	J	F	Mr	A	M	J
Classroom orientation	A											
	B											
Theoretical classroom		A					B					
Hospital practice				A							B	
Field practice					B					A		

- * A = A Batch of CHP (14 persons)
- B = B Batch of CHP (11 persons)

The chronology of the training program carried out is summarized as follows:

1. Dec. 38, 1978
Request of approval of the CHP training course from the Minister of Health and Social Affairs.
2. Jan. 8, 1977
One year CHP training course approved by MHSA.
3. May 20 - Jul. 1, 1977
45 CHP candidates recommended from the demonstration areas to KHDI.
4. Jun. 8 - 31, 1977
Final training program FY 77 developed and reported to MHSA.
5. Jul. 2, 1977
The authorized number of CHPs (25 nurses) were selected by KHDI through an examination and interview test, and reported to MHSA.
6. Jul. 4, 1977
The opening ceremony of the CHP training course held at the auditorium, the Korean Nursing Association.
7. Jul. 4 - 16, 1977
Selected CHP trainees in A and B batches received a two weeks' orientation course.
8. Jul. 13 - 14, 1977
During the orientation, a field trip was made to observe an existing health demonstration site, Chun Sung Gun, conducted by School of Public Health, Seoul National University.
9. Jul. 18 - Sep. 24, 1977
Theoretical classroom training for batch "A" conducted at KHDI.

10. Sep. 29 - Dec. 24, 1977
Clinical practice for batch "A" in the following referral hospitals for 12 weeks.
 - a. Kang Won Medical Center (Chun Cheon City) = 5 persons
 - b. Taegu City Hospital and Taegu MCH Center (Taegu City) = 3 persons
 - c. Kun San Provincial Hospital & Seagrave Hospital (Kun San City) = 6 persons
11. Jul. 18 - Dec. 31, 1977
CHP "B" batch deployed for field practice
12. Nov. 18 - 19, Nov. 23 - 24, 1977
11 community physicians from the three pilot guns (Hongchon 4, Okgu 3, Gunee 4) received a 2 day orientation at KHDI. They made one day field observation trip to Kang Hwa Health Demonstration Gun conducted by Yeonsei University.
13. Jan. 4 - Jun. 28, 1978
CHP "A" batch trainees replaced the CHP "B" batch in the field.
14. Jan. 4 - Mar. 18, 1978
CHP "B" batch classroom education at KHDI.
15. May 2 - 4, 1978
8 Community physician (Hongchon 3, Gunee 3, Okgu 2) received 3 day orientation at KHDI. During the session, a 2 day field observation tour was conducted to the primary health unit in Hongchon.
16. Mar. 27 - Jun. 17, 1978
The clinical practice under the preceptor was given to all CHP "B" batch in the Kang Won Medical Center.
17. Jun. 23, 1978
The committee on training affairs for final training review and approval held at KHDI, and as a result of evaluation assessment in the committee, 21 trainees were passed and 2 failed.
18. Jun. 29, 1978
The 1st commencement ceremony for CHP training course at KHDI conference room, with 21 graduates.

19. Jul. 1, 1978

21 CHP graduates (10 in Hongchon 7 in Okgu and 4 in Gunee) assigned to the field in the demonstration guns to carry out their duties for the communities.

VI. DEVELOPMENT OF MATERIALS

It is very important for the training program to develop competency-based curriculum and educational materials regarding primary health care and community health services. Following studies of the Thailand training materials, Hawaii & Seattle materials, the basic health service program of Afganistan and flow charts issued by WHO, the trainer team at KHDI decided to develop some training materials by field or area of speciality. A 20-member task force was formed to prepare draft manuscripts regarding competency-based training for the CHP program.

The task force team consisted of specialists from medical departments in hospitals, professors in universities, researchers in related institutes and KHDI staff.

The draft manuscripts received from the task force team members were reviewed on the basis of modular approach and compiled by the trainers of KHDI. Six volumes of educational materials were published and distributed to the CHPs, lecturers and preceptors to carry out the training more effectively.

The subjects of the six volumes were as follows:

- Volume I : Internal medicine (Respiratory, Circulatory, Digestive, Urinogenital, Neuro-disease), Pediatrics, Psychology.
- Volume II : Surgery, Obstetrics, Ophthalmology, E.N.T. Dermatology, Dentistry, Emergency medicine
- Volume III : Diagnostics, Gynecology, Laboratory, Pharmacology, Health education, Health nursing practice, Rural sanitation.
- Volume IV : Health administration, Law and regulation
- Volume V : Emergency care
- Volume VI : Use & management of drugs

These materials will be continuously modified and improved by trainer teams at KHDI and through on-the-job training of the CHP.

Additionally, slides and materials on a considerable number of subjects, including the models of pelvis and genital organs, has been developed and utilized for audiovisual education. Moreover, other A.V. materials have been obtained to educate CHPs and other health personnel and also to enlighten the residents.

Main types of materials are listed below:

1. Slides

- 1) Parasite control I. II.
- 2) Health management in field of industry
- 3) Dental hygiene
- 4) Maternal and child health
- 5) Sex education today
- 6) Nutrition and health
- 7) Tuberculosis control I. II.
- 8) Feeding the child
- 9) Medical Insurance
- 10) Family planning
- 11) Protection for eyes
- 12) Health in the rural community
- 13) Sex education for young generation
- 14) Instruction to KHDI

2. Models

- 1) Pelvis
- 2) Genital organ of woman
- 3) Doll

3. Film & film strips

- 1) Human reproduction
- 2) Normal delivery
- 3) Family planning: vasectomy, tubal ligation
- 4) Emergency care

VII. INSTRUCTOR AND PRECEPTOR

Ideally, it is essential to have a sufficiently high faculty-to-trainee ratio to permit individualized teaching and monitoring necessary to ensure competency. However, this affluence of training manpower and experienced trainers was not available due to the rather new methodology and to the innovative nature of the training project as a whole.

Instructors and other personnel for CHP classroom training were recruited from medical facilities, nursing colleges, health service institutes and hospitals, etc. Most of them joined in the task force team for material compilation and served as part-time instructors in their major subjects in the theory course. Preceptors were selected from physicians who could provide primary health care in the hospitals.

They were asked to utilize their hospital facilities for didacting purposes on a personal basis during the three months' period of rotation practice in preceptorship. The program has attempted to respond to specific practice needs of preceptors as well as to the problem of primary care maldistribution in the rural area. The preceptorship was considered to be a particularly effective pattern of clinical teaching, a one-to-one relationship.

It is quite clear that the content and technique of guidance and supervision practiced by each physician as preceptor exerted great influences on the quality of training preceptorship. The factors considered to select an instructor and a preceptor are as follows:

- Interest and ability to teach
- Receptive attitude concerning CHP and willingness to collaborate with the program in teaching and learning
- Agreement to evaluate trainee performance
- Association with providing primary care

In order to provide efficient preceptorship, orientation training for preceptor-supervisors was conducted at each hospital involved and the subjects of the orientation were as follows:

- Background on the importance of CHP training
- How Maul Geongang Saup operates
- The roles and functions of CHP
- Objectives of hospital practice
- Evaluative and administrative aspects of clinical practice for CHP

- Contents of classroom training
- Detailed explanation of the program, with particular emphasis on the necessity for the preceptor to accept the CHP.

In field practice, the close field supervision of the activities of CHP trainees was conducted by the county health center directors, community health center directors, KHDI technical advisors, and KHDI field supervisory doctors and trainers during six months' field training. Community physicians (Gun health center directors, community health center directors, Myor. health subcenter directors, and physicians under resident course) received orientation regarding preceptor-supervisorship of CHP.

They arranged to have some regular meetings, if not a weekly meeting together, in addition to an on-the-spot check-guidance system when they made field visits to each CHP's post. Also, the physician provided guidance by telephone when needed by CHPs in certain areas, plus a regular monthly joint session with CHP trainees, community physicians, a KHDI technical advisor, and KHDI supervisory physicians or trainers.

VIII. MANAGEMENT OF TRAINING COURSE

A detailed yearly training plan was designed to carry out the program systemically and effectively, and the training procedures and steps were carried out in accordance with the yearly training plan. Also, a committee on training affairs was organized to discuss various important subjects such as curriculum, materials, schedules, evaluation, certificate and award, screening and selection.

The training team at KHDI initially consisted of two physicians, a social development educator a nursing specialist and public health specialist with a license of pharmacist. These trainers have been actively involved and have participated in planning and running the training course. They also lectured on various topics.

In training methodology, the emphasis was placed on group discussion, audio-visual instruction, practical work, experiments, observation and role playing. There was a scholarship system whereby the CHP trainees received a scholarship or stipend covering housing allowance instead of their salary during the six months' classroom and hospital training away from their assigned counties. Consequently, they received their compensation as temporary government officials of the assigned counties during the six months' of field practice.

Unfortunately, 2 trainees in "B" batch selected from Okgu pilot area dropped out for individual reasons. Moreover, by the aggregate results of the final evaluation assessment, 21 trainees were passed and 2 failed with the consensus of the academic and achievement assessment committee or training affairs. The average age of passed CHPs was 27.8 years with a range of 23 - 45 years, and the average duration of their experience in the field of health was 4.4 years with a range of 1 - 18 years.

The per capita cost of CHP training appears to be rather expensive for it is an initial experimentation project which requires a large capital investment for various training materials, modular texts, honoraria and training supplies.

The unit cost of CHP "A" batch (the first trainee group) was estimated approximately at \$1,890, where as the "B" batch (the second group) was reduced to \$1,450. It will be quite safe to assume that the projected estimation of the unit cost per trained CHP will be around \$1,000 or less, when the training is run by an institutionalized system.

IX. CURRICULUM DEVELOPMENT

1. Curriculum objectives:

- (1) Identify the health status of the individual by taking a health history, performing an appropriate physical examination, initiating appropriate preventive, screening and diagnostic procedures.
- (2) Provide the knowledge and skills for the management of minor trauma and common health problems of the individual with appropriate intervention.
- (3) Assume responsibility for on-going health maintenance and clinical management of stable or chronically ill patients.
- (4) Identify the need for continuity of care for individuals and families and coordinate the health care needs of patients through appropriate intervention, consultation and referrals based on data obtained by the CHP or other members of health care team.
- (5) Provide relevant health counseling and guidance to individuals and families.

- (6) Relate individual and family health problems to the community and identify emerging health problems by working and participating with community development organizations.

2. Curriculum content

A. Orientation phase:

The initial two-week phase of orientation included the following objectives:

- (1) To develop the right mental attitude as a service-change agent in remote rural setting.
- (2) Be able to understand CHP's role and function in an innovative health care delivery system.
- (3) Be able to understand a new concept of health care approach and other related factors to facilitate the community health
- (4) Be able to provide preventive care delivered by existing health center network continuously.

To meet the above mentioned objectives, every emphasis has been placed on professional attitude, human relations and understanding of community structure involved with the demonstration project. Several instructors from various institutes, such as School of Public Health, Ministry of Health, and KHDI trainers were made available for the training. During this phase, pre-tests, written examinations, group sessions and observation tours were conducted. The curriculum of this orientation phase is described in Annex (1).

B. Theoretical phases:

A total of 10 weeks of theory was divided into five major content areas:

- (1) Management of health and illness
- (2) Diagnostic procedures
- (3) Laboratory and medication

- (4) Related community health maintenance
- (5) Community involvement and others

During this phase, the trainees were required to gain understanding of, and increase competence in data collection with analysis and synthesis, pathological processes related to common primary care problems and manifestations there upon. The trainees were thus instructed intensively in basic knowledge and skills in order to provide comprehensive primary care services.

(1) Management of health and illness

* This area was divided into five management components: medical problems, surgical problems, OB-GYN, Pediatrics and emergency care.

The qualified nurses were in general familiar with the care of the patient including observation, measurement, nursing assessment, education, counseling and so on. But in order to perform their ability in managing patients and individual health independently, or within their limitations.

- a. For the managing of medical and surgical health problems, the instruction was initially focused on minor diseases common to the rural community, such as upper respiratory, gastrointestinal problems, skin problems, wound care including I & D, suturing, dressing and other related would care. Also included were neurological, genitourinary, emotional, endocrine, musculoskeletal, ENT and dental problems.

The management of disease included etiology, symptoms identification, assessment and treatment, follow up and referral procedure.

- b. Obstetrical health management was also emphasized during this phase for the high home delivery rate of 85%-90%: one of the important roles of CHP is enlightening the mother to get a healthy baby born and attending to direct delivery care at home, also the continued perinatal care for normal delivery. Identification of normal abnormal condition and newborn care were instructed with lecture, films, slides and model as supplementary teaching aides.

- c. Pediatric health management emphasized care of the well child, physical diagnosis, developmental aspects and common medical problems encountered in childhood.

The trainees were instructed about age specific growth and development, interviewing to obtain a health history, and physical examination, through lecture and use of slides and films.

Common signs, symptoms, and diseases such as diarrhea, fever, gastrointestinal diseases, common cold, respiratory system problems, skin disorders, rashes and identification of communicable disease were also covered.

Care of the well child included: Accident prevention or safety counseling, immunization, diet and weaning counseling.

- d. First aid and emergency care aspect:

Instruction in first aid aims not only to teach the knowledge base for managing emergency problems, but also to develop the emergency skills necessary to respond to commonly encountered emergency situations.

Contents of this area included:

- Principles and procedures in the administration of first aid
- Individual responsibility and legal implications in emergency care
- Physical check of the injured
- Wounds, shock asphyxia, poison, bone, joint, and muscle injuries
- Poisonous bites and stings such as snake and insect bite
- Practical applications such as essential techniques of bandaging and splinting, cautious transportation and use of first-aid supplies.

(2) Diagnostic procedures

A second content area concerned instruction in physical diagnosis skills, by basic means of history taking and physical examination. This was imparted as early as possible because the knowledge and skills are to reinforce for the CHP clinically-related experiences most lacking from their previous training. The contents included are as follows:

- How to obtain and record a complete medical history: identifying data, patient profile, chief complaint, present illness, past medical history, family history, thorough review of system, socio-cultural factors.
- Identifying significant subjective findings (symptoms)
- Performing and recording a complete physical examination
- Increasing skill in the proper use of physical examination tools: Vital signs and measurements, general appearance and system review through use of techniques such as inspection, palpation, percussion and auscultation.

The trainees were taught the content or questions of basic history and the appropriate sequence and technique for obtaining the history. Instructional methods included lectures, demonstration and practicing on each other as pseudo client by using the stethoscope, hammer, ophthalmoscope and otoscope. The use of SOAP (Subjective-Objective-Assessment-Plan) method was introduced during the course of health history and physical examination, and precise recording and verbal presentations were done. The actual practicing with a patient was done in the hospital clinical setting.

(3) Laboratory and medication

The trainees were instructed in utilizing laboratory tests basic to primary health care. Most of trainees found that they had great difficulty with laboratory work, so the instruction was concentrated on collection and keeping of specimens and preparatory work for the test, technique and theory of blood, urine and stool test.

The scope of the laboratory tests were based on the levels of CHP's skills. The instructional methods included lectures, use of slides and practicing. The trainees were brought into the laboratory

institute, NIH, for practice in the use of microscope, parasite examination in collected specimens and interpretation of findings.

Another content area concerned medications and particularly understanding of drug action, side effects and toxicity essential to provide adequate patient treatment.

The content related to medication included:

- General introduction to pharmacology
- Administration of drugs
- Management of drugs
- Drug action, side effects, antagonistic action and toxicity; Local anti-infectives

Vitamins

Sulfonamides

Antituberculosis agents

Antibiotics

Antihistamines

Local anesthetics

Diuretics

Respiratory stimulants

Stomachics and digestives, antacid, emetics and antiemetics

Drugs acting on circulatory system

Sympathomimetics/Sympatholytic agents/parasympatholytics

Antiallergenic agents

Throughout the instruction course, the CHP's were advised to handle and administer such limited drugs for curative practices as listed in attached annex (2).

(4) Related community health maintenance

This area concerned instruction in the basic concept of community health, health issues related to improving community health and delivery of health care services. The aim was to provide effectively for preventive health services and health maintenance services.

Topics covered are as follows:

- Epidemiology including communicable diseases
- Health education
- School health
- Applied nutrition
- Environmental sanitation
- Vital statistics

The instructional methods were with the use of slides, group discussion, lecture and use of pamphlets.

(5) Community involvement and others

The trainees were instructed to be able to provide clinic organization and management, home visiting, planning of work program, supervision of health workers, organizing of voluntary health resources in community, participating with community development organization, family health care, nursing process and problem oriented follow-up care. In addition, the techniques of group dynamics, interview and counseling issues were included.

C. Clinical Practice

Clinical practice was the second phase of CHP training and was a continual part of preceptorship or internship.

It directly followed the theoretical phase of training and lasted for 3 months.

The primary educational goal of the preceptorship was to learn to diagnose and manage commonly encountered acute, chronic, emergent and health maintenance care problems.

Additionally, it is aimed to continue expanding the knowledge and skills learned during the theoretical phase. Trainees are rotated as scheduled through such departments as medicine, surgery, OB/GY, pediatrics, emergency room, dermatology, laboratory, and pharmacy. The basic framework for the CHP trainees in caring for a patient is as follows:

- History taking
- Physical examination
- Treatment plan, including diagnostic studies, medications to be ordered or continued other specific treatments
- Teaching
- Counseling
- Referrals
- Follow-up

Performance Objectives for Preceptors:

- 1) Select patients as necessary
- 2) Assist in the CHP trainee's acquisition of clinical skills
- 3) Help the CHP trainees work in an effective, efficient manner
- 4) Identify trainee's strengths and weaknesses
- 5) Evaluate the trainee's clinical performance

Performance Objectives for CHP Trainees:

- 1) Take a health history and record it
- 2) Perform a physical examination and record it

- 3) Formulate and implement a treatment plan, including diagnostic studies, nursing procedures, teaching, counseling, referrals, follow-up

A successful teaching-learning experience during the preceptorship requires a close working relationship among preceptors, trainees, and trainer, KHDI. The initial step in planning for the preceptorship was in a preceptor orientation-conference prior to the beginning of this phase. During the preceptorship period, KHDI trainers contacted the preceptors and trainees on a regular basis so that KHDI was able to obtain information on progress and help in problem solving in administrative and technical aspects.

In addition, the preceptor kept observing actual CHP performance in dealing with patients, patient chart review, and use of the SOAP record format as included among the ongoing activities. The patient chart developed in line with the SOAP format, provided a means of assessing the adequacy and diversity of the types of patients seen. Each trainee maintained a daily contact record form and the contact record was submitted weekly for review by the KHDI.

According to the submitted record, each trainee was able to have contact with approximately 5 - 10 cases/day during the preceptorship period.

The following levels of skills assumed to be acquired by CHPs throughout the didactive training phase

1. Ability to take general assessment:
 - Record the findings of health history taking and physical examination
 - Inspection, palpation, percussion, and auscultation
 - Examination of pupil reflexes, eye movements
 - Inspection of the external auditory canals and ear drum
 - Auscultation of the heart and lungs
 - Palpation of the abdomen

- Examination of the external genitalia
 - Home visiting
 - Counseling
 - Interviewing
 - Health education
2. Ability to perform the following tests
- Hematology ESR. Hb. Ht. Blood cell counts. Blood typing
Specimen collection and delivery for
serological tests
 - Urinalysis: Sugar, protein, PH. Specific gravity
 - Stool examination: parasites
 - Rectal swab for bacteriological smear
3. Ability to take specific assessment
- Obs: Pap smear
- Bimanual pelvic examination
- Normal delivery
- Perinatal care
- IUD insertion
- Emergency care : Minor trauma, suturing, first aid
- Pediatrics : Immunizations, pediatric examination
4. Ability to provide community health services
- Community health planning
 - Supervision
 - Referrals
 - Community involvement

- Mass immunization
 - Work with community volunteers
5. Ability to provide partial and complete medical care as follows:
- 1) Respiratory disorders
 - Cough
 - Wheezing
 - Acute bronchitis
 - Upper respiratory infection
 - 2) Gastrointestinal disorders
 - Vomiting
 - Abdominal pain
 - Diarrhea
 - Constipation
 - Parasites
 - Acute gastritis
 - Gastric ulcer
 - 3) Cardio-vascular disorders
 - Hypertension
 - Varicose vein
 - 4) Neurological and emotional disorders
 - Headache
 - Fainting
 - Vertigo
 - Epilepsy

- Hysteria
- Depression
- Nervousness
- 5) Urinary tract disorders
 - Cystitis
- 6) Endocrine disorders
 - Diabetes
 - Thyroid disorders
- 7) Musculoskeletal disorders
 - Low back pain
 - Sprains, strains
- 8) Trauma and other surgical problems
 - Lacerations
 - Abrasions
 - Puncture wounds
 - Burn
 - Insect bites
 - Snake bites
- 9) Ob/Gyn
 - Menstrual irregularities
 - Vaginitis
 - Menopause

10) Child health care

Well baby care:

- Growth and development deviations
- Feeding problems

Sick baby care:

- Upper respiratory infection
- Fever
- Minor diarrhea

11) Eye disorders

- Foreign body
- Conjunctivitis
- Stye
- Hordeolum

12) ENT/Dental disorders

- Ear ache
- Epistaxis
- Cerumen in ear canal
- Acute pharyngitis
- Acute tonsillitis
- Otitis media
- Rhinitis
- Stomatitis

13) Skin disorders

- Dermatitis including Seborrheic, contact, neuro
- Tinea capitis
- Infantile eczema
- Sycosis vulgaris
- Herpes simplex
- Allergic cheilitis
- Instertrigo
- Childhood atopic derm
- Miliaria
- Atopic eczema
- Nummular eczema
- Tinea pedis
- Kerataderma
- Scabies
- Disper rash

D. Field practice experience

The field practice for 24 weeks was carried out on the job situation in each demonstration area.

The principal objectives of this field practice are as follows:

1. Provide an opportunity to apply attained knowledge and skills to actual field setting in rural community.

2. Provide curative care services to patients with minor and chronic health problems.
3. Provide preventive and promotive health services to individuals and families.
4. Organize the primary health unit or post for daily work preparation and supervision of health workers such as CHA and VHA.
5. Identify the health problem by working and participating with community development organizations.

According to the training schedule, the trainees carried out their daily work with carefully planned working programs.

At the beginning stage of practice, the trainees were more concerned with curative care rather than health care services to the rural community. But gradually, the trainees shifted their services to providing more preventive and promotive health services.

Main activities provided by CHP during field practice were as follows:

1. Health assessment with history taking and physical examination.
2. Treatment of common and minor health problems
3. Identifying the complicated health problems and referring to the appropriate level.
4. Emergency care.
5. Perinatal care and normal delivery, IUD insertion in Family Planning Services.
6. Child health care such as immunization and health assessment and counseling.
7. Health education
8. Supervision of health workers on regular basis.
9. Regular meeting and conference with the village health agent.

10. Regular participating in conference with the community development organization.
11. Follow up for chronic patients and referred cases back from a higher level through home visiting or clinic activities.
12. Organizing and planning of weekly or monthly work schedule.
13. Keeping health-related records up to date.
14. Maintain and request supplies such as drugs, materials regarding the health services and administration instruments.

They were encouraged to expose themselves as much as possible to various community organizations during their stay in the assigned area, in order to improve their community-oriented organizational involvement and their associations with local leaders, so that they become familiarized with what other development or social changes are taking place from time to time.

In accordance with the work schedule, the trainees were able to supervise the health workers in their assigned area every 1-2 weeks, to maintain contact meetings with VHA and community development organizations, maintain well baby and maternity clinics in certain areas and participate in monthly meeting with various health workers at Health Center, besides daily running of the clinic.

To facilitate the CHPs activities and solve the problems encountered in the field setting, the Field Officer of KHDI, who stayed on full time basis in the field, guided and supervised CHPs, and the Doctor-Supervisor of KHDI instructed supervised them on a regular basis. In addition, the county health center directors and trainers of KHDI were also involved in monitoring the field practice.

The trainees reported a summary of activities to the health center monthly and were evaluated through self assessment forms regarding skills and management for health care services and general reaction toward the field practice.

X. EVALUATION

A major purpose of evaluating any health educational program is to objectively assess the degree to which program goals and objectives have been achieved. The evaluation should measure generally cognitive process, attitude, interests, motivations and skills of trainees. Evaluation of the curriculum is a continuing process, whereby we assess the effectiveness of the educational program and continuously modify and improve the content. Pretest, midterm and final tests were conducted during the theoretical phase, skill and management in the clinical preceptorship phase; and knowledges, skill, management and attitude in field practice.

Pretest: It was conducted during the first week of orientation and again at the end of the tenth week

It's purpose was to identify the strengths and limitations of each trainee at the outset of training. It also allowed the trainee and the planner to individualize training to the maximum extend possible, an important factor in better understanding the level to which the instruction most appropriately is geared. Actually, the written test for pretest was done with 15 "open" questions in terms of the overall health services basic knowledge needed for health management.

Theoretical phase:

This was a didactic intensive phase to attain knowledge and skills for management of common illnesses and preventive health, related to performing of actual roles and functions. Various test scores for rating and level of completion and units of mastery were used. The evaluation methods were written examination (open questions or multiple-choice), interviewing, observation with skill practicing, and combined tests. The evaluation was to determine the extent to which trainees can apply the knowledge and skill in the real community setting as well as comprehension of the subject.

In the curative subject examination, both "open" and "closed" questions were combined for tests covering identification of symptoms, diagnosis, treatment plan, nursing care and medication. Obstetrics questions were particularly focused on perinatal care and management of normal delivery. Interview and counseling skills were assessed by instructor-observers as well as trainees interviewing one another. Data collection skills such as history taking and physical examination were tested with both written and practical procedures. The non-curative subjects, such as community health and administration, nursing management, were tested with applied questions which the trainees will eventually encounter in the field.

In summary of the theoretical phase evaluation, for all trainees, there were

1. Pre-tests in first week of program
2. Observation and practicing, written examinations during 4th week, 6th week, 8th week and 10th week

Additionally the reaction of the trainees was checked regarding the instructional method, contents of instruction and scope of subjects and a few review conferences with the trainees and training staff held to modify the training methodology.

Finally, the individual assessments were made regarding the theoretical achievement of the trainee at the end of the 12th week to determine whether the trainee could move to the next phase of training or not.

Clinical Practice

The evaluation for clinical practice was based on the skills and performance for history taking, physical examination, treatment plan for common diseases, recording findings and counseling for further care. Preceptors of various departments in the clinical setting assessed the above mentioned skills and performance during 12 weeks practice, each trainee was evaluated 6 times with form attached (No.3).

Field practice experiences

During this phase, the trainees were in an on-the-job situation to provide an opportunity for actual field practice in the rural communities where clients came for medicare services, imposing supervisory workload for CHA & VHA and conducting preventive or educational campaigns for villagers.

The following various aspects were taken into consideration for evaluation during this phase.

1. Evaluation by Health Center Directors or Doctor-Supervisor of KHDI using evaluation form (Annex No. 9)

This evaluation focused on skills and performance in managing common diseases and preventive tasks such as maternal care, child care and Family Planning. In addition, administrative management skills and performance such as supervision of low

level health workers, organization of clinic setting, keeping of health-related records and management of supplies were tested. Also, adaptation and attitude of the CHP toward performing their role and function in the community were included

2. Field supervisory trainer-doctors of KHDI visited the trainees on a regular basis and were able to make commentary-evaluative reports through the conference with the trainee after observation of the trainee's performance, checking of the patient chart and their relationship with the community.
3. The trainers from the Manpower Division and field officers of KHDI also supervised and made commentary-evaluative reports concerning administrative and preventive performance and adaptation to the community situation.

These various rating factors were synthesized to reach an overall decision about the trainee's performance during this phase. These reports were accumulated and processed from the class instruction and field and clinical hospitals and calculated, tabulated and finalized with a weighting ratio of 30% theory instruction, 30% clinical practice and 40% field-community practice.

The aggregate results of all these achievement and assessments of each trainee were analyzed, and presented to the KHDI scholastic Assessment Committee for final review and approval in determining who "passed" and who "failed".

Annex 1

Summary of Didactic Hours

1. Orientation phase training: 2 weeks/66

<u>Subjects</u>	<u>Hours</u>
Introduction to Maul Geon Gang Saup	3
Health care delivery system in Korea/Abroad	3
Observation tour to existing health demonstration project	12
Introduction to community health	2
Community survey	2
Introduction to health need	2
Health center administration	3
Medical insurance scheme	3
Yoo Shin philosophy and Saemaul movement	3
Social development and health services	4
Community development and health-related resources utilization	6
Role and function of CHP	3
Supervision of health workers	4
Report and record keeping	6
Introduction to module approach	6
Others including pretest and final test with short resume	4

2. Theoretical phase training: 10 weeks/330

	<u>Subjects</u>	<u>Hours</u>
A.	Community health related	<u>46</u>
	Communicable disease control including tuberculosis	12
	Health education	10
	School health	3
	Nutrition	8
	Environmental sanitation	7
	Vital statistics	6
B.	Community development	<u>23</u>
	Group dynamics	9
	Counseling Techniques	6
	Organization of health resources and community agencies	8
C.	Core skills	<u>47</u>
	History taking	11
	Physical examination	20
	Laboratory	15
D.	Management of health illness	<u>175</u>
	Medical problems including	49
	- Respiratory	
	- Gastrointestinal	
	- Cardiovascular	

- Neurological	
- Genitourinary	
- Dermatology	
- Psychiatric	
Surgical problems including	<u>28</u>
- General surgery	
- Orthopedics	
- Eye ear nose throat	
- Dental	
Maternal and child health	68
Emergency care	12
Use of drugs and management	18
3. <u>Clinical practice phase: 12 weeks/456</u>	<u>39</u>
<u>Weeks</u>	<u>Hours</u>
Medicine 3-4 weeks	114-152
Surgery 1 week	38
Ob-Gyn 3 weeks	114
Pediatrics 1-2 weeks	38-76
Emergency care 1-2 weeks	38-76
Laboratory 1 week	38

Annex 2

List of Drugs to be handled and administered
by CHP for Curative Services

1. Adrenaline
2. Alum
3. Alupent
4. Aluminium hydroxide gel
5. Ammonium chloride
6. Ampicilline
7. Antivemin
8. Assorbic acid
9. Aspirin
10. Ativan
11. Atropine, sulfate
12. Avil
13. Baralgin
14. Bactrim
15. Banzddine penicilline G.
16. Benzalkonium chloride
17. Bisacodyl
18. Boric acid
19. Buscopan
20. Calamine lotion
21. Cambisonet ointment
22. Chloramphenicol
23. Chlorpheniramine maleate
24. Combantrin
25. Cough syrup
26. Dextran
27. Dextrose injection
28. Digoxine
29. Dramamine
30. Ephedrine sulfate
31. Ergot
32. Ferrous sulfate
33. Flagyl
34. Furazolidone
35. Gentian violet
36. Hydrogen peroxide solution
37. Hydrochlorothiazide
38. Irgarzrin
39. Kimotab

40. Lidocaine hydrochloride
41. Lugol's solution
42. Oxytetracycline Hcl
43. PAM (Pyridine Aldoxine Methiodide)
44. Phenobarbital
45. Piperazine citrate
46. Podophyllum
47. Potassium penicilline G.
48. Potassium permanganate
49. Prednisolone
50. Reserpine hydrolazine
51. Silver nitrate
52. Sulfamylon hydrochloride
53. Tetracycline Hcl
54. Thiamine hydrochloride
55. Thimerosal
56. Valium
57. Rheumaphiline
58. Fraberin Q syrup
59. Acetaminophen
60. A.P.C.
61. Vitamin C

Annex 3

Practical Examination-Evaluation used by preceptors for Hospital Practice

Scoring:
superior-5
above average-4
satisfactory-3
marginal-2
unsatisfactory-1

Preceptor:
Name of trainee:
Date:

1. History taking

- (1) chief complaints
- (2) present illness
- (3) past history
- (4) general physical condition
- (5) family history

5	4	3	2	1

2. Physical Examination

A. Technique

- (1) vital sign
- (2) head
- (3) ears, eye, nose, neck
- (4) chest & breast
(percussion, auscultation nodes, others)
- (5) abdomen-percussion of liver and spleen
- (6) nodes
- (7) back-spinal tenderness

5	4	3	2	1

	5	4	3	2	1
(8) genitourinary					
(9) extremities					
(10) skin					

B. Organization & use of instruments

(1) well organized					
(2) use of instrument					

3. Plans

A. Diagnostic

(1) appropriateness of diagnostic plans					
(2) appropriate use of drugs					

4. Patient education

(1) counseling techniques					
(2) follow-up					

5. Other comments

Annex 4

Additional evaluation form used by preceptors
for obstetrics of Hospital Practice

Scoring:
Superior - 5
Above average - 4
Satisfactory - 3
Marginal - 2
Unsatisfactory - 2

Preceptor _____

Name of Trainee _____

Date 1978 _____

Areas

1. Prenatal care skill
2. Normal delivery skill
3. Management skill for Gynecological patient
4. IUD insertion
5. Preparation for instruments and using skill
6. Other comments:

	5	4	3	2	1

Annex 5

Evaluation form used by Preceptors for
Laboratory test of Hospital Practice

Scoring

- Superior 5
- Above average 4
- Satisfactory 3
- Marginal 2
- Unsatisfactory 1

Preceptor _____

Name of Trainee _____

Date 1978 _____

Areas

1. Use of microscope
2. Specimen collection
3. Hematologic examination
4. Urine examination
5. Stool examination
6. Other comments:

5	4	3	2	1

Annex 6

Record form for SOAP Data collection used by CHP

Name

Date

Sex

Address

Age

Occupation

Subjective (history taking)

Chief Complaint

Present Illness

Family History:

father _____

mother _____

brother _____

sister _____

children _____

Tbc (). Heart disease (). Nephritis ().

Diabetes mellitus (). Psychiatric ().

Thyropathy ().

Past History: Diphtheria (). Mumps (). Measles ().
Small-Pox (). Pneumonia (). Tbc ().
Typhoid-fever (). Malaria ().
Syphilis ().

Major Operation and Hospitalization:

Yes () No ()

If any (describe) _____

Habits: Tobacco (). Alcohol (). Coffee ().
Drugs (). Aperitive (). Sleeping Drug ().
Exercise ().

Signs and: Fever (). Weakness (). Sweats ().
Symptoms Chills (). Tremor ().

Head: Headache ().

Eyes: Pain (). Discharge (). Double Vision ().
Blind spots (). Sight ().

Ears: Pain (). Discharge (). Ringing ().
Hearing (). Vertigo ().

Nose: Obstruction (). Discharge ().
Bleeding (). Influenza ().

Neck: Pain (). Stiffness (). Hyperthyroidism ()
Lymphedema ().

Heart & : Chest pain (). Dyspnea ().
 Respiratory : Orthopnea (). Palpitation ().
 Cough (). Sputum (). Bloody ().
 Bloody sputum (). Asthma ().
 Edematous ().

Gastrointestinal: Appetite (). Digestion. ().
 Constipation (). Stool (). Abd. pain ().
 Abd. distention (). Diarrhea ().
 Nausea (). Vomiting (). Jaundice ().
 Bleeding ().

Genito-urinary: Frequency (). Dysuria ().
 Nocturia (). Urinated ().
 Hematuria (). Back pain ().
 Pain in urination ().

Neuro-muscular: Tremor (). Sensory disorder ()
 Exercise disorder ()

Lung: Noise (). Resonance (). Breath sound ().
 Rale ().

Abdomen: Tenderness (). Stiffness (). Liver ().
 Spleen (). Kidney (). Intestinal hernia ().

Back: Abnomal (). Pain ().

Extremities: Varicose Vein ().

Skin: Sweats ().

Tendon Reflex: Knee (). Ankle (). Biceps ().
 Triceps (). Achilles tendon (). Abdomen ().
 Babinski ().

Laboratory finding

VDRL

Urinalysis: PH _____ Acid & Alkali _____
 Color _____ Sugar _____
 Blood _____ Aceton _____
 Bile _____

Blood test: HB _____ W.B.C. _____
 R.B.C. _____
 Sedimentation

Sputum ex.

Stool ex.

Assessment:

Plan:
(Treatment)

Annex 7

Record form for OB/GY data of Hospital Practice

Past History

Used by CHP

1. Menstrual:

Onset of first menstruation:

Frequency

Duration:

Amount:

Irregular flow:

Characteristics:

L.N.M.P.:

Menstrual pain:

2. Obstetrics:

Labor conditions:

Puerperium condition:

New-born condition:

Abortion:

Etiology:

Progress:

Occurrence:

3. Vaginal Discharge:

Amount:

Nature:

Odor:

Color:

Continuous:

4. Inspection:

Infection (). Neoplasia (). Atrophy ().

Trauma (). Size of Clitoris ().

Skoen's gland:

Bartholins gland:

Skin:

5. Pelvic examination:

Cervix:

Body:

Size:

Shape:

Movement of Cx.:

Pelvic Pain:

6. Bimanual examination:

Hymen:

7. Married:

Date:

Number:

Duration:

Family planning methods:

Frequency of sexual contact:

Sexual problems:

8. Operations history:

Date:

Kind:

Dr. in charge:

Hospital:

Frequency of operation:

9. Slack of genital organ: Heavy feeling over external genital organ

10. Medical history:

Illness of childhood:

General condition:

Incontinence:

Dysuria:

Pyelitis:

Past serious illness:

Past urinary disease:

Endocrine:

Respiratory:

Gastrointestinal:

Cardio Vascular:

11. Vaginal examination:

Infection:

Atrophy:

Trauma:

Bleeding:

Swelling:

Urinary hernia:

Bladder hernia:

Rectal hernia:

12. Diagnostic Impression:

13. Laboratory test:

14. Plan (Treatment):

Diary for Hospital Practice

used by CHP

Department:

Name of Trainee:

Content	Date	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Remarks
1. No. of Contacts								
History Taking								
Physical Examination								
Plan of Treatment								
Counseling & Education								
Other								
2. Surgical Treatment								
Suture								
I/D								
Wound Care								
First Aid								
Others (describe)								

130

Annex 9

Evaluation of CHP's Performance of Field Practice

Scoring

- Superior 5
- Above average 4
- Satisfactory 3
- Marginal 2
- Unsatisfactory 1

Name of Trainee _____

Unit of Practice _____

County _____

I. Medical care

A. History taking

- 1) interview and counseling
- 2) chief complaints & present illness
- 3) past history & family history
- 4) record findings accurately

	5	4	3	2	1

B. Physical Examination

- 1) appropriateness to complaints
- 2) perform procedures systematically
- 3) correctly uses the techniques of inspection, palpation, percussion and auscultation
- 4) maintains privacy for the individual during all aspects of the examination
- 5) correctly uses the instruments
- 6) records findings accurately

C. Diagnostic tests

5 4 3 2 1

1) adequately prepares the individual and matters related

2) urinalysis

D. Decision making and clinical management

1) identification of normal & abnormal condition

2) requests appropriate lab and diagnostic test

3) effective treatment plan

4) records findings accurately

5) referral of patient to appropriate level

E. Medication

1) accurate drug selection

2) explains about taking medicine

3) drug management and preservation

F. Education and Counseling

1) appropriate education and counseling regarding Pt' treatment

2) counseling with individuals regarding nutrition, personal hygiene, family health care

II. Preventive Care

A. Maternal care

5 4 3 2 1

- 1) accurate preparation for antenatal
- 2) accurate examination and test
- 3) education about nutrition, health maintenance and delivery
- 4) adequate techniques- of normal delivery

B. Child care

- 1) health assessment, teaching and counseling
- 2) feeding and weaning
- 3) immunization

C. Family planning

- 1) preparation for IUD insertion
- 2) adequate techniques with IUD insertion
- 3) counseling
- 4) referrals in the administration

D. Environmental sanitation

5 4 3 2 1

- 1) keeping of sanitation maps
- 2) participating in sanitation improvement activities (test and chlorination of drinking water)
- 3) education on improving the latrine conditions
- 4) education on waste and refuse disposal

III. Administration

- 1) planning monthly work program
- 2) management of supplies
- 3) keeping of administrative documents up to date
- 4) keeping of health-related records up to date
- 5) supervision of health workers
- 6) orientation to new health workers

IV. Participation with community activities and relationship

- 1) winning patient's confidence
- 2) good working relations with health workers
- 3) CHP/nursing professional interaction
- 4) acceptance by health officers in assigned area
- 5) get along well with doctors in assigned area
- 6) relates well in community affairs

V. Other comments:

Evaluator's signature
(Doctor-Supervisor/County Health
Center Director)

Annex 10

Rating Sheet for CHP Candidate

1) On the basis of personal history record

Classification	Factors in detail	Points	Mark
1. Educational record	College of Nursing (3 yrs)	5	
	College of Nursing at University (4 yrs)	10	
	Dept. of Nursing at College of Medicine (4 yrs)	10	
2. Place of birth	At the same Gun, H. School	10	
	At the same Gun, local city H.S.	8	
	At the same Gun, large city H.S.	7	
	At the local city, local city H.S.	6	
	At the local city, large city H.S.	5	
	At large city ditto	5	
3. Presently living	At the same Gun	10	
	At local city	7	
	At large city	5	
4. Age factor	21 - 25	5	
	25 - 30	7	
	31 - 35	9	
	36 - 40	10	
5. Handwriting capability	Excellent	10	
	Very good	7	
	Satisfactory	6	
	Need improvement	5	

2) On the basis of interview

Classification	Factors in detail	Points	Mark
1. Appearance	General impression	5	
	Make-up	5	
	Manner of dressing	5	
2. Attitude	Cultured manner	4	
	Manner of walking	3	
	General attitude	4	
	Conversational attitude	4	
3. Healthiness	Complexion	5	
	Briskness	5	
	Physical condition	5	
4. Art of speaking	Clear expression	3	
	Voice and nuance	3	
	Pleasant talking	3	
	Speedy or too slow	3	
	Easy to understand and logical	3	
5. Desire and preparedness	Hobby	3	
	Understanding rural life	3	
	Understanding medicare need	4	
	Interest in rural health service	4	
6. Motives behind applying for the job	Why has she become nurse	4	
	Motivation for CHP	6	
	Understand the role to play	5	
	Related awareness in general	2	
7. Awareness and understanding of health work	Public health administration	10	
	Preventive health care	20	
	Nursing and treatment	20	
3. Others			

TRAINING PROGRAM
OF
COMMUNITY HEALTH AIDE,
VILLAGE HEALTH AGENT, AND
COMMUNITY PHYSICIAN

by

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Contents

Community Health Aid (CHA) Training

1. Introduction
2. Main Functions of CHA
3. Training Program
4. Development Materials
5. Instructor and Supervisor
6. Curriculum Development
7. Evaluation

Village Health Agents (VHA) Training Program

1. Introduction
2. Duties
3. Training

Community Health Aide (CHA) Training

1. Introduction

Community Health Aides (CHA) are at the 3rd level in the health delivery system of Maul Geongang Saup. These aides are drawn primarily from the ranks of the present single-purpose workers in family planning, tuberculosis control, and maternal and child health who are currently assigned to carry out their activities at the Myon office or health sub-center. Formerly, each of these workers had one job and covered an entire Myon. Now they receive additional training with our project and are re-directed to provide more comprehensive health services than in the past.

The selected trainees with a nurse license or a nurse-aide certificate were trained and assigned to the new posts in the demonstration areas in order to carry out their innovative activities regarding "Maul Geongang Saup". They will perform various functions under the guidance of the community physicians & health practitioners.

2. Main Functions of CHA

- a. Provide ante and post natal care including assisting at normal deliveries.
- b. Treat minor injuries & illnesses.
- c. Administer immunization.
- d. Provide nutritional guidance and education.
- e. Conduct health education including sanitation for VHA & residents.
- f. Assist family planning services such as dispensing pills or condoms.
- g. Undertake identification and control of tuberculosis patients.
- h. Collect specimens for identification of illness.
- i. To collect vital statistics and to record other necessary data.
- j. Supervise VHA.

3. Training Program

The 8 week training course was divided into 3 phases: 2 weeks classroom education, 2 weeks clinical practice and 4 weeks field practice. A total of 30 CHAs selected from 3 point Guns (6 from Hongchon, 11 from Gunee, 13 from Okgu) received the 8 weeks course regarding a competency-based training for performing their role and function better.

The classroom training of the first course was conducted at the nursing school in Kyung Buk Medical College, Taegu city, in July 1977. Also, observation and field observation were completed at the existing demonstration project area in Yongin Gun, Kyonggi-do, for a week. Clinical practice training was carried out in three referral hospitals near the demonstration areas. Finally, field practice for the first CHA training course was conducted under guidance or supervision of a physician and CHP at each gun health center, community health center, and primary health unit

The second CHA training was given to 18 CHAs who were assigned to their health settings in Gunee Gun in May, 1978.

The classroom education training of the third training course for 28 CHAs who are assigned in Hongchon gun was conducted at the Farmer Training School near Hongchon health center for 2 weeks.

The chronology of CHA & general health worker training program carried out is summarized as follows:

- 1) July 26 - Aug. 20, 1977
Selected 30 CHA trainees received a classroom education at the Kyung Buk Medical College, Taegu.
- 2) Aug. 22 - Aug 26, 1977
Field orientation was followed by observation of an existing health demonstration site, Yongin Gun, Kyunggi-do.
- 3) Aug. 29 - Sept. 3, 1977
Clinical practice for these 30 CHAs in the following referral hospitals was conducted for a week.
 - a. Kangwon Medical Center (6 persons)
 - b. Jaenam Rural Medical Center (11 persons)
 - c. Gunsan Provincial Hospital (13 persons)
- 4) Sept. 5 - 17, 1977
Field practice was carried out at each health center and community health center
- 5) Nov. 12, 1977
One-day orientation for 42 general health workers including administrative staff was conducted at Hongchon gun.
- 6) Dec. 7 & Dec. 13, 1977
16 general staff and 24 general staff received the orientation training regarding "Maul Geongang Saup" at Okgu and Gunee health centers respectively.
- 7) May 15 - 27, 1978
18 CHA trainees received a 2 week classroom training at Gunee gun health center.
- 8) June 12 - 24, 1978
Clinical practice for these 18 CHAs was conducted under community physicians and CHPs at the gun health center, community health centers and primary health units.

- 9) June 6 - 19, June 20 - July 1, 1978
28 CHAs divided into two groups received a week of classroom education pertaining to various practical subjects.

4. Development of Materials

Three volumes of educational materials were developed and compiled by the training personnel of KHDI.

Other audio-visual materials including slides and models developed for CHP also were utilized at the CHA training.

The materials used for family planning were texts which were issued by Korea Institute for Family Planning.

The subjects of the three-volume materials were as follows:

- Volume I : Structure and function of the body, MCH, Tuberculosis control
- Volume II : Rural sanitation, Health education, Health administration
- Volume III : Emergency care, Use and Management of drugs.

5. Instructor and Supervisor

In the first CHA training, the instructors for CHAs were made available from Kyung Buk Medical & Nursing Colleges, institutes, hospitals and rural health care authorities concerned such as the Health Division of Kyung Buk Province, TB association etc. They served as part-time instructors in their major subjects in the classroom education.

In the second CHA training, a few personnel from health authorities and centers concerned joined in the 2 week classroom training as instructors and most of the subjects for the training were covered by KHDI trainers, staff of the gun health center and CHPs.

In order to provide efficient training, an orientation session for instructor and supervisor was conducted, and contents of the orientation in general were in line with that of the CHP training.

In training methodology, the emphasis was placed on group discussion, audio-visual instruction, practical work and role playing.

6. Curriculum Development

The purpose of the program is to develop in the CHA the necessary

knowledge and skill to provide service in three main fields as well as minor care, sanitation and health education for the residents in the rural areas.

The contents of curriculum were as follows:

- a. Classroom theoretical education: 2 weeks (84)

<u>Subjects</u>	<u>Hours</u>
1) Development of service attitude	<u>7</u>
a) Introduction to Maul Geongang Saup	2
b) Role and function of CHA	1
c) Saemaul movement	2
d) Health administration and health service	2
2) Health education	<u>16</u>
a) Methodology of health education	2
b) Techniques of home visiting and counseling	2
c) Guidance and Supervision of VHA	2
d) Utilization & participation in the community	2
e) Rural sanitation regarding water, toilet, trash and insect & rodent control	3
f) Recording, collection and utilization of various data	2
g) Management of drugs including agricultural chemicals	2
h) Nursing practice	1
3) Maternal & child health	<u>26</u>
a) Physiological aspect of pregnancy	2
b) Maternal & child nutrition	6
c) Ante-and post natal care	10

d)	Delivery	6
e)	Use and management of delivery kits	2
4)	Family Planning	<u>13</u>
a)	Necessity of F.P.	1
b)	Summary of contraception	2
c)	I.U.D. insertion	1
d)	Rhythm method	1
e)	Oral pill	1
f)	Vasectomy & tubal ligation	1
g)	Other method of contraception	1
h)	Techniques of F.P. enlightenment	4
i)	F.P. practice in health service	1
5)	Tuberculosis control	<u>14</u>
a)	Concept of T.B.	1
b)	Treatment of T.B. patient	2
c)	Control of T.B. patient	4
d)	Taking and keeping of specimen	2
e)	B.C.G. Vaccination & practice	4
f)	Practice of T.B. control	12
6)	Emergency care	<u>7</u>
a)	Minor care & treatment	2
b)	First aid	5

- b. Clinical practice : 2 weeks (88)
 - a) Activities in clinic
 - b) Disinfection & sterilization of medical instruments
 - c) Contact & management of patient
 - d) Keeping & Management of drugs
- c. Field practice : 4 weeks (176)
 - a) Home visiting
 - b) Health education
 - c) Participation of the community
 - d) Vaccination
 - e) Reporting & recording

7. Evaluation

Evaluation of the CHA training is on-going process whereby the trainer team assesses the effectiveness of the training program and continuously modifies and improves the content of on-the-job training.

Four times assessment was carried out during the 8 week CHA training; a pretest and final test were conducted during the theoretical phase, skill and management in the clinical phase, and knowledge, skill, management and attitude in field practice phase.

The method and simplified practical materials were used in line with that of CHP training program.

The results of the achievement and assessments for the CHA trainees in the 1st course were analyzed and presented to the KHDI Scholastic Assessment Committee and all 30 CHPs were passed. Their average age was 22.1 years with a range of 17-28 years, and the average duration of their experiences in health field was 2.2 years with a range of 6 months-14 years. The unit cost of the first CHA training completed in 1977 was estimated at approximately \$260.

The cost estimated included a lot of capital investment for various development materials, texts, honoraria, perdiem and training supplies. Consequently, the cost of the second CHA training will be considerably reduced.

Village Health Agents (VHA) Training Program

1. Introduction

The Village Health Agent (VHA) is a man or a woman who is literate and selected by the Myon Health Development Committee or other village authorities to deal with the simple health problems of individuals in their villages.

They were appointed by the county (gun) governor and supervised by the CHP and/or CHA. The scope of services and activities related with health work of the VHA is strictly limited to what is instructed, in line with the scope of duties indicated below, and they serve as volunteer workers.

2. Duties

- | | |
|-------------------------|---|
| 1) Maternal care | - Assisting Pre- and post- natal care |
| | - Assisting delivery |
| | - Finding pregnant women |
| 2) Child health | - Infant feeding & weaning |
| | - Knowledge in nutrition education or promotion thereby |
| 3) Communicable disease | - Case finding & reporting |
| | - Dose drugs (diarrhea, fever, digestive) |
| 4) First aid | - Minor treatment using mercurochrom or hydrogen peroxide |
| | - Burns, wounds, fractures, bites |
| | - Bleeding control |
| 5) Referrals | - Refer to the upper levels |
| 6) Others | - Individual hygiene |
| | - Sanitation in household environment |

3. Training

A total of 8 weeks training is to be given in original planning to the VHAs throughout one year and a 2-3 days' refresher upgrading course will be conducted each year.

The training phase is separated into two phases: the information-education class and field practice phase. The intensive classroom orientation for all VHAs is carried out at the Gun office or the Gun health center for 5 days, and a 3-5 hours'/a day session is given monthly to the VHAs at the Gun health center so that the schedule allows them to commute

every day. Additionally, the VHAs will receive a few hours field training in the health-service associated settings near by the village.

An initial training of 5 days for 62 VHAs was conducted at the Farmer Training School in Hongchon Gun. The purpose was to give orientation in "Maul Geongang Saup" together with a clear understanding of their duties. Approximately 120 VHAs, selected from the myons of the expended area in 1978, also will receive a 5 days' training at the Farmer School in the near future.

In Gunee gun, a total of 99 CHAs selected from each village in the pilot Myons was selected and divided into 4 groups taking account of the geographical factors so as to conduct the training more effectively. A 2 days' training was carried out at the village culture center in 4 myons respectively during the month of November and December 1977.

Also, 78 VHAs were selected from the expanded pilot myons in 1978 and will be receive the training as soon as possible. Usually, the time set for the training of the VHA is not considered the busy season for farming, because most of them are from the families of farmers.

In Okgu gun, approximately 260 VIAs were selected from the villages and appointed by the gun governor in July, 1978. The orientation training for them will be conducted in the coming August.

Instructors of the classroom training consisted of Gun health center staff, personnel from related agencies or authorities concerned and KHDI staff.

Training Content of VHA in Hongchon Gun

1. Initial Training

Introduction to Maul Geongang Saup
Duties of VHA
First aid
Introduction to Dae Dong Cooperative
Introduction to VHA's operations manual

2. Secondary Training

Family planning
Introduction to tuberculosis
Maternal and child health
Finding patients and distribution of drugs
(common cold, headache, abdominal pain, mild diarrhea, chronic
gastritis, simple skin disorder)
Necessity of immunization
Care of wound
Introduction to rural sanitation-
drinking water, cleaning
Administration of drugs
Keeping of records

Training Content of VHA in Gune Gun

1. Introduction to Maul Geongang Saup and Saemaul Movement
2. Tuberculosis control
necessity of X-ray taking
sputum test and family examination
3. Family planning
enlightening the acceptance of F.P.
4. Maternal and child care
nutrition, regular examination of pregnancy and necessity of
immunization for child
5. Rural sanitation
cleaning of house, drinking water, refuse control
6. Disease prevention
7. Health data collection and reporting

Training Program of Community Physicians

1. Program purpose:

The aim is to reinforce the understanding on primary health care approach through an innovative health care delivery team and to become more cooperative and thus enable active involvement in demonstration project.

2. Program design:

The program consists of one day information-theory and 2 days field observation trip to demonstration areas or existing pilot projects.

3. Training content:

- 1) Introduction to Maul Geongang Saup
- 2) Overviews of the government and KHDI policies and program for improving health services
- 3) Health care administration
- 4) Role and function of community physician
- 5) Preceptorship for community health practitioner
- 6) Supervision of health workers
- 7) Health promotion activities including health education and community involvement
- 8) Saemaul movement and health care services
- 9) Observation trip and discussion on health issues of rural community

18 physicians are selected from 3 demonstration areas; Hongchon 7, Okgu 5, Gunee 6; and their backgrounds are; director of county health center, director of community health center, township and local private physicians, who are involved in Maul Geongang Saup.

The first training program was conducted for 10 physicians in Nov. 1977 and the second training program was for 8 physicians in May 1978. The orientation training emphasized health issues related to primary health care providing, overall health care need of rural community, improving community health status through community involvement and health-care-team work approach. This training was conducted as a seminar type including discussions and an observation trip.

All of the 18 physicians were encouraged to be cooperative with our program and actively involved in implementation and operation of Maul Geongang Saup. To facilitate their activities with added enthusiasm, the refresher training will focus on further issues and problems to be encountered in performing their tasks.

COMMUNITY INVOLVEMENT

by

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Contents

- A. Some Factors Involved in Community Involvement and Participation
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The success of any innovative community plan depends on the mobilization of popular support at both the formulation and implementation stages. The techniques usually employed for this purpose are mass communication, traditional communication media and public information systems, and also through the involvement of political parties, interest groups, service organizations, and worker-agents.

There are gaps, however, in the feedback of information and public reaction. Too often, the organizational and institutional framework for public involvement is spread too thinly, without adequate attention to content of their activities, organizational cohesiveness and impact thereafter. Popular participation in some cases is even reduced to a slogan or a ritual only with no clarification of its purpose, scope or a clearcut strategy to carry out some project or development. Furthermore, the inarticulate silent majority—the rural mass is not effectively reached. They are often loosely organized, and their insufficient participation in decision-making constitutes a serious deficiency.

There are many problems entailed in the process of involving people of different social strata and interest groups at different levels of decision-making for social change or development, especially when there are competing interests. In such instances the better organized groups are in a stronger position to exert pressure to make the development committee or the council respond to their interests. It is worth considering whether popular participation from all social strata is really practicable, without first attempting to tackle the inequalities of income, unequal opportunities and poor levels of living if those factors impinge too acutely on some segments of the community.

The formulation of a strategy for popular participation or community involvement for loosely-organized or unorganized segments of society requires careful study of existing associations and ways of participation, leadership patterns, organizational interrelationships and interactional networks as they exist in the community setting.

It is also necessary to bear in mind that in Korea, as in most Asian societies, there has been a lack of traditional involvement of the masses in developmental issues spanning boundaries of religion, kinship, or village relations. It is only during the last few decades that tangible attempts have been made to activate and widen the process of popular participation in community involvement.

To cultivate and sustain popular participation in social development (including health service improvement), it is necessary not only to ensure the people's involvement in formulation and implementation of plans, but also to assure their share in the distribution of benefits resulting from the development.

A. Some Factors Involved in Community Involvement and Participation

An effective communication channel (or dialog) must be established for organized community effort to attain planned social changes with health service and community development. It is imperative that adequate community manpower be oriented, financial resources be mobilized to meet needs, a health-sanitation-associated environment be developed, servicing technologies be developed, and an appropriated educational and motivational method practiced for favorable acceptance by residents. In order to attain this magnitude of goals and factors for successful involvement, some multi-level development committees or planning organizations are also essential. If these development-oriented institutions are absent or malfunctioning at the certain stage of community health development, they must be formed anew or reinforced.

Often pilot primary health care projects are criticized in the course of planning and execution, if they are loosely linked with the secondary level or tertiary level support and service-provision, thus the primary experimentation scheme is impelled to become rather self-propelling dynamism often without line-linkage and satellite backsupporting.

In this plan of project implementation, these levels of line-supportive organizational institution are bound to be shed with due attention and recognition with the abundance of resource leaders together with interdisciplinary back-supporting network to be established by the related agencies and resource organization.

As in the Korean setting attributed to dynamic implementation of Saemaul Movement (Community Development) program, there may be additional factors may arise through which how well should the health care program be integrative in the long-run perspective, since the movement is supported comprehensively by the pronounced coordination-planning organizational institution at each levels of administrative echelon from the central level down to village community levels.

In enlisting the active involvement of community, behavioral and attitudinal aspects of personnels participating to it are also of important factor to exert popular influence, and for this changes of people, the role of effective change-agents or well trained health workers deployed at grass-root level are crucial factor to be taken into consideration.

Also important is the capability of community people to maintain and manage communal resources mobilized or facilities invested to insure the smooth maintenance of facility and services to be rendered and maintained as of their own community property together with local management of financial or cooperative body of medical-health service if it is installed in.

B. Expected Role of Community Service and the PHC Approach

The community provides the link between the government agency and individual families. One of the community's most important roles is to

identify its own needs, problems, and priorities. In this context, the community provides information to the various development-oriented agencies and the role of the health worker or development agents is to listen, and help residents determine programmes for action. It is also crucial for the community to participate in selecting candidates as primary health workers (or grass-root-level health agent and communicator), and support training given by the health authority or state authority.

The general principles for ensuring simple, integrated, good health care at the community level (primary health care) which were recommended in a report submitted by the Director-General to the Twenty-eighth World Health Assembly are:

- a. "Primary health care should be shaped around the life patterns of the population it should serve and should meet the needs of the community.
- b. Primary health care should be an integral part of the national health system and other echelons of services should be designed in support of the needs of the peripheral level, especially as this pertains to technical supply, supervisory and referral support.
- c. Primary health care activities should be fully integrated with the activities of the other sectors involved in community development (agriculture, education, public works, housing and communications).
- d. The local population should be actively involved in the formulation and implementation of health care activities so that health care can be brought into line with local needs and priorities. Decisions upon what are the community needs requiring solution should be based upon a continuing dialogue between the people and the services.
- e. Health care offered should place a maximum reliance on available community resources. Especially those which have hitherto remained untapped, and should remain within the stringent cost limitations that are present in each country.
- f. Primary health care should use an integrated approach of preventive, promotive, curative and rehabilitative services for the individual, family and community. The balance between these services should vary according to community needs and may well change over time.
- g. The majority of health interventions should be undertaken at the most peripheral practicable level of the health services by workers most suitably trained for performing these activities."

Principle "b" would call for the special representation of peripheral communities at the provincial and central levels where national health problems are being identified and policies formulated to resolve them. They would have to stress the following objectives:

- to reorient and extend the existing health services so as to establish an integrated and comprehensive community approach at all levels.
- to ensure that the basic training of physicians, nurses, and auxiliary personnel is community-oriented, with emphasis on training for service.

C. General Assumptions

For the last decade this country has been under-going very rapid socio-economic change with dynamic industrial development and an accompanying social "Saemaul Movement". Korea is already obtaining some tangible achievements from Community Development through implementation of the Saemaul Movement throughout the country. The national Saemaul Movement experience has demonstrated that resources mobilization, maintenance of communal facilities, equipment installation and even some financial burdens can be capably managed by effective village organizations.

Developmental approaches (including innovative health service) will be far more successful if they follow this community development methodology. It is anticipated that the attitudes of residents and their behavioral patterns associated with health and sanitation practices will undergo some drastic changes if the community is to progress. All these factors are closely linked together by motivation carefully initiated by a health agent's intervention, and supported by appropriate means and media at various levels of community action in KHDI project.

D. The Profile of the Agencies Associated with Community Involvement or Development at Various Levels in Korea

This country has had an abundance of community developmental approaches since 1945. A few of the different approaches introduced into villages from 1945 to the mid-sixties include the inception of the 4-H club village movement right after liberation, Ag-cooperatives in every Fi (the lowest administrative unit) and currently in every Myon, Adult-education classes, as well as the overall Community Advancement Movement

accompanied by the National Reconstruction Movement, and the Agricultural Extension Service programs.

Since the late 1950's various government-initiated programs have been operated in rather a disjointed fashion until the direction of the National Committee on Community Development (NACOM), the first well-organized community development program which was integrated into the existing Agricultural Extension Organization in 1961 and covered 818 pilot demonstration project villages. The Agricultural Extension Service and the National Community Development Program then were combined under the program Office of Rural Development, Ministry of Agriculture and Forestry, and carried on until 1969.

Unlike previous agencies which emphasized agricultural productivity or overall development, the Saemaul Undong, the New national community movement, inforced from 1970, put more emphasis on attitudinal re-orientation. It realized the need to encourage the rural populace to perceive that they alone are able to improve their conditions and surmount many obstacles facing them. The role of the government is perceived as that of injecting a stimulus to their efforts by providing material as well as necessary administrative support. The Ministry of Home Affairs has the major administrative responsibility for implementing the Saemaul Undong movement. Commanding an effective administrative machinery as well as large manpower, the Ministry is now on the forefront of this New Community Development Movement, aiming toward the goal of prosperity and overall betterment of rural and urban communities.

This national policy which is being implemented in the name of the New Community Movement (Saemaul Undong), in which the government has concentrated its assistance on a national scale, represents a significant turning point in the history of overall community development in Korea - an all-out war against the centuries-old, stagnant and poverty-stricken conditions in rural Korea. Through this national Saemaul community development movement tangible results and achievements have been attained throughout the country during the last 8 years in the rural health sector and in sanitation in addition to increased productivity and income, housing renovations, small scale cottage industries, rural electrification and rural technical-vocational skill training.

The following table is provided for the principal achievements implemented in health-related and sanitary sector as of the end of 1977.

1. Clean and potable water supply project	16,000
2. Community sanitary well	120,000
3. Community laundry facility	60,000
4. Community bathing facility	6,800

5. Sewage system	12,871 Km
6. Community village center	32,581
7. Community livestock raising center	2,700
8. Housing renovation	200,000
9. Community micro-library	30,000
10. Ri telephone (community operated 67%)	12,429 Ri
11. Sanitary toilet project	259,239 (in 1978)

In the Saemaul Community Development framework, there are four levels of Saemaul Movement Coordination - Supportive councils set up in accordance with the Ministry of Home Affairs administrative ordinance; a built-in intra-supportive mechanism at each of the provincial levels county (Gun) level, township (Myon) level and Ri (lowest administrative unit) level to advise, coordinate and support project implementation. This institutional set-up is unique in that the civic and public sector representatives are brought into function. In this way public support (grant-subsidy or material assistance) and the people's efforts can be smoothly mobilized and integrated to implement the development project.

As it stands now, the members of the village level Ri Development (Saemaul Movement) Council, however, are mostly drawn from the private sector and only the Ri chief represents the public sector. The Council's function is to support overall development activities and help plan and mobilize resources to meet the need for community improvement, advancement and material or physical development. Although some conspicuous sanitary developmental activities and family planning resulted, there appears to be however absence of a sub-group or a kind of function in this Ri development organizational set up for the pronounced development activities associated with health care or medical services sector yet.

Beside this Ri overall development council to induce resident participation in the community, there are two adult organizations in each Ri (Saemaul agro-developmental society and Saemaul Women's (development) society) and one junior citizens organization - the 4-H club.

The Saemaul Women's Society has five internal divisional sectors: Livelihood improvement, Saving, Family Planning, Income raising (or productivity) and Education or culture. This sub-organizational frame work can be closely related and activated for the promotion of health in the community if well-activated through VHAs or expanded future involvement by our CHAs.

On the recommendation of NHC, through the KHDI demonstration health care project, an administrative ordinance (No. 1038 Kangwon Province) was put into effect in three provinces to establish and operate a Provincial

Health/Promotion Council (Maul Geongang Saup promotional institution; public supportive nature) with 14 or less members representing concerned bureaus and civic organizations or associations such as KMA branches, KMA, or public & civic hospital representatives including one or two county populace representatives. The principal functions of this provincial councils are to resolve provincial policies to implement Maul Geongang Saup, coordinate, mobilize and enlist resources and participation of related agencies or sectors involved in health care services in the province.

At the county (Gun) level each Gun established a health service management committee to operate and support the KHDI project. The committee is chaired by the Gun chief and consists of 14 representatives from villagers officials and professional or development-oriented bodies in the area. The committee coordinates and supports project planning, implementation, supervision, budget and resource mobilization and other means involved in the county's health care service.

At the Myon (township administrative unit) level a Myon Health Development Committee was organized under the chairmanship of the Myon chief with around 14 members representing health service consumers and other professional or development oriented bodies in the area. The function of this Myon level committee is to define the health problems and the needs of their community and resolve problems with support from outside or by themselves, or refer to higher levels or government agencies for ultimate solution. The Myon Health Development Committee can also keep close coordination with Myon Saemaul Undong Coordination Committee, Myon health sub-center and Myon sub-center of rural development and Women's organizations, Agricultural co-op, and other such development agencies.

It may be worth-while to take note, at this juncture, that some strong recommendations were adopted at a National Seminar on Primary Health in September, 1977, for the inclusion of one additional subdivisional function in the above-mentioned Ri Saemaul Women's Society, to be charged with activities of health care improvement. This recommendation apparently purported to be a way to strengthen the tie of health care promotion with National Saemaul Movement.

E. Grass-root Profile of Community Involvement in Health Care Promotion

- - A Case of Mulgol Ri Village in Hongchon - -

Hongchon Gun is one of our pilot demonstration areas where an initial trial in community involvement in health is being conducted. The Ri has organized a formal development committee. There are two sub-organizations - Saemaul Agro-Development Society and Saemaul Women's Society. Our village

health agent (VHA) has membership in the Saemaul Women's Society but it is not represented at the Overall Ri Development Committee.

Usually the VHA attends monthly routine meetings and performs rudimentary health-related services; distributing simple medicine, communicating health-vital statistics, referring patients to CHU or PHC and attending some clinics run by CHP or CHA in the village, and acting as a grass-roots health-sanitation communicator in the community.

The VHA usually holds 3 to 5 other officer-duty roles: Saemaul leader (Women), Women's Asso's Village leader or sub-leader, Save the Nation Women's Service Corps leader, Thrift movement leader for Ag-coop. Although she appears to be carrying out some of the routine programs imposed by her roles, she is too heavily burdened to be very effective, besides her role as a farm wife and mother. Furthermore being a woman, she is not (in 4 cases of villages visited) represented at the formal Ri Overall Development Council where 12 - 14 male leaders and Ban chiefs deal with comprehensive development plans and other important village affairs. Thus the VHA as yet has little impact or influence in community affairs.

It may be desirable to organize all the female members of the Daedong Hoe (medical insurance coop.) for educative or cooperative purposes while it may also serve as a pressure group to the Saemaul Movement program and Ri Overall Development Council.

The accentuation of influence to the members of the Ag-coop and the Saemaul Saving Society is also inevitable by VHA and CHA because these two organizations (in terms of operational fund scale compared to Daedong Hoe) maintain operational strength and longer foundation standing in the past.

The ultimate goal of the Saemaul Movement is no doubt the well-being of the people and it is quite logical to expect that this village or Ri-level development organization is bound to fulfill its functioning with respect to promotion of health care service of villagers every-where in due course of time.

Through the future opportunities to be created by our VHAs and CHAs at every occasion in their community involvement, ultimate and close links will be attained between community health service and the Saemaul movement at grass-root level in this country.

"DAEDONG HOE" COOPERATIVE

by

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1. Introduction
2. Objective
3. Plan of Action
4. Organization and Operation
5. Implementation
6. Epilogue

INTRODUCTION

The main objective of the KHDI health demonstration project is to integrate the principles of community health with the concept of Saemaul (community movement) which has played the significant role in modernizing rural Korea. In harmony with this concept, the KHDI project has been christened "Maul-Geon-Gang-Saup (Community Health Project). The Hongchon sub-project through "Maul-Geon-Gang-Dadong-Hoe (Community Health Cooperative), is one outstanding example of this purpose.

The Saemaul movement, which was started to increase farm income is now deeply involved in upgrading social development at the community level. A farm house improvement program, physical rearrangement of housing, environmental and sanitation program, and diet improvement program are a few of the many programs in which the movement is engaged. The Hongchon Community Health Cooperative should be an example which will present new directions for the Saemaul movement to pursue in the field of public health.

What is Maul-Geon-Gang-Daedong-Hoe?

Dr. Newell wrote that "The arrangement for linking curative, promotive, and preventive actions appear to be overwhelming, but those for a linkage between financing and service are not so clear. the financing of primary health care may not be a separate issue. Instead, it may be part of a complex that concerns the raising and use of resources for community development in the very widest sense. (Kenneth W. Newell. Health by the people, WHO, 1975, p. 195).

The Hongchon sub-project has created a "Maul-Geon-Gang-Daedong-Hoe", a community institution which is operated by the community itself and is supported by the local government, (i) as a solution to an unclear linkage between financing and services; (ii) as a linkage between a health care delivery system and community organization; and (iii) as a means by which health services and community development are interrelated.

Why has "Maul-Geon-Gang-Daedong-Hoe been named?

The name "Daedong-Hoe" has long been recognized in the Hongchon area as community gatherings where matters of common concern were discussed and decided.

In the 17th century, a new taxation law named "Daedong Bop" was created. Until that time, the ruling kingdom had collected taxes from

the people in kind, (such as goods, labor service) and tributes of whatever they produced to the King. Those who could not render labor service at the government projects had to buy substitutes or pay in goods instead. Those who could not pay tributes, because they didn't produce or only produced little had to buy them from other persons or borrow them from loan sharks. From these malpractices, the powerless poor majority of people were exploited beyond expression.

In the 16th century, there were movements against such irregularities by establishing a new taxation system under which all tributes would be substituted by rice. In 1608, the King created "Sunhae Chong(Office)" and implemented its new system in Gyeonggi Province for demonstration purposes, which was expanded to Gangwon Province in 1624, to Bhunqchong Province in 1651 and to the rest of the nation in 1708. Thus, the rice that was substituted for the other tributes was called "Daedong Mi(Rice)" and this system was named "Daedong Bop(Law)"

Based on this historical background and the people's pledge of allegiance to Daedong-Hoe Concept, health, which is a matter of concern to the whole community, will be discussed, decided and implemented through community gatherings, i.e., Daedong-Hoe.

The Daedong-Hoe is expected to reduce the financial burden of a family and community and at the same time raise their living standards. It is intended that the community people will gradually realize the fact that community health problems must be solved by the people themselves. As a matter of fact, the services rendered by government or public services which may be free are regarded as low-quality. It is one of the major objectives of the Hongchon sub-project to overcome these constraints and instill in the mind of the people that their own health must be taken care of by themselves.

Therefore, Hongchon Daedong-Hoe activities will be evaluated to determine whether financial constraints and behavioral changes of the communities have been diminished. In other words, the questions, i.e., "what will be accessibility to medical institutions when cost constraints are eliminated?" and "If accessibility turns out to be high, what will be the appropriate mixes of manpower resources and financial schemes, etc.?" should be answered.

OBJECTIVE

To provide convenient and economical health services to all community people, and help accelerate community development programs

for promoting the level of community health.

PLAN OF ACTION

- 1) promote and foster community development programs;
- 2) provide cooperative members with costs to cover primary health care;
- 3) create funds through collection of membership fees (premiums);
- 4) conduct enlightenment campaigns and health education so that community people understand the objective of the project and participate positively
- 5) support village health agents so that they will be able to function without difficulties;
- 6) loan funds for farm income programs or Saemaul movement programs, etc.;
- 7) loan funds to members for hospitalization;
- 8) carry out environmental sanitation programs or, diet improvement program with the support of Saemaul funds;
- 9) conduct parasite extermination campaigns twice a year;
- 10) conduct measles vaccination campaigns for children.

ORGANIZATION AND OPERATION

The Saemaul movement started in natural villages. Organization in the village of a strong cooperative spirit was a dominant cause of success. However, the movement sometimes resulted in too much competition between neighboring villages, or prevented programs involving several villages from effective implementation, or obstructed planners from developing long range and complicated programs.

Based on this Saemaul experience, the Hongchon "Maul-Geon-Gang-Daedong-Hoe" was expanded to be organized at Myon level, covering a population of 8,000 to 10,000 per Myon. Accordingly, three Myon Daedong-Hoe, - Hongchon Eup, Nae Chon Myon and Buk Bang Myon, - were organized and all residents are eligible for membership whenever they wish.

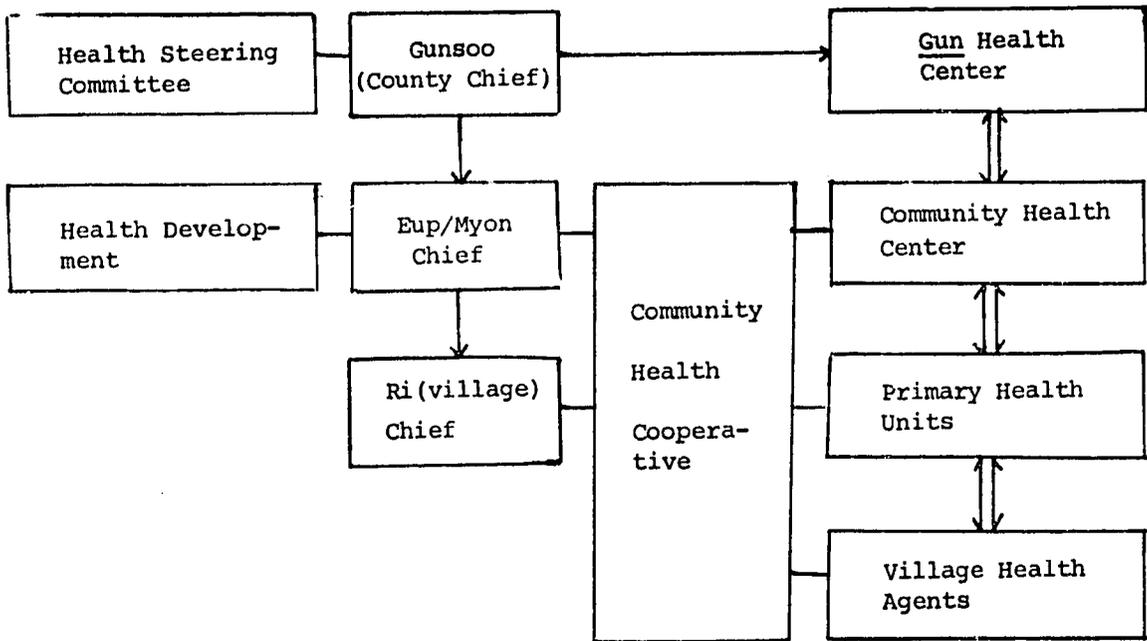
The Daedong Hoe is administered by an operating committee. The operating committee in principle consists of Ri Chiefs, but Saemaul leaders and/or community development members can become members of necessity. RIs are the lowest administrative units and Ri Chiefs act as a bridge between community people and local government. In this capacity, Ri Chiefs usually represent their community people at the operating committee. The number of committee members for Hongchon Eup,

Nae Chon Myon and Buk Bang Myon are 12 and 20 respectively.

The Operating Committee holds plenary sessions and extraordinary sessions, and elects a chairman and a vice chairman. The committee deals with:

- 1) Budget and settlement of accounts.
- 2) Work plan and reports of activities.
- 3) Acquisition and disposition of assets.
- 4) Management of funds.
- 5) Amendment to rules and agreements.
- 6) Appointment and dismissal of officers and employees.
- 7) Recruitment and withdrawal of membership, collection of premium.
- 8) Loan of funds.
- 9) Other matters necessary for implementing the Daedong-Hoe

Figure 1 shows a relationship between the Daedong-Hoe and agencies concerned.



Legend:
 → Direction
 ↔ Two-way referral
 — Support

Fig. 1: A Relationship between the Daedong-Hoe and Agencies concerned.

Membership is obtained by submitting, through the Ri Chief or Village health agent, an application together with subscribed premiums to the Daedong-Hoe. Membership is terminated when the member dies, fails to pay premiums on time, or moves to another area. Any member moving to another area who has not received any benefits will be refunded the principal of premiums paid

Hongchon, which is an agricultural area, is not a high income area and has never been exposed to a prepayment system. Considering economic geographical and social conditions, a minimum subscription fee (₩1,500 per person) has been set. Premiums can be paid in the form of cash, grains, or labor and can be paid either at one time or on a quarterly basis. Nevertheless, the majority of the members prefer to make cash payments in a lump sum.

The following are the types of benefits that the members receive:

- 1) Various preventive and primary health care services at primary health units, community health centers and the health center. All these services are given free of charge.
- 2) For hospitalization, a member can be compensated for up to ten times the premiums he/she has paid. When a member is hospitalized at a designated hospital, his/her medical costs can also be discounted.
- 3) Patients can be provided with transportation (Health Center ambulance) to the designated secondary hospitals.

These benefits are being provided at the initial stage of the project but an increase of members will provide an increase of funds which should cover almost all costs for secondary care.

As one of means of increasing funds, the Daedong-Hoe has adopted a loan system. According to this system, all households whose entire families are members of the Daedong-Hoe are eligible to apply for loans in limited amounts under the following situations;

- 1) When any member of family is hospitalized, up to ₩100,000 (US\$210) per person once a year;
- 2) Cash for investment in income generating business, up to ₩200,000 (US\$420) per household once a year;

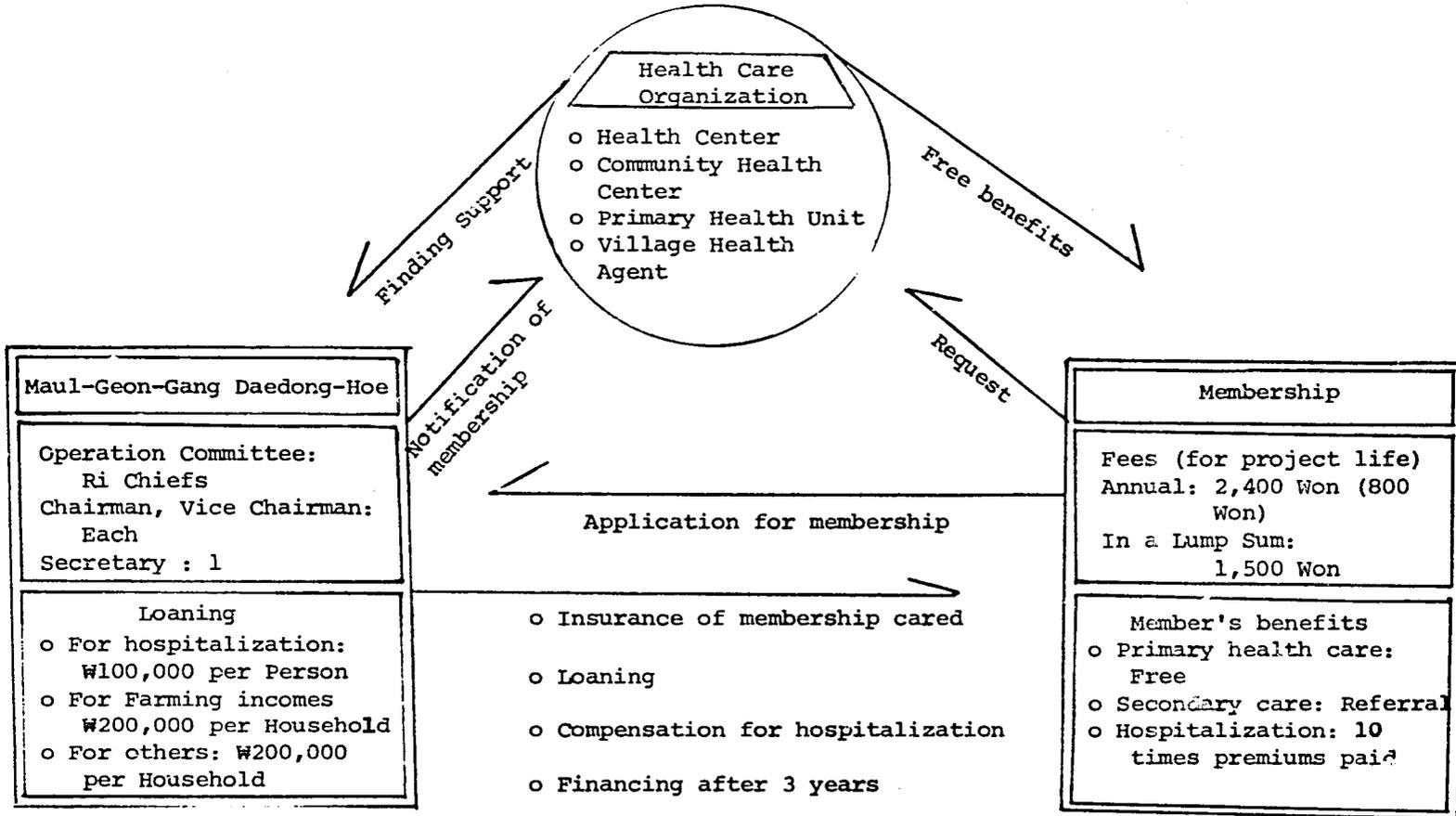
- 3) Cash for investment in Saemaul program, up to ₩200,000 (US\$420) per household once a year;

For loans above these amounts, approval from the chairman of the Myon health development committee is required. The main reason for limiting the amount of loans is to induce more people to participate in the project. Also in this way all members will equally benefit from the system.

An interest rate on a loan is 2% month. This rate is a little higher than that of a commercial bank but lower than the rural village bank. The term of a loan is one year or less. The reason for setting a short term is to revolve funds frequently and benefit more members.

Fig. 2.

Organization and Operation of "Daedong-Hoe"



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IMPLEMENTATION

The basic assumptions for establishing the Daedong-Hoe are as follows:

- 1) Community people would feel obligated and positively participate in the project if they invest in the project;
- 2) The government would provide professional and/or para-professional manpower, equipment and facilities necessary for delivery of primary health care services to the rural people;
- 3) Community people would feel that primary health care is enough for them in the initial stage;
- 4) Demand for curative service would be on a sharp increase in the initial stage but preventive service would dominate in the later stage. Health education would play a main role in bringing about such a change;
- 5) It will take a long time to bring about changes in community tradition, culture and/or social norms;
- 6) Subscriptions would be made by 20% of the population in the first year, 25% in the second year and 15% in the third year, respectively;
- 7) At the end of the project life period, the Daedong-Hoe would be self-supporting except for manpower, equipment and facilities in this project;
- 8) Data and information obtained from the project would be used as raw data in planning regional health programs.

Based on the above basic assumptions, the following implementation stages have been established:

- 1) Social preparation stage (July 1, 1977 - Oct. 30, 1977):

A community general meeting was held at every administrative Ri at which meanings, aims and methods of implementation were explained, as follows:

- (1) The Daedong Hoe is an organization of community people, by community people and for community people;

- (2) Any resident living in the project area can become a member any time when membership fees are paid;
- (3) The member will receive free primary health care services;
- (4) Fees collected will be used according to the will of community people;
- (5) Fees will be increased to be used to meet costs for health service after termination of the project.

Through such village level meetings community people will be motivated to participate positively in the project, credibility of trained village health agents will be enhanced, and guidance will be provided so that village health agents will play a role in changing attitudes of community people. Furthermore, community opinion leaders such as Ri Chiefs, village health agents, etc. will play a major role in the operation of the Daedong-Hoe so that the Daedong-Hoe will be operated by the communities themselves. Myon administrators will provide positive support to operate the Daedong-Hoe and village health agents activities.

Prior to such activities, Ri Chiefs and village health agents will get together at each Myon to receive orientation on the meaning, aims and methods of the Daedong-Hoe. They will also be given responsibilities for recruiting members of the Daedong-Hoe. Efforts will be made to promote the project through local newspapers and radios.

2) Trial phase (Nov. 1, 1977 - Oct. 30, 1978):

For the first six months, three Muons will be covered. After six months another seven Myons will be covered. Thus eventually all ten Myons will be covered. Improvements will be made based on experience and evaluation during these periods. Furthermore, the substance of health care services will be modified according to the regional health planning. Particularly, fees (premiums) will be adjusted with adjustments of medical costs set by the government.

3) Extension of activities (Oct. 30, 1978 - Sept. 30, 1979)

During this period, emphasis will be shifted from curative to preventive services on a wide range, such as health and nutrition education, MCH, family planning, etc.

4) Expansion of coverage (Oct. 1, 1979 - 1980)

During this period, measures will be sought out to cover secondary care and to make the committee operate the Daedong-Hoe without outside support.

Table 1.

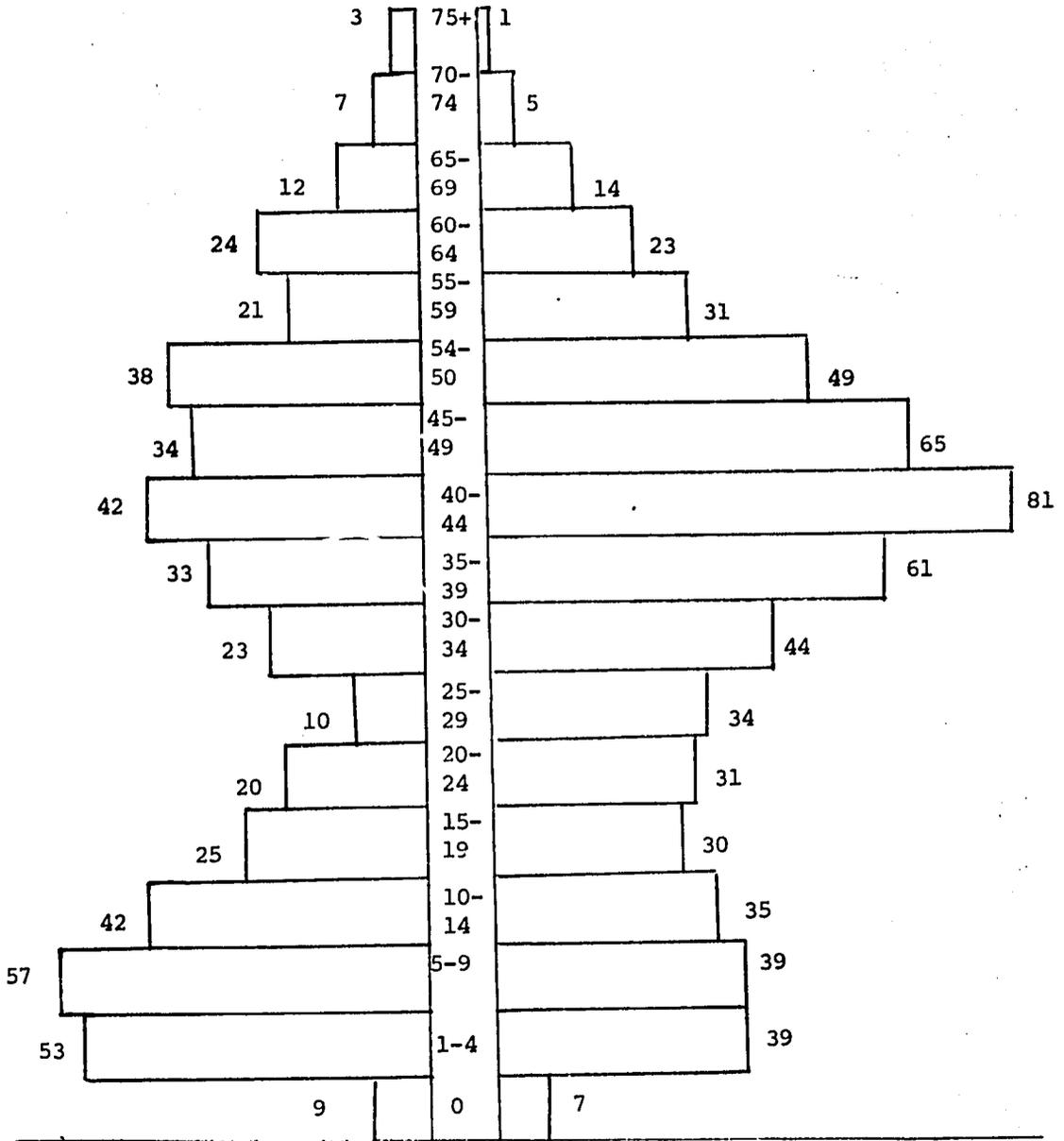
Membership Subscription & Status of Treatment

1977.11.1 - 1978.3.31

Eup & Myon	Target		Subscription		C/A	D/B	Patients (E)	Refer- rals (F)	Visits (G)	Cost (H)	E/D	G/E	H/E	H/G	F/E
	HH(A)	Pop.(B)	HH(C)	Pop.(D)	%	%					%	Time	Won	Won	%
Hongchon Eup	1,165	7,029	696	2,358	59.7	33.5	931	58	2,445	1,485,730	39	2.6	1,596	607	6.2
Naechon Myon	1,451	8,296	812	2,136	55.9	25.7	761	96	2,636	1,171,440	35	3.5	1,539	444	12.6
Bukbang	1,709	9,356	931	2,016	54.5	21.5	555	207	2,276	1,317,670	28	4.1	2,374	579	37.3
Total	4,325	24,681	2,439	6,510	56.4	26.4	2,247	361	7,537	3,974,840	34	3.3	1,768	527	16.0

	<u>Patient</u>	<u>Visit</u>	<u>Cost</u>	<u>Visit/patient</u>	<u>Cost/patient</u>	<u>Cost/Visit</u>
Referral (by Physician)	361	1,240	1,191,440	3.4	3,394	960

Fig. 3. Age structure of Daedong-Hoe patients
 Hongchon Community Health Center
 (From Nov. 1, 1977 to May 31, 1978)



1 to 4 and 5 to 9 were rather low but the trend was increasing steadily from 30 to 40 to 440. From this patient age structure, it is obvious that it is important to strengthen MCH programs. It is also assumed that a large portion of primary health care will be covered by a strengthened MCH program.

Table 2 shows the classification of diseases of the patients being treated at the Hongchon Eup Community Health Center during the same period. This classification was made according to the 18 classification method adopted by the World Health Organization.

As expected, the highest rate of sickness being treated was respiratory disease (26.9%), followed by digestive organ disease (17.8%). 13.5% of the total was for unidentified symptoms. This phenomenon is partially attributable to free treatment but it must not be overlooked that rural people are unable to distinguish what is sickness or not. On the other hand, skin and hypodermal disease occupied 8.9%, indicating that poor living conditions and unsanitary environments persist in the rural areas.

All these diseases can, (from public health points of view) be preventable, and therefore it is expected that the morbidity rate will be reduced to a significant extent if health awareness of the community people is promoted through health education.

Table 2. Disease Classification of Patient's Treated at Hongchon-Eup Community Health Center during a Seven Month Period of Nov. 1977 - May 1978

<u>Classification*</u>	<u>Name of Disease</u>	<u>Patient Ratio</u>	<u>Order</u>
1	Infectious & parasitic disease	3%	8
2	Neoplasms	0.6	14
3	Allergic, endocrine system, metabolic & nutritional disease	0.1	16
4	Disease of the blood & blood forming organs	0.6	15
5	Mental, psychoneurotic & personality disorder	1.6	11
6	Disease of the nervous system & sense organ	0.8	13
7	Disease of the circulatory system	1.4	12
8	Disease of the respiratory system	26.9	1
9	Disease of the digestive system	17.8	2
10	Disease of the genito-urinary system	2.6	10
11	Deliveries & complication of pregnancy childbirth & puerperium	4.2	7
12	Disease of skin & cellular tissue	8.9	4
13	Disease of the bones & organs of movement	7.2	6
14	Congenital malformation	-	-
15	Certain disease of early infancy	13.5	3
16	Symptoms of senility & ill defined conditions	13.5	3
17	Accident, poisoning & violence	2.7	9
18	Other	80	5

* WHO classification of Diseases, Injuries, and Causes of Death.

Among the Daedong-Hoe activities, the most important are the collection and management of fees (premiums). The project aims to collect 45,000,000 Won during the project life period.

As of March 31, 1978, about 10,000,000 Won (or 22% of the goal) had been collected, and 30,000,000 Won is expected to be collected by the end of 1978.

Table 3 shows the status of funds and fees being collected by the end of March 31, 1978:

Table 3. Status of Daedong-Hoe Fund Collection

Unit: Won

Eup/Myon		Hongchon Eup	Naechon Myon	Bukbang Myon	Total
Division					
Total		5,489,400	4,990,050	4,990,700	15,470,150
Subtotal		3,489,400	2,990,050	2,990,700	9,470,150
Fee	Payment in a lump sum	3,435,000	2,808,000	2,955,000	9,198,000
	Yearly payment	54,400	168,800	35,200	258,400
	Installment payment	-	13,250	500	13,750
Seed money		2,000,000	2,000,000	2,000,000	6,000,000

The project subsidized 2,000,000 Won to each Myon as seed money during the project life period, in order to make the Daedong-Hoe self-sustaining. As shown in the Table three Myons have already been subsidized.

Table 4 shows loans of fees collected and seed money to the members.

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Table 4 shows loans of fees collected and seed money to the members.

According to the Table, as of May, 1978 550,000 Won has been expended for hospitalization, and 2,800,000 Won has been loaned out for the procurement of cows, and 4,480,000 Won for farming. Thus, 100% of the funds have been loaned to increase farm income.

Table 4. Loaning for increase of farm income and hospitalization

Unit : Won '000

Name of Eup or Myon Used for	Hongchon	Naechon	Bukbang	Total
Total	3,750	4,240	2,250	10,230
Hospitalization	300	50	200	550
Cows	800	1,200	800	2,800
Farming	2,650	1,180	650	4,480
Land	-	600	-	600
Hog raising	-	400	500	900
Chicken raising	-	200	-	200
Improvement of Walls	-	200	-	200
Improvement of stables	-	200	-	200
Carpentry equipment	-	200	-	200
Income program	-	-	100	100

It may be interesting to note the reaction of the members toward the Daedong-Hoe so far, summarized as follows:

- 1) They consider practitioners, whether physicians or community health practitioners, as those who can cure every disease.
- 2) They expect practitioners to attend to patients immediately.
- 3) When practitioners fail to meet such expectations, the community considers it a personal insult and fail to cooperate further.
- 4) Since they think medication, particularly injection, is the only means for curing sickness, the members take suggestions such as changing diet, or physical therapy as a refusal to treat.
- 5) Although serious patients require direct examinations by physicians most of them stay home while their families or neighbors come and explain their conditions and ask for medicine. When told of the necessity for direct examinations and treatment, they take this as inattentive, or a refusal to provide medication.
- 6) They want to know what will happen after the termination of the KNDI project.
- 7) Treatment of chronic disease, particularly senility, has become an important issue. How to deal with such conditions will be an important factor in bringing about a successful project. It has become clear that any health project giving the first consideration to curative service has major limits in the primary health care delivery system.

EPILOGUE

With only six months operating experience, it is premature for anyone to judge the Hongchon Sub-project.

There is room for debate on the validity of the basic assumptions, but such a debate as this can be meaningful only after the project results have been attained.

From what has been done during the trial phase, the situation is not gloomy. We are confident that the Hongchon Sub-project has a bright future if we keep modifying the project, and everyone involved exerts his/her effort.

A PLAN FOR IMPLEMENTING A COMMUNITY MEDICAL INSURANCE SCHEME

BY

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- I. Preface
- II. Situation Analysis
- III. A Plan for Field Experimented Study on a Self-Employed Medical Insurance Scheme in the Rural Areas of Korea
- IV. Implementation Strategies
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- VI. Assessing Replicability of the Proposal

I. Preface

It is undeniable that the first three Economic Development Plans contributed greatly to the growth of our national economy. Starting from the Fourth Five Year Economic Development Plan the Government began to give heavy emphasis to social development, thus paving the way for the construction of a nation committed to improving the general welfare of the population.

A requisite for realizing this society is the creation of a comfortable and pleasant living environment and a policy by which individual and collective social security can be guaranteed.

One of the main elements of social security is a guarantee of medical care for all. In accordance with the Medical Insurance Law (amended on December 22, 1976) from July 1, 1977 the government started implementing a compulsory medical insurance scheme whereby all workers at certain workshops are protected from sickness and misfortune due to ill health.

The present Medical Insurance Law is primarily for the protection of working people and their families. Community people and employers may be protected (in theory) by a voluntary medical insurance scheme. However, there are only seven pilot community medical insurance unions, each on a very small scale, with a total membership of about 60,000.

The largest one is the Busan Blue Cross Medical Insurance Union with a membership of about 20,000.

Those protected by the compulsory medical insurance scheme live mostly in the urban areas. But it is anticipated that sooner or later there will be an increased demand for medical care from the community people in the rural areas.

Experiences of the pilot community medical insurance schemes are inappropriate to apply to expanding the community medical insurance scheme nationwide. Factors differ widely because individual unions used whatever they felt appropriate. In view of this there is a high risk in utilizing such experiences and factors to plan a new community medical insurance system.

It is appropriate that a community medical insurance scheme be demonstrated at the Gun level prior to planning a community

medical insurance scheme for nationwide application. It is also appropriate that factors which are essential to planning a nationwide medical insurance scheme be grasped through a demonstration project.

The Korea Health Development Institute is demonstrating a new health delivery system in Hongchon Gun, Gangwon Province; Okgu Gun, Chun-Buk Province; and Gunee Gun, Geong-Buk Province. KHDI has selected Okgu Gun, in which a community medical insurance scheme has already been organized on a small scale, for testing a new community medical insurance scheme, thereby contributing to government efforts to improve and expand the community medical insurance system.

II. Situation Analysis

1. Rationale for Analysis

In order to minimize possible errors it is desirable that a situation analysis be made for planning a medical insurance scheme to be based on the experiences of the existing medical insurance programs.

Therefore, a number of existing research findings on medical insurance programs were considered, and a comparison made between the existing data and data collected from the Hankook Plywood Co. Medical Insurance Union, the largest employee medical insurance program in Gunsan City, adjacent to Okgu Gun.

2. Various Indices in Connection with Utilization of Medical Care Services

The most important information in planning a medical insurance scheme is an estimate of gross expenditure for medical care. The estimate covers such expenses as are required for treatment of diseases by a proposed medical insurance scheme. However, for convenience, benefits to be provided in this proposed plan are presumed to be the same as those being covered by the first category (employed workers) medical insurance program.

Estimation of gross medical expenditure depends upon rates of utilization of medical care services. Table I shows a comparison of utilization rates obtained from the Hankook Plywood Co. Medical Insurance Union during the six month period from July 1, to

December 31, 1977, with those of the second category (self-employed) medical insurance demonstration programs.

Table 1. Annual Utilization Rates of Medical Care Services under the 1st and 2nd Category Medical Insurance Unions

Care By Union	Outpatient Visit (Visits/Person/Year)	Hospitalization (Cases/1,000 Persons/Year)
Hankook Plywood **	4.6 visits	29.7 cases
Insured	6.3	33.4
Family Dependents	3.8	27.3
- Urban Area (2nd Category)*	1.6	19.7
- Rural Area (2nd Category)*	0.9	11.8
- Okgu Blue Cross	0.7	21.6

** Source: Survey result which was carried out by KHDI

* O.R. Moon: Recent Problems in the Rural Insurance Plans, Korean Journal of Rural Medicine, Vol. 2, No. 1, 1977.

As shown in Table 1, the Hankook Plywood Co. Medical Insurance Union has much higher utilization of out-patient clinic service than the second category medical insurance schemes. The Company Union also showed differences in utilization rates between subscribers and their family dependents. The Company Union rates are slightly higher than those of the U.S. (4.6 versus 4.2 visits by a person per year).

The high rate of outpatient clinic visits is attributed to the fact that the Company operates its own attached clinic, providing free services to the employees. Even after implementation

of the Medical Insurance Scheme, the Company designated the clinic an insurance medical care institute and bears the whole expense when either employees or their dependents utilize the clinic.

3. Medical Expenditures

Under the Insurance Plan, as the pattern and conditions of medical care provision have not been changed, the members of Hankook Plywood Co. are not likely to have made any significant difference in their utilization behavior even after the implementation of medical insurance. Therefore, the amount of expenditure seems to be such an expenditure that can meet their need for medical care in full. Table 2 shows medical expenditures that had been spent for six months from July 1st to December 31, 1977.

Table 2. Medical Care Expenditures for Six Months*
(July - Dec. 1977)

(Unit: In Won)

	Total Expenditure	%	By Patients Cost Sharing	Sickness Benefit
Outpatient Care	22,288,190	74.5	9,389,790	12,896,400
Hospitalization	7,646,280	25.5	2,696,720	4,949,560
Total	29,932,470	100	12,086,510	17,845,960

The total population under the scheme : 5,728
 Subscribers : 1,918
 Family dependents : 3,810

Note: The original budget for the Union was ₩19,371,000 and its disbursement was 92.1%

* Source: KHDI survey result.

Significantly, 74.5% of the total medical expenditures were for outpatient care, and the remaining 25.5% for hospitalization.

From these figures, it can be safely said that premiums can be reduced if medical expenditures for outpatient treatment are reduced.

As the medical expenditures as shown in Table 2 were only for a six month period, annual expenditures for medical care were estimated in Table 3. Table 4 shows annual medical care expenditures per member.

Table 3. Estimated Annual Medical Expenditures for the Hankook Plywood Co.

(Unit: In Won)			
Division	Total Expenditures	Cost Sharing by Patients	Sickness Benefit
Outpatient Care	44,572,380	18,779,580	25,792,800
Hospitalization	15,292,560	5,393,440	9,899,120
Total	59,864,940	24,173,020	35,691,920

Table 4. Estimated Annual Medical Expenditures per Person

(Unit: In Won)			
Division	Total Expenditures	Cost Sharing by Patients	Sickness Benefit
Outpatient Care	7,781	3,279	4,502
Hospitalization	2,670	912	1,758
Total	10,451	4,191	6,260

Based on data from July to Dec. 1977

A net medical expenditure (excluding expenses incurred for collection of premiums as well as for operation of the Union) was about ₩10,000 per person.

Table 5. Comparison of Annual Medical Expenditures per Person Between First Category Insurance Unions and Second Category Medical Insurance Unions

(Unit: In Won)

Division	Total	Outpatient Care	Hospitalization	Remarks
Hankook Plywood Co. Medical Insurance Union	10,451	7,781	2,670	
Second Category Medical Insurance Union				
Urban	3,360	N/A	N/A	1976 Busan Blue Cross expenditures
Rural	2,938	1,643	1,295	1976 Okgu Blue Cross expenditures

N/A: Not Available.

As shown in Table 5, there is a remarkable difference in annual medical expenditures per person between Employee and Self-Employed health insurance programs. This supports the view that the self-employed both in rural and urban areas would not utilize medical care as much as employees under the current health insurance system.

Detailed information on self-employed medical insurance is not available because of differences in compiling statistics, and also because of frequent dropouts.

4. Financing Self-Employed Medical Insurance Schemes (Second Category Medical Insurance Scheme)

Medical insurance unions can be operated by collecting membership premiums which are utilized to reimburse for medical services and operating expenses.

The existing pilot self-employed medical insurance programs collect premiums ranging from ₩100 to ₩350 per person per month but as shown in Table 6 the collection of such premiums in the rural areas is very unsatisfactory.

Table 6. Collection of Medical Insurance Premiums by Region

(unit : %)				
Year	Rural	Island	Urban	Average
1973	41.4	-	96.7	75.7
1974	32.8	58.7	74.2	57.4
1975	29.7	92.9	90.9	72.4
1976	46.0	73.8	87.3	71.8

Source: O.R. Moon; Financial Experiences of Private Health Insurance Demonstration Plans in Korea, Journal of the Korean Hospital Association, Vol. 5, 6, 7, 8, No. 7, 1976.

Table 7 shows how much medical benefits were provided and the degree of financial self-sufficiency of such insurance unions.

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Table 7. 1976 Status of Medical Benefits Provided, Financial Self-Sufficiency of Self-employed Medical Insurance Unions

Union	Total Expenditures (1)	Benefits Provided (2)	Premiums Collected (3)	Degree of Benefits Provided (%) Cols $\frac{2}{1} \times 100$ (4)	Percentage of operating 100 - Col 4 (5)	Financial Self Sufficiency (%) Cols $\frac{3}{1} \times 100$ (6)
Okgu Blue Cross	₩13,578,955	₩5,188,420	₩3,346,300	38.2	61.8	24.6
Chunseong Medical Insurance	4,237,108	2,303,200	2,116,536	34.4	45.6	50.0
Koje Blue Cross	7,777,324	5,507,080	3,718,180	70.8	29.2	47.8
Beakyong Red Cross	23,577,277	14,790,540	4,324,000	62.7	37.3	18.3
Jungpyoeng Medical Insurance	9,040,242	1,777,212	2,734,650	19.7	80.3	30.2
Sub-Total	58,210,907	29,566,452	16,239,666	50.8	49.2	27.9
Busan Blue Cross	87,106,693	67,712,154	65,358,130	77.7	22.3	75.0
Yongdong Medical	6,607,002	1,615,848	3,441,500	24.5	75.5	52.1
Sub-Total	93,713,695	69,328,002	68,799,630	74.0	26.0	73.4
Total	151,924,602	98,894,454	85,039,296	65.1	34.9	56.0

Source: O.R. Moon: Recent Problems in the Rural Medical Care Insurance Plans, Korean Journal of Rural Medicine, Vol. 2, No. 1, 1977.

According to Table 7, for the most part both medical benefits and financial self-sufficiency were unsatisfactory. This situation was worse when the unions were located in the rural areas. The main purpose of medical insurance is to provide for medical benefits, but the great portion of expenditures of some of the unions has been for non-medical purposes. This gives the impression that many medical insurance schemes for the self-employed in rural areas are operated for the sake of the medical insurance unions rather than the members.

In Japan, membership in insurance programs and medical insurance premiums are compulsory rather than voluntary. According to 1975 statistics, average operating expenses were but 4.7% of total expenditures for the National Health Insurance implemented by the city, town and township offices; and only slightly more - 5.2% for private health insurance unions, respectively. This is significantly lower than any of the Korean medical insurance unions.

5. Medical Care Expenditures by Farmers

In planning medical insurance schemes for rural populations, current medical expenditures of farm households can be used to measure their potential ability to pay for premiums. According to the 1977 Farm Household Economy Survey published each year by the Ministry of Agriculture and Fisheries, the status of income, living expenses by the size of farm household is as in Table 8.

Table 8. Annual Income, Living Expenses, Medical Expenses by the Size of Farming

(Unit: In Won)

Farming	Income	Living Expenses	Medical Expenses	Average Number of Family	Medical Expenses Per Member
0.5 Chongbo or under	679,191	514,894	16,709	4.80	3,481
0.5 - 1.0 Chongbo	977,223	683,367	23,258	5.45	4,268
1.0 - 1.5 Chongbo	1,318,888	829,756	33,343	6.15	5,422
1.5 - 2.0 Chongbo	1,697,316	1,040,459	38,299	6.51	5,883
2.0 Chongbo or more	2,523,302	1,263,622	45,914	6.82	6,732
Average	1,156,254	749,183	26,841	5.63	4,767

Source: Farm Household Economy Survey, Ministry of Agriculture and Fisheries, 1977.

Thus an average annual medical expense by a farm household was ₩26,841, and an average annual medical expense by a person was ₩4,767, which was about half of that of the Hankook Plywood Co. Medical Insurance Union.

It was also found that households with smaller farm land spent less for medical expenses than those with larger farm holdings. This indicates that in implementing a health insurance program, the need for subsidization is greater for the smaller farm households.

6. Farmers' Attitudes Toward Medical Insurance

It is natural that a sharp rise in medical care cost forces everyone to seek a way by which the cost is shared. Table 9, examines this aspect.

Table 9. Willingness to Join Medical Insurance Scheme

(Unit: %)

	City	Eup	Myon	Total
Yes	55.6	63.6	67.0	62.0
No	44.4	36.4	33.0	38.0
Total	100.0	100.0	100.0	100.0
N =	90	89	91	270

Source: K.W. Kim: Renovation of the Public Sectors' Health Care Delivery System, Health Problems and Countermeasures in Korea, Part II, KDI, 1977.

According to Table 9, more than half of the persons surveyed expressed their willingness to join a medical insurance scheme. Particularly, 67% of those living in Myon areas wanted to join.

Table 10, shows how medical expenses would be likely to be shared.

Table 10. Types of Cost Sharing Desired

(Unit: %)

	City	Eup	Myon	Total
Government Alone	20.2	14.8	23.9	19.6
Community Alone	14.6	11.4	19.3	15.1
Government and Community Joint Sharing	65.2	73.9	56.8	65.3
Total	100.0	100.0	100.0	100.0
N =	89	88	88	265

Source: K.W. Kim; Renovation of the Public Sectors' Health Care Delivery System, Health Problem and Countermeasures in Korea, Part II KDI, 1977.

The table tells us that the majority of the people surveyed wanted to have medical expenses shared jointly by the community people and government. This also indicates that the second category medical insurance scheme would be successful only if the government subsidizes part of the premium.

7. A Summary

National medical expenditures are closely associated with the utilization of medical care services, disease patterns and age structures, because they are believed to influence frequency of utilization.

If the Hankook Plywood Company Medical Insurance Union (which provides complete medical care services to its members) is used as a base for calculating medical expenditures, it is estimated that about ₩10,000 would be needed for annual medical expenditure per person, and about 75% of that expenditure is for outpatient care. Therefore, curtailment of expenditures for outpatient care could help in reducing both medical care costs and premiums.

Self-employed medical insurance programs have difficulties in premium collection despite the low premium rates, ranging only from ₩100 to ₩350 per person per month. The main cause of such difficulties is believed to be voluntarism and inappropriate premium collection methods as well as unattractive (unsubsidized and poorly managed) high overhead programs. According to experiences made by advanced countries, compulsion would be necessary in implementing medical insurance schemes. In Japan, the government subsidizes the National Health Insurance (which is equivalent to the second category medical insurance in this country) to the extent of 48.8% of total medical care expenditures.

In Japan, there are two kinds of Insurance System, - Union type for employees, and the National Health Insurance Plan for self-employees operated by the local administrative authorities. The Japanese Government subsidizes every Insurance Plan 40% of total medical care expenditures.

A financial adjustment fund in their national treasury also subsidizes the poor insurance plans which cover 5% of the total medical care expenditure of the whole nation. 3.4% of the nation's total medical care expenditure are supported by the Government for free medical care to the aged and for high cost medical care reimbursement.

Therefore, the Government of Japan allows 48.4% of the total medical care expenditure for the National Health Insurance Plan and an additional 5% for subsidizing their administrative expenses.

Thus to make the second category (Self-employed) medical insurance scheme successful in Korea, it is recommended that the present voluntary enrollment system be changed to a compulsory one and that a medical insurance scheme be made more attractive by subsidizing a part of the premiums.

Since the majority of the rural people want a medical insurance scheme in one form or another it is quite within the realms of possibility that a medical insurance scheme can be implemented in rural areas if a low cost health care delivery system is developed.

III. A PLAN FOR FIELD EXPERIMENTAL STUDY ON A SELF-EMPLOYED MEDICAL INSURANCE SCHEME IN THE RURAL AREAS OF KOREA

1. General Objectives

To develop a self-employed medical insurance scheme that can be applicable nationwide and that is suited to rural conditions in our country.

2. Specific Objectives

A. Points Essential to Implementation of a Self-Employed Medical Insurance Scheme

Study Field	Specific Issues
Rates of Insurance	<ol style="list-style-type: none"> 1. Rate of medical care receipts at the time of implementation of a medical insurance scheme. 2. No. of days for medical care by outpatient care, by hospitalization 3. Effect of out-pocket payment on the rate of receiving medical care service. 4. Receiving medical care by age, by income level.
Imposition of premiums	<ol style="list-style-type: none"> 1. Study how to impose premium - setting premiums uniformly, according to income level, or a combination of both.
Provision of Benefits	<ol style="list-style-type: none"> 1. Scope of appropriate medical benefits. 2. Possibility of additional benefits, such as for delivery, or sickness income allowance.

Study Field	Specific Issues
Medical care costs	<ol style="list-style-type: none"> 1. Scope of appropriate expenses for outpatient care and for hospitalization. 2. Appropriate operation expenses for medical care facilities.
Others	<ol style="list-style-type: none"> 1. Relationships between rate of receiving medical care services and regionalization of health service district. 2. A way of simplifying insurance business 3. Methods of collecting premiums at low cost.

B. Establishment of a financial mechanism by which a medical insurance scheme continues after the completion of KHDI Loan demonstration project.

3. Basic Design for the Insurance Scheme

Since Eup, Myon and Dong are the basic administrative units in Korea it is appropriate that an insurance scheme be worked out based on such units with a population of 10,000. With experiences obtained therefrom it may be possible that a medical insurance scheme on a larger scale could be worked out.

A. Designing Principle

Curtailement of expenses needed for primary care (outpatient care) by utilizing an on-going comprehensive health and medical care delivery system.

B. Assumptions

- 1) Basic information for designing a medical insurance Scheme

There are several assumptions applicable in planning a medical insurance system. The most important is the number of annual or monthly outpatient visits or hospitalization incidents by insured persons or their family dependents, estimation of medical care costs per case or per day, etc. The age structure is probably the main factor that influences the rate of medical care utilization, but in this plan the following rates have been adopted for actual application.

Basic information Applicable in planning a Medical Insurance Scheme

Division	Rates	Source
Outpatient visits Persons insured/ year	2.0214 times	0.7 was the number of outpatient visits by per person/year in Okgu Blue Cross. This will be increased to 2.0214 under the insurance scheme; 16% of these cases should be referred to specialists for specific outpatient treatment.
No. of annual hospitalizations per 100 persons insured	2.16 cases	The rate of hospitalization of the Okgu Blue Cross, since it has the highest rate among the second category insurance programs.
No. of annual delivery cases per 1,000 persons insured	24 cases	A national rate
Expenses per outpatient visit	1,600 Won	The Hankook Plywood Company Medical Insurance Union
Expenses per hospitalization	81,000 Won	Same as above
Expenses per delivery	25,000 Won	Same as above

2) Population eligible for subscription

It is estimated that almost 80% of the eligible population will join the second category medical insurance scheme in the last year in this plan, excluding some industrial employees and public officials/private school teachers and their dependants. Public officials and private school teachers will be covered separately by an independent medical insurance scheme after 1979. In this design, however, medical care demand and expenditure would be calculated on a 10,000 population basis for convenience.

3) Medical Facilities and Staffing

In this plan the community health centers will be utilized for primary care, and non-physician health workers as well as physicians will be utilized for patient care. For primary care referrals, clinics or hospitals with specialities will be designated as referral sources. About 16% of total outpatient visits, (the figure of the Okgu Blue Cross Medical Insurance Union) has been set for referral rate.

C. Demand for Medical Care

The following table shows an annual medical care demand from a population of 10,000 that must be covered by a medical insurance scheme under the sickness benefit.

Estimation of Annual Medical Care Demand Per 10,000 Population

	Demand	Basis of Calculation
Utilization of CHC	20,214 times	Pop. x 2.0214
Referral cases for specialist	3,234 times	pop. x 2.0214 x 0.18
Hospitalization	216 cases	Pop. x 2.16/100
Institutional Delivery	240 cases	Pop. x 24/1,000

D. Estimated Resources Requirement to Meet Demand

Resource requirements in this plan are classified into two: 1) cost for the operation of community health centers under a comprehensive health demonstration project; 2) cost for secondary and tertiary care which cannot be handled at primary care facilities. For the former, only operational expenses are required resources, because the community health centers are non-profit public institutions.

Table 11 shows a total annual medical cost, part of cost shared by persons insured at the time of receiving it and payments by the

union, which all have been calculated based on a population of 10,000 and on various factors mentioned previously.

In short, a total medical cost required for the population in one Myon annually is estimated at 56 million, comprising 32 million from union payments and 18 million from payments in part by persons insured.

Table 11. Medical Care Cost for a Population of 10,000/year

(Unit: Won)			
	Total Medical Care Cost	Cost Share by Patient	Sickness Benefit
Hospitalization	17,496,000	5,249,000	12,247,000
Institutional Delivery	6,000,000	2,400,000	3,600,000
Outpatient Care for Specific Treatment	5,174,000	2,070,000	3,105,000
Outpatient Care at CHC	26,952,000*	10,781,000	16,171,000
TOTAL	55,622,000	18,190,000	31,523,000

* This is the expense for operating Community Health Centers.

Remark: In Article 34 (partial share of cost) of the Enforcement Decree of Medical Insurance Law, there are discriminations in payment of medical care, both outpatient care and hospitalization, for insured persons and their family dependents. However, since persons insured under the second category (Self-employed) medical insurance system pay the whole amount of premiums without an employer's contribution, it is unwise to discriminate between insured persons and their family dependents. Therefore, in this plan the rate of payment by the union for hospitalization has been set at 70%, and 60% for outpatient care, respectively.

E. Financial Design for a Proposed Health Insurance Union

Table 12 shows a financial estimate for a medical insurance union, based on Table 11. Financing this system is based on the current rate of government subsidy, (₩100 per household per month for benefit assistance and ₩80 per household per month for administrative costs.)

According to the Okgu demonstration plan, there will be one community health center for two Myons. However it has been found that there should be one CHC for every Myon when a medical insurance scheme is introduced. Therefore, figures in Table 12 are based on the assumption that there will be a CHC for each Myon.

Table 12. Revenue and Expenditure Estimates of Medical Insurance Union for a Population 10,000

(Unit: Won)

	Expenditure	Revenue
A. Sickness Benefits (referral)	<u>18,952,000</u>	
Hospitalization	12,247,000	
Institutional Delivery	3,600,000	
Outpatient Care (specialist)	3,105,000	
B. Sickness Benefits (part of the CHC operating expense)	<u>16,171,000</u>	
C. National Subsidy		<u>3,927,000</u>
D. Premiums		<u>40,243,000</u>
E. Administrative Costs	<u>5,359,000</u>	
F. Contingency	<u>3,688,000</u>	
TOTAL	44,170,000	44,170,000

Calculation Basis: For medical care cost, the factors in Table 11 were applied.

$$\text{Administrative costs} = (A + B) \times 17\%$$

$$\text{Contingency} = (A + B + E) \times 10\%$$

$$\text{National Subsidy} = 1,820 \text{ household} \times 180 \times 12 \text{ mos.}$$

F. Purpose of Premiums by Insured Persons

Payments by insured persons cover administrative costs and contribute towards group sharing of medical care cost at the time a member utilizes medical care services.

1) Premium (Contributions)

Table 13 shows monthly (or annual) contributions to be made by each insured person or household to meet the financial requirements of the system shown in Table 12.

Table 13. Contributions per Person, per Household

Contribution	Monthly	Annually
Per Person	370 Won	4,427 Won
Per Household*	2,035 Won	24,349 Won

* Note: One household with 5.5 members

Calculation:

$$\text{Annual contribution/person} = \frac{40,243,000 \text{ Won} \times (1 + 0.1)}{10,000 \text{ population}}$$

$$= 4,427 \text{ Won}$$

$$\text{Monthly contribution/person} = \frac{4,427 \text{ Won}}{12 \text{ mos.}}$$

$$\approx 370 \text{ Won}$$

It is presumed that with a membership of 10,000, and a contribution of 370 Won per person per month it is possible to operate a proposed medical insurance scheme under the comprehensive health demonstration project system. However, since this financial estimate has been worked out on the basis of 1976 & 1977 indicators and current prices, these rates must be adjusted when the plan is implemented.

2) Partial Cost Sharing

In order to prevent an excessive utilization of medical care services under a medical insurance system, partial share of cost by insured persons is necessary at the time of utilization. Table 14 shows a fee schedule of partial cost sharing for a visit under the program.

Table 14. Partial Share of Cost at Time of Receiving Medical Care Services

Kind of Services	Unit	Cost
Outpatient Care (Referral)	per visit	640
Hospitalization	per case	24,300
Hospital Delivery	per case	10,000
CHC visit	per visit	540

Partial cost sharing is presumed not to be a heavy burden on the farm population.

G. Imposition of Premiums

In order to prevent possible adverse selection of risk, subscription should be made by household, and initial benefits should be given three months after subscription, or after three monthly premiums have been paid.

A combination of flat rate and income-related differential rate will be used in imposing premiums. However, close attention must be paid to reactions from subscribers toward an income-related differential rate system at the initial stage. As already mentioned in the Section "Finance for the Self-employed Medical Insurance Scheme", administrative costs for this type of medical insurance are excessive, thus a plan must be drawn up to reduce expenses for imposing and collecting premiums. Cooperation must be sought from existing administrative organizations and/or voluntary community organizations.

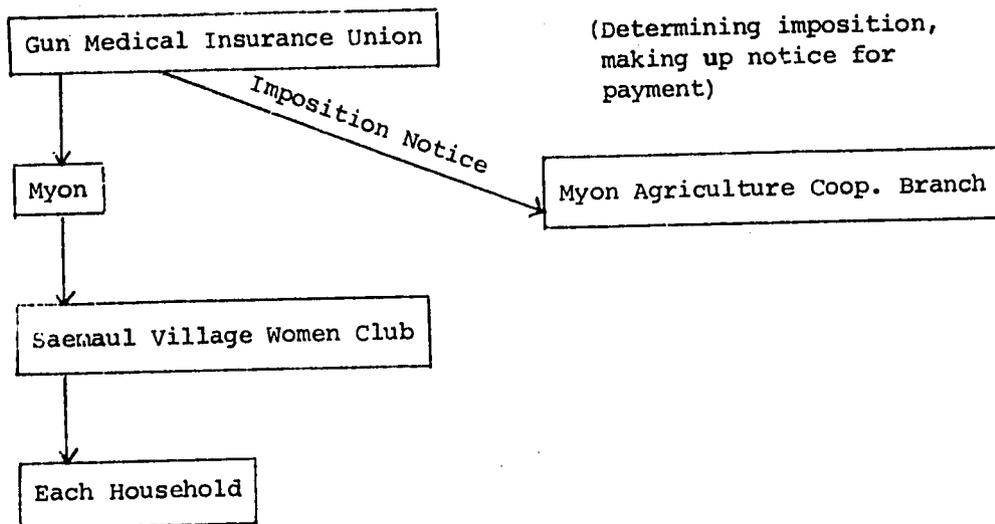


Figure 1 : Delivery Channel of Premium Imposition Notice

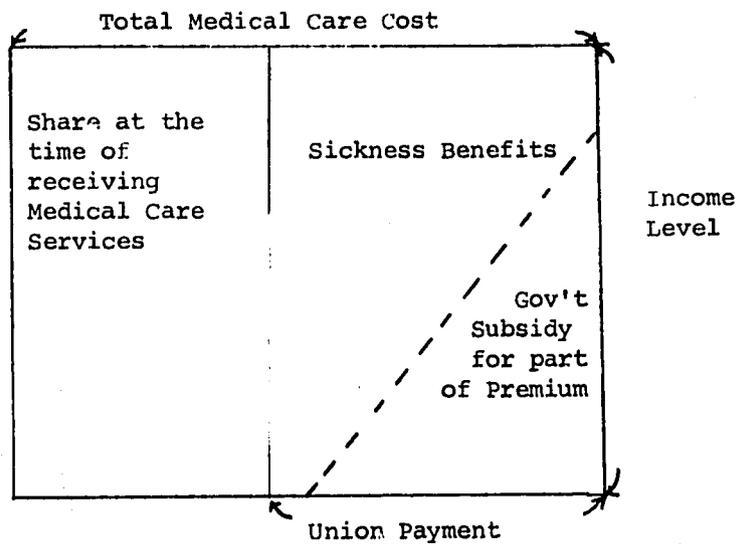
H. Collection of Premiums

One way to deal with the problem is to use the existing peripheral organizations of the Agricultural Cooperative and Saemaul Bank to collect the premiums. That is, the medical insurance union notifies the agricultural cooperative of the amount imposed per household, if a insured person in a member of the cooperative. The cooperative then collects the premiums at the time of distributing manure or buying grains from the member and pays it to an account of the medical insurance union. For those who are not members of the agricultural cooperative or for those who want to pay in each, the Saemaul Village Bank can be used for payment which in turn pays in an account of the medical insurance union in the agricultural cooperative.

IV. Implementation Strategies

A. Testing To encourage low income people to subscribe, and to supplement their payment ability, a graduated system in which part of premiums is subsidized according to income level should be tested as noted in Figure 2.

Fig. 2 Composition of Medical Care Costs



A part of Premiums will be subsidized from the KHDI budget during the Demonstration Period. This subsidy will be given to the insurance union only for those who have paid a portion of their premiums.

B. Mobilizing Administrative authorities in demonstration Units should be used to induce early subscriptions.

C. The Saemaul movement organizations and village banks should be urged to participate in the operation of a newly organized medical insurance plan.

D. The existing Okgu Blue Cross Medical Insurance Scheme should be taken over and expanded.

V. Funds Requirement

If the Government on KHDI subsidize a part of the premiums, the funds required will depend upon the number of subscribers and their income levels. It is recommended that the following rates of subsidization (by the size of farm-land) in Table 15 be applied to calculate requirements with total annual requirements based on the number of subscribers as show in Table 16.

Table 15. Rate of Subsidization by the Size of the Farmland

Size of Farmland	Plan A	Plan B
More than 2 ha	none	10% of premium
1.5 - 2.0 ha	10% of premium	20% "
1.0 - 1.5 ha	20% "	30% "
0.5 - 1.0 ha	30% "	40% "
Less than 0.5 ha	40% "	50% "

Table 16. Annual Funds Requirement for Subsidization by Number of Subscribers and Plan

(Unit in 1,000 Won)

Number of Subscribers	Plan A	Plan B
10,000	12,250	16,800
20,000	24,500	33,600
30,000	36,750	50,400
40,000	49,000	67,200
50,000	61,250	84,000
60,000	73,500	100,800
70,000	85,750	117,600

VI. Assessing Replicability of the Proposal

There have been several pilot health projects in this country, but none has yet been proven so successful that it can be adopted nationwide. If a pilot project has no value for repetition, it is a waste of money, time, manpower and effort. In view of this, it is worthwhile to examine the possible replicability of this plan.

1. Funds Required

It is presumed that the central government and local government will subsidize the program in accordance with the income level of the members. Therefore, a large amount of funds will be required if this plan is successful and adopted nationwide. Exactly how much money will be required for nationwide application will become clear after this plan comes to an end.

When the second category (Self-Employed) medical insurance scheme is implemented in an entire rural area, the target population would exclude the first category medical insurance unions, public officials and private school teachers and their dependents, as they will be covered in 1979 under the Medical Program. It can be assumed that about 80% of an entire rural population (Excluding the Medicaid Program) will be covered by the second category self-employed medical insurance system.

Resource requirements would then be as follows:

Subsidy for premiums = 16,835,031 persons x 80% x ₩180 x
12 mos.
= 29,100 million won.

Subsidy for administration = ₩29,090,933,000 x 17%
= ₩4,900 million

Grand Total = ₩34,000 million

Thus, it is estimated that about 34,000 million won will be required for extending the proposed medical insurance scheme to an entire rural area. It is not clear whether the government can afford to allocate this amount to the health sector for this purpose, but if the government tries to realize her social development goal enunciated at the Fourth Five-Year Plan, the cost will be of this magnitude.

2. Demand for Medical Care

Replicability assessment should also focus on demand projections and the availability of manpower and physical resources. These resources should precede, or accompany the expansion of the proposed system, Total Annual medical care demand is estimated as:

Outpatient Care : 13,468,024 times = 27,224,263 visits
persons

Hospitalization : 13,468,024 persons $\times \frac{2.16}{100}$ cases = 290,909 cases

Delivery : 13,468,024 persons $\times \frac{24}{100}$ = 323,233 cases

Note: Target Population =
(No. of farmers - those under the Medicaid Program) \times 80%
= (17,909,607 persons - 1,074,576) \times 80%
= 13,468,024

3. Manpower Requirement

Manpower such as physicians and other auxiliaries is required to meet this medical care demand. Here, the number of physicians needed to meet the demand for outpatient care is illustrated:

$$P = \frac{AOD}{Pat Rate} \times \frac{1}{Working Days}$$

No. of physicians required = Outpatient care demand \div Average
No. of patients treated per physician per day \div No. of working days
per year = 27,224,263 \div 40 \div 360 = 2,618 physicians

Therefore, about 2,600 physicians will be required in the rural areas if the proposed system is to work out. Implementation of a medical insurance system should increase income for physicians in the rural area and with appropriate workload of physicians guaranteed by implementing a regionalized system of medical care, these measures would contribute to national health policy on the deployment of physicians, "to eliminate the doctorless Myon".

EVALUATION PLAN
FOR THE
HEALTH DEMONSTRATION PROJECT
OF THE
KOREA HEALTH DEVELOPMENT INSTITUTE (KHDI)

by

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INTRODUCTION

Project evaluation is a process of comparing selected indicators of events with pre-established standards, and then analyzing the results in a prescribed manner, in order to assist managers in determining future course of action.

This evaluation of the KHDY Demonstration Project will assess the effectiveness of the overall project and the various sub-projects, at four "Levels" of managerial interest as follows:

1. **INPUT** - Whether the personnel, funds, facilities and equipment planned to carry out the project were actually provided as needed - according to the amounts necessary to implement the project in a timely manner. Also whether the planning estimates themselves were sufficiently accurate and within the reasonable resources capabilities of the KHDY to acquire.
2. **OUTPUT** - Whether the specific items programmed by the project manager for completion were in fact completed according to the amounts planned, in a technically adequate form, and in a timely manner.
3. **PURPOSE** - Whether the reason (or reasons) for undertaking the project was achieved, or whether some modification of the Outputs or the basic design is still necessary.
4. **GOAL** - Whether there are indications that the broader section goals, to which the project contributes, are likely to be achieved as a result of attaining the project purpose.

Although it is logical to conceptualize project evaluation in the above sequential framework, for the purpose of this specific evaluation plan, it is more convenient to discuss each of the above "levels" in reverse order. Therefore, we will first outline the evaluation plan for the overall KHDY Demonstration Project Goal.

I. GOAL

End Statement (1) : To improve the health status of the Republic of Korea

Indicators : Selected nationwide morbidity and mortality statistics as follows:

Time period : 1975 through 1985
(hopefully, but not necessarily)

1. Tuberculosis prevalence	3.2%	below 1%
2. Ascaris infection	44%	below 10%
3. Crude death rate	0.8%	below 0.6%
4. Infant mortality	36 (per 1,000 births)	below 20 (per 1,000 births)

Means of Verification Track each of the above indicators on an annual basis for a ten year period, beginning with 1975, using annual health statistics reports and population reports (Ministry of Health and Economic Planning Board official publication on national health statistics). This should provide a sufficient basis by 1985 to begin time series analysis of the data to detect trends in prevalence and mortality of these current (1976) major diseases.

Since the time period at which this data can be usefully analysed is way beyond the completion of the KHDI project, a more intermediate measure to achieve the desired end should be examined, at the completion of the project in 1980.

End Statement (2) : Institutionalize successful models of integrated, low-cost, health delivery systems recommended by KHDI.

Indicators : 1. Directive issued by the Ministry to implement a program of replication of models recommended by KHDI
and Means of Verification

Means of Verification :

Obtain a copy of the directive, and/or other implementing instructions.

2. ROK funding for a program to replicate the models recommended by KHDI.

Means of Verification : a. Confirmation from the 5th national five year plan that funds are programmed for the replication of models recommended by KHDI.
b. Confirmation from the national annual budgets for 1981, 82, 83, 84 & replication of models recommended by KHDI.

3. Numbers of Guns in which replication models are actually implemented as recommended by KHDI.

Means of Verification : This would most probably be conducted by a technical survey team during the period 1981 - 1986.

From the foregoing, it can be seen that for the most part, evaluation of the KHDI project GOAL is not of immediate concern. Nevertheless, KHDI will begin the systematic assembly of national morbidity and mortality statistics for subsequent analysis and evaluation.

II. PURPOSE

The overall KHDI project has two purposes - Institution Building, and Research and Development. Each of these will be evaluated separately as follows:

Statement : (1) Institution Building: To establish the capability within the ROKG to plan, conduct, and evaluate low-cost, integrated health delivery projects directed primarily towards low-income families.

Indicators, and
Means of
Verification

1. A Permanent Research-oriented Organization is established and accepted by the ROK Government to conduct experimental projects in health delivery systems directed primarily towards low-income families.

Means of Verification: In 1981, a technical evaluation team with some health professionals should assess the longevity of KHDI, or confirm the existence of other organizations performing similar functions for the ROK Government.

2. That same permanent research-oriented organization (at this time assumed to be KHDI) is adequately staffed with personnel qualified in:
 - a. health planning
 - b. implementing health projects
 - c. project analysis & evaluation

Means of Verification: In 1981, a technical evaluation team with health planning, project management analysis and evaluation professionals should review the formal professional training, experiences and skills of personnel in KHDI (or a similar organization) and render a technical judgement as to their competence and sufficiency.

Statement (2) Research & Development

This really has two components: an intermediate and an ultimate purpose. Following the same general pattern of reversing the order in which the items are discussed, the long range purpose is:-

End
Statement : To demonstrate successfully at least one multi-gun low-cost integrated health delivery system that is replicable in other parts of Korea.

Analytical Framework To analyze purpose-level indicators, the guns will be categorized as follows:

	Total Gun pop- ulation	# Healthy	# Sick
A. Receiving adequate health service*	(R1)	H.R1	S.R1
B. Receiving inadequate health service	(R2)	H.R2	S.R2
C. Not receiving any health service, but wanting health service	(R3)	H.R3	S.R3
D. Not receiving any health service, and wanting no health service	(R4)	H.R4	S.R4
Total	R totals	H totals	S totals

Different prefixes or suffixes can be ascribed to the various "R" categories above for analyzing different subgroups within the population. For example "H.R1" is the Healthy population receiving adequate health service; "R1.B" could be the number of births attended by health professionals during the period, etc. Each use of a shred-out code such as these will be specified.

Footnote:

* Definition of Terms

1. Health Services Delivery: This is the provision of any form of service (direct or indirect) of any type (educational, promotional, preventive, consultative or curative) by any individual (physician specialist, physician generalist, nurse, nurse practitioner, community health practitioner, midwife, laboratory technician, primary health worker - public or private; and/or self-treatment) at any place (hospital, clinic, workplace, home or residential environment) to an individual or a group, which is designed to improve the recipient's well-being.
2. Adequate Health Service: Any level of service which the recipient considers adequate for his/her needs, regardless of the actual quality, appropriateness or effectiveness of the service rendered.
(Note: This includes self-treatment).
3. Inadequate Health Service: Any level of service which the recipient considers inadequate for his/her needs, regardless of the actual quality, appropriateness or effectiveness of the service rendered.

Indicators & Means of Verification

1. More people served by KHDI model system than the existing (1976) system.

Means of Verification: The basic data (A & B, below) will be obtained on a sample basis from the 1976 baseline survey, and a post-evaluative survey in 1980.

	<u>A</u> 1976	<u>B</u> 1980	<u>C</u> #Difference (B-A)	<u>D</u> %Difference $\frac{C}{A} \times 100$
(1) Number of people receiving health care in Project Gun (R1 + R2 above)	<u>A1</u>	_____	_____	<u>D1</u>
(2) Number of people receiving health care in Control Gun	_____	_____	_____	<u>D2</u>

- a. Columns C and D above will then be calculated, and the percentage difference between the Control and Project Gun (i.e. D2-D1) will be the percentage trend which can be attributable to the project's impact.
- b. This result, multiplied by A1, will be the indication of the number of additional people (if any) served by the KHDI model system, over the 1976 system.
- c. For cross checking, the type of services and the amount provided can be estimated by random sampling as follows:

(1) Relative healthiness indicator

	<u>1976</u>	<u>1980</u>
Formula: $\frac{H \text{ total}}{R \text{ total}} \times 100 =$	_____ %	_____ %

Where H = Number of respondents free from sickness of any kind during 15 days prior to survey.

(2) Curative care coverage indicator

	<u>1976</u>	<u>1980</u>
Formula: $\frac{S.R1 + S.R2}{\text{"S" total}} \times 100 =$	_____ %	_____ %

Where,

S.R1 + S.R2 = Number of sick patients actually served with curative care during a 15 days, period.
 "S" total = Number of persons with any kind of illness (whether serious or not) during the reference period (prior 15 days).

(3) Professional attendant's delivery indicator

$$\text{Formula: } \frac{R1.B + R2.B}{\text{"RB" total}} \times 100 = \begin{array}{ccc} & \underline{1976} & \underline{1980} \\ & \text{---} \% & \text{---} \% \end{array}$$

Where,

R1.B + R2.B = Number of births actually attended by professional workers, during previous one year period.

R.B Totals = Total number of births for the reference time

(4) Immunization indicator

$$\text{Formula: } \frac{R1.C + R2.C}{\text{"RC" total}} \times 100 = \begin{array}{ccc} & \underline{1976} & \underline{1980} \\ & \text{---} \% & \text{---} \% \end{array}$$

Where,

R1.C = Number of children aged 3 or under actually given immunization on schedule at the time of survey

R2.C = Number of children aged 3 or under actually given immunization, but not on schedule, at the time of survey

RC totals = Total number of children aged 3 or under at the time of survey

(5) Family planning indicator

$$\text{Formula: } \frac{N.R3}{R \text{ total}} \times 100$$

Where,

N.R3 = Number of currently married women aged 44 or under not receiving any family planning service, but wanting the service at the time of survey.

R totals = Total number of currently married women aged 44 or under at the time of survey.

2. Greater Level of Satisfaction with KHDI model system, than under the existing (1976) system.

Means of Verification: The basic data (A & B, below) will be obtained on a sample basis from the 1976 baseline survey, and a post-evaluative survey in 1980.

<u>A</u> 1976	<u>B</u> 1980	<u>C</u> #Difference (B-A)	<u>D</u> %Difference $(\frac{C}{A} \times 100)$
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(1) Number of people receiving adequate health care (R.1 in the analytical framework) in Project Gun

<u>A1</u>	_____	_____	<u>D1</u>
-----------	-------	-------	-----------

(2) Number of people receiving adequate health care in the Control Gun

_____	_____	_____	<u>D2</u>
-------	-------	-------	-----------

a. Columns C and D above will then be calculated, and the percentage difference between the Control and Project Gun (i.e. D2-D1) will be the percentage trend which can be attributable to the project's impact.

b. This result, multiplied by A1, will be the indication of the number of additional people (if any) whose level of satisfaction with the KHDI model system is greater than the 1976 system.

Note: It is important that this "quantified" subjective evaluation be cross-checked with the type and amount of services provided (as outlined under the preceding indicator). Peoples' subjective values tend to fluctuate periodically regardless of the actual level of service. Furthermore, expectations of service quality, and the amount of service required to satisfy a need also tend to increase with the passage of time. What was once desirable, when finally provided, may quickly become inadequate.

3. Same, or lower Unit Cost for Delivery of Service, with the KHDI model system, than under the existing (1976) system.

Definition The "Unit Cost" for delivery of service is an estimate of how much it costs (on the average) to provide adequate health service to an individual member of the project gun population.

Unit Cost is a statistical "index" rather than a real cost, but when derived consistently, it can be a useful measure for comparative analysis. Unit costs should be adjusted using 1976 monetary valuations as the standard to account for inflation, etc.

Means of Verification: The basic data (Columns A & B) will be obtained as indicated; (1) + (3) on a sample basis from the (2) + (4) from actual Gun budget and KHDI Reports.

	<u>A</u> 1976	<u>B</u> 1980
(1) Number of people receiving adequate health care (R.1 in the analytical framework) in project gun during control period (15 days)	<u>A1</u>	<u>B1</u>
(2) Total Gun Health Expenditures for the year in project gun (Gun Budget + KHDI Budget)	<u>A2</u>	<u>B2</u>
(3) Number of people receiving adequate health care in control gun.	<u>A3</u>	<u>B3</u>
(4) Total Gun Health Expenditures for the year in control gun (Gun budget only)	<u>A4</u>	<u>B4</u>

a. A2, B2, A4 and B4 which are annual estimated costs should then be divided by "24" (anumerical constant) to obtain an approximate cost for a two week time period.

b. The Unit Cost can then be calculated as follows:

$$(1) \text{ Project Gun Unit Cost for 1976; } = \frac{A2 \times 1}{\text{"24"} \quad A1}$$

$$\text{for 1980; } = \frac{B2 \times 1}{\text{"24"} \quad B1}$$

$$(2) \text{ Control Gun Unit Cost for 1976; } = \frac{A4 \times 1}{\text{"24"} \quad A3}$$

$$\text{for 1980; } = \frac{B4 \times 1}{\text{"24"} \quad B3}$$

c. The above data can then be analyzed as follows:

	<u>A</u> 1976	<u>B</u> 1980	<u>C</u> #Difference (B-A)	<u>D</u> %Difference ($\frac{C}{A} \times 100$)
(1) Unit Cost of Project Gun	<u>A1</u>	_____	_____	<u>D1</u>
(2) Unit Cost of Control Gun	_____	_____	_____	<u>D2</u>

- d. Columns C and D above will then be calculated, and the percentage difference column between the project and control gun (i.e. D1-D2) will be the percentage trend attributable to the project's impact. This difference is designated "E".
- e. The adjusted unit cost of the project gun for 1976 will then be calculated as follows:

- (1) If "E" is positive, the KHDI model is cost effective (i.e. the project percentage unit cost increase is less than that of the control gun). To determine by how much, reduce the 1980 unit cost by that percentage. Thus, the formula is:

$$B1 - \left(\frac{E}{100} \times B1 \right)$$

- (2) If "E" is negative, the KHDI model is not cost effective. To determine the shortfall, increase the 1980 unit cost by that absolute percentage. Thus, the formula is:

$$B1 + \left(\frac{E}{100} \times B1 \right)$$

Means Statement: Develop a model, low-cost, integrated, Health Delivery System to serve low income families.

Indications: 1. Network of trained personnel placed
and Means
of Verification

Means of Verification: From the official Gun records, obtain the data outlined below for 1976 and 1980.

	<u>A</u> 1976	<u>B</u> 1980
(1) Total number of residents in Project Gun	<u>A1</u>	<u>B1</u>
(2) Total number of active health personnel (by type) in the Project Gun	<u>A2</u>	<u>B2</u>
(3) Total number of residents in Control Gun	<u>A3</u>	<u>B3</u>
(4) Total number of active health personnel (by type) in Control Gun	<u>A4</u>	<u>B4</u>

- a. From this data, the ratio of health workers (by type) to population can be calculated, as follows:

$$R1 = \frac{A1}{A2} \text{ or } \frac{B1}{B2}, \text{ and } R2 = \frac{A3}{A4} \text{ or } \frac{B3}{B4}$$

Where R1 = Ratio of Population to Health worker in Project Gun

and R2 = Ratio of Population to Health worker in Control Gun

- b. With these ratios, the calculations in columns C and D below can be made:

	<u>A</u> 1976	<u>B</u> 1980	<u>C</u> #Difference (B-A)	<u>D</u> %Difference ($\frac{C}{A} \times 100$)
(1) Ratio of population to number of health workers (by type) in Project Gun	<u>A1</u>	_____	_____	<u>D1</u>
(2) Ratio of population to number of health workers (by type) in Control Gun	_____	_____	_____	<u>D2</u>

- c. The percentage difference between the control and project gun (D1-D2) is designated "E". "E" indicates the net change in the network of health personnel deployment which can be attributed to the KHDI project.
- d. If "E" is negative (i.e. a smaller population per health worker ratio in the project area) this indicates an improvement in establishing a network of trained personnel, for that particular category.

1. Facilities constructed, upgraded and/or equipped

Means of Verification: Two technical inspection surveys by a joint evaluation team, following up on basic Gun & KHDI reports: a baseline survey (1977) & post-evaluation survey, (1980). The data (for A and B below) will be obtained, & calculations of data in C & D made.

	<u>A</u> 1977	<u>B</u> 1980	<u>C</u> #Difference (B-A)	<u>D</u> %Difference ($\frac{C}{A} \times 100$)
(1) Number of Referral Hospitals in project area	_____	_____	_____	_____
(2) Quality of Referral Hospital				
(a) Number Acceptable*	_____	_____	_____	_____
(b) Number of Below Standard*	_____	_____	_____	_____
(3) Number of Community Health Centers in project area	_____	_____	_____	_____
(4) Quality of CHC				
(a) Number Acceptable	_____	_____	_____	_____
(b) Number of Below Standard*	_____	_____	_____	_____
(5) Number of Primary Health Units in project area	_____	_____	_____	_____
(6) Quality of PHU				
(a) Number Acceptable	_____	_____	_____	_____

A narrative technical report (supported by statistical evidence) will be made as part of the 1980 post evaluation survey by a team of technically qualified medical personnel, on the status of facilities in the project area.

Footnote: Acceptable or Below Standard refers to the technical specifications for these facilities, as outlined in the Project Design Plan. Assessment will be made by technically qualified medical personnel using these specifications as a basic guide.

3. Health Facilities Network Utilization by Community

Means of Verification: Stratified random sample survey in 1980, of various facilities in the Project Gun Network, to identify:

- a) The average daily number (and standard deviation) of patients visiting each facility during the period (prior 15 days)
- b) The number and nature of the illnesses treated, during the period
- c) The number of referrals made to other facilities during the period
- d) The average daily number (and standard deviation) of home visits by health workers assigned to the primary health units during the period.

4. Effective referral system functioning

Means of Verification: Post-Evaluation Sample Survey of Referral Hospitals, and community health centers in project area (1980) and control area to determine:

- a) number of patients treated at facility during study period (past 15 days)
- b) number of above patients who were referred to Hospital, or Center by subordinate unit
- c) percentage of patients at each facility who were referral patients. Calculated as

$$\frac{b}{a} \times 100$$

- d) number and nature of problems referred at each level.

5. A total of 500,000 population served in KHDI project demonstration areas.

Means of Verification: A population estimation from Gun records, and a sample post-evaluative survey of community residents in project areas to determine their awareness of and utilization of health center or health unit in their area.

III. OUTPUTS

The KHDI project will be carried out in three areas - Hongchon, Gunee and Okgu - as three distinct sub-projects. At the same time, however, some outputs will be developed centrally by KHDI which are common to all three areas. Thus, first the common outputs will be evaluated and then each sub-project's outputs individually. Each output will be evaluated both quantitatively and qualitatively to determine whether it was:

- 1) Actually completed
- 2) Completed in a timely manner, (i.e. as scheduled)
- 3) Technically (substantively) adequate.

Common Output Statements

1. A Curriculum for a Community Health Practitioner.
Indicator The completed curriculum lesson plans, texts, and supporting aids and documents.

Means of Verification

- a) A draft copy of the above "package" should be available for review by June 1977, and a final copy by June 1978.
 - b) The "package" should be reviewed by an "expert" to determine whether it is technically adequate in both form and content.
 - c) During 1978 and 1979, KHDI should conduct follow-up surveys of graduated and deployed CHPs, to determine whether their training adequately prepared them for dealing with the major health problems with which they are working.
2. A Curriculum for a Community Health Aide (CHA)

Indicator The completed curriculum lesson plans, texts, and supporting aids and documents.

- a) A draft copy of the above "package" should be available for review by June 1977, and a final copy by June 1978.
- b) The "package" should be reviewed by an "expert" to determine whether it is technically adequate in both form and content.
- c) During 1978 and 1979, KHDI should conduct follow-up surveys of graduated and deployed CHAs, to determine whether their

training adequately prepared them for dealing with the major health problems with which they are working.

3. A Curriculum for a Village Health Agent (VHA)

Indicator The completed curriculum lesson plans, texts, and supporting aids and documents.

- a) A draft copy of the above "package" should be available for review by June 1977, and a final copy by June 1978.
- b) The "package" should be reviewed by an "expert" to determine whether it is technically adequate in both form and content.
- c) During 1978 and 1979, KHDI should conduct follow-up surveys of graduated and deployed VHA's, to determine whether their training adequately prepared them for dealing with the major health problems with which they are working.

Sub-project Statement:

Hongchon Outputs

1. Primary Health Units Established

Indicator

The cumulative number of Units established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	<u>7</u>	<u>20</u>	<u>20</u>	<u>20</u>

Means of Verification

(a) (1) From official KHDI reports, an evaluation team will verify the actual number of Units established each year compared with the planned number.

	1977	1978	1979	1980
Actual:	-	-	-	-

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as established will be visited by the evaluation team to determine

(1) Whether the Unit is actually completed as outlined in the implementation plan, and

(2) Whether the center is functioning satisfactorily as envisaged.

2. Community Health Centers Established

Indicator

The cumulative number of centers established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	-	7	7	7

Means of Verification

(a) (1) From official KHDI reports, an evaluation team will verify the actual number of centers established each year compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} - \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as established will be visited by the evaluation team to determine

(1) Whether the center is actually completed as outlined in the implementation plan, and

(2) Whether the center is functioning satisfactorily as envisaged.

3. Gun Health Center Reorganized

Indicator

The cumulative number of centers reorganized, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

Means of Verification

A survey of those reported as reorganized will be visited by the evaluation team to determine

(1) Whether the center is actually completed as outlined in the implementation plan, and

(2) Whether the center is functioning satisfactorily as envisaged.

4. Community Health Practitioners Trained and Deployed

Indicator

The cumulative number of Community Health Practitioners trained and deployed according to the schedule in the implementation plan outlined below:

	1977	1978	1979	1980
Plan:	<u>7</u>	<u>20</u>	<u>20</u>	<u>20</u>

Means of Verification

(a) (1) From official KHDI reports an evaluation team will verify the actual number of Community Health Practitioners trained and deployed compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} - \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as trained and deployed will be visited and interviewed by the evaluation team to determine

(1) Whether they are actually deployed at the sites outlined in the implementation plan, and

(2) Whether they are performing the duties satisfactorily as envisaged.

5. Community Health Aides Trained and Deployed

Indicator

The cumulative number of Community Health Aides trained and deployed according to the schedule in the implementation plan outlined below:

	1977	1978	1979	1980
Plan:	<u>16</u>	<u>51</u>	<u>51</u>	<u>51</u>

Means of Verification

(a) (1) From official KHDI reports an evaluation team will verify the actual number of Community Health Aides trained and deployed compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as trained and deployed will be visited and interviewed by the evaluation team to determine

(1) Whether they are actually deployed at the sites outlined in the implementation plan, and

(2) Whether they are performing the duties satisfactorily as envisaged.

6. Village Health Agents Trained and Deployed

Indicator

The cumulative number of Village Health Agents trained and deployed according to the schedule in the implementation plan out-

lined below:

	1977	1978	1979	1980
Plan:	_____	_____	_____	_____

Means of Verification

(a) (1) From official KHDI reports an evaluation team will verify the actual number of Village Health Agents trained and deployed compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} - \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as trained and deployed will be visited and interviewed by the evaluation team to determine

(1) Whether they are actually deployed at the sites outlined in the implementation plan, and

(2) Whether they are performing the duties satisfactorily as envisaged.

7. Community Cooperative Health System

Indicator

The cumulative number of Community Health System Cooperatives organized (Hongchon KHDI/Saemaul CCHS) according to the schedule in the implementation plan outlined below :

	1977	1978	1979	1980
Plan:	<u>40</u>	<u>100</u>	_____	_____

(The Quota for 1979-1980 is dependent on the Gun chief and program success)

Means of Verification

(a) (1) From official KHDI reports an evaluation team will verify the actual number of Cooperatives organized under the Hongchon CCHS compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} - \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as organized will be visited and evaluated to determine

(1) Whether they are actually organized - as outlined in the implementation plan, and

(2) Whether they are functioning satisfactorily as envisaged.

OKGU OUTPUTS

1. Primary Health Posts Established

Indicator

The cumulative number of Posts established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	<u>13</u>	<u>13</u>	<u>13</u>	<u>13</u>

Means of Verification

(a) (1) From official KHDI reports, an evaluation team will verify the actual number of Posts established each year compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} - \text{Actual/Plan} \times 100$$

(b) A sample survey of those as established will be visited by the evaluation team to determine

(1) Whether the Post is actually completed as outlined in the implementation plan, and

(2) Whether the Post is functioning satisfactorily as envisaged.

2. Community Health Center Established

Indicator

The cumulative number of centers established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	<u>3</u>	<u>5</u>	<u>6</u>	<u>6</u>

Means of Verification

(a) (1) From official KHDI reports, and evaluation team will verify the actual number of centers established each year compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} - \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as established will be visited by the evaluation team to determine

(1) Whether the center is actually completed as outlined in the implementation plan, and

(2) Whether the center is functioning satisfactorily as envisaged.

3. Community Health Practitioners Trained and Deployed

Indicator

The cumulative number of Community Health Practitioners trained and deployed according to the schedule in the implementation plan outlined below:

	1977	1978	1979	1980
Plan:	<u>6</u>	<u>8</u>	<u>9</u>	<u>9</u>

Means of Verification

(a) From official KHDI reports an evaluation team will verify the actual number of Community Health Practitioners trained and deployed compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as trained and deployed will be visited and interviewed by the evaluation team to determine

(1) Whether they are actually deployed at the sites outlined in the implementation plan

(2) Whether they are performing the duties satisfactorily as envisaged.

4. Community Health Aides Trained and Deployed

Indicator

The cumulative number of Community Health Aides trained and deployed according to the schedule in the implementation plan outlined below:

	1977	1978	1979	1980
Plan:	<u>37</u>	<u>66</u>	<u>91</u>	<u>91</u>

Means of Verification

(a) (1) From official KHDI reports an evaluation team will verify the actual number of Community Health Aides trained and deployed compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as trained and deployed will be visited and interviewed by the evaluation team to determine

(1) Whether they are actually deployed at the sites outlined in the implementation plan, and

(2) Whether they are performing the duties satisfactorily as envisaged.

5. Health Maintenance Organization (HMO)
Devised and Implemented

Indicator

Progress of the implementation of the HMO in Okgu can be followed by assessing the events outlined below:

(a) Invitation of expert team such as Kaiser international of California, U.S.A. to do a feasibility study.

On or about Feb. 1977

(b) Completion of an HMO feasibility study and recommendations by foreign expert team .

On or about May 1977

(c) Decision to accept, reject or modify recommendations by Gun Steering Committee and KHDI.

On or about June 1977

(d) If accepted, then the implementation of the program by KHDI and Gun steering committee.

On or about Dec. 1977

Means of Verification

AID advisor will monitor progress of the HMO project by reviewing the events outlined above and KHDI will report the progress in quarterly progress reports. If HMO project is considered feasible a detailed Evaluation plan will be developed in conjunction with the HMO implementation plan.

GUNEE OUTPUTS

1. Primary Health Posts Established

Indicator

The cumulative number of Posts established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	<u>8</u>	<u>16</u>	<u>16</u>	<u>16</u>

Means of Verification

(a) (1) From official KHDI reports, and evaluation team will verify the actual number of Posts established each year compared

with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as established will be visited by the evaluation team to determine

(1) Whether the post is actually completed as outlined in the implementation plan, and

(2) Whether the Post is functioning satisfactorily as envisaged.

2. Primary Health Units Established

Indicator

The cumulative number of Units established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	<u>2</u>	<u>5</u>	<u>5</u>	<u>5</u>

Means of Verification

(a) (1) From official KHDI reports, an evaluation team will verify the actual number of Units established each year compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as established will be visited by the evaluation team to determine

(1) Whether the Unit is actually completed as outlined in the implementation plan, and

(2) Whether the Unit is functioning satisfactorily as envisaged.

3. Community Health Centers Established

Indicator

The cumulative number of Centers established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Plan:	<u>2</u>	<u>3</u>	<u>3</u>	<u>3</u>

Means of Verification

(a) (1) From official KHDI reports, as established, according to the schedule in the implementation plan, outlined below:

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as established will be visited by the evaluation team to determine

(1) Whether the Center is actually completed as outlined in the implementation plan, and

(2) Whether the Center is functioning satisfactorily as envisaged.

4. Community Health Practitioners Trained and Deployed

Indicator

The cumulative number of Community Health Practitioners trained and deployed according to the schedule in the implementation plan outlined below:

	1977	1978	1979	1980
Plan:	<u>2</u>	<u>8</u>	<u>8</u>	<u>8</u>

Means of Verification

(a) (1) From official KHDI reports, an evaluation will verify the actual number of Centers established each year compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as established will be visited by the evaluation team to determine

(1) Whether the Center is actually completed as outlined in the implementation plan, and

(2) Whether the Center is functioning satisfactorily as envisaged.

4. Community Health Practitioners Trained and Deployed

Indicator

The cumulative number of Community Health Practitioners trained and deployed according to the schedule in the implementation plan outlined below:

	1977	1978	1979	1980
Plan:	<u>2</u>	<u>8</u>	<u>8</u>	<u>8</u>

Means of Verification

(a) (1) From official KHDI reports an evaluation team will verify the actual number of Community Health Practitioners trained and deployed compared with the planned number.

	1977	1978	1979	1980
Actual:	_____	_____	_____	_____

(2) The cumulative percentage of achievement at any time will then be determined from the following formula:

$$\% \text{ Achievement} = \text{Actual/Plan} \times 100$$

(b) A sample survey of those reported as trained and deployed will be visited and interviewed by the evaluation team to determine

(1) Whether they are actually deployed at the sites outlined in the implementation plan, and

(2) Whether they are performing the duties satisfactorily as envisaged.

IV. INPUTS

The following table displays the vital information about KHDI program Inputs.

Input statement

The left hand column of the table of Inputs is a general breakdown of budgeted inputs and they serve as the input statements.

Indicators

The right hand side of the table is a budget breakdown by year. These figures serve as the indicators in this section.

Means of Verification

KHDI financial reports.

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TABLE OF INPUTS
 OKG + USAID Combined Projected Budget for KHDI
 1977 - 1980
 with U.S. AID funds covering 75% of these
 estimated expenses
 Projected Budget - Unit \$1,000 U.S.*

\$1 U.S. = W485

STATEMENT	INDICATOR					TOTAL
	1976	1977	1978	1979	1980	
A. Itemized Demonstration Project Expenses						
I. Hongchon						
1. Personnel		53.9	168.6	275.0	89.4	586.9
2. Facilities		16.3	30.2	82.5	-	129.0
3. Equipment		1.3	4.0	-	-	5.3
(DRA)		(11.6)	(10.4)			(22.0)
4. Services Expenses		64.5	149.8	101.0	50.5	365.8
5. Miscellaneous		37.5	61.4	59.0	33.5	191.4
<u>Sub-total</u>		185.1	424.4	517.5	173.4	1,300.4
II. Okgu						
1. Personnel		98.3	232.7	371.3	111.4	813.7
2. Facilities		19.6	22.7	27.2	-	69.5
3. Equipment		2.7	3.3	3.9	-	9.9
(DRA)		(37.0)	(24.6)	(12.3)		(73.9)
4. Services Expenses		32.5	81.7	139.1	83.4	336.7
5. Miscellaneous		18.0	27.2	38.6	19.6	103.4
<u>Sub-total</u>		208.1	392.2	592.4	214.4	1,407.1

\$1 U.S. = W485

STATEMENT	INDICATOR					TOTAL
	1976	1977	1978	1979	1980	
III. Gunee						
1. Personnel		36.3	108.4	130.0	39.0	313.7
2. Facility		14.7	1.1	-	-	15.8
3. Equipment (DRA)		2.6 (4.5)	2.5	-	-	5.1 (4.5)
4. Service Expenses		88.9	83.5	96.1	65.9	334.4
5. Miscellaneous		28.9	103.1	24.5	15.5	172.0
<u>Sub-total</u>		175.9	298.6	250.6	120.4	845.5
<u>TOTAL</u>		569.1	1,115.2	1,360.5	508.2	3,553.0
B. KHDI organization & Staff						
I. KHDI Staff		369.1	369.1	369.1	184.0	1,291.3
II. Office Operation		98.2	98.2	98.2	49.1	343.7
III. Project Support		240.0	220.0	197.0	100.0	757.0
<u>TOTAL</u>		707.3	687.3	664.3	333.1	2,392.0
C. NHS		102.7	70.0	70.0	114.3	357.0
<u>TOTAL</u>		102.7	70.0	70.0	114.3	357.0
		365.0				365.0
Grand Total (A + B + C)	365.0	1,379.1	1,872.5	2,094.8	955.6	6,667.0

Means of Verification: Official KHDI budget accounting and other project records will be reviewed annually by evaluation team to determine whether amounts programmed were:

- 1) Provided as planned (Amount, and on time)
- 2) Realistic and adequate for accomplishing programmed OUTPUTS.

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SELECTION OF CONTROL AREAS TO EVALUATE KHDI'S DEMONSTRATION PROGRAM

Introduction

In any research project, it is extremely important that the major cause/effect relations, or changes induced by the project's "change agents" be isolated, measured and documented as clearly and quantitatively as possible. In laboratory experiments, it is possible to establish two similar situations, identical in all respects except a single variable; then use one as the experimental model, and the other as a "control" group to precisely measure the before and after effects.

Although we need to measure results in sociological experiments, unfortunately it is not possible to do so as precisely as in a laboratory. Although they may be similar in many respects, there are no two communities in which conditions are geographically, sociologically and economically alike. Furthermore, the social situation in a community is constantly evolving, and it is not possible to fix, isolate or direct particular conditions at specific points in time for the purpose of experimentation. Nevertheless, there still exists the belief that particular tactics will cause certain results to follow. Given this belief, the need remains to demonstrate with some degree of confidence that the result was induced by the experimental tactic rather than some combination of other variables at work in the community.

For this reason, despite obvious limitations, certain areas must be designated to serve as "control" areas for the KHDI demonstration project.

Scope of Control Area

In 1977, Health Demonstration programs will be undertaken in three guns, after mutual agreement between the provincial governors and KHDI. Other guns within the provinces will be unaffected by KHDI's program, but may receive continuing assistance in improvement of health services from national, provincial, gun and/or local initiatives.

In the provinces which agree to a KHDI program, it is quite likely that by direction, observation, or emulation, the health status in neighboring guns may also be affected. In order to avoid problems of "spillover effect" bias, no single gun will be selected as a "control". Instead, a number of areas (myons) will be selected from several guns both within and outside the demonstration provinces.

The total control group area will be limited to the size of a single gun.

Using similar criteria as in selecting the demonstration areas, two guns were selected from each province. From each of these "candidate" guns, two myons were subselected as "candidate areas" for the control group, as follows:

1) Kangwon

Whengsung and Pyongchang guns were selected as control "candidates" for Hongchon, the demonstration gun in Kangwon province. These two guns are located at almost the same distance from both Chunchon, (the capital of Kangwon province) and Wonju, (one of the large cities in this province). Furthermore, the county road passes through these two counties.

The sub-selection of "candidate areas" from these guns resulted in Kamchun and Chungil myons from Whengsung gun, and Daewha and Banglim myons from Pyongchang gun.

2) Kyeong Buk

Kumnung and Seongjoo guns were selected as the control candidates against Gunee demonstration gun in Kyongsang Buk Do. These two guns have geographical features similar to Gunee. They are at the same distance from Taegu, the capital of the province, as Gunee, and are also connected directly with the county road, and indirectly with the highway.

Kusung and Bubang myons were sub-selected candidate areas from Kumung county, and Ohojeon and Byokji myons from Seongjoo.

3) Jeon Buk

This province is rather flat compared to Kangwon and has many traffic networks all over the province. Since the demonstration gun in this province, Okgu, also includes islands, special attention was paid to include candidate guns containing islands. Haseu and Wido myons of Buan gun and Hamryul and Yonghan myons of Icksan gun were selected as candidate areas.

4) Kyeonggi

This province surrounds the capital city of Korea, - Seoul -, and contains two large cities, Inchon and Suwon, as well as several other cities (such as Anyang, Sungnam, Buchon and Euichungbu). Therefore, people in this province have a comparatively good chance of being exposed to sufficient medical services. In order to keep the similarities to the other demonstration areas in terms of health and medical service conditions, Numshu and Kangchun myons from Yeosu gun and Bubon and Shindun myons from Iechon gun were selected as their candidate areas.

5) Chung Buk

This is the smallest province on the Korean peninsula and transportation systems are relatively poor throughout the province. This province has two cities - Cheon ju, the capital of the province, and Chungju. Though the Busan-Seoul rail-road passes through two guns (Ockchun and Youngdong) these two guns have easy access to other provinces but not to the cities in Chungchong Buk Do province. Hence Naesockli and Euisock myons in Boeun gun were selected as the candidate areas for the control group.

6) Chung Nam

Daijeon and Chunan are the two major cities in this province which are important centers of both railroad and highways. However, areas away from the Busan-Seoul railroad and highway are still not easily reached from these two cities. Thus Seusan gun located on the west coast of Korean peninsula was selected as the candidate gun from which Eunsan and Eumam myons are selected as the candidate areas.

7) Kyeong Nam

This province is located at the most southern part of the peninsula. The province contains three cities, Masan, Kyungju, and Pohang, and surrounds Busan, the second largest city in Korea. Considering the distances from these cities and traffic conditions to these cities, Whenwha and Maeum myons of Kosung gun and Sanam and Yonghyun Myons of Sachun gun were selected as candidate areas.

8) Jeon Nam

From this province, Wolya and Haebo myons in Hampyong gun were selected as the candidate areas, because of their reasonable accessibility to the two cities, Kwangju and Mokpo.

Selection of Control Areas

From this pool of candidate areas, the following areas were finally selected by random sampling (drawing without replacement):

<u>Province</u>	<u>Gun</u> (county level)	<u>Myon</u> (Township level)
Kangwon	Pyunchang	1. Dawha
Kyeong Buk	Geumneung	2. Banglim
Jeon Buk	Booahn	3. Koosung
Kyeonggi	Yeojoo	4. Boobang
Chunnam	Hampyong	5. Hasuh
		6. Wooido
		7. Noongsuh
		8. Kangchun
		9. Wolya
		10. Haebo

Total: Ten Myons

**ANALYTICAL FRAMEWORK FOR EVALUATING HEALTH
DEMONSTRATION PROJECTS**

by

**Ha Cheong Yeon
National Health Secretariat
Korea Development Institute**

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I. INTRODUCTION

The Korean-American Loan Agreement (AID L'AN No. 489-U-092) and low cost health care delivery demonstration projects and presidential decree of the law on the Korea Health Development Institute (KHDI) require an external evaluation of health demonstration projects by the National Health Secretariat of the Korea Development Institute (NHS/KDI). Furthermore, the loan Agreement specifies the submission of the evaluation scheme by concerned agencies as one of the pre-conditions for the delivery of the loan. In order to meet these specific requirements, this paper is prepared to present a proposed evaluation framework for KHDI demonstration projects by the NHS/KDI.

An evaluation of demonstration projects may be carried out in many different types and levels, depending on the nature and objectives of the evaluation. The NHS/KDI evaluation of KHDI demonstration projects will be confined to fulfilling the mandatory requirements of the Agreement, trying not to duplicate the internal evaluation to be conducted by the KHDI. The major focus of NHS/KDI evaluation will be the determination of program efficiency and of goals for the future. Thus, the operation of projects and internal evaluation by the task force of KHDI will be carefully reviewed and screened by the evaluation team of NHS/KDI since these results would be used as inputs to the external evaluation by the NHS/KDI.

The primary objectives of the KHDI demonstration Projects, as expressed in the Loan-Agreement and other legal requirements, are to develop a comprehensive health care delivery system (herein abbreviated, CHCDS) and to demonstrate successfully the multi-gun health care delivery system that would be replicable in other parts of rural Korea. In conformity with this stated goal, the NHS/KDI have developed four broad evaluation objectives.

Four Broad Evaluation Objectives.

1. To measure consumer accessibility to and acceptance of services in the experimental and control areas over time.
2. To assess the performance of health personnel and to study the operations and management of the health delivery system. To measure the efficiency of the KHDI demonstration projects, and to test the economies of scale with respect to KHDI three tiered system and to crosscheck the marginal productivity of the various types of employees.

3. To measure the impact of services on the population's health in terms of changes occurring in base-line status indicators over time, and to compare planned targets with actual achievements.
4. To assess the financial, social, and administrative feasibility of replicating the key features of the health delivery system of the project.

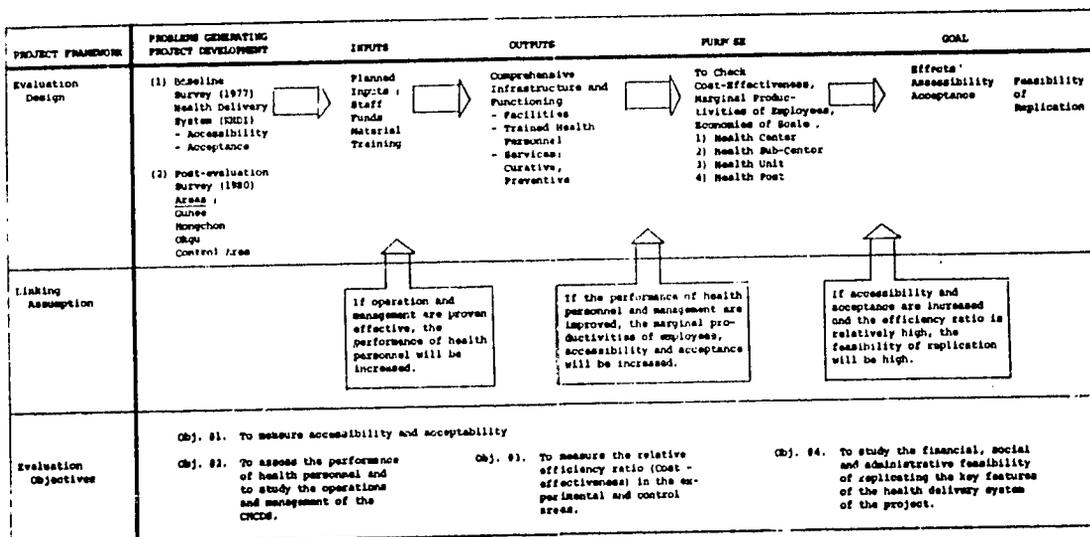
A more detailed discussion of each objective follows in part III. The term project efficiency identifies whether the demonstrated comprehensive health care delivery system meets the efficiency criterion ($E_e = E/C$), where E_e , E , and C are, respectively, the rate of efficiency, effectiveness, and the cost of service, whereas the project replicability assesses the socio-economic implications of the demonstrated CHCDS in order to ascertain its applicability in the rest of the nation.

In the systematic confrontation of theory and fact that is the method of econometrics, the point of departure for this evaluation study on the KHDI projects is an economic model, which has as far as possible been derived from economic theory or past experience. After being expressed mathematically, statistical techniques are used to quantify the parameters of the model and to test hypotheses about its structure. In some instances, however, economic theory and past experience are either poor guides or virtually nonexistent, so common sense must bear the burden of constructing evaluation scheme for Demonstration Projects of KHDI. In still other instances, the data themselves may be rich enough to suggest the models to use. As a research strategy, however, allowing the data to select the model is usually frowned on both because experimentation and because it is often said that a tenacious evaluator will in the end always find what he wants anyway. Yet a certain amount of experimentation is inevitable, since many of the questions surrounding the construction of model are ultimately empirical in nature. In general, the strategy of the present evaluation study will stress flexibility, will not prejudge the results, will lend itself to the sobering test of common sense, and of course, will follow scientific approach. Of necessity the analysis has been tailored to the data at hand--that is, all hypotheses and model could not be formulated before the requisite facts were collected.

This paper will describe cost-effectiveness model and statistical techniques which will be used. The underlying rationale (economic or otherwise) of the hypotheses to be tested is discussed, and several statistical problems that usually accompany the use of cross-section data are tested. In addition, this study presents the structure of empirical data and data themselves that were and will be obtained in several preliminary analysis.

Therefore, the plan of this paper is as follows. In section II, I will present the description of the analytic model being employed, and will discuss its operation. In section III, I will discuss the empirical basis for the evaluation study, and also will discuss the brief description of means of discussion of the empirical application. But at this stage of evaluation study, the results will not be discussed since the demonstration projects are going on 1977-80. In section IV, the general statistics of the demonstration area (Okgu, Gunee, Hongchon) and also the control area which were collected so far will be presented.

EVALUATION DESIGN AND ANALYSIS PLAN



II. EVALUATION MODEL

1. OBJECTIVE No. 1 : Accessibility and Acceptability

To measure consumer accessibility to and acceptance of services in the experimental and control areas over time

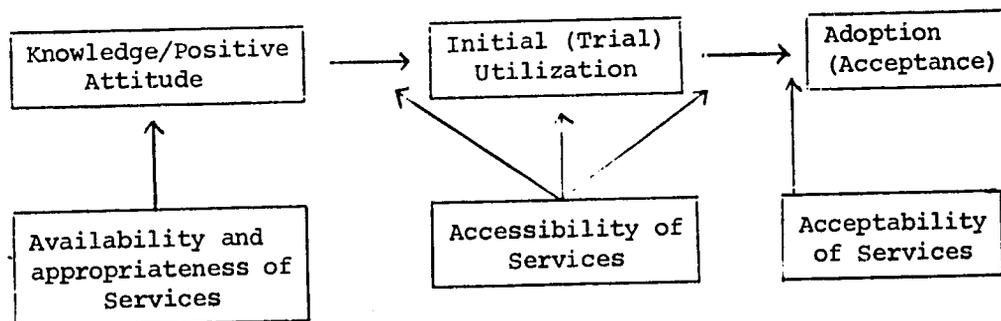
"Accessibility" refers to the actual availability, or presence of services in a given area, and the characteristics of those services which facilitate or obstruct utilization of them by consumers. Accessibility constitutes the factors which make it easy or difficult for consumers to secure services they need. These factors are:

The presence (availability or non-availability) of at least a primary entry point to health services within each village area, backstopped by a referral system which will bring patients to the appropriate level of service required. This will include all government and health post volunteer services. When all components of integration have been completed in a given area, then services are considered "available".

"Acceptance" is considered to be a major behavioral end-point of Project effort which will largely be measured by the patterns of service utilization by consumers. However, acceptance could be viewed as the expected result of interaction between the members of the community and the health services system; it is the final outcome in a chain of behavioral events which constitute the community's response to the innovative health service system. The consumer response follows the classical pattern of innovation diffusion:

Awareness → Interest → Trial → Adoption

This pattern of diffusion is modified slightly to encompass the concepts of importance to the Project. The modified diffusion sequence may be viewed as follows:



Given health services that are both available and appropriate, the potential consumer first becomes aware of these services. Knowledge, then, is the stage when the potential consumer recognizes the availability of services and positive attitude is the potential consumer's favorable subjective evaluation of the services alternatives of which he is aware as available and appropriate to serve his health needs.

Accessibility to services is a necessary element in this sequence to acceptance and is defined to be the presence or absence of factors which facilitate or deter utilization of available health services.

The trial stage, or initial utilization, is the point at which the first service interaction between the consumer and the health care system occurs (a service interaction refers to the consumer reception of any one of the integrated health services which are provided by government service personnel and community health volunteers).

This stage, then is the initial utilization of services derived from the acceptance sequence. It is also the strategic point in determining the probability of adoption, or continued utilization of accessible health services. If the effectiveness of the service and the quality of personal interaction of the service provider are viewed as satisfactory by the consumer during his/or her trial contact, then the likelihood of further interactions is enhanced.

While accessibility is most directly measured by initial utilization of services, acceptance is most directly measured by repeated utilization of services. Both accessibility and acceptance may be measured by the following key indicators:

Target Population Coverage

$$A. \quad \text{Accessibility Ratio} = \frac{\text{Number of target population receiving service at least once in a given year}}{\text{Total number of target population (in the area)}} \times 100$$

$$B. \quad \text{Acceptance Ratio} = \frac{\text{Number of target population receiving service at least 5 times in a given year}}{\text{Total number of target population (in the area)}} \times 100$$

$$\text{or} \quad \frac{\text{Number of patients expressing satisfaction with service received}}{\text{Number of consumers receiving services}} \times 100$$

Acceptability of services will be explored through studies of (1) consumer satisfaction, (2) clinical services at sub-centers, (3) community coordinating committee activity, (4) medical and health centers with MD/CHP, and (5) volunteer services provided.

2. OBJECTIVE No. 2 : Performance of Health Personnel and Health Demonstration Project

To assess the performance of health personnel and to study the operations and management of the health delivery system.

Aside from accessibility to and acceptance of services, the Project wishes to assess the innovative system's operations and management, and the health personnel performance.

"Performance" refers to both the actual tasks completed (per unit of a time) and the actual achievement of health services delivered by type. Indicators to be used include:

1. The ratio of actual achievement of staff to planned targets by type of services.

"Operations and Management of the System" refers to the process toward actual achievement of targets and the cost effectiveness of the system. Indicators to be used include:

1. The ratio of actual achievement of the system and the targets,
 2. Target population coverage by type of facilities,
 3. Proportion of referrals completed,
 4. Cost-effectiveness study (will be discussed later on), and
 5. Cost by type of facilities.
- A. Performance of Health Personnel and Cost-Effectiveness

The model is constructed from equations describing the techniques for delivering specific medical services, the demand for medical services, and the objective of cost minimization. Suppose there are M inputs X_k ($k = 1, \dots, m$) and producing N medical services Q_i ($i = 1, \dots, n$).

and assumed that there are existing production functions for the medical practice relating the amounts of various inputs used to the amount of each service produced. In general form, these functions may be written as;

$$(1) \quad Q_i = F_i (X_1, \dots, X_m) \quad \text{for} \quad i = 1, \dots, N$$

Here, i can be classified as curative and preventive services or can be subcategorized more in detail (see appendix), and also m can be classified as labor and capital inputs or can be subcategorized more in detail (see appendix).

It is convenient to represent the production function for each medical service as a set of linear activities in which each activity represents a fixed technical coefficient defined in terms of both labor and capital inputs to produce medical service.

More specifically, assume there are a total of N activities for curative and preventive services, i.e., A_r ($r = 1, \dots, n$) activities available for producing all the necessary medical services.

In order to identify each activity with its corresponding service. let the activities A_r ($r = 1, \dots, R$) be techniques for producing the first service (Q_1) associate with unit level of operation of each activity ($A_r = 1$) requires input vector;

$$A_r = \begin{bmatrix} L_1 & K_1 \\ \cdot & \\ \cdot & \\ L_m & K_m \end{bmatrix}$$

Where element L_1 K_1 is the amount of resources (Labor and capital) required by activity A_r in producing one unit of the corresponding service. Suppose that the output of service i is required to be P_i units (P_i is the required level of output of service Q_i) ^{1/}

The practice then faces with the following equation.

$$(2) \quad P_i = F(A_1, \dots, A_n)$$

^{1/} More precisely P_i represents the demand for medical service and Q_i represents the supply of medical service.

These relations may be written more concisely as;

$$\sum_{r=1}^n A_r = P_i \quad (i = 1, \dots, n)$$

$$\sum_{r=1}^n P_i = \text{Total medical service demanded}$$

Therefore, the following condition must be satisfied to achieve the success of the comprehensive health care delivery system.

$$\sum_{r=1}^n P_i = \sum_{r=1}^n Q_i \quad (\text{demand} = \text{supply})$$

The practice is assumed to minimize the cost of producing the required vector of medical services. As I mentioned before in the introduction, one of the objectives of this evaluation study is the cross-checking the marginal productivities of various employees by area and also by period.

The condition of the cost minimization should satisfy the following first order condition.

$$(3) \quad AC = MC = \frac{MFC_1}{MP_1} = \frac{MFC_2}{MP_2} \quad \text{-----}$$

Where AC, MC, MFC₁, and MP₁, respectively, represent the average cost and, marginal cost of unit of output, marginal factor cost of input and marginal product of input one for producing one unit of medical service. ^{2/}

In application of the following cost-effectiveness model, the more aggregative notion of a medical service rather than the concept of task is employed. Aside from choosing a proper criterion, it is also necessary to specify an appropriate level of aggregation.

^{2/} See appendix for proof of this equation (3).

The most defensible procedure of aggregation appears to be similarity in the mix of inputs used, since the purpose of the classification is to approximate the underlying production functions as closely as possible. We will follow these dicta for our evaluation study and using the classification criteria adopted on the basis of data availability in both the demonstration and control area.

B. Cost-Effectiveness

The number of patients receiving a medical treatment and its effectiveness in terms of improving health have different implications as commonly used terms. Production costs will be allocated to treatments or activities so that we may compute cost per unit of activity. Such costs are helpful for assessing health service efficiency. We will discuss the method of estimating unit cost and measurement of effectiveness later on. Efficiency 3/ is a ratio concept related either to the units of service or to the units of effectiveness:

$$(4) \quad \text{Efficiency} = \frac{\text{Cost}}{\text{Effectiveness}}$$

The cost/unit of activity is a useful measure where the target population and treatment activities are homogeneous, as in immunization or screening campaigns; but most target population and treatment activities are heterogeneous, and the cost/unit of effectiveness should be used for allocating health resources. For example, consider the costs for treating two different types of hypothetical patients (See Table 1).

The Table 1 demonstrates the inappropriateness of the cost/activity ratio for decision-making when activities are not homogeneous.

Although the cost/patient treated is lower for service type 2, the cost/unit of effectiveness is lower for service type 1, and where resources are limited, patients of type 1, should be treated. Although a full discussion of efficiency 4/ in health service (theoretically and also empirically) is beyond the scope of this paper, the proposed following section of the measurement of effectiveness will be fit meaningfully into an efficiency framework that relates the effectiveness of an activity to its cost.

3/ It is important to realize that the efficiency ratio in this study is a statistical "index" which is a useful measure for comparative analysis only.

4/ In the traditional cost-benefit analysis, units of the both denominator and numerator are same (money terms), but in our study that can not be same. Therefore, the operation of the efficiency ratio will be considered for the purpose of cross-check comparison only

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TABLE 1
EFFICIENCY RATIO

Activity Type	Number Treated (n _i)		Average Effectiveness (S _i)		Total activity Effectiveness * E _i = n _i S _i		Total activity Cost (C _i)		Cost/unit of Activity (C _i /n _i)		Cost/unit Effectiveness (C _i /S _i)	
	1977	1979	1977	1979	1977	1979	1977	1979	1977	1979	1977	1979
Curative Services												
(1) Consultation	80		0.6		4.8		W4,800		W60		W 100	
Drug												
Injection												
Dressing												
Simple surgery												
Laboratory												
X-ray												
Others												
Preventive Services												
(2) Health Education												
Sanitation												
TB Control	80		0.4		3.2		W4,000		W50		W 125	
Family Planning												
MCH												
Vaccination												
Others												

Note : (1) The data on the table are hypothetical.
 (2) * Come from page 20, equation 6.
 (3) 1979's unit cost will be adjusted using 1977 constant price to account for inflation.

C. Measurement of Effectiveness

Analyses of health activities have been conducted in a variety of disciplines, resulting in a variety of terms for productivity, effectiveness, efficiency, benefit, output, profit, and others. Although the differences among these terms are occasionally semantic, more frequently they reflect subtle differences in underlying concept. Therefore, we wish to postulate a precise mathematical function to help clarify the term of effectiveness and serve as a reference point for cost effectiveness analysis.

$$(5) \quad E_T = F(n_i, S_i) \quad \text{for} \quad i = 1, \dots, K$$

Where E_T = total effectiveness in arbitrary health units contributed to a target population.

$i = 1, 2, \dots, K$ = index of health service activities, where each activity is defined to be a specific course of treatment for subcategorized type of patient.

S_i = average effectiveness in health units associated with activity type i and average effectiveness will be defined by index. 5/

n_i = the level of health service activity i , that is the number of patients of a particular disease/demographic type who receive a specified service or course of treatment.

5/ The average effectiveness (S_i) of an activity i is the number of units of improvement in the objective function (E), equation (1), attributable to that activity. The measure of average effectiveness is a weighted index of output based on common units weights, ie., degree of satisfaction of patients which will be gathered from random sample survey and also from base line survey which was done by KHDI in 1976 and will be done in 1980.

$$\frac{\sum_{i=1}^k T_i n_i - \sum_{i=1}^k U_i n_i}{\sum_{i=1}^k T_i n_i}$$

$$\frac{\sum_{i=1}^k S_i n_i}{\sum_{i=1}^k T_i n_i}$$

- T_i : degree of perfect satisfaction (adequate treatment)
 U_i : degree of unsatisfaction (inadequate treatment)
 S_i : index of the degree of patient satisfaction after treatment.
 This coefficient will be between "0" and "1", and can be obtained from page 5 in KHDI internal evaluation p per (adequate and inadequate data).

Maximize

$$(6) \quad E = \sum_{i=1}^k S_i n_i = S_1 n_1 + S_2 n_2 + \dots + S_k n_k$$

In this formula the total effectiveness of a health program system depends on : (1) the total number of cases treated, (2) the average effectiveness measure in the usual terminology of operation research, frequently refers to (S_i), and the number of physical units produced. But in health, the word "effectiveness" inherently involves a value component... not how many persons were treated but how much benefit was contributed to each patient (n_i).

Since effectiveness, in the health sense, has not been defined with sufficient mathematical precision to be used in optimization (maximization) formula, the expression used for the coefficient (S_i) in the basic formula represents the crux of the definitional and measurement problem. However, as a proxy of effectiveness, we will use our definition of average effectiveness, since we want to compare the efficiency ratios to see the results of project in cross-section between demonstration and control areas. In the course of our review we will discuss a series of properties that an ideal effectiveness index should possess. The effectiveness of a health service must ultimately be experienced by a patient with a particular problem. Therefore, the number of patients of a particular type receiving a particular treatment is a countable activity (n_i) that serves as a unit to which effectiveness and cost can be assigned. The service or activity level may be expressed as the number of office, inpatient or outpatient visits, days spent in Health center or similar measure.

Even though in health services, disaggregation of the target population is forced by large differences in diagnostic/demographic characteristics which produces sharp variation in the effectiveness coefficient (S_i) by patient type, we will use the concept of the total effectiveness of a health program where E is some aggregate of varying effectiveness measures S_i for subgroups of a heterogeneous target population for the purpose of cross-section comparison to evaluate the KHDI projects

Although the interdependencies, which we discussed previously in the section II - 2 - A, among the activities may complicate the model and epidemiological constraints may limit the total effectiveness of a program, these factors should not be confused with the units

for defining and measuring effectiveness. The decision about which patients and how many to treat constitutes the decision variable (n_i), whereas the average effectiveness of treatments is a separate parameter (S_i).

In the scope of this paper, the proposed measure of effectiveness should fit meaningfully into an efficiency framework that relates the effectiveness of an activity to its cost.

D. Measurement of Cost

In the case of some multiproduct firms such as Health center, Health subcenter and Health post, not only are products not clearly distinguishable but separate accounting data on costs, inputs, and outputs by product line are not obtainable. The absence of analytical and estimating techniques for this cost of medical service give us a serious problem in the evaluation of demonstration project. In this section, we attempt to make some suggestion to the specification and estimation of multiproduct (medical service) cost functions and this method will be used for our Cost-Effectiveness model in the process of evaluation of the KMDI demonstration projects.

To account for the effect of both the specialized and common cost on demonstration project cost variation, a cost function can be specified appropriately as:

$$C = F(A, P, CH)$$

Like previous effectiveness model, without loss of generality, a simple linear objective function will serve as a reference for discussion:

$$(7) \quad TC = \sum_{i=1}^n A_i P_i + CH$$

$$= A_1 P_1 + A_2 P_2 + \dots + A_n P_n + CH$$

$$UC = \frac{TC}{N}$$

In this formula the total cost of a health program system depends on:

A : the total number of special patients treated.

P : the average cost by type of special patients.

CH : the input cost common to all target patients. 6/

TC : total cost

UC : unit cost per patient

N : $n_1 + n_2 + \dots + n_n$

6/ We will collect the cost on the line of the following concepts.

CH : Buildings, facilities and equipment, Wages for employees, ambulance, administration cost, training cost (OJT), and maintenance cost, etc.

P : The average cost of an specific activity or medical service, ie., cost for medicine and drugs, etc. Here, specific activity cost means that $A_i P_i$ only, that is excluding inputs cost common to all target patients.

I. Another Approach to Check the Cost and Productivity of CHCDS

Before considering the frame work for dealing with the multi-product character of CHCES, we must define two basic units of output measurement and the cost measurement to compare the performance of health demonstration project over time.

A. Cost index

We shall use the case-mix cost index and define it as a Pasche index numbers :

$$C_i = \frac{\sum J n_{ij} C_{ij}}{\sum J n_{ij} C_J}$$

- where
- C_i : case-mix cost index of Health Center
 - n_{ij} : number of cases of type j treated per year in area i
 - C_{ij} : average cost per case of type j in Health Center i
 - C_J : average cost per case of type j in all Health Centers

Cost index is thus an index number comparing the Health Center's cost for specific case types with the corresponding average costs, weighting by the composition of the casemix. C_i^* can also be interpreted in terms of an underlying linear model of Health Center cost; this interpretation provides the basis for the estimation procedure described below. Using a single value to represent the cost of each case type implies that each average cost is constant, i.e., that the total cost function is a linear combination of the individual cost types (total cost in Health Center) is a linear combination of the individual cost types (total cost in Health Center $i = \sum J n_{ij} C_{ij}$).

B. Productivity index

A productivity index provides an additional way of assessing a Health Center's performance. Instead of examining the costs incurred

by the hospital to produce a particular output, we now consider the output which the Health Center produces with a given set of inputs. To simplify the discussion, we disregard the crucial problem of aggregating the Health Center's heterogeneous mix of cases and assume that there is a single-valued measure of output,

$$P_i = \sum_j \lambda_j n_{ij}$$

The λ_j 's indicate the marginal social values of the individual cases; society's marginal rate of substitution of cases of type j for cases of type k is the ratio of λ_k to λ_j (i.e., $MRS_{jk} = \lambda_k / \lambda_j$)

The Health Center's production function may be expressed as:

$$P_i = \varphi (X_{i1}, X_{i2}, \dots, X_{ir}, \xi_i)$$

where the X_{ir} are the inputs used by Health Center i per annum, P_i is the "output" per annum and ξ_i is a random term indicating the output that each Health Center would obtain from given inputs will not be the same. More specifically, at this point we shall assume a Cobb - Douglas production function

$$P_i = A \left(\prod_r X_{ir}^{\alpha_r} \right) \xi_i$$

with no restriction on the sum of the α_j 's. The parameters of equation can be estimated by ordinary least squares if P_i and the X_{ir} are first transformed into logs. We measured a Health Center's productivity as the ratio of its actual output, P_i to the output expected from a Health Center of "average" productivity using that set of inputs, \hat{P}_i . Because we assume that the production function of all Health Centers have the same values for the α_j 's, the measured productivity is equal to $\hat{\xi}_i$.

Thus,
$$P_i^* = \frac{P_i}{\hat{P}_i} = \hat{\xi}_i$$

To summarize, for example (using hypothetical data), we might obtain data as follows :

	<u>Project area</u>	<u>Non-project area</u>
1. Procutivity index	2	1.5
2. Cost index	1	1.5
3. <u>Productivity index</u> Cost index	2	1

Then, the project will be considered successful.

3. OBJECTIVE No.3 : Base-Line Status

To measure the impact of services on the population's health in terms of changes occurring in base-line status indicators over time, and to compare planned targets with actual achievements.

As a longer term result of project interventions, changes in health status are expected. These changes will be measured by the following indicators.

1. Changes in Fertility. Besides the annual rate of increase measure to be used are:
 - a. Crude Birth Rate (CBR)
 - b. Total Fertility Rate (TFR)
 - c. Adjusted Crude Birth Rate (ACBR)

2. Relative Healthiness Indicators

a. Healthy Persons Rates ^{7/}

$$= \frac{\text{No. of healthy Persons}}{\text{Sample Population}} \times 100$$

b. Per Capita Sickness Days During a 15 day Period.

c. Morbidity Rate of Acute Condition

$$= \frac{\text{No. of Acute Conditions During a 15 day}}{\text{Sample Population}} \times 1,000$$

d. Morbidity Rate of Chronic Condition

$$= \frac{\text{No. of Chronic Conditions During a 15 day}}{\text{Sample Population}} \times 1,000$$

4. OBJECTIVE No.4 : Feasibility of Replication

To assess the financial, social and administrative feasibility of replicating the key features of the KHDI Project health delivery system

Replicability refers to the ability or demonstrated potential of the key features of the KHDI Project into the health care system throughout Korea. The key features which have been identified for possible replication by KHDI are the following:

1. The comprehensive health infrastructure,
2. Management and health information system,
3. Cadres of community health volunteers (VHA or VHW),
4. CHP (Community health practitioner), and
5. Active community participation.

^{7/} See page 2 in the 1976 KHDI baseline survey (first draft) for the definition of health person and per capita sickness day.

Analysis of replicability emphasizes cost factors, because whatever success the Project may produce, if the cost of applying its features in other parts of Korea exceeds available government resources, government decision makers cannot support it.

The project emphasized development of a low-cost health delivery system, meaning that the system will include key features replicable nationally within the resources available to the Government. From a management perspective, "low-cost" means that the cost per unit service delivered under the new delivery system will be less than under the former delivery system. It does not mean that health expenditures can be reduced or even remain at present levels, since government budget allocations to health would normally increase. Rather, low-cost refers to increased cost-effectiveness (the increased output will be greater than the increased input) of the comprehensive health delivery system.

Cost indicators which will be used are:

1. Estimating cost per unit service by type
2. Health expenditure by source of fund
 - by type of health center
 - by primary health unit (PHU)
 - by primary health post (PHP)
 - by community health center (CHC)
3. Cost per episode of illness
 - by type of illness
 - by type of health center

Cost is an immediate, concrete concern - but not the only one in considering replication. The integrative features of the project must be adaptable to the KHDI administrative system, correspond to the availability of human resources, and responsive to current social needs.

Assessment of social and administrative feasibility will be made in part, by subjective judgements of Project and other government leaders. More substantive qualitative indicators will also be used:

1. Efforts to remove legal restraints from new categories of community health practitioners (CHP) and provision of salary incentive scales for them.
2. Ministry of Health and Social Affairs approval and adoption of health center/three-tiered system infrastructure for primary health care on a country-wide basis.
3. Level of community participation, to be monitored throughout the life of project.
4. Response to the KHDI project by both public and private providers over time.
5. Incorporation of the key features of the project in the next Country Health Program (1982-1986) of the National Fifth 5 year Economic Development Plan.
6. Change in consumer perception of government health services. With the recent trends in government politics toward stronger popular representation and participation, the government has become more aware of and responsive to needs and demands of the populace. If consumer perception of the government is enhanced by improved delivery of health services to the rural population through the key features of the project, it is assumed that this would promote favorable government decision - making concerning future nationwide replication.

Upon the completion of the demonstration projects, KHDI will make the recommendations on the models of low-cost comprehensive health care delivery system for national replication. These recommendations could be the models demonstrated or the modifications of the demonstrated models. In either case, KHDI will specify the resource requirements, inclusive of the necessary inputs of personnel, supplies, equipment and facilities, which will be the basis for estimating the total resource requirements for national replication. Should KHDI recommend the modified versions for replication, the plausibility of these models must be ascertained in the light of the demonstration experiences.

A. Tests for National Replicability

In this evaluation framework, the recommended or demonstrated models should meet two tests for the feasibility of national replication. The first test is economic feasibility to show that the total resource requirements for their replication are within the possible range of an

extended effort for comprehensive health care by the government. The second test concerns with the behavioral implication of the recommended and demonstrated models for comprehensive health care delivery system. In order to be replicable, the services from these models should be acceptable to the community and the responsible ministry should be conducive to adopt the recommendations as its policy and to incorporate their national replication into the formal health sector plan. In assessing the project replicability, the economic feasibility is regarded as the necessary condition, but not necessarily the sufficient condition, unless the socio-political feasibility is established and met.

B. Economic Feasibility

Given with the resource requirements for the recommended or demonstrated model (3) for national replication by KHDI at the concluding year, the evaluation team at NHS/KDI will first estimate the number of feasible sites for replication by each type of demonstration. Then, the time span required for gradual implementation of the demonstration models will be determined referring to the guidelines of the Fifth Five-Year Economic Development Plan, 1982-1986.

The total resource requirements for the scheduled replication can easily be computed by multiplying the unit costs of relevant input elements to the numbers of units of such inputs and by summing the products up. However, these resource requirements will have to be estimated in two broad categories of fixed investment and recurring expenditures because of the difference in their financing mechanism. Of recurring expenditures, the expenditures for training will only be allowed for no more than necessary lead time for the existing and educational institutions to plan for the necessary curriculum changes, to institutionalize them and to train their graduates under the new curriculum.

In order to derive the net resource requirement, which is the net investment requirement for national replication, the estimated value of existing underutilized and idle facilities within the public sector and the outstanding public and private expenditures on health care service need to be deducted from the total resource requirement. In fact, the difference between the total resource requirement and the deductions of the incurred expenditures and investment will be the additional government and private outlays for replication, which is subject to the analysis of economic feasibility. In short, the net resource requirement for a given year over the period of national replication may be expressed as follows:

$$NRR_t = TRR_t - (GE_t + PE_t + VEF_t)$$

where

NRR_t : Net resource requirement for year t,

TRR_t : Total resource requirement for year t,

VEF_t : Value of existing public investment facilities absorbed in year t,

GE_t : Government expenditures on health care in year t,
and

PE_t : Private expenditures on health care year t.

To establish the economic feasibility of national replication, the annual net resource requirement will be compared against the increases in the annual investment in the health sector over the period of the Fifth Five-Year Economic Development Plan. Should the net resource requirement prove to be less than the increases in the planned investment, then the national replication is undoubtedly economically feasible. Otherwise, the magnitudes of additional effort primarily by the government sector and to a lesser degree by the private sector should further be analyzed by carefully assessing the trade-off between the additional investment required and the extended availability and use of health care services by the general public.

C. Socio-Political Feasibility

Even with the ascertained economic feasibility as discussed above, comprehensive health care services provided by the recommended and/or demonstrated health care delivery system must be acceptable to the community residents and be consistent with the public policy and development strategy of the government. To a certain extent, these considerations are implied in the preceding analysis of economic feasibility. Without the acceptance by the community residents and their active participation, no positive results would transpire out of the analysis of economic feasibility and, with such beneficial and economically feasible results, there would be little difficulty persuading the policy makers to adopt the recommendations under the prevailing favorable climate in short-run.

The important consideration in this context is that of long-run ramifications that would follow after the national replication as a lasting health care institution.

In order to obtain the analysis for socio-political feasibility, NHS/KDI will collaborate with KHDI in conducting regular surveys during the demonstration project period in order to obtain the data and information relevant to the following attitudinal changes:

- (1) Whether or not the community residents accept community health practitioner, community health aide, and village health agent as providers of health care services;
- (2) Whether or not people are willing to utilize the facilities of the CHCDS and, if they are not, what are the reasons;

Based on the findings on attitudinal changes through the regular survey, the level of acceptance by general public will be forecasted as a basis for socio-political feasibility. At the same time, the progress of and findings from the KHDI project will be continually brought to the attention of high level government officials throughout the demonstration period for the formulation of follow-up policies, particularly the national replication.

III. EMPIRICAL EVALUATION DESIGN AND METHODOLOGY

With the evaluation objectives, concepts, and indicators identified PART II, it is clear that the scope of the evaluation activity must include:

(1) evaluation of the health delivery system with particular reference to accessibility (both real and perceived) and acceptability of services provided, performance (efficiency and effectiveness) of the system, and the cost-effective feasibility of replicating the key features of the system; (2) evaluation of the health status, health knowledge, and practices of the population under surveillance; and (3) evaluation of the environment in which both the delivery system and the community interact.

The general approach taken incorporates the following type of evaluation: (1) impact (outcome) evaluation, focussing on measurements of impact-referenced, objectively-verifiable indicators relating primarily to the health status and behavioral changes expected to occur in the population served; (2) process evaluation, focussing on measurements of targetted project outputs, the network of project innovations, features, and integrated functions, and their linkages: a potentially-replicable feature of this process evaluation will be an innovative management information system to promote appropriate action-oriented decision-making and effective management of the integrated health services delivery system; and (3) structural evaluation, focussing on measurements of inputs and the organization of the CHCDS.

The evaluation design is basically a quasi-experimental pre-test, post-test design; experimental areas and comparable control areas have been selected to identify and differentiate the changes due to the Project interventions over time, and the changes due to other uncontrolled events.

There are three sequentially phased experimental areas (Okgu, Gunee, Hongchon) for implementation and these will be matched with one aggregate control area (actually we have 5 myons).

The application of the proposed model for the evaluation of demonstration projects requires a substantial volume of highly detailed information, estimates must obtained of the effectiveness

and cost of medical care. In order to accomplish the evaluation objectives, the evaluation design incorporates a variety of component studies which include the following: KHDI 1976 base-line survey, KHDI post evaluative survey in 1980, KDI evaluation team's direct observation of the health center surroundings from field study, and KHDI the vital events monitoring and management information systems (MIS). Little empirical research will be focused on the activities of the three-tiered care practice to test the hypothesis of the economies of scale. In other words, we want to test whether the size or scale volume, (Health center, Health subcenter, Health post) have positive and negative impacts on unit cost. A major effort of this study, consequently, has been to conceptualize the cost-effectiveness analysis in an empirically interesting fashion to devise a data collection protocol, and to estimate the parameters of the model from the data collected.

This section briefly reviews the major features of this effort and describe the empirical basis for subsequent analysis.

Two sets of parameters must be estimated in order to apply the model of cost-effectiveness. First, the cost of medical services expected in a particular type of community must be identified. Secondly, the effectiveness of medical care must be described. Detailed informations on the activities of a general practice supplies the necessary data for estimating each set of parameters. The effectiveness for medical services may be identified from information on the model II - 2 - C.

The cost of medical service may be identified from information on the model II - 2 - D. In the interest of efficient data collection and maximum information, these data requirements will be satisfied simultaneously by using the KHDI 1977 base-line survey and a post evaluation survey in 1980 and some items of information will be obtained from KDI evaluation team's direct observation of the health center surroundings and interviews on the demonstration project and also the control area to cross-check the results. The instrument and statistical table will be designed to profile the activities of practice in terms of services and detailed task to reveal evaluation scheme as fully as possible (See appendix).

The observers also will obtain less detailed information (age, sex, status of visit, income distribution) on all target population or on all target patients entering the practice during the observation period. These data exceed the immediate requirements of the model but will be obtained in order to provide the basis for editing the data where information are lacking and to facilitate future research in which the demands for medical service might be determined endogenously as functions of patient and community characteristics.

Cross section techniques will be used to evaluate the activities observed in detail because of infeasibility of recording activities in continuous time.

Work sampling (cross section comparison) obviously implies that no single one shot observation will provide a complete, accurate description of any activity. Therefore, we will compare quantified subjective evaluation indicators by area and also by period.

In applications of the model, the more aggregate notion of a medical service rather than the concept of a task is employed to avoid the difficulties of the data collection. The concept of a service is substantially more restrictive than that of a task in the context of the model. It restricts delegation of tasks to subset of these tasks which are known to be delegated in order to assure that delegation is acceptable medically in producing a particular service. The statistics which will be needed for the final evaluation paper by NHS/KDI should be collected based on the models II - 2 - B, II - 2 - C and II - 2 - D. The estimates of the number of patients of treatment by service type are shown in table A - 3. This list of services captures about 80% of the total activities of the representative practice. The remaining activities were not classifiable with available information. so they will be in the category of others.

The prices of labor inputs into medical care vary substantially, however in the application of the proposed evaluation scheme, the normal and customary monthly salaries reported in table A - 5 are regarded as costs of labor input so we are assuming the wages for various employees are given exogenously.

In the statistical estimation of effectiveness and cost, one of the most important tasks is the development of classification schemes for medical services and in the development of classification schemes, there are lots of interrelated problems which must be considered such as selection of proper criteria and level of aggregation. On the basis of both effectiveness and cost function models, II - 2 - C and II - 2 - D, our classification schemes of specific activity are based on the availability of data collection of the demonstration project and also control areas.

The interpretation of the empirical evaluation data is a process of comparing selected quantified indicators of events with pre-established standards, and then analyzing the results in a following manner.

1. Application of the Model : (Means of Discussion)

Major evaluation findings will be derived from systematic analysis and synthesis of data drawn from all evaluation components; however, separate analysis will also be done within each individual study. The analyses will be directly primarily at testing hypotheses and establishing relationships among the major variables suggested in the four objectives discussed previously. The dimensions of analysis will thus provide the means to investigate the linkages between (1) base line conditions (2) inputs, (3) outputs, (4) effects, (5) impacts, and (6) replicability which are hypothesized in the project design.

2. Analysis 1 : accessibility and acceptability ratio

The measurement of consumer accessibility to and acceptance of services in the experimental and control areas over time.

The objective of this analysis is to test major following assumption of the model : "If the numbers, distribution and performance of health care personnel are increased, then consumer accessibility to and acceptance of services will increase". This major assumption leads to two hypotheses:

Hypothesis A

Increasing the number and distribution of health care provider will increase access of consumers to health services.

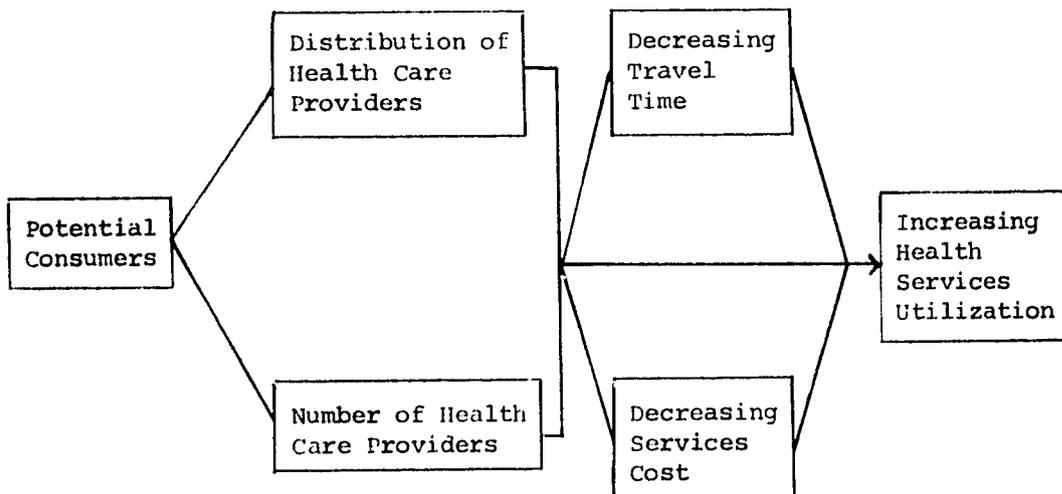
The project is expanding the reach of health services by training a large number of community health volunteers (VHA) and deploying them in every village. These volunteers, together with re-oriented government health workers and newly trained community health practitioners (CHP) are expected to strikingly increase consumer access to services. That is, by increasing the availability of health care providers, travel time and service costs should decrease leading to increased utilization of services.

Hypothesis B

Increasing the acceptability of health services will increase consumer acceptance (of these services)

Increasing the number of health care providers to reach every region will make services more accessible to rural consumers. But by recruiting and training villagers to be community health volunteers (VHA),

by re-orienting existing health workers, by adding new clinical service (by CHP and extended VHA) desired by the villagers, and by seeking support from village leaders, it is expected that consumers will be more satisfied with health services than in the past. This increased satisfaction with services (acceptability) will lead to further and continued utilization of the available services (acceptance). The analysis be carried out to test this hypothesis will be illustrated as follows:



These are operationalized as follows:

<u>Variable</u>	<u>Indicator</u>
(1) Distribution of Health Care Providers	$\frac{\text{No. of Myons with Government Health Care Provider}}{\text{Total No. of Myons}}$
(2) Number of Health Care Providers	$\frac{\text{No. of Target Population in area}}{\text{No. of Health Care Providers in That Area (Volunteer + Health Personnel)}}$

Health Service
Utilization

(3) Accessibility Ratio
$$\frac{\text{Number of Target Population Receiving Service at Least once in a Given Year}}{\text{Total Number of Target Population (in that area)}} \times 100$$

(4) Acceptability Ratio =
$$\frac{\text{Number of Target Population Receiving Service at Least 5 Times in a Given Year}}{\text{Total Number of Target Population (in that area)}} \times 100$$

or
$$\frac{\text{No. of Patients Expressing Satisfaction with Services Received}}{\text{No. of Patients Receiving Service}} \times 100$$

Changes in these variables will be compared between the demonstration and control areas, and in the same area, over time by cross tabulation of the significant variables; as follows:

TABLE 2

1. Accessibility and Acceptability Ratios

Area/Time Variable	OKGU		GUNEE		HONGCHON		CONTROL AREA	
	1977	1979	1977	1979	1977	1979	1977	1979
Distribution of Health Care Providers	0.5	0.9						
Number of Health Care Providers	270	150						
HEALTH SERVICE UTILIZATION								
Accessibility Ratio	5	10						
Acceptance Ratio	0.5	0.8						

Note : The data on the table are hypothetical.

All tabulations of analysis I, coupled with tests of significance, will highlight the differences of achievement in the demonstration and control areas over time as well as changes in the same area. If the indices for variables (1), (2), and (3) in demonstration areas in 1979 prove to be larger than in 1977, and the 1979 indices are larger than control areas, and also the index for variable (2) in demonstration areas in 1979 prove to be smaller than in 1977, and the 1979 indices are smaller than in the control areas, then the KHDI demonstration project will be considered successful.

3. Analysis II : Performance of Health Personnel and Health Demonstration Project:

To assess the performance of health personnel and to study the operations and management of the health delivery system.

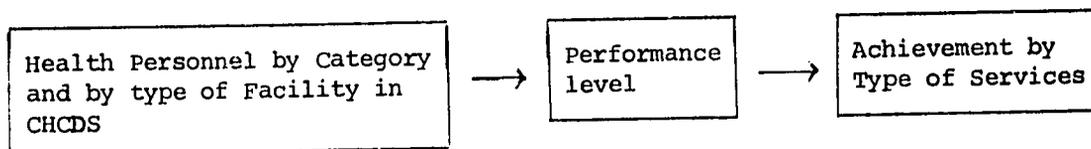
Assessing operations and management relates to testing following assumption: "If a comprehensive health infrastructure is established, then the operation and management system will be more effective".

Assessment of the performance of health personnel relates to testing the following major assumption: "If the operation and management system are effective, then the performance of health personnel will be increased".

Hypothesis A

Health personnel trained by KHDI supervised in a comprehensive health delivery system will perform at higher level than those in existing system.

The analysis related to this hypothesis is illustrated by the following diagram:



Indicators and data are listed as follows:

<u>Variable</u>	<u>Indicator</u>
Achievement	(1) The ratio of actual achievement and planned targets.
Coverage	(2) Target population coverage by type of facilities.
Referral	(3) Proportion of referrals completed

Cross tabulation will also be made to show changes over time.

TABLE 3
Performance Level

Area/Time Variables	OKGU		GUNEE		HONGCHON CONTROL AREA			
	1977	1979	1977	1979	1977	1979	1977	1979
(1) Achievement	0.5	0.7						
(2) Coverage	100	200						
(3) Referral	0.5	0.8						

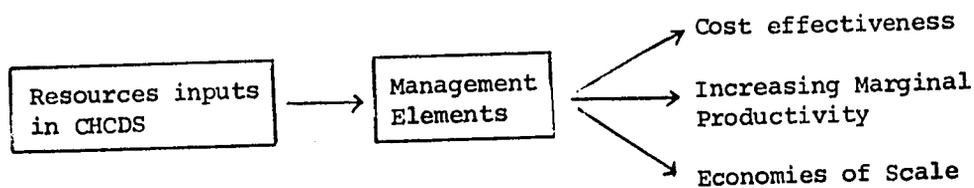
Note: The data on the table are hypothetical.

If the indices for variables (1), (2), and (3) in demonstration areas in 1979 prove to be larger than in 1977, and the 1979 indices are larger than control areas, then the KHDl demonstration project will be considered successful.

Hypothesis B

The operation and management system in comprehensive health delivery system will be more effective than existing system.

The analysis be carried out to test this hypothesis will be illustrated as follows:



A. Efficiency Ratio (Cost-effectiveness Study)

The basic data used to calculate the efficiency ratio will be obtained on a sample basis from the 1976 KHDI baseline survey, a post-evaluative survey in 1980, from direct observation of the health center surroundings, and interviews taken from the KDI evaluation team's field study.

TABLE 4
Efficiency Ratio (1)

Area	Efficiency Ratio ($E_e = E/Uc$)					
	Effectiveness		Unit Cost		Efficiency Ratio	
	1977	1979	1977	1979	1977	1979
Gunee	E ₁	E ₅	C ₁	C ₅	Eg ₁	Eg ₂
Okgu	E ₂	E ₆	C ₂	C ₆	Eo ₁	Eo ₂
Hongchon	E ₃	E ₇	C ₃	C ₇	Eh ₁	Eh ₂
Control area	E ₄	E ₈	C ₄	C ₈	Ec ₁	Ec ₂

Columns 5 and 6 will then be calculated, and these quantified subjective evaluation indicators will be cross-checked by area (demonstration and control) and also by period (from 1977 to 1979).

If either the efficiency ratio in 1979 proves to be larger than that in 1977, or if the efficiency ratios in demonstrated areas are larger than in control areas, then the KHDI demonstration project will have been a success.

B. Economies of Scale

The basic data used to calculate the efficiency ratio by scale of different health service units will be obtained on a sample basis from the KHDI post-evaluation survey in 1980, from direct observation of the health centers, health sub-centers, and health posts' surroundings, and from interviews taken from the KDI evaluation team's field study.

TABLE 5

Efficiency Ratio ($E_e = E/Uc$) (2)

Scale	Area/Time	OKGU 1979	GUNEE 1979	HONGCHON 1979	CONTROL AREA 1979
Health center		E ₁	E ₄	E ₇	E ₁₀
Health sub-center		E ₂	E ₅	E ₈	E ₁₁
Health post		E ₃	E ₆	E ₉	E ₁₂

Columns will then be calculated and these quantified subjective evaluation indicators cross-checked by the scale of health service units to discover whether there are significant differences in the efficiency of health facilities. If there are economies of scale in medical service (production), the efficiency ratio in the larger health centers will be larger than that in smaller-scale units. However, our hypothesis is that the efficiency ratio in the larger health centers is significantly less than in smaller-scale units, because of the relative under-utilization of employee time and capital stock in rural primary health care.

C. Marginal Productivities of Employees

The figures in the columns will be calculated on the basis of the first order condition which was discussed in equation (3) and in the appendix. The basic data used to calculate the marginal productivities will be obtained from the results of the questionnaire which will be distributed by the KDI evaluation team to officials in health centers.

TABLE 6

Marginal Productivity

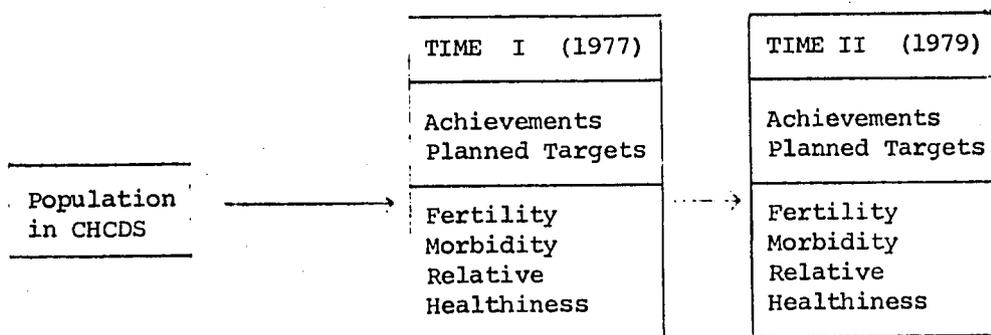
Employee	Area/Time	Okgu		Gunee		Hongchon		Control	
		'77	'79	'77	'79	'77	'79	'77	'79
Physician		MP ₁	MP ₂	MP ₁	MP ₂	MP ₁	MP ₂	MP ₁	MP ₂
Nurse		Mn ₁	Mn ₂	Mn ₁	Mn ₂	Mn ₁	Mn ₂	Mn ₁	Mn ₂
Nurse aid		Ma ₁	Ma ₂	Ma ₁	Ma ₂	Ma ₁	Ma ₂	Ma ₁	Ma ₂
Midwife		Mm ₁	Mm ₂	Mm ₁	Mm ₂	Mm ₁	Mm ₂	M _{m1}	Mm ₂
X-ray technician		Mx ₁	Mx ₂	Mx ₁	Mx ₂	Mx ₁₂	Mx ₂	Mx ₁	Mx ₂
Lab.-technician		Ml ₁	Ml ₂	Ml ₁	Ml ₂	Ml ₁	Ml ₂	Ml ₁	Ml ₂
Dental-technician		Md ₁	Md ₂	Md ₁	Md ₂	Md ₁	Md ₂	Md ₁	Md ₂
Health worker		Mh ₁	Mh ₂	Mh ₁	Mh ₂	Mh ₁	Mh ₂	Mh ₁	Mh ₂
Administrative worker		Mw ₁	Mw ₂	Mw ₁	Mw ₂	Mw ₁	Mw ₂	Mw ₁	Mw ₂
Others		MO ₁	MO ₂	MO ₁	MO ₂	MO ₁	MO ₂	MO ₁	MO ₂

Columns will then be calculated and these quantified subjective evaluation indicators of marginal productivities will be cross-checked by area and also by period.

4. ANALYSIS III : HEALTH STATUS

The measurement of the impact of service on the population's health in terms of changes occurring in base line status indicators over time, and comparing of planned targets with actual achievements

Major assumption is : "If accessibility and acceptance are increased, then fertility, morbidity and relative healthiness indicators will be changed", will be tested through this analysis. The following diagram illustrates the analytical procedure.



The data sources are as follows:

<u>Variables</u>	<u>Indicator</u>
Fertility	(1) Crude Birth Rate (CBR) (2) Total Fertility Rate (TFR) (3) Adjusted Crude Birth Rate (ACBR)
Morbidity	(1) Morbidity Rate of Acute Condition (2) Morbidity Rate of Chronic Condition
Relative Healthiness	(1) $\frac{\text{No. of Healthy Persons}}{\text{Sample Population}} \times 100$ (2) Per Capita Sickness Days

Analysis also made to measure changes over time will be suggested by the following cross-tabulation.

TABLE 5
Health Status

Variable	Area/Time	OKGU		GUNEE		HONGCHON		CONTROL	
		1976	1979	1976	1979	1976	1979	1976	1979
(1) C B R		19.5	18.0*	18.8		23		20.8	
(2) T F R		3.4	3.0*	3.5		4.1		3.6	
(3) A C B R		25.2*	24.9*	25.3*		28.8*		27.9*	
(4) Morbidity (acute)		110.9	100	87.6		147.3		96.0	
(5) Morbidity (chronic)		100.3	90*	123.4		161.3		152.7	
(6) Healthiness		78.9	90*	78.9		68.8		76.0	
(7) Per capita Sick days		2.5	2.0	2.6		3.7		2.9	

Note : (1) Data in column in 1976 are come from KHDI 1977 base line survey.

$$\text{C B R (crude birth rate)} = \frac{\text{No. of births}}{\text{mid-year population}} \times 100$$

T F R (total fertility rate) : sum of the age-specific birth rates for women aged 15-49, multiplied by five, and divided by 1,000.

A C B R = adjusted crude birth rate

(2) Data with stars (*) are hypothetical.

If the indices for variables except healthiness in demonstration areas in 1979 prove to be smaller than in 1976, and the 1979 indices are smaller than in the control areas then the KHDI demonstration project will be considered successful.

5. ANALYSIS IV : Tests for National Replicability

The assessment of the financial, social and administrative feasibility of replicating the key features of the comprehensive health care delivery system.

Analysis of replicability is a much more qualitative, subjective process, but it will derive supportive data from other parts of evaluation. One major assumption is: "If the project effectiveness is high then the replicating feasibility will be high". However, the crux of assessing the feasibility of replication is not necessarily to prove hypotheses, but rather to clearly and persuasively demonstrate to government professional and political leaders that the features are compatible with government budget limitations (central or local), bureaucratic forms and budget limitations, and that the resulting achievements and benefits make replication in other parts of the country highly desirable.

At the first level, the project will establish that the existing health delivery system can indeed be modified to incorporate the key KHDI comprehensive features. This is confirmed simply by the completion of infrastructure reorganization, the training and deployment of various innovative categories of health providers, and the development of community participation. Secondly, analysis of the short-term system effects of CHCDS discussed under analyses I and II, will serve to demonstrate the unique achievements of the project. This will also include the analysis of cost-effectiveness.

IV. CONCLUSION

The KHDI project has now entered into beginning of its operation and every effort is now being made to assemble information needed for modifying and strengthening the delivery system for the remainder of the nation. Yet a certain amount of experimentation is inevitable, since many of the questions surrounding the demonstration projects are ultimately empirical in nature. Therefore, the strategy of present operational and evaluation study has to stress flexibility, and should not prejudge the results. Therefore, the paper which we present here is not the final version of the evaluation scheme, but the intermediate evaluation scheme for discussions only. The foregoing discussion outlined a procedure (for the research phase) which will enable the KDI staff to proceed systematically in developing evaluation scheme to ultimately improve the delivery of rural health service. It is not an easy task, for much of the hard data is not currently available and it will take time to apply this theoretical framework to a real world situation. But the end objective warrants our earnest efforts in proceeding as meaningfully as we can. We are helping to develop national health policy, and in the long run, policy decisions can only be as good as the data upon which they are based.

The progress to date in mobilizing community resources and developing community health practitioner by KHDI for primary health care is very encouraging. However, there are three major tasks that remain: to find the means to inculcate the general population with the concepts of primary health care, to gain the support of national leaders for the organizational changes that are needed to support the primary health care effort, and to develop and appropriate technology for primary health care. If these are accomplished rural people will be helped to help themselves. "If rural people are helped to help themselves... a genuine development will insure".

A firm national policy on primary health care for the underprivileged will involve a virtual revolution in most health service system. Fundamental changes of this kind in health care in Korea will require correspondingly far-reaching changes in the organizational structure and management practices of the health services. The entire health service will need to be mobilized to strengthen and assist the primary health workers by providing them with training, supervision, referral facilities, and logistic support, including a simplified national health technology appropriate to their needs.

The Sequence of Analysis

According to our time-phased evaluation plan, analysis will be completed in three stages:

First Stage - Comprehensive analysis of OKGU, GUNEE, HONGCHON and control area base-line data and findings synthesized from all evaluation components. This analysis will also indicate the level of comparability between experimental and control areas. The first stage will be completed by June, 1978.

Second Stage - After follow-up data collection and amendment of analysis scheme if it is necessary, changes occurring over time in base-line measures in both experimental and control areas will be analyzed, again synthesizing data from all component sources. This stage will be completed by June, 1979.

Third Stage - In this stage, base-line data will be compared with the data from post-evaluative survey to be conducted in 1980. A final comprehensive analysis of base-line and follow-up study will also be made, followed by final interpretations and report writing. This stage will be completed in mid-1980.

V. APPENDIXES

APPENDIX I Proof of First Order Condition

APPENDIX II Statistical Tables
Operational Definition of Curative
and Preventive Services

APPENDIX I

$$\text{Proof : } AC = MC = \frac{W_1}{MP_1} = \frac{W_2}{MP_2}$$

From equation (I), and we are assuming capital stock is fixed,

$$(I) Q = F(L_1, L_2, \bar{K})$$

Let us say TC is the total cost of a unit of medical service

$$(2) TC = C_{L1} + C_{L2} + \bar{K}$$

Here, C_{L1} : cost of type L employee

C_{L2} : cost of type L employee

$$TC = \frac{C_{L1}}{L_1} L_1 + \frac{C_{L2}}{L_2} L_2 + \bar{K}$$

$$TC = W_1 L_1 + W_2 L_2 + \bar{K}$$

Here, W_1 : average factor cost of L_1

W_2 : average factor cost of L_2

The objective of the health center is to minimize the total cost subject to the given output, Q .

Using the Lagrange multiplier,

$$L = W_1 L_1 + W_2 L_2 + \bar{K} + \lambda [Q - F(L_1, L_2, \bar{K})]$$

Here, λ = marginal cost $\frac{1}{e}$

$$(3) \quad \frac{dL}{dL_1} = W_1 + L_1 \frac{\partial W_1}{L_1} - \lambda MP_1 = 0$$

$$(4) \quad \frac{dL}{dL_2} = W_2 + L_2 \frac{\partial W_2}{L_2} - \lambda MP_2 = 0$$

From equation (3) and (4);

$$W_1 \left(1 + \frac{1}{e_1}\right) = \lambda MP_1$$

$$W_2 \left(1 + \frac{1}{e_2}\right) = \lambda MP_2$$

1/ R.G.D. ALLEN "Mathematical Analysis for Economists"
St. Martins Press, New York 1970 pp 500-508.

Here, e_i : the price elasticity

$$e_1 = \frac{\partial L_1}{\partial W_1} \frac{W_1}{L_1}$$

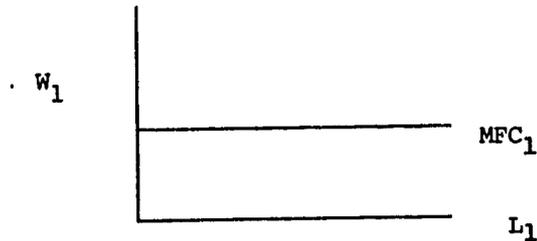
$$W_i \left(1 + \frac{1}{e_i} \right) = MFC_i \quad (i = 1, 2)$$

$$\therefore MFC_1 = \lambda MP_1$$

$$MFC_2 = \lambda MP_2$$

$$(5) \quad = MC = \frac{MFC_1}{MP_1} \quad \frac{MFC_1}{MP_1}$$

If the output varies while the wages of the factors remain fixed (We are assuming that all the wages of various type of employees in Health center are given exogeneously), average cost and marginal cost are equal.



$$MFC_1 = W_1 \left(1 + \frac{1}{e_1} \right)$$

Here, $e_1 = \dots$

$$\therefore MFC_1 = W_1$$

From equation (3),

$$(6) \quad \lambda = MC = \frac{W_1}{MP_1} = \frac{W_2}{MP_2}$$

We are assuming the production function is linear homogeneous, and the price of factor is constant

$$AC = \frac{W_1 L_1 + W_2 L_2}{Q}$$

From equation (6)

$$W_1 = MC \cdot MP_1$$

$$W_2 = MC \cdot MP_2$$

$$AC = MC \frac{(L_1 \cdot MP_1 + L_2 \cdot MP_2)}{Q}$$

$$Q = L_1 MP_1 + L_2 MP_2$$

$$\therefore AC = MC$$

$$\therefore AC = MC = \frac{W_1}{MP_1} = \frac{W_2}{MP_2}$$

APPENDIX II. STATISTICAL TABLES

APPENDIX TABLE A-1

GENERAL CHARACTERISTICS OF OKGU AREA

Characteristics/Year	1973	1974	1975	1976
Area (Km ²)	330.36	330.36	330.36	330.36
No. of Myon (Eup)	10	10	10	10
No. of Ri	79	79	79	79
Total Population	120,920	120,352	118,858	116,686
Male	60,736	60,415	59,302	58,406
Female	60,184	59,937	59,556	58,280
No. of Household (A)	20,670	20,411	21,597	21,027
No. of Farm Household (B)	17,886	16,185	16,577	16,089
B/A (%)	78.3	79.2	76.8	76.5
Average Family Size	5.8	5.9	5.3	5.5
Population Density (Km ²)	361	364	349	353
Telephone Subscribers	1,026	1,118	1,209	1,371
Set per 1,000 persons	8.5	9.3	10.2	11.7
Newspaper per 1,000 persons	34.0	34.5	40.8	37.9
Radio "	152.1	175.1	197.5	242.5
TV Set "	10.0	14.9	23.8	41.8
Water Service Population	9,837	10,287	13,100	14,542
Water Supply Service Ratio (%)	8.1	8.5	11.0	12.5
Amount of Local Tax (1,000 won)	208,415	296,327	530,788	753,623
Annual Expenditure of General Budget (1,000 won)	776,291	989,405	1,214,902	1,412,366
Annual Health Expenditure (1,000 won)	49,882	36,519	50,809	76,993

Sources : Okgu Gun, Statistical Yearbook of Okgu Gun, 1974, 1975, 1976, 1977

GENERAL CHARACTERISTICS OF GUNEE AREA

Characteristics/Year	1973	1974	1975	1976
Area (Km ²)	608.99	608.99	608.99	608.99
No. of Myon	8	8	8	8
No. of Ri	92	92	92	92
Total Population	70,451	68,829	67,269	66,103
Male	35,490	34,550	34,031	33,212
Female	34,960	34,279	33,238	32,891
No. of Household (A)	12,494	12,425	12,709	12,698
No. of Farm Household (B)	10,668		10,198	10,270
B/A (%)	85.4		80.2	80.9
Average Family Size	5.6	5.5	5.3	5.2
Population Density (Km ²)	117.8	113.2	110.5	108.5
Telephone Subscribers	653	769	870	938
Set per 1,000 persons	9.3	11.2	12.9	14.2
Newspapers per 1,000 persons				26.8
Radio	137.0	147.9	134.7	150.6
TV Set	5.6	11.7	23.5	38.4
Water Service Population	2,195	2,501	3,100	3,235
Water Supply Service Ratio (%)	3.1	3.6	4.6	4.9
Amount of Local Tax (1,000 won)	77,321	91,416	125,867	204,896
Annual Expenditure of				
General Budget (1,000 won)	412,637	475,814	858,815	1,061,519
Annual Health Expenditure				
(1,000 won)	22,303	26,695	33,813	70,763

Sources : Gunee Gun, Statistical Yearbook of Gunee Gun,
1974, 1975, 1976, 1977.

GENERAL CHARACTERISTICS OF HONGCHON APEA

Characteristics/Year	1973	1974	1975	1976
Area (Km ²)	1,673	1,718.8	1,718.8	1,718.8
No. of Myon (Eup)	9(1)	9(1)	9(1)	9(1)
No. of Ri	105	105	105	105
Total Population	121,828	123,134	120,790	177,390
Male	62,517	61,916	61,916	60,361
Female	59,311	60,218	58,874	59,029
No. of Household (A)	21,258	21,208	22,019	21,761
No. of Farm Household (B)	14,593	12,511	14,134	14,432
B/A (%)	64.8	60.0	64.2	66.3
Average Family Size	5.7	5.8	5.5	5.3
Population Density (Km ²)	72.8	71.6	70.2	68.2
Telephone Subscribers	714	964	1,737	1,963
Set per 1,000 persons	5.9	7.8	14.4	16.7
Newspapers per 1,000 persons	38.5	42.2	56.4	66.7
Radio	136.0	147.3	171.7	172.1
TV Set	5.3	9.8	13.1	21.6
Water Service Population				12,248
Water Supply Service Ratio (%)				10.4
Amount of Local Tax (1,000 won)	83,218	121,840	158,882	233,998
Annual Expenditure of General Budget (1,000 won)	590,663		1,088,596	1,507,392
Annual Health Expenditure (1,000 won)	32,009	19,916	54,224	90,819

Sources : Hongchon Gun, Statistical Yearbook of Hongchon Gun, 1974, 1975, 1976, 1977.

APPENDIX TABLE A-2

HEALTH FACILITIES AND PERSONNEL IN OKGU AREA

Classification/Year	1973	1974	1975	1976
Health Facility				
Hospital	-	-	-	-
Clinic (Limited)	8(4)	4(4)	5(4)	5(4)
Dental Clinic (")	-	-	-	-
Herb Clinic (")	1(1)	-	-	-
Private Midwifery Station	-	-	-	-
Health Center	1	1	1	1
Health Sub-center				
Pharmacy	9	9	9	8
Druggist : Medicine	13	13	13	12
Druggist : Herb-medicine	12	12	9	9
Restricted Drug Dealer	5	5	3	3
Health Personnel				
Physician (Limited)	4(4)	8(4)	6(4)	5(4)
Dentist (")	-	-	-	-
Herb Doctor (")	1(1)	-	-	-
Nurse	-	-	-	-
Pharmacist	9	9	10	8
Medical Technician				

Sources : Okgu Gun, Statistical Yearbook of Okgu Gun, 1974, 1975, 1976, 1977

HEALTH FACILITIES AND PERSONNEL IN GUNEE AREA

Classification/Year	1973	1974	1975	1976
Health Facility				
Hospital	-	-	-	-
Clinic (Limited)	3	3	6	6
Dental Clinic (")	1	1	1	1
Herb Clinic (")	1	1	1	1
Private Midwifery Station	1	1	1	1
Health Center	1	1	1	1
Health Sub-center	4	6	7	7
Pharmacy		6	6	6
Druggist : Medicine		17	11	17
Druggist : Herb-medicine		12	10	10
Restricted Drug Dealer	-	-	6	-
Health Personnel				
Physician (Limited)	7	3	4	7
Dentist (")	1	1	1	1
Herb Doctor (")	1	1	1	1
Midwife	1	1	1	1
Nurse	3	3	5	6
Pharmacist	24	6	6	6
Medical Technician				

Sources : Gunee Gun, Statistical Yearbook of Gunee Gun, 1974, 1975 1976, 1977

HEALTH FACILITIES AND PERSONNEL IN HONGCHON AREA

Classification/Year	1973	1974	1975	1976
Health Facility				
Hospital	-	-	-	-
Clinic (Limited)	12(6)	12(7)	12(5)	13(6)
Dental Clinic (")	1	1	1	2
Herb Clinic (")	2	1	2	1
Private Midwifery Station	2	2	2	2
Health Center	1	1	1	1
Health Sub-center			8	8
Pharmacy	15	14	14	13
Druggist : Medicine	19	18	18	17
Druggist : Herb-medicine	24	19	18	16
Restricted Drug Dealer	6	4	5	4
Health Personnel				
Physician (Limited)	13(6)	14(7)	12(5)	13(6)
Dentist (")	1	1	2	2
Herb Doctor (")	2	2	2	1
Midwife	2	2	2	2
Nurse	4	4	4	4
Pharmacist	15	14	14	13

Sources : Hongchon Gun, Statistical Yearbook of Hongchon Gun,
1974, 1975, 1976, 1977

APPENDIX TABLE A-3

NUMBER OF PERSONS TREATED BY ACTIVITY (OKGU)

Activity Type/Year	1973	1974	1975	1976	1977
CURATIVE					
Consultation			734	929	1,809
Drug			1,229	363	6,070
Injection			584	320	1,206
Dressing					495
Simple surgery					170
Laboratory					4,920
X-ray					1,763
PREVENTIVE					
1. TB control					
a) Chest X-ray	5,209	5,362	4,455	5,204	5,204
b) Sputum test	5,476	5,230	5,022	3,057	3,896
c) Patients treated	565	584	590	612	6,620
2. Family Planning					
a) Vasectomy and Tubaligation	103	155	137	92	231
b) Contraceptives	1,065	855	939	700	9,647
c) Consultations	7,200	8,040	8,400	9,000	1,565
3. Vaccination					
a) B C G	13,397	13,019	13,493	11,281	11,070
b) D P T	6,439	3,752	8,015	7,613	7,284
c) Small pox	16,904	11,069	10,677	11,120	7,064
d) Polio	8,334	4,296	3,062	3,780	3,601
e) Others	159,694	119,990	129,488	111,941	94,858
4. Mother and Child Health					
a) Delivery assistance					878
b) Delivery kit	720	600	720	840	878
c) Pre(post)-natal care	14,400	12,000	13,200	15,600	5,282
5. Health Education					
a) Home Visiting	748	558	786	473	391
b) Lecture and conference	14,960	11,160	15,720	12,866	3,566
6. Others					
a) Stool test			31,686	20,251	21,623
b) Vermicide			11,682	6,412	6,958

Sources : Above figures are obtained by direct observation of health center's surroundings and interviews.

NUMBER OF PERSONS TREATED BY ACTIVITY TYPE (GUNEE)

Activity Type/Year	1973	1974	1975	1976	1977
CURATIVE					
Consultation	295	254	472	466	24
Drug	8,096	7,665	9,272	10,658	5,146
Injection	1,150	1,187	1,480	1,850	237
Dressing	1,106	1,258	1,620	1,805	310
Simple surgery	84	124	108	112	2
Laboratory					684
X-ray					1,563
PREVENTIVE					
1. TB control					
a) Chest X-ray	4,135	3,180	3,669	2,824	1,386
b) Sputum test	729	1,790	1,176	1,440	1,338
c) Patients treated	715	534	389	382	3,546
2. Family Planning					
a) Vasectomy and Tubaligation	72	58	43	52	142
b) Contraceptives	2,063	2,356	2,194	1,829	11,158
c) Consultations					19,484
3. Vaccination					
a) B C G			5,796	3,564	2,255
b) D P T			2,456	2,287	3,157
c) Small pox			5,391	2,883	2,805
d) Polio			1,387	3,680	1,257
e) Others					32,376
4. Mother and Child Health					
a) Delivery assistance	795	1,213	1,167	746	870
b) Delivery kit	688	1,017	955	746	128
c) Pre(post)-natal care	6,596	11,440	10,274	9,244	865
5. Health Education					
a) Home Visiting					2,568
b) Lecture and conference					
6. Others					
a) Stool test	8,715	9,483	10,855	11,046	4,801
b) Vermicide					8,083

Sources : Above figures are obtained by direct observation of health center's surroundings and by interviews

NUMBER OF PERSONS TREATED BY ACTIVITY TYPE (HONGCHON)

Activity Type/Year	1973	1974	1975	1976	1977
CURATIVE					
Consultation	90	180	750	120	
Drug	7,530	11,350	14,325	19,575	22,742
Injection	4,110	4,320	7,355	8,720	4,052
Dressing					799
Simple surgery					14
Laboratory	95	118	183	358	2,300
X-ray	20,060	1,115	1,534	2,575	9,014
PREVENTIVE					
1. TB control					
a) Chest X-ray	5,055	4,804	3,808	6,524	311
b) Sputum test	9,772	2,169	1,260	1,836	4,913
c) Patients treated	846	1,045	1,059	809	6,308
2. Family Planning					
a) Vasectomy and Tubaligation	107	117	97	132	290
b) Contraceptives	24,096	26,377	29,388	26,524	22,848
c) Consultations	25,231	27,891	30,452	27,356	1,647
3. Vaccination					
a) B C G	12,247	9,910	9,339	5,550	6,700
b) D P T	3,378	3,740	4,428	3,600	7,293
c) Small pox	11,868	11,899	11,400	11,500	7,648
d) Polio	3,144	5,268	3,603	4,000	3,722
e) Others	32,500	43,500	65,900	75,950	61,685
4. Mother and Child Health					
a) Delivery assistance		1,582	2,103	1,704	1,374
b) Delivery kit		1,369	1,915	1,302	1,143
c) Pre(post)-natal care					11,520
5. Health Education					
a) Home Visiting	20	18	30	50	1,050
b) Lecture and conference				600	3,100
6. Others					
a) Stool test	500	800	1,300	1,600	8,133
b) Vermicide	80	120	150	250	3,670

Sources : Above figures are obtained by direct observation of health center's surroundings and interviews.

Operational Definition of Curative
and Preventive Services

Curative Services

1. Consultation : No. of medical consultation which could be managed by consultation alone including immediate referral without treatment, and family planning consultations were excluded.
2. Drugs : No. of prescription of drugs excluding distribution of contraceptive pills, vermicides and medicines for TB control.
3. Injection : No. of injections for patients in addition to drugs excluding vaccination shots, anesthesia injections for surgical operation.
4. Dressing : No. of minor surgical treatment without injection and prescription of drugs, and of referral after treatment such as emergency or palliative treatment.
5. Simple Surgery : No. of simple surgery includes use of such minor surgical techniques as suturing and incision and drainage. In these case, injection and prescription of drugs were often used in conjunction with the operation.
6. Laboratory : No. of all laboratory tests for medical care except sputum and stool tests.
7. X-ray test : No. of all X-ray examinations and treatments except chest X-ray for TB patients.

Preventive Services

1. TB control
 - 1) Chest X-ray : No. of chest X-ray test for finding out new TB patients or for diagnosis.
 - 2) Sputum test : No. of sputum test for healthy person and TB patients.

- 3) Patients treated : No. of patients registered in Health Center or sub-center and treated regularly.
2. Family Planning
- 1) Vasectomy and Tubaligation : No. of person who had operation of vasectomy and tubaligation.
- 2) Contraceptives : No. of persons who were provided with contraceptives from Health center and/or sub-centers.
3. Vaccination : No. of persons vaccinated in each type.
4. MCH; Mother and Child Health
- 1) Delivery Assistance : No. of delivery assisted by health worker except those which assisted by family member or other health personnel in private clinic.
- 2) Pre(Post)-natal care : No. of pre and post natal care by health workers of Health Center or sub-center.
- 3) Delivery kit : No. of persons who were provided with delivery kit from Health Center and/or sub-center.
5. Health Education
- 1) Home Visiting : No. of home visits for the purpose of health education except the visiting for TB control, family planning, vaccination and mother and child health.
- 2) Lecture and : No. of person who participated in the conferences and lecture for health education, not for administrative affairs.
6. Others
- 1) Stool test : No. of stool test to check parasitic infection.
- 2) Vermicide : No. of person provided with vermicide.

References : Il Soon Kim and Others, "Development and Organization of MYUN Level Health Care Services in Korea"
 Seoul : Yonsei University, College of Medicine, 1977
 pp. 762-764.

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APPENDIX TABLE A-4

NUMBER OF PERSONS TREATED AND UNIT COST BY ACTIVITY TYPE (1977)

Activity Type	OKGU			GUNEE			HONGCHON		
	Unit Cost	No. of Persons	Cost	Unit Cost	No. of Persons	Cost	Unit Cost	No. of Persons	Cost
CURATIVE									
Consultation	0	1,809	0	0	24	0	0	-	-
Drug	414	6,070	2,512,980	32	5,146	164,672	1,875	22,472	4,264,125
Dressing	220	495	108,900	220	310	68,200	220	779	171,380
Injection	356	1,206	429,336	250	237	59,250	270	4,052	1,094,040
Simple surgery	318	170	54,060	318	2	638	318	14	4,452
Laboratory	32	4,920	157,440	32	684	21,888	32	2,300	73,600
X-ray	800	374	299,200	800	941	752,800	800	5,706	4,564,800
Photoroentgenography	80	1,389	111,120	80	622	49,760	80	3,308	264,640
Sub-total	-	16,433	3,673,036		7,966	1,172,208		38,901	10,437,037
PREVENTIVE									
T.B. control									
Chest X-ray	800	1,034	827,200	800	1,129	903,200	800	3,606	2,884,800
Photoroentgenography	80	4,470	357,600	80	257	20,560	80	3,308	264,640
Sputum test	37	3,896	144,152	37	1,338	49,506	37	4,913	181,781
Drug	3,886	6,620	24,512,888	3,886	3,546	25,725,320	3,886	6,308	13,779,756
Family Planning									
Vasectomy	5,350	150	802,500	5,350	77	411,950	5,350	86	460,100
Tubaligation	15,350	81	1,243,350	15,350	65	997,750	13,350	204	1,131,400
I.U.D. Insertion	700	1,052	736,400	700	686	480,200	700	1,265	885,500
Rhythm	7,000	51	357,000	7,000	12	84,000	7,000	92	644,000
Oral pill	250	5,757	1,439,250	625	6,404	4,002,500	250	11,749	2,937,250
Condom	350	2,838	993,300	875	4,068	3,599,500	350	9,834	3,441,900
Consultation	0	1,565	0	0	19,484	0	0	1,647	0

NUMBER OF PERSONS TREATED AND UNIT COST BY ACTIVITY TYPE (1977) : CONTINUED

Activity Type	OKGU			GUNEE			HONGCHON		
	Unit Cost	No. of Persons	Cost	Unit Cost	No. of Persons	Cost	Unit Cost	No. of Persons	Cost
Vaccination									
B C G	4	11,070	44,280	4	2,255	9,020	4	6,700	26,800
D P T	13	7,284	94,692	13	3,157	41,041	13	7,293	94,809
Small Pox	4	7,064	28,256	4	2,805	11,220	4	7,648	30,592
Polio	21	3,601	75,621	21	1,257	26,397	21	3,722	78,162
Others	5	94,858	474,290	5	32,376	161,880	5	61,685	308,425
Mother and Child Health									
Delivery Assistance	750	878	658,500	750	870	652,500	750	1,374	1,030,500
" Kit	330	878	298,740	330	128	42,240	330	1,143	337,190
Pre & Post natal care	0	5,282	0	0	865	0	0	11,520	0
Health Education									
Home Visiting	0	391	0	0	-	0	0	1,050	0
Lecture and conference	0	3,566	0	0	2,568	0	0	3,100	0
Parasite Control									
Stool test	43	21,623	979,789	43	4,801	206,443	43	8,133	349,719
Vermicide	258	6,958	1,795,164	258	8,083	2,085,414	258	3,670	946,860
Sub total		190,967	35,803,972		96,231	39,470,641		160,050	31,814,184
TOTAL		207,400	39,477,008		104,197	40,642,849		198,951	42,251,221

Sources : Above figures are obtained by direct observation of health center's surroundings and interviews.

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APPENDIX TABLE A-5

COMMON HEALTH COST (CH) IN 1977

Unit : 1,000 Won

Classification	OKGU			GUNEE			HONGCHON		
	Number (1)	Unit Cost (2)	Total Cost (3)=(1)x(2)	Number (1)	Unit Cost (2)	Total Cost (3)=(1)x(2)	Number (1)	Unit Cost (2)	Total Cost (3)=(1)x(2)
BUILDINGS									
Health Center Building	1	15,000	15,000	1	13,000	13,000	1	14,000	14,000
V.D. Center	1	12,000	12,000	-	-	-	-	-	-
Health Sub-center	8		21,500	7		19,700	8		21,300
Health Post	12	600	7,200				3	2,250	6,750
Maintenance cost			1,115.5			801			157.3
Sub-total	22		56,815.5	8		33,501	12		42,207.3
FACILITIES AND EQUIPMENTS									
Refrigerator (300L)	1	350	350				4	200	800
" (180L)				6	150	900	1	192.5	192.5
" (150L)	2	75	150				1	15	15
" (120L)	5	48	240						
" (90L)	1	94	94						
" (77L)				5	94.2	471			
Incubator I	2	50	100	1	52.8	52.8	1	8.6	8.6
" II	1	20	20						
" III	1	180	180						
Centrifuge I	2	30	60	1	20	20	1	20	20
" II	1	150	150	2	60	120	1	60	60
Microscope I	2	200	400				1	150	150
" II	1	300	300	1	80	80			
Hematometer	3	5	15	1	400	400	2	5	10
Photo Fluoro Graphy Unit	2	1,000	2,000	1	500	500			
X-ray Film Viewer	2	15	30						
X-ray Apparatus				1	3,000	3,000	2	3,000	6,000

COMMON HEALTH COST (CH) IN 1977 (CONT.)

Classification	OKGU			GUNEE			HONGCHON		
	Number	Unit Cost	Total Cost	Number	Unit Cost	Total Cost	Number	Unit Cost	Total Cost
	(1)	(2)	(3)=(1)x(2)	(1)	(2)	(3)=(1)x(2)	(1)	(2)	(3)=(1)x(2)
Resuscitator I	1	50	50	1	50	50			
" II	2	480	960	2	480	960			
Sphygmanometer I	7	6	42	1	6	6	1	6	6
"	1	7	7	1	7	7			
Electric Sanitizer	6	12.5	75				1	10	10
Auto Clave I	2	150	300	1	200	200	1	100	100
" II	3	18.3	55				1	14	14
" III	1	63	63	1	63	63			
" IV	1	485	485	1	485	485			
Dryer I	1	15	15				1	15	15
" II	1	170	170						
Dry Oven	1	30	30						
Otoophthalmoscope	6	15	90	1	4	4			
Sanitizer I	1	19.8	19.8	2	10	20			
" II				2	20	40			
Suction Thermo Drain Unit				1	2	2			
Water Bath I	2	20	40				2	20	40
" II	1	31	31	1	31.6	31.6			
" III	1	80	80						
PH Meter	1	490	490				1	48	48
Camera	2	1,592	3,184				1	230	230
Stethoscope	5	3.7	17.1	1	3.7	3.7			
Operation Set	1	246.4	246.4	1	246.4	246.4			
Laryngoscope I	1	29.5	29.5	1	29.5	29.5	1	10	10
" II							1	2.4	2.4
Grid							2	9.6	19.2

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COMMON HEALTH COST (CH) IN 1977 (CONT.)

Unit : 1,000 Won

Classification	OKGU			GUNEE			HONGCHON		
	No. (1)	U.C (2)	T.C (3)=(1)x(2)	No. (1)	U.C (2)	T.C (3)=(1)x(2)	No. (1)	U.C (2)	T.C (3)=(1)x(2)
Health Sub-center Set I	4	265.1	1,060.4	8	119.3	954.4	1	119.3	119.3
" " II							6	200	1,200
Bed for MCH Care	8	10	80						
Cabinet I	6	40	240	7	40	280			
" " II	4	18	72	1	5	5			
Table for MCH Care	4	20	80	1	13.5	13.5			
Table for Utensile	10	17	170	7	3	21	1	12	12
Examination Table I	1	33	33	1	33	33	2	2	4
" " II	1	110	110	8	1.5	12			
Scale for Babies I	5	3	15				3	12	36
" " II							1	1	1
Automobile	1	1,000	1,000	1	1,000	1,000	1	1,000	1,000
Motor Bicycle	1	200	200				1	282.9	282.9
Sewing Machine	1	15	15	1	15	15	1	10	10
Slide Projector I	1	8	8	1	8	8	1	5	5
" " II				1	41.8	41.8	1	180	180
Film Projector	1	80	80	1	80	80			
Generator	1	150	150						
Smoke Machine I	6	200	1,200				4	1,000	4,000
" " II				7	480	3,360			
" " III				1	1,500	1,500			
Sprayer	1	30	30				3	15	45
Bicycle (for male) I	5	9	45						
" " II	3	21.5	64.5						
Cicycle(for female)	4	28	112	1	22	22	12	22	264
Typewriter				1	200	200	1	154	154

COMMON HEALTH COST (CH) IN 1977 (CONT.)

Unit : 1,000 Won

Classification	OKGU			GUNEE			HONGCHON		
	No. (1)	U.C (2)	T.C (3)=(1)x(2)	No. (1)	U.C (2)	T.C (3)=(1)x(2)	No. (1)	U.C (2)	T.C (3)=(1)x(2)
Recorder I				1	15	15	1	15	15
" II							1	85	85
Lound Speaker				1	5	5	1	5	5
Amplifier				1	10	10	1	36.5	36.5
Calculator							1	65	65
Microphone							1	8.5	8.5
Telephone							3	13	39
Other	230		862.6	351		3,666.7	82		2,230
Maintenance Cost			12,417			1,091			479.2
Sub-Total	372		28,613.3	440		20,025.4	157		18,027.1
AMBULANCE									
Antomobile	1	4,333.6	4,333.6	1	4,333.6	4,333.6	1		4,333.6
Maintenance Cost			1,688			1,063			208
Sub-Total			6,021.6			5,396.6			4,541.6
PERSONNEL EXPENDITURE									
Physician	5		10,320	5		9,864	9		16,000
Nurse	3		2,600.8	16		11,351.4	9		7,844
Nurse Aid	33		25,036.8	26		19,848.8	31		21,448
Midwife	-		-	4		2,192	-		-
X-ray Technician	1		1,378.4	1		689.2	2		1,066
Lab. Technician	2		1,840.4	1		775.4	2		2,241
Dental "	-		-	1		696	-		-
Health Worker	4		3,545.6	1		800	2		1,838
Administrator	8		7,912	11		9,404	12		15,516
Others	2		956	4		1,982	3		1,641
Sub-Total	58		53,590	70		57,602.8	70		67,594
TRAINING COST			-			-			2,361.2
SANITATION COST			2,532			2,578.7			1,885
ADMINISTRATIVE COST			439.8			1,019			3,795.6
OTHERS			42,533.5			8,623			1,621.5
TOTAL COST			190,545.7			128,746.5			142,033.3

Sources : Above figures are obtained by observation of health center's surroundings and interviews

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KHDI HEALTH PROJECT
MANAGEMENT INFORMATION SYSTEM

by

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I. INTRODUCTION

The Korea Health Development Institute (KHDI) is currently undertaking a project to improve the delivery of health services to the rural areas of three selected Guns (Counties). Although many different activities are being undertaken by KHDI, the Management Staff wishes to obtain a systematic view of the situation in these areas on a regular basis.

A Management Information System (MIS) is a means for obtaining, recording, reporting and analysing specific pre-designated elements of statistical data for monitoring and controlling a program or project in a timely, systematic manner.

KHDI utilizes a "control" type MIS whereby a limited number of pre-determined key data elements are selected for continuous observation, recording, monitoring, statistical analysis and summarizing of project activity ... supplemented by a periodic statistical record survey (based on existing service statistics 1/ system) to measure health system performance in the project area. The MIS design conceives of program management as including the function of program evaluation. With that frame of reference, the MIS can aid in both program management and evaluation even though these two functions are conceptually discrete.

- The MIS's purposes are to assist managers in making decisions to
- 1) allocate current resources to improve program effectiveness and efficiency.
 - 2) estimate program coverage in terms of the percentages of the target populations served or not served by the program.
 - 3) assess program effectiveness-the degree to which a program accomplishes its goals 2/.
 - 4) estimate program efficiency-the ratio of program output to input; where output can be estimated by a variety of key program indicators such as the number of contacts with patients or clients, units of performance of the various health services.
 - 5) identify those areas where selective supervision is likely to contribute most to program improvement.

1/ Data routinely generated from the delivery of medical care and health services - such as infant health care, maternal health care, family planning service, and tuberculosis control.

2/ We have no targets or standards at this point. However we can use the estimated target populations of the communities served, as the common base for comparing relative activity levels of each Primary Health Unit.

In order to achieve those purposes, we have devised three channels of data collection as follows:

<u>Channel</u>	<u>Frequency of data collection</u>	<u>Method</u>	<u>Contents</u>
1. Monthly Report	Monthly	PHU Report to KHDI through HC	Summaries of new occurrences- number of contacts with patients or clients by field-workers
2. Quarterly Record	Quarterly	Record (various data files generated by health workers while providing service) survey by surveyors visiting PHUs	Performance of the health system
3. Household Survey	Once a year	Sample Household interview survey	1) Consumer satisfaction with medical care service rendered by CHP 2) Attitude towards needs and expectations of CHP 3) Checking against over-or under-recording or reporting by field-workers through matching with response data by interviews

2. MONTHLY ACTIVITY REPORT

a. An outline

Since we are measuring activity levels in the project rather than effectiveness, we have to select one or two key indicators (which most generally relate to what we are trying to accomplish) that can be observed, recorded and reported regularly without too much difficulty.

The most meaningful indicator of project activity in terms of accomplishment is the number of contacts with patients (or potential patients) by the health workers in the system. This is based on the assumption we have implicitly made - that in order to improve performance of the health delivery system, more health workers are required to dispense advice, consultation, and/or treatment.

b. Working Levels in the Delivery System

Looking at our "System" schematically, we have several working levels, between the community population and KHDI Headquarters as shown in Fig. 1.

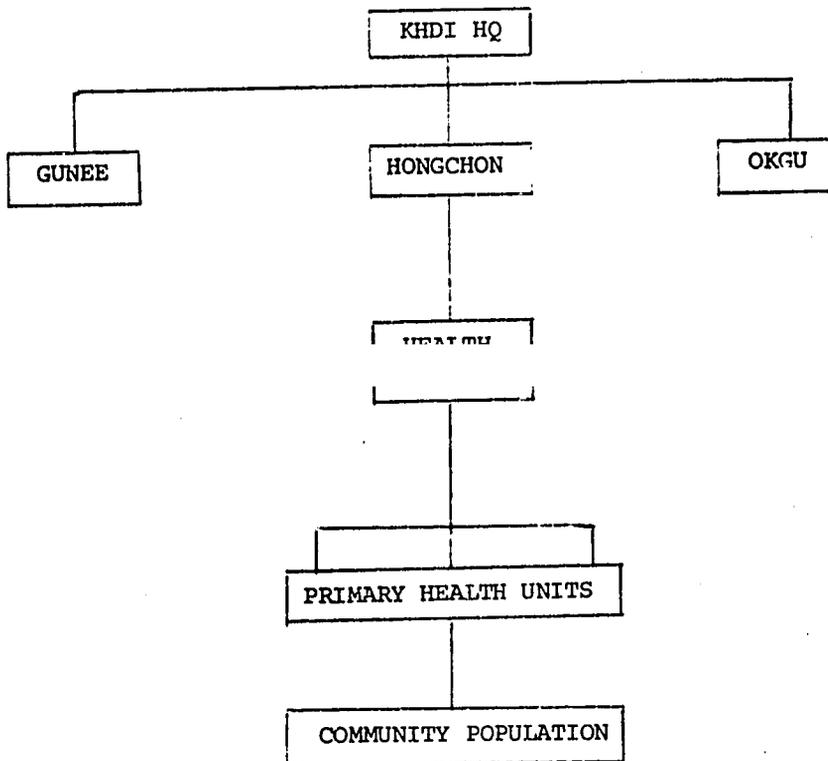


Fig. 1. Several working levels in the Delivery System between the Community Population and KHDI Headquarters

Furthermore, each of these working levels - Health Center and Primary Health Unit - performs essentially similar tasks to a different level of quality; - patient contacts and treatments. Thus, the type of data recorded at each level and reported to next higher level can be more or less standardized into three major categories: individual treatment or referrals; individual prevention contacts, and group contacts for education and immunizations of the community target population.

c. Data Formats

There are two basic types of formats used at the working level-worksheets for recording data and reports for transmitting summaries of the data recorded.

In order to develop data formats for the contacts with patients by health workers, a three-month trial was conducted in the demonstration areas. As a result of this trial, it was found that much of the desired data could be obtained by adding these new items to an existing daily worksheet which was already being prepared for a monthly achievement report to the Ministry of Health through the Health Center.

Two new report forms, A and B, were finally established; Report form A is for the PHU Report to Health Center; Report form B is for the Health Center Report to KHDI Headquarters, as shown in Table 1 and Table 2.

The new data formats will be used in the demonstration areas beginning August 1, 1978. The deadline for receiving this report is by the 5th day of the month at the Health Center and the 10th day of the month at KHDI.

d. Analysis

When the reports are received at KHDI, the Planning and Evaluation Division will analyze the data for KHDI's Project Division and the other KHDI management staff. The Field Coordinators for each of the project areas may also wish to analyze the data they have received from their Health Center and the PHUs in a similar manner.

Essentially, each item of data reported will be analyzed in separate rank-ordered tables and/or graphed (or otherwise charted as appropriate) to be able to detect activity trends. Work units performing essential similar functions will also be reviewed to compare relative levels of efforts. Since we have no targets or standards at this point, probably the best we can do for experimental study is to utilize the estimated target population of the community served as a common base for comparison of relative activity levels.

For example:-

<u>Rank order</u>	<u>PHU's</u>	<u>Number of contacts</u>	<u>Total target population</u>	<u>Contacts as percent of total target population</u>
1	Name	XXX	YYY	%
2	Name	XXX	YYY	%
3	Name	XXX	YYY	%
.
.
.

Table 1. Report Form A:
PHU ACTIVITY MONTHLY REPORT
(PHU Report to HC)

As of (month): _____
Date submitted: _____
Name of PHU: _____

Description	Cumulative totals as of last month	Number of cases in this month	Names of MD, CHP and CHA					Remark
<u>Medical care activities</u>								
a. No. of registered								
(1) New registered								
(2) Cumulative reg.								
b. No. of visits to clinic								
(3) Consultations and counselling								
(4) Treatments								
(5) Referred								
(6) ()								
(7) <u>Total</u>								
<u>Health Service Activities</u>								
a. Consultation and follow-up (in the clinic)								
(8) Infant & child health								
(9) Maternal health								
(10) Family planning								
(11) TB control								
(12) Other								
(13) <u>Total</u>								
b. Consultation and follow-up (outside the clinic)								
(14) Infant & child health								
(15) Maternal health								
(16) Family planning								
(17) TB control								
(18) Other								
(19) <u>Total</u>								
c. Group contacts								
(20) Immunization								
(21) Education								

- continued -

Description	Cumulative totals as of last month	Number of cases in this month	Names of MD, CHP and CHA					Remark
(Working Days)								
(22) In the clinic								
(23) Outside the clinic								
(24) Other* (training or other job)								
(25) <u>Total</u>								

Submitted by: _____

- Footnotes: (6) = () includes number of cases with (3) consultation and counselling or/and (4) treatments plus referred.
- (7) = (3) + (4) + (5)
- (21) = Number of participants in upper side/Number of meetings held in lower side.
- (25) = (22) + (23) + (24)
- * = Number of working days for training or other job irrespective of medical care or health activities.

Table 2. Report Form B:
HEALTH CENTER ACTIVITY MONTHLY REPORT
(HC Report to KHDI)

As of (month): _____
Date submitted: _____
Name of HC: _____

Description	Cumulative total as of last month	Number of cases in this month	Name of PHU					Remark
<u>Medical Care Activities</u>								
a. No. of registered								
(1) New registered								
(2) Cumulative reg.								
b. No. of visits to clinic								
(3) Consultations and counselling								
(4) Treatments								
(5) Referred								
(6) ()								
(7) <u>Total</u>								
<u>Health Service Activities</u>								
a. Consultation and follow-up (in the clinic)								
(8) Infant & child health								
(9) Maternal health								
(10) Family planning								
(11) TB control								
(12) Other								
(13) <u>Total</u>								
b. Consultation and follow-up (outside the clinic)								
(14) Infant & child health								
(15) Maternal health								
(16) Family planning								
(17) TB control								
(18) Other								
(19) <u>Total</u>								
c. Group contacts								
(20) Immunization								
(21) Education								

- continued -

Description	Cumulative total as of last month	Number of cases in this month	Names of PHU				Remark
(Working Days)							
(22) In the clinic							
(23) Outside the clinic							
(24) Other* (training or other job)							
(25) <u>Total</u>							

- Footnotes:
- (6) = () includes number of cases with (3) consultation and counselling or/and (4) treatments plus referred.
 - (7) = (3) + (4) + (5)
 - (21) = Number of participants in upper side/Number of meetings held in lower side.
 - (25) = (22) + (23) + (24)
 - * = Number of working days for training or other job irrespective of medical care or health activities.

3. QUARTERLY RECORD SURVEY

a. An Outline

There is an existing service statistics system which gathers a variety of different elements according to several health programs, such as medical care, maternal and child health, family planning, and tuberculosis control. The Quarterly Survey is based on these data sources, particularly the patient's clinical chart and various client registration cards.

The clinical chart and client registration file cards are individually prepared by the health worker at first contact with the client. Successive contacts with the client are also documented in these charts or cards by the health worker. Thus, they are the basic documents for providing service and recording it as a new occurrence, follow-up service or treatment at the working level.

Based on such data sources, the Quarterly Record Survey aids in measuring performance of the health delivery system in terms of costs, availability, accessibility, acceptability, quality, and continuity.

As its title implies, Surveyors (employed by KHDI) visit all primary health units in the demonstration areas on a quarterly basis with survey schedules.

b. Data Sources

There are several types of client registration cards for different health programs, such as patient clinical chart, maternal health card, infant health card, family planning client card, and tuberculosis patient card.

These are filed at each PHU in the demonstration areas for recording services provided by health workers:

- | | |
|-----------------------------|---|
| Patient clinical chart | : registration, consultation, counselling, medications, dressing, other (such as clinical or laboratory test). |
| Maternal health card | : registration, consultation, guidance, physical checking, supply of delivery set, birth attendance, supply of medicines. |
| Infant health card | : registration, physical checking, consultation through his or her mother, immunization, supply of medicines. |
| Family planning client card | : registration, consultation, motivation, issue of coupon for IUD insertion or sterilization, supply of contraceptives. |

Tuberculosis patient care : registration, consultation, medication, X-ray or sputum checking.

The Quarterly Survey collects key data elements from these data sources.

c. Method of Data Collection

Survey Schedules

Simple survey schedules are structured and used for data collection from each different client card. The schedules involve limited numbers of key data elements or variables as follows:

Medical care from Patient Clinical Chart

- 1) Date of registration or first contact
- 2) Residence (name of Li or distance between PHU and residence)
- 3) Memberships of Daedonghae (in Hongchon) or health insurance (in Okgu)
- 4) Frequency of visits during the period (quarter)
- 5) Major complaints or symptoms
- 6) Type of treatment
- 7) Costs paid by consumer
- 8) Referral
- 9) Service provider (MD, CHP, or CHA)
- 10) Other (demographic variables of consumers such as age and sex)

Maternal health services from Maternal Health Client Card

- 1) Date of registration or first contact
- 2) Residence (name of Li or distance between PHU and residence)
- 3) Month of pregnancy when registration or first contact made
- 4) Frequency of services provided, by type, and whether in the prenatal or postnatal period
- 5) Birth attendant or use of delivery set
- 6) Results (normal or abnormal) of delivery
- 7) Other (age of mother)

Infant health services from Infant Health Client Card

- 1) Date of registration or first contact
- 2) Residence (name of Li or distance between PHU and residence)
- 3) Month of age when registration or first contact made
- 4) Frequency of services provided, by type, during the period (quarter)
- 5) Immunizations as scheduled by type
- 6) Other (current age of infant or child)

Family planning services from Family Planning Client Card

- 1) Date of registration or first contact
- 2) Residence (name of Li or distance between PHU and residence)
- 3) Number of living children when registration or first contact made
- 4) Frequency of services provided, by type, during the period (quarter)
- 5) Current users of contraception according to method of contraception, provided by field workers
- 6) Other (current age of woman)

Tuberculosis control from Tuberculosis Patient Card

- 1) Date of registration or first contact
- 2) Residence (name of Li or distance between PHU and residence)
- 3) Severity of disease (sputum positive or negative)
- 4) Frequency of visits to PHU during the period (quarter)
- 5) Types of treatments rendered
- 6) X-ray taken
- 7) Sputum examination
- 8) Treatment continued or discontinued
- 9) Duration of treatment

10) Outcome of treatment

11) Other (sex and age)

Field Operation

Surveyers will be employed and trained by KHDI. They will visit each PHU in the demonstration areas and search the records to enter the desirable key elements on the schedules from each client card as appropriate. The field work will be supervised by KHDI personnel.

The field operation will be conducted on a quarterly basis.

d. Analysis

Data collected will be analyzed comparatively by PHU's in separate rank-order tables in order to measure performance of the health system as follows:

<u>Component factor of health system characteristics</u>	<u>Key Indicators</u>	<u>Table</u>
1. Accessibility	a. Ratio of population per health worker or medical personnel	1
	b. Client registration rate of estimated target population by <u>Li</u> (distance between PHU and residence)	2
	c. Outreach service (home visits by health worker) rate per 100 estimated target population	3
	d. Membership of financial mechanism (in case of medical care service)	4
2. Acceptability	a. Use rate by type of service	5
	b. Use rate by frequency of service rendered	6
	c. Use rate by sex, age, or chief complaints	7
3. Quality	a. Continuation rate of treatment or practice by type of service	8
	b. Complete immunization rate as scheduled	9
	c. Proportion of desirable practice (loop, sterilization, or women having under three children)	10
	d. Referral rate of treatment	11
4. Availability	a. Ratio of Population per PHU	12
	b. PHU personnel structure or working days	13
	c. Potential capacity to produce service	14

5. The Costs*

- a. Unit cost of service produced by program component
- b. Unit cost of service paid by consumer

* The costs, particularly unit cost of service-producing, will be calculated with data from the Activity Accounting System. See "An Activity Accounting System for Analyzing the KHDI Demonstration Project Expenditures".

4. SAMPLE HOUSEHOLD INTERVIEW SURVEY

a. An Outline

To increase the supply of medical services, a new type of health professional, Community Health Practitioner (CHP), is being trained and deployed by KHDI in the demonstration areas. The increasing use of CHP's in the community served will be affected by the patient's perception and need for CHP's medical services.

The purpose of the Sample Household Survey is to:

- 1) collect data of patient's perceptions of the newly deployed CHP
- 2) determine consumer satisfaction of treatments rendered by the CHP
- 3) analyze factors affecting utilization of CHP's medical service

In addition, accuracy of service statistics will be examined by matching client records with response data from interviews with sample households.

b. Data collection

Survey schedules

A closed (or structured) questionnaire will be developed. Major items of the questionnaires are as follows (tentative):

- 1) Demographic variables (age, sex, education, residence)
- 2) Attitude or perception towards CHP
- 3) Expectation of CHP's medical services
- 4) Satisfaction or outcomes of treatment rendered by CHP
- 5) Health worker's home visits and services provided by them

The Sample

A random sample of the population in the demonstration areas currently being served by the PHU.

The appropriate size of the sample will be determined later, based on standard statistical sampling methodology.

Method of Data collection

The Household interviews will be conducted during September-October 1978 by a team approach, with operations under control of roving KHDI personnel.

c. Analysis

By frequency distribution, percentage & standard deviation, mean, median, and correlation analysis.

A SUMMARY REPORT OF
THE 1976 BASELINE SURVEY FOR EVALUATION OF
THE KHDI HEALTH DEMONSTRATION PROJECT

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1. Introduction

The Korean Health Demonstration Loan Project, which stemmed from a loan agreement signed between the governments of the Republic of Korea and the United States in September 1975, has two purposes:

1. To establish the capability within the Republic of Korea's Government to plan, conduct, and evaluate low-cost integrated health delivery projects directed primarily toward low-income families
2. To demonstrate successfully a multi-gun (county) low-cost integrated health delivery system that is replicable in other parts of Korea.

To accomplish the latter, Korea Health Development Institute (KHDI) has had field projects in three selected areas (demonstration gun areas) since 1977. The 1976 KHDI Baseline survey's objectives were to collect and analyze basic data for evaluation of the KHDI project activity as follows:

- a. To determine key indicators in terms of performance of the KHDI project activity and its impact as a basis for comparison before and after the project, as outlined in the KHDI project evaluation plan.
- b. To provide basic data for situation analysis in demonstration and control areas.
- c. To analyze factors affecting differences or changes in key indicators over time or between areas.
This report contains results of the first of these objectives (a) derived from the 1976 Baseline Survey.

2. Methodology

a. Analytical Framework

Classical controlled experimental design was used. The KHDI project is intended to improve the accessibility, quality, costs, acceptability, continuity, and availability of the health delivery system. The effect of exposure to this activity (or treatment) is determined by comparing any changes in those exposed (experimental or demonstration group) with changes in those not exposed (control group) as well as before and after comparison. This design is diagrammed as follows:

	<u>Measurements before</u>	<u>Exposure to program</u>	<u>Measurements after</u>
Experimental group	0 ₁	X	0 ₂
Control group	0 ₃		0 ₄

The total effect of an activity (the changes in the experimental group which do not appear in the control group) is

$$\left(\frac{0_2 - 0_1}{0_1} \times \frac{100}{1} \right) - \left(\frac{0_4 - 0_3}{0_3} \times \frac{100}{1} \right).$$

The baseline survey determined primarily the measurements of 0₁ and 0₃ before the project. The measurements cover a broad area of health service such as medical care, maternal and child health, and family planning to be produced by the health system. Health service and its outcome are categorized by eight cells in the following model.

Category	Outcomes of the health service		
	Total	Positive(p)	Negative(N)
1. Receiving adequate health service	R ₁	P.R ₁	N.R ₁
2. Receiving inadequate health service	R ₂	P.R ₂	N.R ₂
3. Not receiving any health service but wanting health service	R ₃	P.R ₃	N.R ₃
4. Not receiving any health service and wanting no health service	R ₄	P.R ₄	N.R ₄
Total	R Totals	PR Totals	NR Totals

Different prefixes or suffixes can be assigned to the various "R" categories above for analyzing different subgroups within the population. For example "A.PR₁" is the sick population receiving adequate health (medical care) service; "H.PR" totals are the healthy population; "B.PR₁" could be the number of births attended by health professionals, etc. Each use of a shorthand code such as these will be specified according to the nature of a particular health service.

b. The Questionnaires

Three questionnaires were used in the baseline survey: 1) the household schedule, 2) the morbidity questionnaire (including medical care utilization and costs questions), 3) the MCH questionnaire (including fertility, family planning, maternal health, and child health questions). Each of these questionnaires have many subdivisions broken down into closed or structured questions.

A great deal of attention was given to the design of the questionnaires. The U.S. H.E.W.'s "Health Interview Survey Procedure", 1975, the 1974 Korean National Fertility Survey's "Household Schedule", and the questionnaires of Child Health KAP Survey and Maternal Health Practice Survey of the Danfa Comprehensive Rural Health Project (conducted by Ghana and the University of California at Los Angeles) were used as major guides in designing questions.

c. The Sample

The sample design for the baseline survey aimed for a local (at gun level) representative and probability sample using a two stage design, first-stage or primary sampling units for ED's (enumeration districts) and second-stage for the households. The list of the 1975 census ED's, available at the Bureau of Statistics, EPB, served as the sampling frame.

The sampling fraction applied the rate of 0.063 (6.3%)* to the households of each sub-population. The universe to be studied and experimented with is located in three selected Guns (counties) chosen after careful analysis of certain criteria, together with a control area of ten Muons, equivalent to an average Gun. Six sub-populations were agreed upon, to divide the demonstration and control areas into analytically manageable units. Of these, four were from demonstration areas and two from control areas. One sub-population was designated for each of the demonstration Gun areas (3 total) and one sub-population was chosen from an island in the demonstration Gun. For the control area, one mainland and one island area were assigned as sub-populations to be surveyed. (See table I).

* The sampling rate applied to the universe of households of 0.063(6.3%) was determined after considering the homogeneity of the cluster, to assure less than five percent relative error among the major survey items.

Next, the actual number of households were listed (col. C). From these columns, the desired number of households to be surveyed in each sub-population was calculated by applying the sampling fraction of 0.063 (col. D). Column E was determined by using approximately ten percent of the ED's in each sub-population, (except in the case of the island control area where a minimum of two PSUs were allocated to be sampled in each Myon). Column F was calculated by dividing figures in col. D by those in col. E. Finally the particular households to be surveyed were decided by taking the households in their ordinal number (as assigned in census) and filling the quota (the figures in col. F).

Table 1. Sample Design of Baseline Survey

Sub-population	Number of 1975 census enumeration districts (EDs)	Total number of households in census	Number of households sampled	Number of PSUs sampl- ed in base- line survey	Average number of households sampled in each P.S.U.
(A)	(B)	(C)	(D)	(E)	(F)
Control, mainland	211	17,204	1,080	20	54
Control, island	9	821	52	2	26
Hongchon demonstration, mainland	281	21,885	1,372	28	49
Gunee demonstration mainland	158	12,706	800	16	50
Okgu demonstration, mainland	250	20,252	1,274	26	49
Okgu demonstration, island	21	1,347	84	2	42

d. The Organization and Execution of the Field Work

The household interviews were conducted during a 40-day period of November 12 to December 21, 1976, by a team approach. Each team was comprised of five interviewers and one supervisor, with field operations under control of roving KHDI personnel. The nine, six-member teams covered a total of 94 PSUs, averaging 10 or 11 PSUs per team.

KHDI selected and trained the survey personnel. First, resumes of interested applicants were solicited through the newspapers. Out of 290 replies, about 145 women were invited to personal interviews on the basis of age, education level, place of birth and growth, experience in conducting surveys and the legibility of their handwriting. During the interview, the candidate's personal appearance, general attitudes, health and personal sensitivity towards others were considered. From these interviews, 66 candidates were chosen to attend 4 days of orientation and training given by KHDI. The final screening at the end of the training period was a written examination which yielded 45 qualified interviewers.

The nine supervisors came from three sectors. Two were from KHDI staff, four women were chosen by virtue of past field operation experience, and three men were selected from the School of Public Health, Seoul National University. All received specific training for a five day period.

At the local level, interviews were coordinated by team supervisors and local community officials. The interaction among neighborhood leaders, interviewers and household members enhanced introductions and cooperation.

In each case a household was visited twice, with visitations spaced one week apart. At the first home visit, information about the household, fertility, family planning and Maternal/Child Health was gathered. This was the "single round" inquiry. In most cases the housewife was the only respondent. During this first visit giving special attention to the morbidity survey, a questionnaire and special calendar with both lunar and solar time periods printed on it was given to the respondent. These tools were then discussed with the respondent and marked in red pencil to specifically indicate the time period of concern. Because the 15 day period is the most common reference time span in rural Korea this interval was used. It began 7 days before the first visit and ended on the last visit. Events relating to morbid conditions were recalled and other morbid conditions were recorded by the respondent for discussion with the interviewer on the second visit. The deliberate marking of the calendar was used to stress to the subject the importance of both the critical time period and his notation of any morbid condition at that time.

On the 15th day (eight days after the first interview) another survey was used to collect data for morbidity rates. At this time the interviewer and subject reviewed the calendar together. If the calendar had not been used by the subject, the interviewer carefully inquired about morbid conditions for the entire 15 day period prior to the second visit.

On the other hand, if a morbid condition was noted, the interviewer proceeded to secure specific data on the health problem, its treatment and medical expenditure. All of the initial questions were devised from condition approach-that is, which kind(s) of morbid condition(s) had affected routine activity. After the calendar was completed and those questions asked, another questionnaire utilizing the personal approach was used. With this approach, the primary concern was the resultant restrictions upon routine activity caused by the previously categorized conditions.

As in many population surveys it was necessary to rely heavily on proxy interviews, since all household members were rarely on hand for questioning. In these cases the housewife was considered the most reliable source of information.

This "double round" interview was deemed most appropriate for several reasons. In two sessions the idea of the calendar could be explained thoroughly, used, and checked for reliability. The calendar format is believed to minimize the omission of certain details of acute (morbid) conditions due to oversight or lapse in memory. The second interview was also likely to be more relaxed and more productive because of rapport established in the first session. In this way information could flow more easily and corrections and additions for the entire questionnaire were made possible.

In both demonstration and control areas, interviews were completed with a total of 4,621 households, giving an overall response rate of 99.1% (see table 2).

Table 2. The Results of Sampling Implementation by Area

Area	Households sampled	Interviews completed	Response rate (%)
Demonstration area			
Hongchon	1,372	1,368	99.7
Gunee	800	795	99.4
Okgu	1,358	1,356	99.9
Total	3,530	3,519	99.7
Control area	1,132	1,102	97.3

The mean time of completion of interviews by type of questionnaire is shown in Table 3.

Table 3. Mean Time Taken for Interview Completed by Type of Questionnaire and Area

Type of Questionnaire	Demonstration area				Control area
	Hongchon	Gunee	Okgu	Total	
<u>First visit</u>	- minutes -				
Household survey	8.6	13.2	8.0	9.4	10.2
Fertility, MCH, and family planning survey	14.2	17.4	15.9	16.3	18.4
Total	<u>22.8</u>	<u>30.6</u>	<u>23.9</u>	<u>25.7</u>	<u>28.6</u>
<u>Second visit</u>					
Morbidity, utilization and costs survey	11.3	13.4	9.6	11.1	13.5

3. Major Findings

a. Perceived Morbidity or Relative Healthiness

- 1) The survey findings show high perceived morbidity, sex-age differential, and high prevalence of chronic conditions in three demonstration areas and a control area during a 15-day period. The perceived morbidity level was higher in females than males in terms of perceived morbidity rate and mean sickness days. Age-specific perceived morbidity rate has a U-shape, showing high rates in infants and the aged. Most prevalent conditions are different in the nature of their condition group: respiratory conditions are found in acute; arthritis or joint pain in chronic.
- 2) For evaluation of the KHDI project, major indicators of perceived morbidity or relative healthiness (See Appendix for Operational Definition of Healthy and Sick Persons) as a comparison basis are also shown. Each indicator represents a percent or mean with a statistical significance of difference (X^2 test) between each survey area. Several symbols are used: 0 for no statistical difference, * significant at $P \leq 0.05$, and ** significant at $P \leq 0.01$,

- (a) Proportion of persons with conditions causing activity limitation or receiving medical treatment per 100 persons during a 15-day period.

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	26.4% N=7,451	18.4% N=4,058	19.1% N=7,347	21.8% N=18,856	21.0% N=5,956
Hongchon	-				
Gunee	**	-			
Okgu	**	0	-		
Control area	**	**	**	0	-

- (b) Incidence rate (morbid conditions onset per 100 persons) during a 15-day period

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	12.6% N=7,451	7.6% N=4,058	9.8% N=7,347	10.5% N=18,856	8.2% N=5,956
Hongchon	-				
Gunee	**	-			
Okgu	**	**	-		
Control area	**	0	**	**	-

N = Sample size.

(c) Acute morbidity rate (acute conditions per 100 persons) during a 15-day period

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	14.9% N=7,451	8.7% N=4,058	11.1% N=7,347	12.1% N=18,856	9.6% N=5,956
Hongchon	-				
Gunee	**				
Okgu	**	**	-		
Control area	**	0	**	**	-

(d) Chronic morbidity rate (chronic conditions per 100 persons) during a 15-day period

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	16.3% N=7,451	12.4% N=4,058	10.0% N=7,347	13.0% N=18,856	14.4% N=5,756
Hongchon	-				
Gunee	**	-			
Okgu	**	**	-		
Control area	**	*	**	**	-

(e) Mean restricted activity days per person with morbid conditions during a 15-day period

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	8.49 days SD=6.22 N=1,969	8.44 days SD=6.49 N=750	8.59 days SD=6.21 N=1,400	8.51 days SD=6.27 N=4,119	9.63 days SD=6.05 N=1,253
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	**	*	**	**	-

(f) Proportion of the mean un-restricted activity days as 100 of mean sickness days per person with morbid conditions

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	12.7% N=1,969	15.3% N=750	9.6% N=1,400	12.2% N=4,119	9.6% N=1,253
Hongchon	-				
Gunee	0	-			
Okgu	**	**	-		
Control area	**	**	0	*	-

b. Utilization of Medical Care Service and The Costs

- 1) The utilization of medical care service was characterized by a low medical treatment rate, a high rate of unmet needs, long treatment days per sickness, a high utilization rate of pharmacists or druggists for treatment, heavy burden of medical expenditures, and relatively high rate of satisfaction of treatment.
- 2) Low medical expenditures, easy accessibility (in terms of time taken to reach the pharmacy or druggist), and high satisfaction of outcomes of treatment resulted in high utilization of the pharmacy or druggist as a source of treatment under the patient-initiated system.
- 3) Most patients who were administered hospital care were not referred by a physician. Hospital fees usually resulted in incurrance of debt. A high proportion of medical expenditures flowed out to the cities.
- 4) Major indicators concerning utilization of medical care service and the costs as a comparison basis for evaluation purpose are as follows:

(a) Medical treatment rate per 100 morbid conditions during a 15-day period

1) All kinds of morbid conditions

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	47.6% N=2,312	50.1% N=855	55.9% N=1,552	51.0% N=4,719	41.5% N=1,430
Hongchon	-				
Gunee	0	-			
Okgu	**	**	-		
Control area	**	**	**	**	-

2) Acute conditions

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	66.4% N=1,078	63.5% N=355	72.8% N=815	67.4% N=2,268	58.6% N=572
Hongchon	-				
Gunee	0	-			
Okgu	**	**	-		
Control area	**	0	**	**	-

3) Chronic conditions

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	31.3% N=1,214	40.6% N=500	37.3% N=737	35.6% N=2,451	30.1% N=858
Hongchon	-				
Gunee	**	-			
Okgu	**	0	-		
Control area	0	**	**	**	

(b) Receiving Rate+ of medical treatment per 100 medical treatment needs perceived during 15-day period.

1) All kinds of morbid conditions

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	61.9% N=1,799	64.0% N=669	66.5% N=1,306	63.8% N=3,774	50.6% N=1,172
Hongchon	-				
Gunee	0	-			
Okgu	*	0	-		
Control area	**	**	**	**	-

+ Receiving rate = $Ed/D \times 100$

Ed = number of morbid conditions which received medical treatment during a 15-day period

D = Ed + number of morbid conditions which did not received medical treatment but wanted treatment.

2) Acute conditions

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	79.8% N=919	80.1% N=281	81.1% N=371	80.3% N=1,931	71.6% N=468
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	**	**	**	**	-

3) Chronic conditions

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	43.2% N=880	52.3% N=388	47.8% N=575	46.6% N=1,843	36.6% N=704
Hongchon	-				
Gunee	**	-			
Okgu	0	0	-		
Control area	**	**	**	**	-

(c) Medical treatment rate rendered by physicians per 100 medical treatment including all sources of treatment during a 15-day period.

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	11.7%	13.7%	13.4%	12.7%	10.8%
	N=1,195	N=456	N=968	N=2,621	N=658
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	0	0	0	0	-

(d) Mean time (in minutes) taken to reach all sources of medical treatment employed during a 15-day period

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	43	44	36	40	59
	SD=97.8	SD=78.0	SD=69.8	SD=84.9	SD=88.7
	N=1,160	N=456	N=961	N=2,577	N=656
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	**	**	**	**	-

(e) Mean time (in minutes) taken to reach physician's offices for out-patient care during a 15-day period

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	75 SD=72.5 N=115	73 SD=61.5 N=51	41 SD=26.5 N=102	61 SD=59.0 N=268	105 SD=153.3 N=51
Hongchon	-				
Gunee	0	-			
Okgu	**	**	-		
Control	0	0	**	*	-

(f) Utilization rate of all sources of medical treatment (employed in a Myon or Eup the same as the resident's) per 100 medical treatments during a 15-day period

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	75.4% N=1,195	64.6% N=456	41.6% N=968	61.1% N=2,621	47.3% N=658
Hongchon	-				
Gunee	**	-			
Okgu	**	**	-		
Control area	**	**	*	**	-

(g) Satisfaction Rate of Outcomes⁺ of medical treatment employed during a 15-day period

1) Medical treatment employed by all sources

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	71.2% N=1,192	66.7% N=461	71.3% N=968	70.4% N=2,621	64.3% N=658
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	**	0	*	**	-

2) Out-patient care rendered by physicians

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	64% N=115	60% N=51	67% N=102	65% N=268	63% N=51
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	0	0	0	0	-

+ Outcomes of medical treatment, in which the recipient himself or herself considers the result of medical treatment, are divided into two categories: satisfied includes complete recovery and feeling some restoration to health; not satisfied contains no restoration to health and feeling worse than prior to treatment.

- (h) Mean medical expenditures for out-patient care rendered by physician during a 15-day period in all survey areas.

Per case : 4,249 won (SD = 6,700)

N = 268

Per visit : 1,800 won

- (i) Rate of patients with hospital care referred by physician during one year in all survey areas.

37%

N = 143

c. Maternal and Child Health

1. Data are from interviews with women having an infant or child aged under three years at the time of the survey, in three demonstration areas and a control area. The data cover prenatal care, pregnancy, delivery, postnatal care, maternal health, and child health.

2. A high proportion of women experienced severe symptoms in relation to pregnancy and delivery. Among the symptoms "severe dizziness" was much seen during pregnancy and "severe pain" after delivery. However most women did not want to get help from professionals for prenatal and postnatal care. Only of few births were actually attended by health professionals. In home delivery, most equipment for cutting the umbilical cord was not sterilized.

3. Most women were aware of or had heard of at least one name of a vaccination. Health field workers were greatly influential in this exposure of information. There was a close correlation between the women's knowledge and actual vaccinations given.

4. For infant health the breast-feeding period was long and the starting time of supplement feeding for the baby was late. The supplement foods contained much starch with little protein, iron, and vitamins.

During the past three months, many infants or children (aged less than three years) had severe fever or severe diarrhea. However only a small proportion of the infants or children had medical treatment rendered by physicians, while self-medication

without doctor's prescription was mostly used for treatment.

5. Major indicators of maternal and child health (with statistical significance for evaluation purpose) are as follows:

(a) Proportion of births attended by health professionals (doctor, health worker, midwife, and nurse) during 1973-1976.

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	16.9% N=461	14.0% N=193	25.5% N=401	19.6% N=1,055	10.2% N=333
Hongchon	-				
Gunee	0	-			
Okgu	**	**	-		
Control area	**	0	**	**	-

(b) Complete vaccination rates by type and age of infant and child (actually vaccinated as a schedule)

Smallpox (based on age 2-3)

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	67.2% N=134	57.1% N=56	39.2% N=125	54.3% N=315	50.2% N=102
Hongchon	-				
Gunee	0	-			
Okgu	**	*	-		
Control area	**	0	0	0	-

Polio (based on age 2-3)

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	19.4% N=134	32.1% N=56	22.4% N=125	22.9% N=315	11.8% N=102
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	0	**	*	*	-

BCG (based on age one)

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	40.0% N=160	78.7% N=61	23.9% N=138	40.4% N=359	25.0% N=112
Hongchon	-				
Gunee	**	-			
Okgu	**	**	-		
Control area	**	**	0	**	

DPT (based on age 6-12 months)

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	3.6% N=84	18.6% N=43	13.5% N=74	10.4% N=201	6.0% N=67
Hongchon	-				
Gunee	**	-			
Okgu	*	0	-		
Control area	0	*	0	0	-

Measles (based on age one)

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	20.6% N=160	32.8% N=61	23.2% N=138	23.7% N=359	8.0% N=112
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	**	**	*	**	-

d. Family Planning

1. Interviews were conducted with currently married women aged under 45 for data covering their fertility, attitude toward children, fertility control practice, and characteristics of users or non-users of contraception.

2. The fertility level is slightly different according to survey area. The total fertility rate is comparatively high in Hongchon (4.1 per women), but low in Gunee (3.5) and Okgu (3.6) while it is 3.9 in the control area.

Women experiencing induced abortion constitute a range of 23-29 percent in four survey areas.

3. Current users of contraception are 36-41 percent of the respondents, but there is a wide gap between current practice and the need of family planning practice, as shown in the following table:

Category	Demonstration areas				Control area
	Hongchon	Gunee	Okgu	All dem. area	
1) Current user	40.1	35.5	40.7	39.4	40.2
Satisfied	37.6	32.3	36.9	36.2	35.5
Non-satisfied	3.5	3.2	3.8	3.2	4.7
2) Non-user					
1) <u>Wanting contraception</u>	<u>15.6</u>	<u>8.3</u>	<u>11.6</u>	<u>12.8</u>	<u>14.7</u>
a. Wanting no more children	13.0	6.6	10.4	10.8	13.5
b. Wanting more children	2.6	1.7	1.2	2.0	1.2
2) <u>Not wanting contraception</u>	<u>35.3</u>	<u>44.1</u>	<u>48.1</u>	<u>37.7</u>	<u>31.9</u>
a. Wanting no more children	11.3	18.9	13.1	13.5	10.7
b. Wanting more children	24.0	25.2	25.0	24.2	21.2
3) Infecund	9.0	11.5	9.6	9.9	13.2
Total	100	100	100	100	100
(N)	(947)	(471)	(797)	(2,215)	(667)

(See operational definition of users of contraception on Appendix)

4. Major indicators of Family planning (with statistical significance) are as follows:

(a) Current practicing rate of family planning for currently married women aged under 45

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	40.1% N=947	35.5% N=471	40.7% N=797	39.4% N=2,215	40.2% N=667
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	0	0	0	0	-

(b) Ratio of current users of loop and sterilization as % of current users of contraception

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	37.6% N=380	45.2% N=166	51.1% N=305	44.2% N=871	44.4% N=268
Hongchon	-				
Gunee	0	-			
Okgu	**	0	-		
Control area	0	0	0	0	-

(c) Ratio of current users of contraception as % of women having three or less children

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	38.3% N=428	25.2% N=239	17.4% N=322	29.5% N=1,130	31.5% N=273
Hongchon	-				
Gunee	**	-			
Okgu	**	*	-		
Control area	0	0	**	0	-

(d) The unmet needs⁺ of contraception as % of women needing contraception

	<u>Hongchon</u>	<u>Gunee</u>	<u>Okgu</u>	<u>All dem. area</u>	<u>Control area</u>
	40% N=635	43% N=295	38% N=521	40% N=1,455	39% N=438
Hongchon	-				
Gunee	0	-			
Okgu	0	0	-		
Control area	0	0	0	0	-

+ The unmet needs = $(a + b + c) - C_u / (a + b + c) \times 100$

a = Number of fecund women wanting no more children and wanting or currently practicing contraception.

b = Number of fecund women wanting more children, but wanting or currently practicing contraception.

c = Number of fecund women wanting no more children and wanting no contraception.

C_u = Number of women currently practicing contraception.

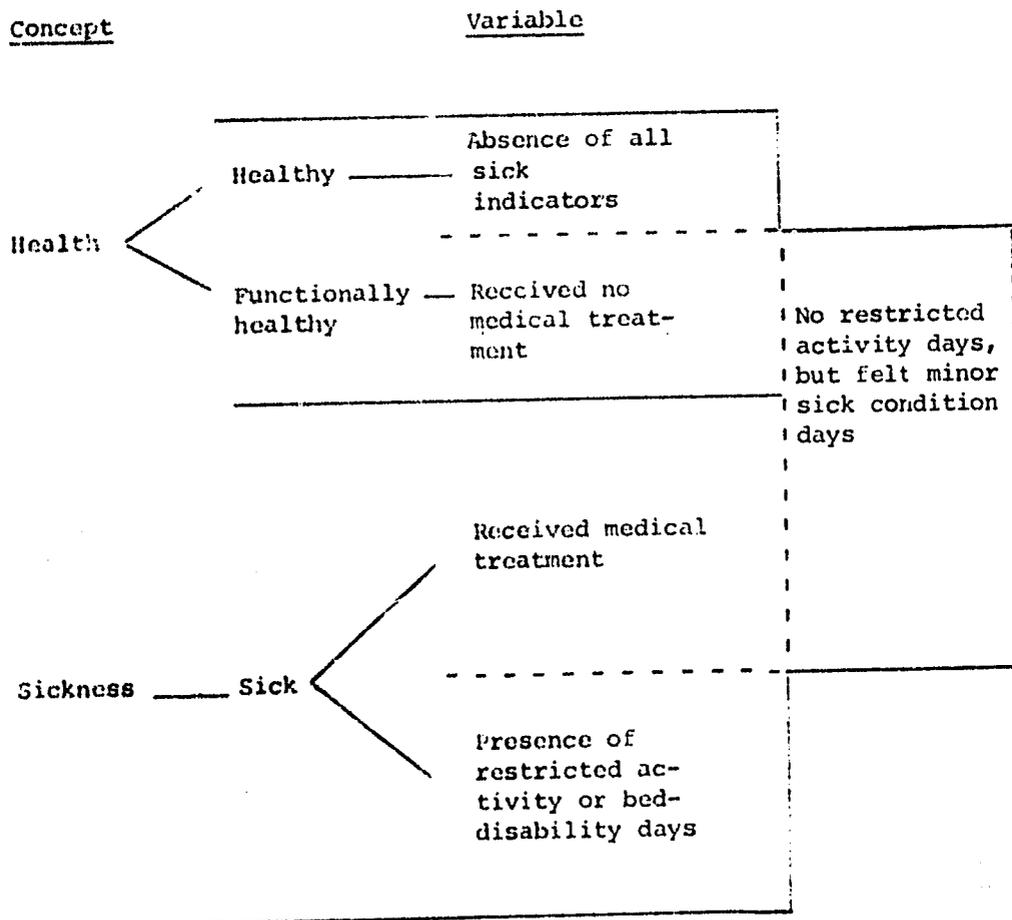
4. Summary

This report contains key indicators for comparison before and after the KHDI project. The data collected were derived from interviews with respondents in the sample in both demonstration and control areas during a 40-day period of November 12 to December 21, 1976.

The survey findings show high needs for medical treatment, but low utilization of existing medical service for treatment. There is also a high need for maternal and child health and family planning services. More detailed statistics and their interpretation will be published separately in a comprehensive report.

The 1976 data in these key indicators will be compared with the 1979 post-evaluation survey for detailed analysis and evaluation of the KHDI field health projects.

Graphic Explanation of Healthy and Sick Persons



- References:
- 1) Robert Kohn and Kerr L. White, Health Care: An International Study, pp. 62-63, 1976
 - 2) U.S. Department of Health, Education, and Welfare, Health Interview Survey Procedure: 1957-1975, pp. 127-135, 1975.
 - 3) Kenneth P. Smith, Improving the Delivery of Health Services in Korea: An Analytical Framework. Korea Health Development Institute, 1976 (Mimeo)

APPENDIX

Operational Definition of
Healthy and Sick Persons

a. H.PR. Healthy

- 1) Healthy : Absence of all sick indicators listed below.
- 2) Functionally healthy : No restricted activity days, presence of minor condition but received no medical treatment.

b. S.NR. Sick Presence of any bed days and/or restricted activity days and/or no restricted activity days with medical care treatment within a 15-day period.

- 1) S.NR1 Received Adequate Treatment:

Recipient himself or herself considers the result of medical treatment adequate regardless of type of services rendered:
 - a) complete recovery
 - b) feeling some restoration to health
- 2) S.NR2 Received Inadequate Treatment:

Recipient himself or herself considers the result of medical treatment inadequate regardless of type of services rendered:
 - a) feeling no restoration to health
 - b) feeling worse than prior to treatment
- 3) S.NR3 Not Received Any Treatment, but Wanted Treatment:

Client wants to receive medical treatment, but does not receive it because of economic reasons, too busy, fear about going to physicians or intended to receive it but had taken no action at the time of survey.
- 4) S.NR4 Not Received Treatment and Wanted No Treatment:

Client doesn't want to and doesn't receive any medical care treatment because he feels his is only a minor illness, feels he will recover spontaneously or feels that recovery will be too difficult.

Operational Definition of
Users of Contraception

Current Users

Satisfied : Current users of contraception at the time of survey and satisfied with method of contraception using

Non-satisfied: Current users of contraception at the time of survey, but not satisfied with method of contraception using: intended to switch current method to another.

Non-Users

Wanting contraception:

Non-users of contraception at the time of survey, but intended to use contraception in 1975 or 1977. Excluded women intending use of contraception in the non-defined future.

Wanting contraception:

Non-users of contraception at the time of survey and not intending to use contraception.

Included women intending use of contraception in the non-defined future.

Infecund:

Perceived infecundity which women responded to the question: spontaneously sterile, menopause, operation (not for sterilization), and other.

GOVERNMENT'S POLICIES
FOR
HEALTH SERVICES

by

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Ministry of Health and Social Affairs
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Contents

1. The Present Status
2. The Expansion of Medical Care Services
3. Health Manpower
4. Health Care Delivery System
5. Maternal and Child Health Program
6. Communicable Disease Control
7. Medical Insurance and Medical Aid Programs
8. Summary

The Present Status

The three consecutive five-year Economic Development Plans, started initially in 1962, resulted in the rapid growth and development of our economy which was accompanied by a tremendous increase in the national income and remarkable improvement in the living standard. Nevertheless, many problems remained to be solved in the field of health and medical care, partly because the Government could not afford to divert the resources needed for economic development to other sectors.

However, the 4th five-year Economic Plan, initiated in 1977, made a stride toward a new developmental strategy stressing the social development in order to maintain a social balance with the steady economic growth.

Furthermore, the 5th five-year Economic Development Plan has been prospected to concentrate the Government's total effort to reach an equivalent level of economic and social development as that of the developed countries.

This developmental strategy of the 4th five-year Economic Plan, enforced by specific objectives for the health policies, are formulated as follows:

1. Establishment of an efficient health care delivery system for the low income people in large cities and the people in rural areas.
2. Reinforcement of the pre-existing preventive health services such as improvement of MCH services and control of disease of public health importance.
3. Protection and improvement of the living environment by reinforcing fundamental facilities for environmental sanitation in the rural areas and by systematically controlling the industrial pollution.

In other words, the expansion of the medical care services, reinforcement of public health activities, and preservation and improvement of living environment are the major issues of the health service policy.

The Expansion of Medical Care Services

According to the statistics at the end of 1977, we presently have 12,747 medical institutes of all category and 52,421 hospital beds, approximately 150 beds per 100,000 people. However, a serious problem encountered is that these medical institutes are concentrated mainly in urban areas. For example, 76% of the hospital beds are distributed in urban areas where only 48% of total Korean population reside.

Among 251 general hospitals furnished with more than 80 beds, and hospitals with more than 20 beds, 191 (76%) medical institutes belong to the private sector, and are located mostly in urban areas. Most of the rural population have to depend upon public medical institutes, which lag far behind the private medical institutes in their facilities.

Therefore, reinforcement of medical equipment as well as facilities for public medical institutes has become one of the major issues in governmental health service policy. In order to solve this problem, the Government has planned to reconstruct 308 health subcenters, 8 health centers, and 33 municipal and provincial hospitals during the 4th five year Plan, for which 22.4 billion won has been allocated. This plan is presently in progress. During 1977 one health center was newly built, four provincial hospitals reconstructed, and 901 health subcenters fully supplemented with appropriate medical equipment.

While the quantitative expansion of the public medical facilities is being executed, the Government also intends to devise a proper measure to ensure their functioning as competent medical institutes in terms of quality, with the hopes that the quality control of the public medical institutes may counteract the growing medical expenses.

Thus, as the first step, the research to investigate the actual operational situations of these public medical institutes, municipal and provincial hospitals, has been undertaken by Korea Development Institute. The result of the research is expected to be ready by late August of this year. The Government is determined to take the necessary actions for the rationalized operation of the hospitals in accordance with the recommendations proposed by the research institute.

Also, to maintain a balanced health care delivery system, proprietary general hospitals and university hospitals located in urban areas are encouraged to construct branch-hospitals in 13

industrial plants where a rapid increase in medical demands has been noticed, and in 12 medically vulnerable rural areas.

By 1981, 25 additional hospitals with 2,500 beds will be constructed with long-term low-interest funds and financial loans provided by the Government.

Proprietary foundations, including enterprises, are persuaded to construct hospitals in remote rural areas: now 16 hospitals with a total of 666 beds are under construction. Some incentives in taxation and financing systems are under consideration for the benefit of hospital founders. To provide equitable medical care services to all the people of the nation, the Government plans not only to increase the number of medical institutes but also to decentralize the existing urban medical facilities evenly throughout the nation.

By 1991 total number of hospital beds will number 120,000 as compared to 52,000 in 1977, and the number of persons per one hospital bed will be reduced to 300 persons from 677, a level of the developed countries.

Health Manpower

Comparing the level of health manpower in Korea with that of other countries, all categorical health manpower are insufficient in number to meet the demands of the Korean people with the exception of the pharmacists. Needless to say, adequate supply of qualified health manpower is an essential task to be achieved in order to provide a low cost, high quality medical service for all. There are 18,913 medical doctors as of the end of 1977, and 1,200 medical graduates from 16 medical schools each year will increase the present number. The number of persons per doctor is 1,927. Only 87% of these licenced doctors are engaged in delivering medical care, among whom 74% are working in urban areas, especially in Seoul and Busan (59%). This maldistribution of medical doctors results in an extreme discrepancy of medical care services between large cities and provincial areas; there are still numerous doctor-less Myons and it is one of the most difficult problems to recruit qualified doctors for public medical institutes.

A similar phenomenon is also apparent in the distribution of other categories of health manpower. Accordingly, the Ministry of Health and Social Affairs will have to establish a reasonable and comprehensive health manpower development plan in close coordination with the Ministry of Education to correct the unbalanced supply as

well as maldistribution of the health manpower.

To cope with the situation, the Government has tentatively set up a long term objective to supply a sufficient number of doctors, up to 1 : 1,200 ratio, by 1991. Meanwhile a possibility of utilizing paramedical personnel is under active discussion as one of the comprehensive counter measures. Also as a short-term measure to eliminate doctor-less Myons, a "conditioned doctor" system has been adopted, which offers health center directorship to those medical graduates who have failed to be licensed. After the two-year service the medical licenses are granted to them. According to this system, 115 medical school graduates in 1976 and 57 graduates in 1977 were recruited. In addition to the system, a government provided scholarship was founded in 1977 for the selected medical students who will be assigned to direct the health subcenter in doctor-less areas for the period of time equivalent to the awarded period after the graduation. In 1977, 199 students were selected for the scholarship, and accordingly it is expected that there will be no more doctorless Myons by 1982.

Also exempting these doctors who serve in health subcenters of selected areas from military obligation is under study. On the other hand, assigning hospital house staff to such health subcenters twice a year for 6 months, as a pre-requisite for the eligibility of special board examination, will be eventually abandoned.

Health Care Delivery System

Private hospitals and clinics are playing the major roles in the health care delivery system in Korea. The public sector is rather complementary to the private sector for medical care service, but it is playing the major role in preventive health care.

Since the private sector is taking a major part in personal medical care services, and there is no distinct separation between medical practice and dispensary in this country. A large number of patients utilize drugstores including herb medicine for medical care.

Among these private sectors, profit making private clinics constitute the major part, most of which are located in or around urban areas. This also aggravates the problem of maldistribution and functional duplication of medical facilities.

Nevertheless, functional allotment between health manpower and medical facilities has been attempted, and public and private sectors

have been encouraged to complement each other through recently introduced medical assistance and medical insurance programs.

For an efficient operation of the medical assistance program, the whole country is divided into 56 medical districts based on the location of public medical institutes. This integration of niches for living and economic activities of the people was one of the major considerations in making such districts for medical care.

To establish a systematized health care policy, the medical care system is so organized that health centers, sub-centers, provincial and municipal hospitals, and national medical institutes are linked together functionally: health centers, subcenters and private clinics of the district as assigned to primary medical care, the provincial and municipal hospitals including government affiliated proprietary hospitals to secondary medical care for those patients who are referred from the secondary medical care institutes. Even though the functional allotment among regional medical institutes with referring system has been established, it may take considerable time for efficient operation.

Therefore, it is suggested that the government may have to prepare an alternative medical care system that should be more practical and unique to provide economical yet quality medical care for everyone in the country.

As of the end of 1977, the Korean medical care network for medical assistance programs was composed of 2,027 primary care institutes, 165 secondary care institutes, and 11 tertiary care institutes.

Maternal and Child Health Program

According to the nationwide population census of 1975, 38.5% of the total population were children under age 15 yrs, and over 45% of the total female population were women of reproductive age, 15-44 yrs. They are subject to the MCH program.

Infant mortality and maternal mortality rates in 1975 were estimated to be 38 per 1,000 live births and 56 per 10,000 births respectively, both being higher than those of the developed countries.

To improve the MCH program more effectively, the Government has enforced the following programs; an intensive health education,

introduction of hygienic delivery, and extensive vaccination for eligible children to be carried out by MCH workers of health centers and subcenters with special emphasis on rural and low-income people. There are also 9 MCH centers operating to provide hygienic delivery care for low-income people. The government plans to reduce the infant and maternal mortality rate to 30 and 47.2 respectively, by the year 1981, and to 10 and 31.4 by 1991.

Communicable Disease Control

The incidence of acute communicable disease appears to be decreasing every year in this country. This trend is mainly due to the extensive efforts by Government to prevent the diseases by massive vaccination program, isolation of patients as well as strict quarantine, and maintenance of proper environmental sanitation.

Consequently diseases such as cholera, smallpox, pest, typhus fever, and relapsing fever have been eradicated, although sporadic cases of typhoid fever and diphtheria still occur in limited areas.

The prevalence of these diseases was 52.7 per 100,000 in 1972, but it has been reduced to 33.2 in 1977. The Government expects to decrease the cases to 20 by 1981, and eventually to 5.8 per 100,000 by 1991.

Although tuberculosis, a chronic disease, is decreasing in its prevalence gradually, the prevalence rate of the disease in this country is still higher than that of developed countries. Through the health center network, the Government is carrying out chest X-ray, BCG vaccination, and patient care programs by utilizing tuberculosis health workers. The total number of registered patients was 153,000 in 1977. Continuous efforts to decrease the prevalence rate of the disease to a level as low as 2.17% and 0.8% by the year of 1981 and 1991 respectively, from 3.19% in 1976, is in progress. Infection rate of parasitic diseases has also been decreased from 54% in 1971 to 41% in 1976, and will be reduced to 1.6% by 1991.

For the elimination of the sources of venereal disease infections, the Government has been concentrating its effort to detect and treat the hidden VD cases through 2,052 medicaid institutes and 60 VD clinics free of charge and without violation.

As already mentioned, MCH health workers, TB control workers, and family planning workers assigned to these health centers and subcenters

throughout the country are approximately 5,400 persons working independently in their field of responsibility. A training program of these health personnel to make multi-purpose frontline health workers for the efficient integration of the local health services began in 1977 and the program will be completed by the end of 1979. Thereafter, these trained workers will play a major role in preventive health services in their community.

Medical Insurance and Medical Aid Programs

It would be worthwhile to note that the Government made a historical milestone by initiating the health insurance system quite successfully in the first year of the 4th five-year Economic Development Plan, to provide medical security for all Koreans. The great improvement of living standard of the people due to the rapid national economic growth since 1960's, has resulted in a prominent increase of medical care demand in both quantity and quality. This fact eventually brought a rise of medical expenditure to a critical extent. Accordingly, the Government has started the medical aid program primarily for the indigent and low income people to meet the necessity for a medical security system. Among the people under the provisions of this program, the Government pays total medical expenditures for those indigent people, whereas it pays the expenditures for primary medical care and 30% of secondary care (hospitalization) for low-income people. The rest of the expenses (70%) will be also paid by the Governmental long-term loans to the hospital, which in turn the patient pays to the Government. During 1977, 2,095,000 people benefited from this program which cost the government 5,572 million won. The number of persons who received medical care at an out-patient clinic were 4,350,000; and hospitalized, were 2,834,000 persons among the recipients of the program. This indicates that one person attended, on the average, 2.2 times to medical institutes in 1977. Of the major diseases, when classified by 17 ICD, 66.7% of total illness were diseases of the nervous system and sensory organs, diseases of the respiratory system, diseases of the digestive system, and diseases of skin and subcutaneous tissues. It was noticed that bronchitis, pneumonia, appendicitis, gastritis, meningitis, epilepsy, and dermatitis were the major reasons for the medical care.

The medical insurance system emerged from the experimental model to be a program of practice on July 1, 1977. Since then the insurance program has been expanded into industrial plants which employ more than 500 employees. Today there are 1,199,000 persons insured

with 2,004,000 dependants, which make 3,203,000 members enrolled in the program.

The operation of the medical insurance system is carried out by the unit of medical insurance union, which is founded by the manager of the enterprise according to the charter approved by the Government. The costs of the insured medical services and drugs are formulated and presented to the Government to be evaluated.

The medical insurance unions are advised to contract more than one medical institute. As of the end of 1977, 5,406 medical institutes (67.3% of the total) were engaged in the contracts, and each union has a contract with 52 medical institutes on the average. There are three kinds of allowances which include medical treatment, funeral costs, and delivery costs. The allowance for medical treatment is limited to the period no longer than six months, and the insureds and their dependant family members are obligated to pay a portion of the costs for medical services.

The insurer and the manager of the enterprise are each responsible for 50% of the premium. The premium is determined according to the insurer's ability, ranging anywhere from 3 to 8% of his salary. The operational cost, as well as additional funds, 10% of the total premium collected by the union, are subsidized by the Government as far as the national budget will permit.

During the last 6 months of 1977, there were 1,715,000 recipients of the allowances for medical treatment, and they utilized this program on the average of 2.5 times.

The Government plans to enlarge the scope of coverage to the all enterprises employing more than 300 employees, civil servants, and teaching staff of the private schools in 1979. In such case, 10,159,000 persons will receive the insured medical services, which calculates to 19.3% of total Korean population.

Including the low-income people who benefit from the medical aid program, 41% of the total population will receive the insured medical services by 1981, and 80% by 1991.

Summary

These are the general summaries of the major health policies. However, in carrying out these programs major difficulties are inevitable. Trial and errors, unpredictable events, and required

countermeasures may result in waste in terms of cost-effectiveness.

Also, due to lack of time, extensive analysis, evaluation, and review of the given data are not sufficiently implemented. This causes difficulties for the officers of Ministry of Health and Social Affairs in designing and establishing effective policy.

Under these circumstances, Korea Health Development Institute should function as Korea Development Institute functions for Economic Planning Board, and enlarge its function to assist the Ministry of Health and Social Affairs in establishing the national health policies and national health planning by investigating and studying the health programs and supplying the baseline data.

The Korean Government regards health and medical care services as a fundamental right of the people, and is ready to do its best to establish such a health care delivery system that all the people may receive low-cost, high quality health care services regardless of their residencies or economic status, and to realize a medical security system which socialize the medical expenses.

ROLE OF NATIONAL HEALTH SECRETARIAT

BY

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Contents

1. Background and Purpose
2. Organization
3. Functions
4. Roles of NHS and NHC in Implementing Health Loan Project Activities
5. Activities, 1975 - 1978

1. Background and Purpose

The Korea Development Institute(KDI) was established on March 11, 1971 by President Park Chung Hee as a non-profit research organization devoted to the study of public issues and to assist the Government in making strategic policy decisions. In order to fulfill this objective, KDI systematically conducts research on policy matters concerning the overall socio-economic development, helps develop the nation's five-year plans, and assists in policy making. KDI is largely financed by an endowment fund. For this reason, its autonomy and independence are guaranteed to the maximum possible extent in the performance of its policy-oriented research activities. KDI maintains a close working relationship with the Economic Planning Board.

The National Health Secretariat(NHS) was established in the Korea Development Institute in October 1975 under the Health Loan Agreement signed between the governments of the Republic of Korea and the United States of America. The Health Loan Project concerns itself with innovation in health care delivery. Its major concern is to develop, through the Korea Health Development Institute, innovative methods of delivering health care, at a reasonable cost, to low-income people who are not presently served. The key issues to be researched and evaluated are not primarily medical problems. They are primarily problems related to resource allocation, logistics, administration, task analysis and manpower rationalization.

To provide broad supervision over the health demonstration project and to promote a coordinated health improvement effort, the National Health Council(NHC) was created within the Economic Planning Board. At the policy level, the Council is to provide a focal point for inter-ministerial and private-public sector discussions of national health needs and opportunities. The role of the National Health Secretariat is to assist the Council(NHC) by providing data and research findings needed for making policy recommendations. The Secretariat will support and conduct research aimed at providing better information to support health planning and improvement. Such research includes evaluation and analysis of on-going health demonstration projects, estimation of the socio-economic benefits to be derived from investments in health, and alternative methods of financing the provision of health care. The NHS with the participation of economists and other specialists is the key to effective sector-wide planning and evaluation.

2. Organization

The Secretariat activities are coordinated and directed by Secretary General Chong Kee Park, Research Director of the Korea Development Institute. The National Health Secretariat consists of two major

functional divisions: Division of Research Coordination and Administration headed by Mr. Jae-Sung Min and Health Economics and Analysis Division headed by Dr. Ha Cheong Yeon. There are eight other staff members who are engaged in research and other activities. They were trained in economics, public health, statistics and public administration.

3. FUNCTIONS

Functions of the National Health Secretariat

- (1) To undertake evaluation and analysis of health demonstration projects being conducted by the Korea Health Development Institute(KHDI)
- (2) To engage in a program of policy relevant research that will assist national health planning, research, and policy formulation activities.
- (3) To conduct other policy-oriented health research, as requested by Economic Planning Board(EPB) or the National Health Council(NHC), for the purpose of providing needed information for macro-planning and policy formulation.
- (4) To analyze local and foreign experiences of relevance to the formulation of national health programs and alternative strategies to be implemented in coordination with the Korea Health Development Institute.
- (5) To prepare policy and program recommendations for the National Health Council(NHC), the Korea Health Development Institute(KHDI) and the Economic Planning Board(EPB) based on research and program review results. The National Health Secretariat is especially concerned with the compiling and reporting of research findings and field demonstration results relevant to national health policy formulation and program development.
- (6) To conduct policy-oriented seminars on relevant health issues for policy makers and opinion leaders.
- (7) Developing a broad framework for classifying national health problems and establishing a comprehensive cross-file and data bank on completed studies and work in progress related to these health problems.

- (8) Facilitating contacts between domestic and foreign researchers, institutions, and organizations active in the health planning field.

4. ROLES OF NHS AND NHC IN IMPLEMENTING HEALTH LOAN PROJECT ACTIVITIES

<u>Major Activities</u>	<u>Roles of N.H.S.</u>	<u>Roles of N.H.C.</u>
Review of health issues and needs: establishment of priorities	<ol style="list-style-type: none"> 1. Recommending guidelines to NHC for analysis 2. Analyzing existing data and KHDI report on existing projects and report results to NHC 3. Providing NHC & KHDI with analysis of national health needs 4. Recommending results of policy oriented seminars, conferences, workshops, and symposiums on health issues to NHC 	<ol style="list-style-type: none"> 1. Approving guidelines for analysis 2. Reviewing/approving results of analysis 3. Reviewing/approving results of analysis 4. Approving results and instructing KHDI to design program
Policy & macro program (KHDI & non-KHDI recommendations)	<ol style="list-style-type: none"> 1. Reviewing & evaluating KHDI projects and other recommendations and preparing staff paper for NHC 2. Preparing NHS work program and submitting for approval to NHC 3. Preparing policy oriented research for the purpose of providing needed information and recommendation to NHC 	<ol style="list-style-type: none"> 1. Reviewing/approving and transmitting recommendations 2. Approving NHS program 3. Reviewing/approving results of research and recommendations

Major Activities

Roles of N.H.S.

Roles of N.H.C.

Review of KHDI program

1. Preparing staff review of KHDI program for NHC based on conducting general review and evaluation of the overall experiences of KHDI

1. Reviewing/approving

Design of KHDI Demonstration Projects

1. Preparing staff review of projects if requested by NHC
2. Analyzing local and foreign experiences of relevance to the formulation of KHDI demonstration projects, if requested by NHC

1. Reviewing/approving

2. Reviewing/approving

Implementing and evaluating KHDI Demonstration Project

1. Exercising monitoring activity to obtain data for macro report on KHDI
2. Reviewing and preparing report for NHC on KHDI project evaluation reports

1. Exercising and general over-viewing

2. Reviewing/approving NHS report

Review and revision of KHDI overall program

1. Reviewing KHDI and other reports on overall KHDI program
2. Comparing KHDI program with similar local or foreign efforts

1. Reviewing KHDI, NHS and other evaluations

2. Approving revisions

Activities, 1975-1978

A. Research Activities

(1) Evaluation of KHDI Demonstration Project:

- a. Development of an analytical framework for evaluating KHDI Demonstration Project.
- b. Assessment of project efficiency through cost-benefit analysis.
- c. Testing the feasibility of project replication by determining the net cost of the demonstration project, appraising the adequacy of the community health center (CHC), and estimating total investment requirements.

(2) Analysis of Existing Health Data:

Data collection and the analysis of national health indicators for the National Health Plan.

B. Policy Oriented Seminar, Symposium and Workshop:

- (1) Symposium: "Health Planning and the Policy Measures of the Fourth-Five-Year Economic Development Plan", December 1975
- (2) Seminar: "Health Care Delivery System and Health Care Resources", December 1976
- (3) Workshop: "Trends in Social Security and Health Insurance throughout the World", June 1977

C. Support Provided to the National Health Planning:

At the request of the Economic Planning Board and the Ministry of Health and Social Affairs, NHS/KDI convened eight meetings of the Health Planning Task Force Committee to formulate the National Health Plans and Programs for the Fourth-Five-Year Economic Development Plan. Through these meetings, NHS/KDI recommended alternative methods for the improvement of urban and rural health care delivery systems, manpower development programs, and establishment of health insurance schemes.

D. Contacts with Foreign Organizations:

- (1) Dr. Chong Yee Park, Secretary General of NHS/KDI traveled to Europe, the United States, and Japan to study foreign experiences in health care system and health insurance during November 1976
- (2) Dr. Chong Yee Park, Secretary General of NHS/KDI had attended the WHO Study Group Meeting on Methods of Financing Health Services which was held in Geneva between November 18 and 29, 1977.
- (3) Dr. Ha Cheong Yeon, Chief of Health Economics and Analysis Division and Mr. Jae-Sung Min, Chief of Research Coordination and Administration Division participated in the Third Annual Review of the Thailand Ministry of Public Health's Lampang Health Development Project which was held from November 15 to December 5, 1977, in Lampang and Chiangmai.

E. Publications:

- a. Hakchung Choo, NHS/KDI Evaluation Framework for the KHDI Demonstration Project, NHS/KDI, Feb., 1977
- b. Ha Cheong Yeon, Analysical Framework For Evaluating Health Demonstration Projects, NHS/KDI, Feb., 1978
- c. James R. Jeffers, Economic Issues: Health Planning and Policy Formulation, NHS/KDI, 1976
- d. D.S. Han and J.Y. Park, A Comparative Study of the Patient Care Services System in Korean Hospitals, NHS/KDI, 1976 (In Korean)
- e. Chong Kee Park, Financing Health Care Services in Korea, NHS/KDI, 1977
- f. Hakchung Choo, A Feasibility Study of the National Health Data and Information System in Korea, NHS/KDI, 1977
- g. Chong Kee Park and Jae-Sung Min, Health Problems and Policies in Korea(I), NHS/KDI, 1977. (In Korean)
- h. Chong Kee Park and Jae-Sung Min, Health Problems and Policies in Korea(II), NHS/KDI, 1978. (In Korean)