KNOWLEDGE SHARING PROGRAM

2011 Modularization of Korea's Development Experience

Healthcare Improvement Activities of Public Health Centers in Rural Areas

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MINISTRY OF HEALTH & WELFARE

KOFIH
Korea Foundation for International Healthcare

2011 Modularization of Korea's Development Experience:

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Preface

The study of Korea's economic and social transformation offers a unique opportunity to better understand the factors that drive development. Within one generation, Korea had transformed itself from a poor agrarian society to a modern industrial nation, a feat never seen before. What makes Korea's experience so unique is that its rapid economic development was relatively broad-based, meaning that the fruits of Korea's rapid growth were shared by many. The challenge of course is unlocking the secrets behind Korea's rapid and broad-based development, which can offer invaluable insights and lessons and knowledge that can be shared with the rest of the international community.

Recognizing this, the Korean Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI) launched the Knowledge Sharing Program (KSP) in 2004 to share Korea's development experience and to assist its developing country partners. The body of work presented in this volume is part of a greater initiative launched in 2007 to systemically research and document Korea's development experience and to deliver standardized content as case studies. The goal of this undertaking is to offer a deeper and wider understanding of Korea's development experience with the hope that Korea's past can offer lessons for developing countries in search of sustainable and broad-based development. This is a continuation of a multi-year undertaking to study and document Korea's development experience, and it builds on the 20 case studies completed in 2010. Here, we present 40 new studies that explore various development-oriented themes such as industrialization, energy, human capital development, government administration, Information and Communication Technology (ICT), agricultural development, land development and environment.

In presenting these new studies, I would like to take this opportunity to express my gratitude to all those involved in this great undertaking. It was through their hard work and commitment that made this possible. Foremost, I would like to thank the Ministry of Strategy and Finance for their encouragement and full support of this project. I especially would like to thank the KSP Executive Committee, composed of related ministries/departments, and the various Korean research institutes, for their involvement and the invaluable role they played in bringing this project together. I would also like to thank all the former public officials and senior practitioners for lending their time and keen insights and expertise in preparation of the case studies.

Indeed, the successful completion of the case studies was made possible by the dedication of the researchers from the public sector and academia involved in conducting the studies, which I believe will go a long way in advancing knowledge on not only Korea's own development but also development in general. Lastly, I would like to express my gratitude to Professor Joon-Kyung Kim for his stewardship of this enterprise, and to his team including Professor Jin Park at the KDI School of Public Policy and Management, for their hard work and dedication in successfully managing and completing this project.

As always, the views and opinions expressed by the authors in the body of work presented here do not necessary represent those of KDI School of Public Policy and Management.

May 2012

Oh-Seok Hyun

President

KDI School of Public Policy and Management

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Summary

Korea's preventive healthcare projects have been active since the establishment of its first public health center in 1946. Successful outcomes of family planning, leprosy control and TB control projects in a relatively short period of time were attributable to the proactive activities of healthcare workers in public health centers. Health centers in rural areas, where infrastructure is vulnerable, operated Sub health-centers and primary health care posts that do not exist in urban health centers. They focused on preventive services and primary care for rural populations who had less access to healthcare services, geographically and economically, than urban residents.

With its culture of oriental medicine which regards healthcare as individual responsibility and insufficient government finances, Korea has long developed private medical institutions mainly in large cities; medical facilities in rural areas were very vulnerable, and this has not changed much up to date. Recruitment in public health institutions was difficult, as is the case now.

This paper explores the overall process of public health center development and healthcare infrastructure establishment in Korea, and discusses healthcare improvement activities carried out by healthcare workers in rural public health centers. We also take a close look at successful cases of healthcare improvement projects under the public health center's early disease control system. The paper explains in detail, in particular, the composition and operation of rural public health centers as well as the introduction and operation of health workers, public health doctors and community health practitioners from early stages up to the present.

1. Composition and Operation of Public Health Center Organizations in Rural Areas

In order to expand the foundation for public health centers, the Public Health Centers Act was enacted in 1956 to allow health centers to finance themselves. A system of municipal·(gun) public health centers, operated by local autonomous bodies, as well as their duties was defined in 1962. Under public health centers in rural areas, Sub health centers and Primary health care posts were established in the 1980s to build the system of healthcare delivery for rural populations in an effort to resolve the maldistribution of medical resources. From 1979, public health doctors were deployed in Sub health-centers in eup and myeon (districts with a population of around 20,000). Community health practitioners ("trained nurses or midwives") were placed in primary health care posts established in medically underprivileged villages ("where the distance to medical facilities is more than 30 minutes by ordinary transportation") or remote, island areas with a population of less than 1,000. No "myeon without doctors" was left in 1983.

Health centers' early projects focused on control of communicable diseases and TB, and on medical care projects for vulnerable groups, and MCHs were added in the 1970s. In the 1990s, the functions of public health centers changed from the government-planned health projects to regional healthcare plans by local autonomous bodies. Health promotion was added later on. With increasing chronic and lifestyle-related diseases, the scope of health service expanded to home visits, local community-centered rehabilitation, rehabilitation for the physically challenged, mental health, and seniors.

2. Introduction and Operation of Health Workers, Public Health Doctors and Community Health Practitioners

Public health centers had many difficulties in implementing health projects in the initial stages due to a lack of human resources. Recruitment in rural areas was much more challenging. This problem was tackled by using health workers, public health doctors and community health practitioners. Health workers were produced by training non-professional staff in the short run. Community health practitioners, who were nurtured by training nurses, midwives and by giving them authority for primary care, provided comprehensive healthcare services for local people living in rural, isolated areas. Surplus army doctors were hired as public health doctors who were in charge of primary care in Sub health-centers.

Health workers were responsible for family planning, MCH, and TB in eup and myeon offices as temporary government officials. Family planning workers who were hired for the national policy for family planning were mostly women with junior and senior high school diplomas, excluding a small number of healthcare professionals. As the frontline staff, they worked on publicity, enlightenment, contraceptive use through door-to-door visits and collective training in 1,473 eup and myeon in 1964. MCH workers largely consisted of

midwives and nurses at first with 152 of them placed in eup and myeon in 1967, but they were gradually replaced by nurse aids. TB control workers were produced by training TB control staff who were male high school graduates from 1962 through 1963 by the Korean National TB Association. The number of health workers in a Sub health-center in 1979 averaged 3.12, but the figure was on the decline after 1981, posting 2.09 in average in 1990. Integration was introduced to the health worker system in 1985, turning project workers into integrated workers who were positioned in Sub health-centers.

Training for such health workers had been conducted by the Korea National Institute of Health, Korea Population Health Research Institute (former Family Planning Research Institute), Korea TB Research Institute, municipal and provincial branches of the Korean National TB Association, and public health centers. But with introduction of the World Bank's loan and establishment of regular government official positions in 1981, the Korea National Institute of Health took up the responsibility of training. Health workers, after completing a 3-month training course for integrated health workers established in 1985, have worked in public health centers and Sub health-centers, mainly assuming the responsibility of preventive health services.

The policy for nurturing doctors of the 1970s led to an overabundance of medical school graduates, exceeding the demand for army surgeons in 1980s. Those surplus workers were positioned in medically underserved villages of rural areas as "public health doctors" defined as: "Doctors, oriental doctors or dentists who are registered as reserve officers to serve the public health duties in accordance with Article 30 of Military Service Act and who are ordered to do so by the Minister of Health and Social Affairs." Their mandatory duty period was 3 years, and around 1/3 of them were replaced every April. Korea achieved a policy goal of eliminating "myeon without doctors" by sending public health doctors, dentists and oriental medicine doctors to medically underprivileged areas, gun health centers and Sub health-centers.

Community health practitioners are the primary healthcare workforce developed by the government's pilot project. In consideration of the positive evaluations for the pilot project, 2,000 community health practitioners were placed in remote and isolated villages of rural areas from 1981 to 1984 to perform minor medical practices and health projects within the jurisdiction of the primary health care posts. Medical treatment was a large part of their roles in the initial stages, but the roles have recently divided into medical practices and healthcare projects almost evenly, showing slight differences by area depending on its demographic changes, healthcare environment changes and jurisdiction characteristics.

3. Successful Cases of Healthcare Improvement Activities

An improved public health level was attributable to expanded health center networks in rural areas and benefits of healthcare projects by health workers as well as improved living standards from economic development, a better living environment and nutrition thanks to

a combination of improved health consciousness, introduction of effective antibiotics and vaccines, and advanced healthcare techniques.

Common infectious diseases, at the beginning, included leprosy, TB, STDs, dysentery, typhoid, diphtheria, cerebrospinal meningitis, malaria, small pox, and Japanese encephalitis. Projects focused on infectious disease prevention made significant contributions to better public health as they had high investment returns and external effects. Incidence of TB and leprosy plummeted, and a range of acute epidemics decreased. Such disease control played a crucial role in raising the country's average life expectancy from 40s to 60s.

The government controlled 20 infectious diseases which were classified into type 1, 2 and 3 under the Infectious Diseases Act of 1954. The type 3 diseases (TB, STDs and leprosy) in particular were subject to mandatory examination and were controlled in public health centers. The national TB control system was operated in health centers across the country in 1962. Prevalence of radiological TB active cases stood at 5.1% in 1965 but the number dropped to about 1% in 1995. As for leprosy, a national control system was put in place with outpatient treatment through health centers across the nation. Well-established mutual cooperation between the government and relevant organizations led to decreasing numbers of registered patients as deaths outnumbered new cases starting in 1981. STDs were controlled in health centers and substitute STD clinics throughout the country, Scope and standards were set for subjects of STD testing as the diseases are highly contagious.

Korea's successful cases of infectious disease control are getting recognized in the international arena. Korea was internationally certified for polio eradication in 2000, and for eradication of soil-transmitted parasites including ascaris, trichuristrichiura, hookworms on March 30, 2001 from the WHO. The country was also recognized in 2006 as promptly ending and eradicating a measles pandemic with a three-pointing strategy (national vaccination, maintaining high coverage, enhanced surveillance system) which was recommended by the WHO and its Regional Office for the Western Pacific (WPRO), following certification for achievement of the hepatitis B control goal from the WPRO-for the first time in the Western Pacific region-in September 2008.

A family planning project was adopted as national policy in the first phase of the economic development plan in 1962, and it was pushed ahead more aggressively than the MCH project. The total fertility rate fell from 6.0 children in 1960 to 4.5 in 1970, and the government officially announced early achievement of 1% population growth in 1988. Infant mortality dropped from 69 per 1,000 live births in the 1960s to 10.6 in the 1990s, and has shown lower rates than the OECD average since 1996. Maternal mortality was estimated at 100-200 per 100,000 live births in the 1960s, but the figure plunged to 40 and 18 in 1980 and 1999, respectively. The government emphasized regular and temporary vaccination (the present national mandatory vaccination) to control infectious diseases for infants and children. Higher penetration of water services (for rural areas, simplified water supply as part of New Village Movement) prevented the incidence of waterborne infectious diseases for children.

4. Evaluations and Suggestions of Health Improvement Activities for Rural Areas

Korea's medical service has developed based on the market principle. The government limited its policy interest to public health centers and national/public hospitals, thus making meager developments in the overall healthcare system. Public health doctors and community health practitioners were secured for rural areas and formed a framework of public healthcare delivery system as follows: central government (Ministry of Health and Welfare), autonomous bodies (public health centers) eup/myeon (Sub health-centers), remote and isolated li (public health care posts). This system has played a big role in distribution of medical services to rural areas in the private-centered medical system.

Korea's successful infectious disease and population control within a short time span is internationally recognized. Such success was possible thanks to public health center management system based on key projects, technical assistance by specialized private organizations, and training and management for those in the field. Primary healthcare workers in rural areas are regarded as having contributed to improved health in Korea by carrying out such projects as infectious disease control, environmental sanitation, healthcare education in a close range of local residents in eup/myeon and remote and isolated li. These projects combined have led to increased prevalence of family planning, vaccination coverage and numbers of early registration management for TB patients.

A new light is being shed on the primary healthcare services as a strategy to effectively address the nation's social and economic burdens accompanied by soaring national medical costs. Comprehensive healthcare services should be provided continuously to improve the quality of life for local villagers in super-aging rural communities, and such services should be accessible any time at an affordable cost. In response to the changing healthcare needs of the public and advent of an aging society, it is desirable to consider active investment plan for primary healthcare workforce to establish the lifetime health management system.

2011 Modularization of Korea's Development Experience
Healthcare Improvement Activities of Public Health Centers in Rural Areas

Chapter 1

Background to Introduction of Health Center System

1. Process of Developing Health Center System
2. Process of Establishing Healthcare Infrastructure

Background to the Introduction of the Health Center System

The history of community health centers dates back to the 17th century in Europe, where health centers served as an out-patient medical care facility for the poor. In 1931, the League of Nations Health Organization asserted that rural health centers be established in order to address health issues in rural areas. They suggested that health centers deal with maternal health, infant and child health, health education, public hygiene, and emergency treatment. Traditionally, Korea has had a culture of oriental medicine, which includes herb medicines, acupuncture, and massage. However, there were no organized, national health care systems.

In Korea, the western health care system began after the Gabo Reform, as the sanitary board was set up under the Ministry of Home Affairs in June, 1894. The board initiated its public health service on infectious disease prevention, quarantine, and sanitary inspection. It went on to take charge of tasks relating to health personnel (doctors and pharmacists) and vaccination. The Japanese colonial health policy placed more emphasis on preventative measures, showing off its relative superiority to traditional medicine, which was vulnerable to communicable disease control.

At the same time, to exterminate oriental medicine, the Japanese colonial government extracted traditional oriental doctors, closing Kwangjewon, the national traditional hospital and then reopening it as Daehaneuiwon, which was a western hospital. Police authorities took charge of public hygiene and managed health care administration.

In 1945, right before the Japan's defeat in the World War II, up to 90% of all "myeons" (a rural district unit) were without hospitals, 30% to 40% of myeons were without doctors, and more than 10% of myeons did not have traditional oriental doctors. Traditional oriental doctors were reluctant to relocate to rural areas, so the Japanese Government General of Korea tried to attract traditional oriental doctors to those areas by supporting their living with the budget of a relevant myeon.

The first Health Center in Korea was Standard Health Center in Seoul, built in 1946 pursuant to Ordinance No. 1 in 1945. Since 1946, the model of Korean health centers has been focused on disease prevention, firmly affected by the American health care system. The main health policy has also been implemented in the health centers. Health centers in the rural areas-which were lacking medical facilities-have played an important role in treating local residents' diseases and solving health problems.

We'll first examine the overall process by which Korean health centers have been developed for both improving health level and establishing healthcare infrastructure in rural areas. In particular, behind a successful health level improvement in a short time, the health center systems have been built, and the healthcare workforce developed, in the short term. The history of health centers' transitions since Korea's liberation is shown below in <Table 1-1>. The development of health centers can be divided into four stages; the initial period (from 1945 to the Korean War), settlement period (from Korean War through the third Five-Year Plan), expansion period (from the fourth Five-Year Plan to the early national health care system), and maturing period (from the initiation of the regional government system to date).

Table 1-1 | Major Process of Public Health Center

Year	Contents
1945. 9	· US army military government the Ordinance No.1, Reform of public health administration-focus on prevention-oriented health care
1946. 10	· Standard health center (Seoul)
1948	· Promotion to national central health center
1951. 9	· Legislation of National Medical Service Act
1953	· Construction of 15 health centers and 471 public healthcare clinics
1955	· 16 health centers and 515 public healthcare clinics
1956. 12	· Establishment of health centers, project operation and establishment of municipal and provincial health centers when the Public Health Center Act was enacted
1958. 6	· Promulgation of an enforcement ordinance of the Public Health Center Act
1962. 9	· Stipulation of 13 duties of health centers and change in systems to municipalities and countries from municipalities and provinces when the Public Health Center Act was fully revised
1975	· Transfer hygiene work to municipality, province and county; Reinforcement in treatment function
1976	· Promulgation of an enforcement ordinance of the Public Health Center Act- Criteria for building public health centers (si, gun, gu)
1977	· Reinforcement in treatment function due to legislation of Medicaid Law and implementation of health insurance

Year	Contents
1980. 12	· The Special Act for Healthcare Development in Rural and Other areas - Construction of primary health care posts and dispatch of health practitioners in remote villages - Dispatch of public health doctors and dentists in sub health-centers in eup/myeon
1988-1989	· Project to transform provincial health centers into hospitals in medically vulnerable areas (Establishment of 15 health center and county hospitals)
1991. 3	· Revision in the Public Health Center Act-Criteria for constructing sub health-centers and supplementation in duties of health centers
1992. 7	· Criteria for dispatching health centers, sub health-centers and medical professionals (MOH Directive Section, No. 639)
1994. 12	· Special tax for rural development Act on special rural development tax - Implementation of the project to improve medical services in rural areas
1995	· Change to the Community Health Act from Public Health Center Act - Legislation of National Health Promotion Act
1996	· Establishment of District healthcare plans suitable for each health center
1997	· Establishment of national health promotion fund
2002	· Implementation of oriental public health project in health centers · Reorganization to 4 practices of healthy life style projects from health promotion project (anti-smoking, anti-alcoholism, exercise, nutrition)
2005	· Supplementation of 30 sub health-centers for vulnerable class in town · Operation of anti-smoking clinic in health centers
2006	· Development in integral information system of health center - Establishment of disease surveillance system
2007	· Implementation of Home visiting care program

1. Process of Developing Health Center System

1.1 Initial Period: 1945-1952

South Korea's health center project was initiated after the nation's liberation on August 15th of 1945 under the U.S. Army military government. In September, 1945, Ordinance No. 1 was proclaimed, detailing prevention-oriented health projects. In 1946, the first Standard Health Center was built in Seoul. It was changed to a Central health center following the formation of the organization of health center in July, 1949.

When Korea was under Japanese rule, the Japanese government-general of Korea advocated promoting western medicine and abolishing oriental medicine, merely as a

political tool. Rather, it provided the ruling class with western medicine while mass citizens relied on oriental medicine. So, it is natural to say that the more economical oriental medicine played a major role for the mass public. Before Korea's liberation, most western medicine doctors practiced in the cities, while oriental medicine doctors practiced in the country or remote villages. They did not have a choice, since the 1921 regulation on medical graduates (referring to oriental doctors) provided that they could practice only in a designated area. As a result, country residents more than city dwellers, Korean nationals more than Japanese, and the general public more than the ruling class tended to rely more heavily on oriental medicine. Also, the National Medical Act acknowledged oriental doctors as lawful, building a unique health care system where western and oriental medicine coexisted.

At the time of its liberation, various diseases were rampant in South Korea, such as dysentery, typhoid, diphtheria, cerebrospinal meningitis, malaria, smallpox, Japanese encephalitis and even sexually transmitted diseases. During Japanese colonial rule, the health system was taken care of by the department of sanitation under the Police Bureau. Later, the U.S. army military government elevated and enlarged the department of sanitation to the department and bureau of health and welfare. This created the first Ministry of Health in the central government.

Unlike European integrated health centers, the U.S. health center aimed at providing prevention health care and treatment health care only for the poor. That explained why Korea's health centers developed as a prevention-oriented health care system. As such, the U.S. army military government sprayed DDT to prevent eruptive typhus, and launched attempts to exterminate mosquitoes to prevent Japanese encephalitis.

The health center system had been enlarged continuously until it was almost destroyed due to the Korean War. It caused significant hardship and pain, but also served as a chance to embrace developed medicine from advanced countries.

1.2 Formation Period: 1953-1976

In 1953, the United Nations aided in the construction of 15 health centers and 417 public health dispensaries. In 1955, there were 16 Health Centers and 515 public health dispensaries, which mainly dealt with prevention and relief administration. At a time when medical infrastructure was mostly destroyed due to the war, health centers and public health dispensaries offered preliminary medical treatment, prevention, and relief administration, laying the building blocks for primary public health facilities.

In 1956, the Public Health Center Act was first enacted, establishing health centers, project operation and establishment of municipal and provincial health centers. However, it fell short of organizing health center worthy of its name. The Act only stipulated the most basic duties, including ① preventative treatment of infectious disease and others, ② maternal health, ③ school hygiene, ④ environmental sanitation and industrial health, ⑤ health statistics, ⑥ distribution of health ideas, and ⑦ improvement of public health in other rural areas.

The full revision of the Public Health Center Act in 1962 led to the city (si in Korean) and county (gun in Korean) health centers of today. The revised Act gave the right of establishing health centers, responsibilities and operating them to si and gun from si and do (provinces). As a result, all si, gu and gun across the country have one health center, which was a milestone in the health care history. The Act also allowed the building of Sub Health Centers (SHCs) in rural eup (towns) and myeon (townships). Local government ordinance provided the setup of health centers, whose work was mostly taken care of by the local government. Health center workers belonged to the local government, thus they were public officials.

The 13 duties of health centers were the foundation of the duties of today's health centers. Compared with before the Act was revised, there were more duties and work. Other duties were added too, such as nutrition improvement, food sanitation, experimentation and health examination, research on area-specific disease, instruction of community doctors and medicine, and work on research, management and administration.

The number of health centers increased by more than twelve-fold in ten years from 13 in 1953 to 189 in 1965 (See Table 1-2).

Table 1-2 | Trends of Administration-classified Health Facilities: 1953-2010

Classification	Si / Do	Si / Gun / Gu	Eup / Myeon	Li
	Health Center	Health Center	Sub health-center	Primary Health Care Post
1953	15	-	-	-
1955	16	-	-	-
1960	80	-	-	-
1965	-	189	-	-
1970	-	198	1,354	-
1975	-	198	1,338	-
1980	-	214	1,321	-
1985	-	225	1,303	2,000
1987	-	227	1,315	2,036
1990	-	260	1,318	2,038
1995	-	238	1,327	2,039
2000	-	242	1,269	1,906
2006	-	251	1,280	1,911
2010	-	253	1,294	1,912

Sources: 1) Ministry of Health and Social Affairs, Statistical Yearbook 1991
2) Ministry of Health&Welfare, Statistical Yearbook 2011

Out of the 13 duties stated in the revised Act, the most critical duties were prevention on infectious disease, maternal and child health and family plan. The infectious disease prevention had a high investment in efficiency and created large external effects. When taking the economic situation of the time into account, it was contributed greatly to improving national health. To name a few, tuberculosis and leprosy outbreaks decreased, also with other infectious diseases. The management of infectious diseases played a pivotal role in raising the average life expectancy from 1940s to 1960s.

Starting in the mid-1960s, lots of doctors went to America to study and settled there, while nurses headed to Germany and America to find a job, leading to a shortage of health professionals in the Korea's public sector. Even the remaining personnel were concentrated in city, so the rural eup and myeon could not benefit from western medicine. A variety of solutions were created to address the issue, including ways to reduce number of doctorless areas, providing medical students with scholarship and dispatching them to rural areas, dispatching community doctors and support benefits, dividing the region not by administrative divisions but by natural environment, and strengthening traveling clinics. Eradicating doctorless areas was the biggest task since Korea's liberation. All eup and myeon were divided into 992 divisions, each of which was under the jurisdiction of a community doctor. The period can be summarized as a time when a number of challenges were overcome with huge effects on providing health care to rural residents.

Back then, economic development was of national importance. The government believed that containing the increasing population was a key to economic development. So, in late 1961, it undertook family planning as a national policy and poured a lot of support behind it. The Ministry of Health and Social Affairs made family planning play a critical role in national economic development and laid the foundation to develop maternal health and sub-structural health organization. Family planning services of the health center played an important role in the regional health project taking deep root. The Ministry dispatched a licensed nurse to si, gun and gu health centers to be in charge of family planning, and a licensed and non-licensed health worker for family planning enlightenment to eup and myeon. They were paid out of the family planning budget. In the 1960s, it was hard to employ a nurse or midwife as a rural health worker, because they were not treated well and there were a lot of job opportunities in cities. 1965 was a particularly memorable year. It was when health workers were dispatched as health workers for family planning enlightenment to 1,473 eups and myeons. It was when more MCH workers and workers for TB Control were added; in 1981, they were put together as multi-purpose health workers.

In 1964, a maternal health class for fertile women was established in 50,000 li (villages) and dong (neighborhoods) across the country and was provided with a subsidy of 100 won at every meeting, becoming a turning point to encourage the participation of the local people. Since then, the class advanced as a "family planning mothers meeting," and later the steering wheel of a "town health project," contributing greatly to local health projects. It led to a decrease in the infant mortality rate and improved economic development in the 1960s.

The family planning has been especially recognized as a success case worldwide.

The 1970s was a continuation of the 1960s, with extra emphasis on developing rural areas in order to fill the income gap between city and country. One example was the Saemaeul Undong Movement-or 'new village movement'-launched in 1970, when with the help of government support, rural residents participated voluntarily, in earnest, and to great success in four areas including establishing infrastructure (electricity, road, and irrigation), mental discipline (ethics and education), increasing income and improving the environment.

In 1975, as a way of administration revolution, hygiene and environmental responsibilities were transferred from health centers to si, gun and gu offices. In 1976, health centers were built according to population distribution. At the time, the health project included family planning, maternal and child health care, acute infectious disease control, tuberculosis and leprosy control, health care net improvement and reinforcement and primary health care for the rural area. However, in the 1960s and even the 1970s, health care budgets accounted for a mere 1% of all government budgets, falling short of achieving satisfactory results. And then, in the late 1960s the type of public health project was a demonstration project connected with World Health Organization.

1.3 Settlement Period: 1977- 1989

The fourth Five-Year Plan (1977~1981) assessed that national health had been improved greatly for the period due to a rise in national income. Medical resources (professionals and beds) were increased, while the tuberculosis (TB) prevalence rate, parasite infection rates and infant mortality rate plummeted. There remained, however, problems such as skyrocketing medical costs, uneven distribution of medical resources in the city, environmental issues, and pollution. Main policies adopted included ① developing an affordable health care policy, ② reinforcing public health projects, ③ improving health professional training, ④ improving living environments, ⑤ creating a basis for pollution prevention, ⑥ further distributing birth control, and ⑦ launching a health insurance system. The period also witnessed the establishment of a public health system for farming and fishing villages; the introduction of a policy of conceiving treatment territory with population, traffic and medical resources taken into consideration; the induction of private medical organizations spread to local areas; the reinforcement of treatment services by introducing secondary medicine when it comes to TB control; and increasing the number of doctors, dentists, and nurses, including nurturing pharmacists and the partial implementation of mandatory health insurance. So, from the first to Five-Year Plan were stages for establishing nominal policies and the fourth Five-Year Plan was a stage where practical policies were established and implemented. It was a stage where an effective approach to rural residents was launched to realize equality. At this time, the philosophy and approach to the primary health care by Declaration of Alma-ata; the goal of realization of health for all citizens by the year of 2000 was declared, which shaped important tasks facing health policy.

The fourth Five-Year Plan put focus on reliable growth and societal development, in order to develop societal welfare. As a result, a Medical Aid Program and health insurance (covering companies with more than 500 employees) were implemented starting in 1977. The Medical Aid Program helped to innovate medical service benefits for the first time in the country's history, and served as an important opportunity to strengthen health centers' function of treatment. Back then, medical fees were so low that many private medical organizations declined to treat. So, those who weren't able to get treatment were to go to health centers. As the number of Medical Aid Program patients increased, each health center was equipped with a Medical Aid Program official and doctor's office, leading to a balance in functions between treatment and prevention.

Also in 1976, to address issues of city-centralized medical professionals, imbalance in medical manpower and inadequate medical system, the government set up Korea Health Development Institute (now the Korean Institute for Health and Social Affairs) to provide affordable but high-quality medical service pilot program for those living in remote villages. It showed that the primary health treatment by community health practitioners proved successful. Therefore, the government chose the primary health management project as national health policy, declaring the "Special Act for Healthcare in Rural Areas (SAHRA)" in December, 1980 to push ahead with the project. The Act laid the foundation to dispatch community health practitioners in remote areas and dispatch Primary Health Care Post (PHCP), and send out public health doctors to Sub health-centers(SHC) in eup and myeon, providing medical service to areas without proper medical facilities. It is not a coincidence that the Act was called an example of bringing innovation to health project without injecting a lot of funds. Furthermore, the Act contributed a great deal to establishing a public health care system. It was also fruitful in that by 1983, by dispatching public health doctors and community health practitioners to remote areas, there was no myeon without a doctor.

The first day of July, 1977 ushered in an era of full-fledged health insurance that first covered companies with more than 500 employees. The coverage continued to expand and in just about 12 years, it got to cover the whole nation under the name of so-called "National Health Insurance system." The expansion helped reinforce treatment functions in both public and private sectors, especially for private sectors. The effects on public sectors included the establishment of 15 Health Centers and County Hospitals from 1988 to 1989 as a result of a project to hospitalize gun health centers in medically vulnerable areas. Meanwhile, as a way of expanding health insurance coverage, more medical schools, oriental medicine schools, dental schools, nursing colleges and health science schools were formed to secure more medical professionals and increase hospitals and the number of medical beds. In 1960 there were 57 public hospitals, 55.3% of all hospitals; but, in 1987, 89.5% of all hospitals were private hospitals. Thus, during this period, Korea's medical supply systems were a private initiative which further strengthened its framework, whereas the primary care and health services in the public health centers had stagnated.

In the late 1980s and early 1990s, issues around health center projects transformed with the democratization movement of 1987 and the introduction of the National Health Insurance system. It was notable that while acute chronic plagues were on the decrease, chronic degenerative diseases, senile diseases, disabilities and handicaps, and mental illnesses were increasing. People started to pay attention to health, wishing to learn more about health and realizing health as their basic right.

As a result, the Law was amended in 1991-the first time it had been since 1962. Among the 13 tasks, the amendment replaced tasks of educating health concepts, health statistics, and environmental hygiene with those of health education, the management of health statistics and health medical information, and public sanitation.

Some were added, such as District health care planning and evaluation, mental health, health for the aged and rehabilitation of people with disabilities, worker issues for Sub health-centers (SHCs) and Primary Health Care Posts (PHCPs), and work instruction and supervision.

The amended law added District health care planning and evaluation. The previous approach was top-down, meaning that the central government planned for solving health problems and local government was to follow and implement those plans. But, it was decided that local governments should plan for solving their own health problems. Health centers had their responsibilities emphasized by the stipulation that they were to deal with problems district by district.

A meaningful change was made in this period where in July, 1992, the minimum number of medical professionals was set up by differentiating si, gun and gu with populations of more than 100,000, si and gun with less than 100,000 and gun health centers, improving the quality of health center service and supplementing personnel.

1.4 Developing Period: 1990-Now

The full-scale implementation of local governmental system in 1995 brought health centers to seek new roles. As part of the Uruguay Round Agreement in 1994, a special tax for rural development act was passed so that functions of the public health medical facilities in the farming and fishing villages were reinforced as of 1995, and public health organizations were nurtured in underdeveloped areas. The Special tax was used to enlarge integrated health centers' structure and personnel, build and expand rooms for physical therapy and oriental medicine, and expand visiting service, leading to vitalize public health business.

The Public Health Center Act was transformed as the "Community Health Act" in 1995. The revised act was designed to nurture health centers as central health management organizations for local residents. Previously, health centers had mainly dealt with infectious disease control and family planning. In detail, the revised act provides that ① local governments establish and implement integral district health care plans suitable for

community characteristics; ② health centers be in charge of national health improvement project (health evaluation&improvement), medical service program including visiting households and social welfare facilities, and management of chronic degenerative diseases, ③ health centers be equipped with licensed and qualified professionals and be able to exchange professionals with each other; ④ profits and fees earned at health centers be available for them as money for replacing revenue; and ⑤ in order to improve the quality of treatment by health centers, grounds be prepared for health centers to consign to other medical organization or practitioner tasks commissioned or re-commissioned by the health welfare and to support or fund the cost incurred. The most striking difference from the original act lies in describing district health care plans in great detail. Heads of local governments were to listen to the opinions from residents, and it fell to health related organizations and groups and professionals to come up with district health plans, which would then be brought to votes in si, gun and gu assemblies, before submission to mayors and governors. It helped public health project become more planned and systematic.

The Community Health Act also increased the number of duties of health centers to 16. As with the enactment of the 1995 National Health Promotion Act, its basic policy was established, goals and strategies were suggested, and various mandatory health promotion projects were implemented in workplaces and through the health center network. In one effort, an anti-smoking movement was actively pursued. Furthermore, as of 1998, a portion of profits from tobacco sales was directed to the national health promotion fund. National health care policy modified its direction from disease treatment to disease prevention and health improvement. The existing object-oriented health project was upgraded as a comprehensive lifetime health management system by each life cycle. In other words, it suggested a direction for health projects. The Health Plan (HP) 2010, first established in 2002, set "realizing a long healthy life for 75 years" as a goal, and the HP 2020 changed the goal to "extend healthy life expectancy and raise health equality," and set a frame work to that the goal.

The government-led disease control system was systematized by introducing a web-based reporting system. Target of disease control was categorized as infectious (before communicable) disease and non-infectious disease. Infectious disease is to be treated according to the infectious disease management guidelines, which are detailed in the 2009 Act on prevention and management of infectious disease-revised due to newly identified and recurrent infectious disease. Non-infectious disease is sub-divided into various areas. Cancer is subject to the Cancer Control Act; mental disease to Mental Health Act, where it states that the nation is responsible for disease control; and chronic disease to the National Health Promotion Act, which contains the management of chronic illness' hazards. Since 1996, computerization has been conducted in order to build a framework of infectious disease control system. For some diseases such as sexually transmitted disease, hepatitis B and influenza, a Surveillance Scheme was adopted. Investigation and Surveillance Schemes are sub-categorized to surveillance system for infectious disease subject to legal action, infectious disease for quarantine, and vaccination. Non-infectious disease Surveillance

Schemes include cancer registry and research on the actual condition of mentally ill people. Other Surveillance Schemes are research on National Health and Nutrition Examination Survey (NHANES), Community Health Survey (CHS), patient surveys, and health insurance evaluation statistics.

The Surveillance Scheme helped successfully act on the 2003 bird flu (H5N1) outbreak and the 2009 swine flu (H1N1) outbreak. Because of climate change and environmental change related to infectious disease, the incidence of new emerging and re-emerging infectious diseases has increased. In 2004, the National Institute of Health (NIH) expanded to Korea Centers for Disease Control&Prevention (KCDC), and it is responsible for the preventative measures taken when infectious diseases break out.

Figure 1-1 | Pictures of Healthcare Services and Activities: 1951-2009

Vaccination for communicable disease in Tong-ui Dong, Jong-ro Gu, Seoul, 1951[1)]

Disinfection for prevention of epidemic in Seoul, 1958[1)]

Nationwide X-ray examinations in mobile X-ray bus supported by Korean National Tuberculosis Association, 1962[1)]

Campaign for enlightenment of Family Planning Program, 1977[1)]

H1N1 case reporting through the website in the Health center, 2003[2)]

Physical exercise for healthy lifestyle in the Health center, 2009[2)]

Sources: 1) National Archives of Korea
2) Pictures from Yang Ju Health center

2. Process of Establishing Healthcare Infrastructure

Rural areas are considered to have lower income and education levels than urban areas and to be in poorer condition in social, economic and cultural terms as is also the case with health levels. The infant mortality rate of rural areas was 50.0 deaths per 1,000 live births, showing a higher figure than that of urban areas at 30.0 in 1979. Rural areas also posted higher maternal mortality rates at 6.0 deaths per 10,000 live births which was triple the rate of urban areas at 2. Rates of delivery at health facilities and skilled birth attendances were 11.7% and 17.7% respectively in rural areas compared to those of urban areas (53.2%, 59.6%). The government started establishing public Sub health-centers in eup/myeon in 1969 as local finances improved. This policy was pushed ahead as part of a way to implement modern healthcare projects in rural areas, but accompanied challenges in establishing Sub health-center ordinances and securing health workers and facilities and equipment. In order to lay the healthcare foundation in rural areas, this section identifies the reasons and status of unbalanced distribution of medical resources between urban and rural areas, and introduces relevant government policies in light of Korea's national economic development plan, developments of health policies and healthcare delivery system.

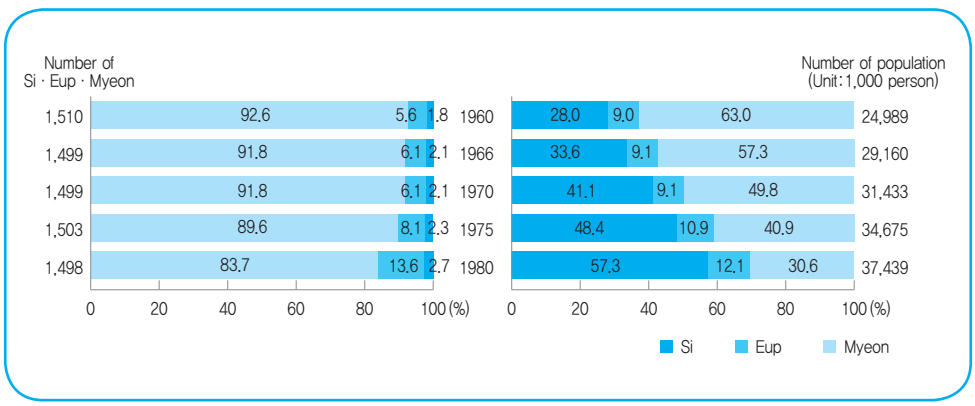
2.1 Healthcare Resources Imbalance between Urban and Rural Areas

Rural areas mean gun while urban means city in civic units. Gun has eup/myeon in the case of a population less than 50,000 with eup having 20,000 residents or more. The Local Autonomy Act stipulates that provinces are divided into gun, and Seoul Metropolitan City and cities with a population of more than 500,000 have gu, and that cities, eup, myeon and gu have further divisions into dong and li within them.

In 1960, Korea had more eup/myeon than urban areas as an agricultural country and city accounted for only 2% of total areas. Eup/myeon residents were 72% of the total population. As the country industrialized, more than half of the population in 1980 lived in cities.

Fast economic growth accelerated urbanization-industrialization, and imbalance in urban-rural development left rural populations with less benefits in education, medical services, communication, culture and welfare facilities.

Figure 1-2 | Population and Number of Si, Eup, Myeon: 1960-1980



Source: Song GY et. al., Study of Organization&Functions of Health Centers in Rural Areas, 1983

Korea's medical facilities in rural areas were substantially vulnerable due to a cultural tradition that regards healthcare as an individual responsibility and insufficient government funds that led to centralization of medical institutions in large, populous cities driven by private sector.

The problem of insufficient medical workers in rural areas was serious in 1955 with half of myeon without doctors, and 92% of myeon without dentists. Despite the government's various efforts after liberation, 41.3% of eup/myeon across the country did not have any doctors and as much as 27.1% of myeon were without any doctors, dentists or oriental medicine doctors in 1974.

Table 1-3 | Doctorless Eup/Myeon: 1955-1974

(Unit: establishment, 1,000 residents, %)

Year	The whole country		No physician		No Dentist		No oriental doctor		No any kind of doctor	
	No. of Eup/ Myeon	Population	Eup/ Myeon	Pop.	Eup/ Myeon	Pop.	Eup/ Myeon	Pop.	Eup/ Myeon	Pop.
1955	1,495	16,243	52.0	40.8	92.7	81.7	63.5	54.9	36.9	28.5
1960	1,484	17,995	48.7	40.9	92.9	85.9	65.8	59.8	31.7	25.7
1965	1,466	19,380	44.3	38.7	91.6	82.7	60.5	53.2	34.4	30.6
1970	1,473	18,507	45.7	34.4	91.2	82.2	67.9	57.6	37.8	28.4
1974	1,459	18,262	41.3	30.8	90.5	80.0	76.4	66.3	36.7	27.1

Source: Song GY et. al., Survey of Healthcare Resources&Management Systems, Korean Institute for Health and Social Affairs, 1987

The government's early policy to address the problem of myeon without doctors focused on assigning doctors to public health institutions, particularly public health dispensaries (current Sub health-centers), not necessarily on distribution of health facilities in rural areas. Medical resources had expanded in quality and quantity but were not evenly distributed by region, and functional division of medical institutions is not well established. Imbalance in resources is attributable to 1) an uncontrolled, laissez-faire private medical sector; 2) a cultural tradition that considers healthcare to be an individual responsibility; and 3) insufficient government funds for public health and inefficient operation of public medical facilities, making the public sector less competitive than the private sector. A competitive free-market system greatly contributed to expanding medical resources but made it difficult to distribute medical facilities in rural areas.

Most medical facilities and pharmacies were disproportionately placed in cities in 1981 and 1984. Not only general hospitals and hospitals but even clinics (primary medical institutions) were maldistributed, providing much less access to medical service for rural people than their urban counterparts. This is because many institutions were run by the private sector whose proportion was recently on the rise. However, drug stores and oriental medicine shops were largely dispersed in rural areas.

Table 1-4 | Distribution of Healthcare Institutions in Urban&Rural Areas: 1981, 1984

(Unit: establishments, %)

	1981		1984	
	Urban	Rural	Urban	Rural
Total	23,107 (74.3)	8,040 (25.8)	-	-
General Hospital	79 (85.8)	13 (14.1)	149 (87.6)	21 (12.4)
Hospital	207 (78.3)	57 (21.6)	253 (81.6)	57 (18.4)
Clinic	5,350 (81.8)	1,198 (18.3)	6,535 (83.8)	1,231 (16.2)
Dental clinic	1,925 (89.5)	224 (10.4)	2,473 (89.9)	279 (10.1)
Oriental Medicine Hospital&Clinic	1,962 (83.3)	382 (16.2)	2,323 (84.9)	396 (15.1)
Midwifery	489 (81.4)	112 (18.6)	-	-
Pharmacy	11,381 (85.7)	1,898 (14.3)	-	-
Drug store	509 (16.4)	2,597 (83.6)	-	-
Herbal drug store	1,205 (43.6)	1,559 (41.9)	-	-

Source: Song GY et. al., Survey of Healthcare Resources&Management Systems, Korean Institute for Health and Social Affairs, 1987

Table 1-5 | Distribution of Hospital by Ownership (Except Clinic): 1975, 1984, and 1987

(Unit: establishments, %)

Year	Total	Public	Private
1975	21,289 (100.0)	9,855 (46.3)	11,434 (53.7)
1984	59,099 (100.0)	15,027 (25.4)	44,072 (74.6)
1987	80,038 (100.0)	17,810 (22.3)	62,228 (77.7)

Source: Park BSet. al., Improvement Plan for Health Policy in 1990s, Korean Institute for Health and Social Affairs, 1990

In 1979, when 55% of the total population was urban, most doctors (90%) and hospital beds (82%) were in cities, whereas rural villages – with 45% of the total population-had only 10% of doctors and 18% of beds. A decade later, urbanization progressed further, with 69% of the total population as urban; this trend is also shown in medical workers. Most of the primary medical institutions including clinics also had some beds and high-priced testing facilities competitively; therefore functions between hospitals and clinics were rarely divided.

To balance distribution of medical resources between urban and rural areas, the government focused its efforts on sending doctors to myeon without doctors. Major policies included: 1) establishment of gun health centers in 1956 and eup/myeon Sub health-centers in 1969 for treatment, TB control, maternal and child health, and epidemic prevention; 2) modernization by expanding facilities in municipal/provincial hospitals and by enhancing equipment from 1977; 3) establishment of healthcare delivery system for rural communities by building primary health care posts and placing community health practitioners in farming and fishing areas from 1981; and 4) construction of 16 hospitals in industrial and medically underserved areas, and of a hospital ship for outreach service in some 600 remote islands without doctors from 1965.

The early efforts mainly depended on foreign aid to build public health institutions, but employment in such facilities was difficult and recruitment was very low. With the introduction of public health doctors and community health practitioners, no myeon without doctors was left in 1983. After that, no sub health-centers were without doctors, but a quality supply of medical resources within the private-dominant medical system still remained as a task.

2.2 5-Year Economic Development Plan and Health Policy

Lower priority was placed on healthcare in 1954-60 and its budget averaged 0.97% of the total government budget, with heavy dependence on foreign aid. Foreign donations made up 68.0% and 52.0% of the Ministry of Health and Social Affairs budget in 1954 and 1960, respectively, and the proportion significantly varied year by year. Project priorities shown in budget composition were leprosy (annual average 30.1%) and TB (17.6%) followed by acute infectious disease control (3.0%). Leprosy and TB were considered the most important health issues. 100 out of 182 health centers were established in 1960, most of which were built with the help of foreign aid. Healthcare policy in Korea's economic development plan was particularly passive and focused on on major healthcare projects, but the 5th plan showed that social policy was gaining public interest.

The issue of healthcare was included in the first economic development plan phase (1962~6) but accounted for only 0.6% of total investment. Focus was on removal of 600 myeon without doctors, prevention of health worker centralization in cities, massive manufacturing of preventive drugs, prevention of various communicable diseases, TB and leprosy control, encouragement of local manufacturing of pharmaceuticals as well as family planning. Targets for population growth rate set by the Population Division of the Industry Bureau Planning Board in 1964 changed from 2.7% to 2.5% after reflecting on the "Draft Plan for 10th Anniversary of Family Planning" of Maternal and Child Health Division, Ministry of Health and Social Affairs, and was put forward in a "Revised Proposal". It was decided that the cost of family planning would be expended from the investment budget, apart from the health budget.

In the second phase of economic development plan, from 1967 to 1971, the focus of healthcare projects was on ① disease prevention and control, ② maternal and child health improvement relating to family planning, and ③ expansion of healthcare networks. The healthcare budget as a portion of total investment stood at only 0.8%. Among total investment, family planning represented 32%, TB 16%, sub health-center construction and maintenance 12%, and health center expansion and equipment reinforcement 3.9%. What was notable was that high priority began to be placed on expansion of sub health-centers. In the evaluation of the second phase plan, despite the efforts made toward facilities expansion, problems were raised including the lack of medical facilities, centralization of hospital beds in cities, insufficient health facilities and medical workers in rural areas, and inadequate disease prevention control and maternal and child health. According to a team of evaluation professors, even when development of healthcare networks linking national and municipal/provincial hospitals (health centers as well as sub health-centers) was set as the important policy agenda, only part of the planned investment was executed. Until 1971, 192 health centers were newly built or expanded, and 1324 sub health-centers were established. Still, 28 health centers and 450 sub health-centers did not have doctors.

In the third phase of economic development plan (1972-6), a health squad for social development, comprised by the Ministry of Health and Social Affairs, participated in drafting a plan for health sectors for the first time. The main focus during this period was placed on ① expansion of healthcare facilities and securing workers, ② strengthening disease prevention and control, ③ improving maternal and child health, and ④ continuing family planning projects. Investment on health out of total investment amount was 0.9%. Of the government investment on health, 37% of the finances went to simplified water service and sanitary wells for safe water supply, and 23% to both family planning (including maternal and child health) and healthcare networks and infectious disease control. Government efforts were also made toward expanding medical facilities for mentally ill patients.

During this period in particular, 1,339 eup/myeon were reorganized into 1,102 units of medical areas considering population, geographical conditions and transportation. Community physicians were assigned to 828 areas, doctors-in-training were dispatched to 272 areas for six-month rotations, 18 traveling clinic teams and a hospital ship were sent to medically underprivileged areas for outreach service in an effort to eliminate areas with no doctors.

Under Saemaeul Undong (New Village Movement), health related projects planned by the Ministry of Health and Social Affairs at the time were family planning and living environment improvement. Family planning was largely led by mothers' associations, whose members guided families and provided contraceptives, staging a campaign encouraging families to "Have only two children without discrimination between daughters and sons." In addition, simplified water supply facilities were installed for 8,880 natural villages in rural areas to provide safe water to 5,121,000 residents, curbing the incidence of waterborne diseases. Villages that accomplished Saemaeul Undong project were given medical benefits

such as mobile clinics (18 teams for each city and province), dental mobile clinics (12 teams) and Korean National TB Association's mobile TB control services (11 teams).

The fourth phase of economic development plan (1977-1981) is evaluated as witnessing much improvement in public health thanks to the higher incomes brought by progress achieved during the previous economic development plans. Medical resources including workers and hospital beds increased, and TB prevalence, parasite infections and infant mortality plummeted. However, rapidly rising medical costs, maldistributed medical resources, an imbalance in national medical services, environment and pollution emerged as major problems. Therefore, policy measures were adopted, such as: ① development of affordable healthcare systems, ② enhanced public health projects, ③ improved health worker training, ④ better living environment, ⑤ establishing the foundation for pollution prevention, ⑥ expanded distribution of contraceptives, ⑦ provision of medical insurance. This period saw attempts of public medical system establishment for rural people; introduction of the concept "medical service areas" considering population, transportation, medical resources; inducement for decentralization of private medical organizations; strengthening of treatment service with introduction of secondary treatment in TB control; greater supply of doctors, dentists, nurses; control of pharmacist training; and partial implementation of mandatory medical insurance. In summary, phases 1-3 were stages for establishing explicit policies while the fourth phase was for establishing and implementing practical policies. Effective approaches were pursued for the medically underserved based on equality. This period was also the time when the philosophy and approach of primary health care, as well as the goal of attaining health for all by 2000, were advocated by the Declaration of Alma-Ata, which were the major agenda in health policy.

The fifth economic and social development plan (1982-6) showed greater interest in social policies. Despite general improvement in the public health and medical sector, problems arose such as medical resources largely centered in big cities, healthcare delivery systems not in place, inefficient use of medical resources, surging medical costs, and heavy burdens of medical bills. So policy directions were set on curbing increasing medical demands through disease prevention, establishing a reasonable healthcare delivery system, building an economical healthcare system, appropriate distribution of medical resources, and easing burdens of medical costs, with the established objective of better public health by sharing benefits of healthcare services. During this period, efforts were made to build national healthcare networks and healthcare delivery systems. 2,000 community health practitioners were positioned in rural areas and public health doctors were placed in sub health-centers, eliminating myeon without doctors. Meanwhile, we saw more emphasis on public good of medical service, greater supply of medical human resources, enhanced functions of public health, and lifestyle related diseases began to get more consideration as project focuses.

The improvement in the healthcare field made for 25 years through phases 1-5 of the development plan was remarkable. But that was no match for the development in the socioeconomic sphere. Health sector made up about 1% of the government budget from

1955-1990 with little change in its priority. The principal reason for healthcare's small budget proportion would be low facility investment in the public sector.

Table 1-6 | History of Foreign Aid in Health Field

Classification		Contents
International Organization	WHO	• The WHO installed a representative of Korea in March, 1965, and it has been implementing cooperation programs every year, by dispatching short- and long-term technical trainers to Korea, dispatching health workers and trainees abroad, and providing emergency drugs. • Korea is aggressively participating in cooperation programs with the WHO, dispatching a representative of Korea to general assembly of the WHO (Geneva) and regional meetings, and Korea is supported with about $80,000 annually by the WHO, however, the support fund has decreased compared to increased allotment.
	UNICEF	Since a representative of Korea was installed in October, 1963, main child welfare programs, such as maternal and child health, have been supported by providing medicine (for maternal and child health and nutrition), medical equipment (for premature birth), and holding in seminars in Korea.
	UNFPA	UNFPA has been supporting family planning programs in Korea, such as research for family planning, dispatch of trainees and public relations since 1974; however, the number of programs have been likely to decrease gradually.
Intergovernmental Organization	USAID	USAID provided medical equipment and vehicles for amplifying medical network in rural areas in the late 1960s and early 1970s and also provided birth control pills for family planning programs; however, support was dramatically decreased starting in the late 1970's.
	SIDA	SIDA played a significant role in implementing family planning programs by constructing a research institute for family planning, and providing birth control pills and vehicles in late 1960s and early 1970s.
	JICA	JICA accounted for some part of training members by dispatching technical cooperation workers to each area in health care.
	DANIDA	DANIDA supported by dispatching healthcare and medicine trainees abroad.
	Others	International cooperation organizations of England, Australia supported by dispatching trainees in specific medicine.

Classification		Contents
International Nongovernmental Organization	Sasogawa Foundation	They supported by providing technical training and birth control pills for family planning.
	IPPF	
	PCA	
	IPAVS	

Source: Ministry of Health&Social Affairs, Health Society, 1981

Figure 1-3 | Pictures of Environmental Hygiene Activities Related to Saemaeul Undong

Education of Furnace Improvement in Rural area

Source: National Archives of Korea; photo dated Jun. 14 1974

Stream renovation in Chonju, Chonbuk

Source: National Archives of Korea; photo dated May 17 1972

Appearance of rural homes

Source: National Archives of Korea; photo dated Oct. 31 1972

Renovation of rural house roof in the 1970s

Source: http://www.sucti.com/pds/list.asp?code=04

Renovated kitchen and simplified water supply system in a rural house

Source: The Kyung Hyang Shinmun (newspaper), Oct. 31 1972

Article regardging Inclusion of FP Project in Saemaeul Undong Movement

Source: The Maeil Kyungje Shinmun, (newspaper) Aug. 20 1975

2.3. Health Care Delivery System

Korea's medical service developed according to the market principle. The laissez-faire healthcare delivery system allowed maximum freedom in the choice of medical practitioners or institutions with extremely limited government control. Medical fees, which had been charged by monopolies, were paid in such forms as insurance fees and customary fees with the adoption of medical insurance system.

By the end of the 1960s, the government played a leading role in providing medical services by operating general and municipal provincial hospitals. Investment was scant in the public sector, putting facilities, workforce and other resources to continuous dependence on the private sector. As private institutions took the lead in the medical market, regional imbalance in the distribution of medical resources was severe, and public nature of medical services much diluted. The responsibilities for public hospitals and health institutions were split across 8 ministries and agencies. Public hospitals provided mostly treatment services while health institutions operated clinics and health projects, and work coordination and partnerships between them were not established at all.

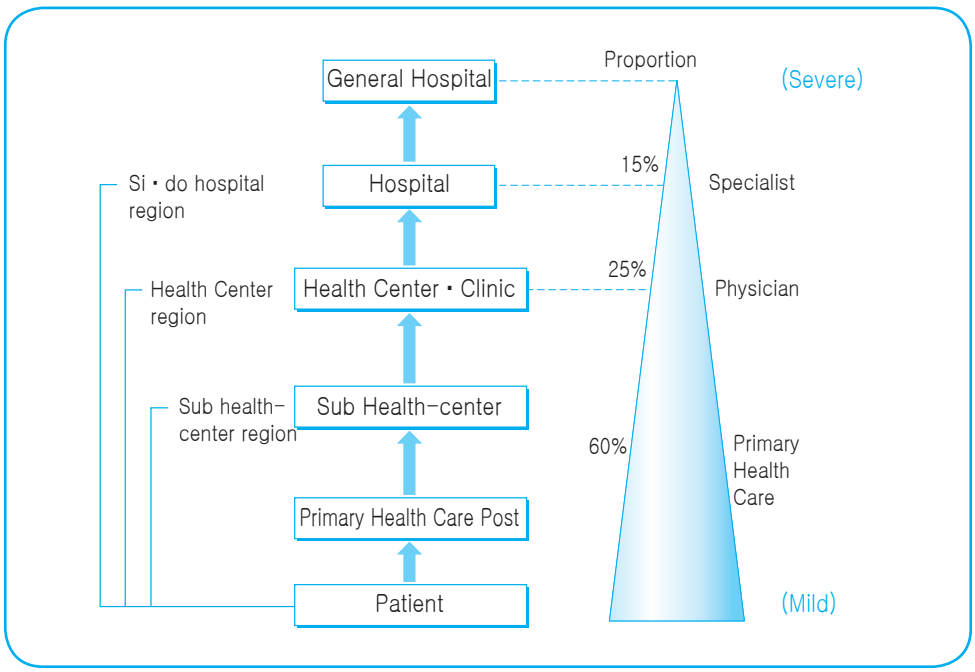
The government had operated the healthcare delivery system with the focus on rural areas and medically needy people before the National Health Insurance system. Along with National Health Insurance, a healthcare delivery system was adopted with the ultimate goal of devising the most optimal distribution method for medical resources by using research on allocation plans of medical resources conducted in 1982 and 1984.

2.3.1 Before the National Health Insurance System

Family planning was important as part of population control in the 1960s. To strengthen healthcare networks, Offices, Bureaus and Divisions of the Ministry of Health and Social Affairs were reorganized at the central level, health centers and sub health-centers were expanded at regional levels, and family planning workers were dispatched to li/myeon, laying the foundation for systematic healthcare networks across the nation. However, the treatment function was still led by private medical institutions, making access to healthcare services more difficult for rural residents and urban low-income populations. Consequently, the government secured public health doctors and community health practitioners in medically underserved rural areas and formed a framework of public healthcare delivery system as follows: central government (Ministry of Health and Welfare)→autonomous bodies (health centers)→eup/myeon (sub health-centers)→remote and isolated li (primary health care posts).

Private medical institutions were categorized into general hospitals, hospitals, clinics and others at the time, but medical service suppliers were not systemized and specialized. Primary care, in particular, was not institutionalized and such problems as duplicative treatment and different medical costs arose. To address such irrationality, a patient referral system that could respond to the needs of the public sector urgently needed to be introduced. In 1977, medical care services established a referral system by designating the primary, secondary and tertiary medical institutions, and institutionalized a new medical supply system that links public health centers and sub health-centers with general practitioners. Health centers, sub health-centers, primary health care posts and designated private clinics deal with outpatients as primary institutions, and secondary medical institutions include municipal/provincial hospitals, private hospitals and clinics who see hospitalized patients. Tertiary institutions are national hospitals. Primary healthcare, which is the healthcare delivery system for rural communities and accounts for 60% of the total medical service, was left to public health centers, sub health-centers, primary health care posts and clinics.

Figure 1-4 | Healthcare Delivery System in Rural Areas: 1981



Source: Ministry of Health&Social Affairs, Health Society, 1981

2.3.2 After the National Health Insurance System

With national health insurance, a healthcare delivery system which suited Korea was introduced in July 1989 to promote convenience in use of medical service and effective use of medical resources, to induce balanced development among medical institutions in different regions, and to stabilize national medical costs and insurance finances.

Main pillars of the system include designation of medical service areas, and establishment of medical services in stages according to institution's functions and of referral and returning systems. The country was classified into three medical service areas: medium-, large-sized and nationwide areas. Medium-sized areas were based on city or gun. When such areas shared the same living sphere with a neighboring city or gun or their medical infrastructure was vulnerable and they were integrated, making the total number of medium-sized areas 140. Large-sized areas were based on provinces and 8 of them were established. Tertiary medical institutions, which were accessible across the country, included 25 university hospitals and large-scale general hospitals.

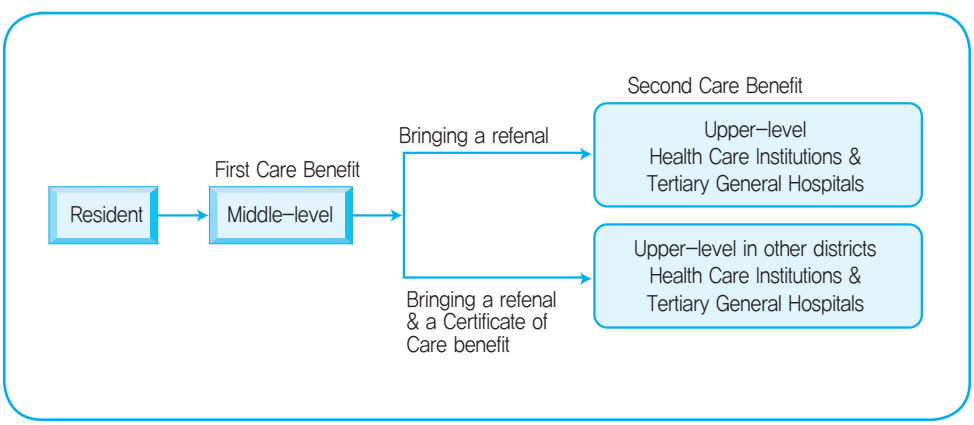
Primary care could be used in every medical or health institution within medium-sized medical service areas. But if patients intended to use tertiary medical institutions without a request issued from primary ones, they had to pay all of their medical costs by themselves. However, dental clinics and oriental medicine were allowed for primary care within large-

sized medical service areas. Institutions for special purposes including mental health, TB, and leprosy hospitals could be used nationwide irrespective of the size of service areas when patients had a request for service after getting primary care in the applicable medium-sized area.

Figure 1-5 | 8 Upper Level and 140 Middle Level Districts

Source: Ministry of Health&Social Affairs, Health Society, 1989

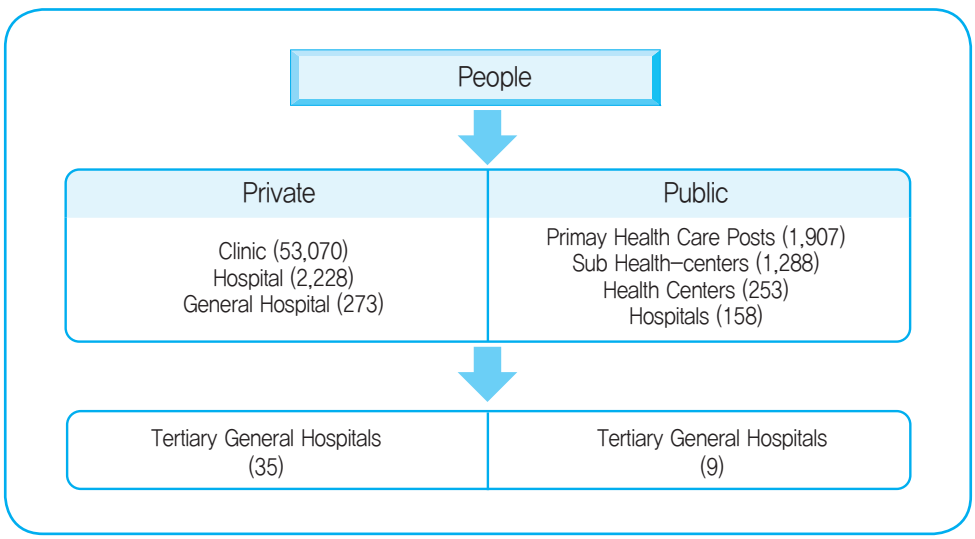
Figure 1-6 | Process of Care Benefit



Source: Ministry of Health&Social Affairs, Health Society, 1989

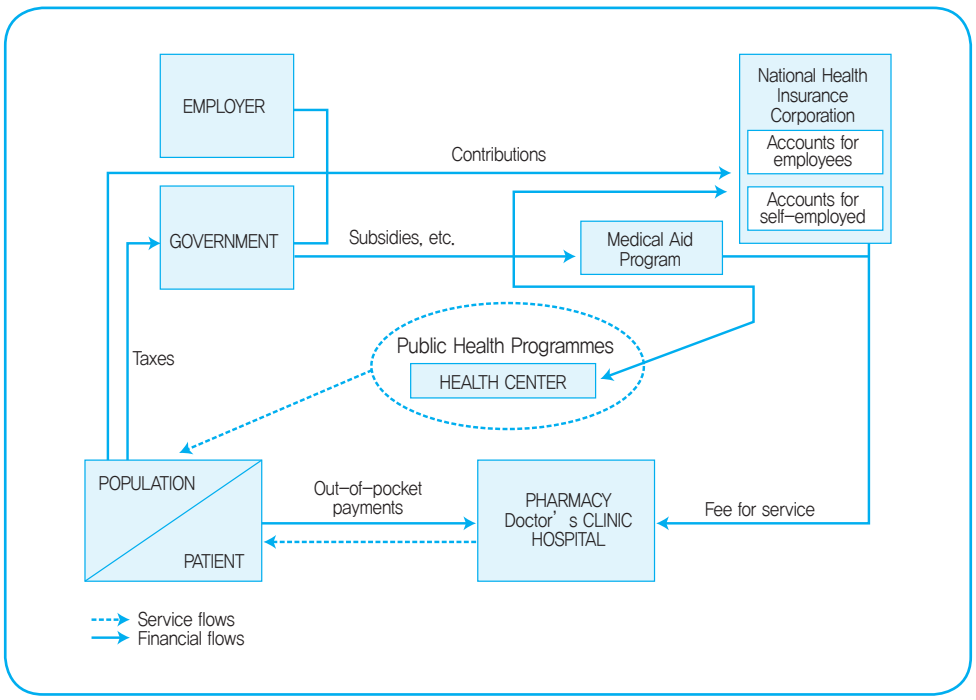
The above-mentioned delivery system was further simplified with the enactment of relevant laws in July 2000. Procedures for medical care expenses were two-phased, but the concept of medical service areas effectively died. First-phase medical care benefits could be received from facilities excluding general specialty medical institutions while second-phase benefits meant medical care expenses paid from Tertiary General Hospitals (44 facilities). Receipt of second-phase medical care benefits required submission of a health certificate or request for medical care expenses with a doctor's medical opinion written on them, but this requirement was exempted in cases of emergency, childbirth, dental clinics, rehabilitation of the physically challenged and hemophilic patients.

Figure 1-7 | Healthcare Delivery System: Since 2000



Source: 1) Ministry of Health, Welfare and Family, Yearbook of Health, Welfare and Family Statistics, 2009
2) Ministry of Health, Welfare and Family, Annual Report, 2008
3) Health Insurance Review&Assessment Service, List of Specialized General Hospitals, 2009

Figure 1-8 | Health Care System



Source: National Health Insurance Corporation. 2007 National Health Insurance Program. 2007

2011 Modularization of Korea's Development Experience
Healthcare Improvement Activities of Public Health Centers in Rural Areas

Chapter 2

Composition and Operation of Health Center System in Rural Areas

1. Health Centers
2. Sub Health-centers
3. Primary Health Care Posts

Composition and Operation of Health Center System in Rural Areas

1. Health Centers

1.1 Regulation

The modern system of a public health center was completed after liberation from Japanese colonial rule. The first pilot Health Center was opened in 1946, and 15 Health Centers were established in other provinces in 1953. With the enactment of the "Public Health Center Act", some Sub health-centers, of 500 public health dispensaries established with foreign aid, were changed into Health Centers. The action brought about a complete public health center system and a legal base for public health centers to deliver the necessary funds themselves for their budgets. In 1962, local governments were responsible for the establishment, operation and supervision of Health Centers. In 1991, the base for the establishment of "Health Center and County Hospital" and Sub health-centers was prepared, and the scope of the work of public health centers was adjusted to include the management of medical records and mental health. In 1995, the Public Health Center Act was fully amended into the "Community Health Act" to add the "National Health Promotion Project" and the "Local Health Plan Project", which reinforced the rights of Health centers to comprehensively manage their work. In 1996, the scope of the work of the centers was again expanded to include health promotion projects and home visiting programs. With the public health center as a hub for health promotion project, initiated in 1999, the public health center's health promotion projects came to have four main sub-projects: tobacco control, physical activity, nutrition, and alcohol control. In 2005, the projects were adopted and started in 246 Health centers across the country. As a result, a system where the government-run health promotion projects could be carried out by Health centers was completed. The recent work of the centers includes running a smoking cessation center, nutrition improvement, exercise consultation, community-based rehabilitation, medical expense support programs, and patient-tailored home visiting programs.

Health centers perform their work based on "Public Health Center Act". In the 1990s, other laws that govern the work of the centers were also enacted, thereby requiring the centers to reflect the laws in their plans. The center's basic work plan should follow the rules set in the "Framework Act on Health and Medical Services." Medical service providers should abide by the "Public Health and Medical Services Act", "Community Health Act" and "Medical Service Act." As for the services, the centers comply with the "National Health Promotion Act", "Mother and Child Health Act", "Dental Health Act", "Mental Health Act", "School Health Act" and "Occupational Safety and Health Act". The centers are also compliant with the "Infectious Disease Control and Prevention Act", "TB Prevention Act", "Prevention of AIDS Act" and "Framework Act on Low-birth Rate in Aging Society".

Notable amendments of the Public Health Center act are as follows:

(You may see the <Table 2-1> for the relevant laws for establishment of plans of a public health center)

1.1.1 Enactment of Public Health Center Act, Dec. 13, 1956

During the Korean War, 500 public health dispensaries were established and operated nationwide with the help of foreign aids. Due to a number of outbreaks of pandemic diseases and a decreasing amount of foreign aid, the status of Sub health-centers was elevated to Health center, and the legal base for Health centers to provide funds themselves was made. The legal base stipulated:

- A Health center shall be responsible for the control and prevention of communicable diseases, MCH, school health, environmental sanitation, occupational health, generation of health statistics, health education, and improvement of public health.
- Health centers shall be established in cities and guns. For metropolitan cities and small and medium sized cities, one Health center is established per 300,000 residents. For guns, 1 center is established per 150,000 residents.
- With the approval of a mayor or governor, a public health center shall establish its Sub health-center.
- A Health center shall collect actual expenses spent on examination and treatment.
- The expenses of a Health center shall be paid by the local government.
- The director of the Health centers in Seoul or provinces shall be vested with the authority and responsibility for public health in the region.

1.1.2 Amendment of Public Health Center Act, Sep. 24, 1962

The Public Health Center Act was amended to make the local governments take charge of the establishment, operation, and supervision of their Health centers, and unify the work process.

The notable amendments are:

- A Health center shall be established by the Seoul metropolitan government, city governments, and gun offices. Seoul and cities with gus (administrative districts in cites) should establish one Health center in each gu. Other cities and guns should establish a Health center in each city and gun.
- Directors of Health centers shall be under the mayor of Seoul's, mayor of a city's, or governor's supervision.
- When the Seoul government, a city government, or a gun office deems it necessary; Sub health-centers can be established in its jurisdiction.

1.1.3 Amendment of Public Health Center Act, Mar. 8, 1991

The amendment reflected such changes in the health and medical environments as the establishment of hospital-type Health centers, or Health Center and County Hospitals, in medically underserved areas from 1988 to 1989 and the necessity of management of health information with the introduction of the National Health Insurance in 1989. The notable amendments are:

- The Health centers that satisfy the qualifications for hospital can be named "Health Center and County Hospital"
- The legal base for the establishment of public Sub health-center was prepared
- The scope of the work of public health centers was adjusted and expanded to include the management of health information, establishment and assessment of local health plans, mental health, rehabilitation for the disabled, and health for seniors.

1.1.4 Enactment of Community Health Act, Dec. 29, 1995

The act was amended in 1995 to reinforce the abilities of the local governments to plan community-based health plans.

- The Public Health Center Act was amended into the Community Health Act.
- The abilities of public health centers to plan and revise local health care plans were reinforced.

Table 2-1 | Laws Related to District Healthcare Planning

Health Center's task	Legal basis
Major tasks of Health Center	Framework Act on Health and Medical Services, Community Health Act, Public Health and Medical Services Act
Health promotion activities	National Health Promotion Act
Planning for bed supply and demand	Special Act on Sound Finance in the National Health Insurance Sound Finance
Emergency care	Emergency Medical Service Act
Health and welfare of residents in rural area	Special Act on Promotion of the Health Welfare to Residents in Rural Areas
Problem of low birth rate and aging	Framework Act on Low Birth Rate in an Aging Society
Activities for dental health	Dental Health Act
Activities for maternal health and family planning	Mother and Child Health Act

Source: Lee SJ, Study on reestablishment of the role of public healthcare institutions and ways to reorganize the delivery system of healthcare service to vitalize healthcare investment. Korea Health Industry Development Institute, 2008

1.2 Health Administration System

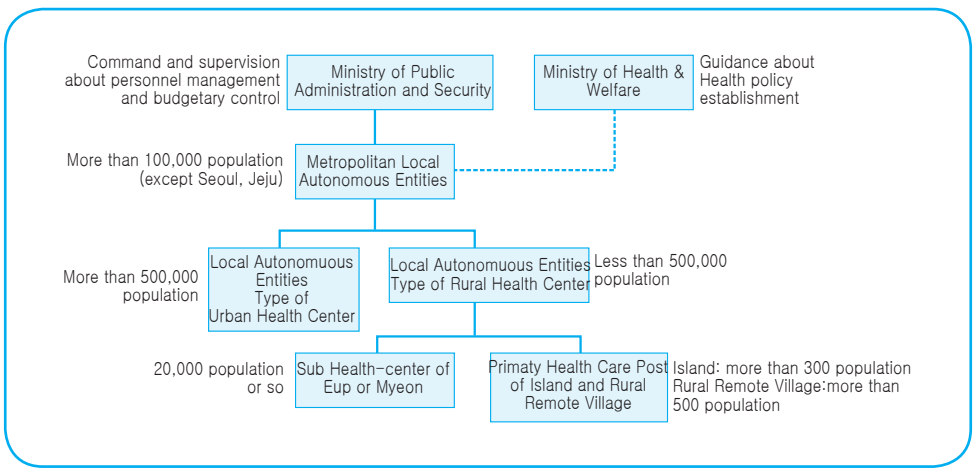
1.2.1 Administration Organization and Health Centers

Korea's Health centers are run in the bipartite system where the Ministry of Public Administration and Security and the Ministry of Health and Welfare each play a role. The Ministry of Health and Welfare is the government authority of primary concern regarding health and medical sectors, but does not have its own local branch. Therefore, general administration, such as employment and financial planning, is put under the supervision of the Ministry of Public Administration and Security through local governments. Other work regarding the center's policy, work plan, facility, and equipment are managed and supervised by the Ministry of Health and Welfare.

Seoul and six metropolitan cities (Busan, Daegu, Incheon, Gwangju, Daejeon and Ulsan), eight provinces (Gyeonggi, Gangwon, Chungbuk, Jeonbuk, Jeonnam, Gyeongbuk and Gyeongnam) and Jeju are governed by the "local autonomous governments for metropolitan areas." Seoul consists of self-governing gus (smaller administrative districts), metropolitan cities self-governing gus and guns, and provinces' self-governing cities and guns. These administrative districts are classified as "Basic Local Autonomous Entities", thereby cities and gus run their own city-type Health centers while guns run rural-area type centers. The work of Health centers is managed and supervised by the chief of the local governments, and the organization and division of work of the center varies according to the laws of the

region. In rural areas, a Sub health-center can be established in eups or myeons, or one integrated Sub health-center can be run by merging several Sub health-centers. In lis, which are usually located in remote or mountainous areas or islands and lack medical resources, a Sub health-center can be established with the approval of the governor of the gun, if it has more than 500 residents.

Figure 2-1 | Administration Organization and Health Center



1.2.2 Health Center Organization

In 1945, the organization of the National Central Public Health Center was, in general, divided into medical and administrative parts with such noticeable departments as health nursing, salvation, and STD control. In 1962, no specific regulations for organizing a Health center existed, but ideal types were suggested. A-type center (Seoul, Busan, and Daegu) had a director and the departments of health administration, health, epidemiology, sanitation, health nursing and hygiene inspection while B-type center (areas with middle or higher level of culture and economy) had a director and the departments of general affairs, disinfection, MCH, sanitation and a pharmacy. C-type centers (areas with poorer economies) had a director and the departments of general affairs, health and sanitation.

For a while, Health centers were generally classified into 3 groups: the centers in cities, guns and gus; Health centers and County Hospitals; and the centers in Seoul. Recently, the classification has gotten more complicated as the centers are classified either as one of the following types: Seoul, metropolitan city, mixed urban/rural , city, gun, or hospital type. As of 1988, the total number of Health centers of all types was 243 (25 for Seoul, 44 for the metropolitan city type, 41 for the urban type, 74 for the rural type, 17 for the hospital type and 42 for the mixed type).

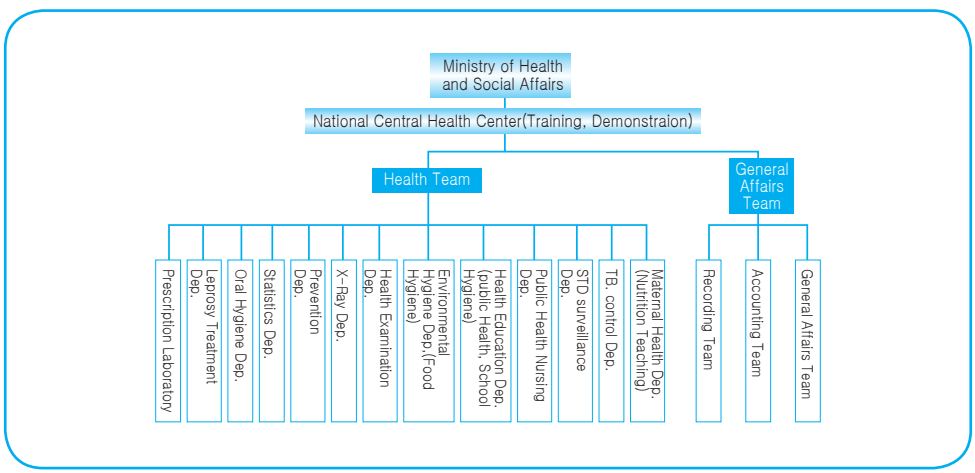
The organization of Health centers varies in their size and the names of departments

(Department, Division, and Team, for example). Health centers in Seoul are usually comprised of the departments of health administration, medicine and health guidance and a doctor's office. But the centers that have house call programs for low-income families had the department of local health. Metropolitan type centers have the divisions of public health, health promotion, preventive medicine, communicable disease control, and oral health with the chief manager of health administration above them. City-type centers are made of the teams of health administration, medicine, communicable disease control, house calls, and health promotion. Combined Urban and Rural type centers run various programs and projects under the 2 managers, manager of health and manager of medicine. Rural type centers have the teams of health administration, preventive medicine, health promotion, local health and sanitation.

The hospital-type centers were established from 1988 to 1989 in preparation for the introduction of National Health Insurance. Health centers in 15 areas without a hospital were rebuilt into hospital-type centers with 30 beds and 4 medical departments (internal medicine, surgery, obstetrics and gynecology and pediatrics). A Health center and County Hospital has the departments of general health affairs and medicine and Sub health-centers in eups or myeons and primary healthcare posts in lis.

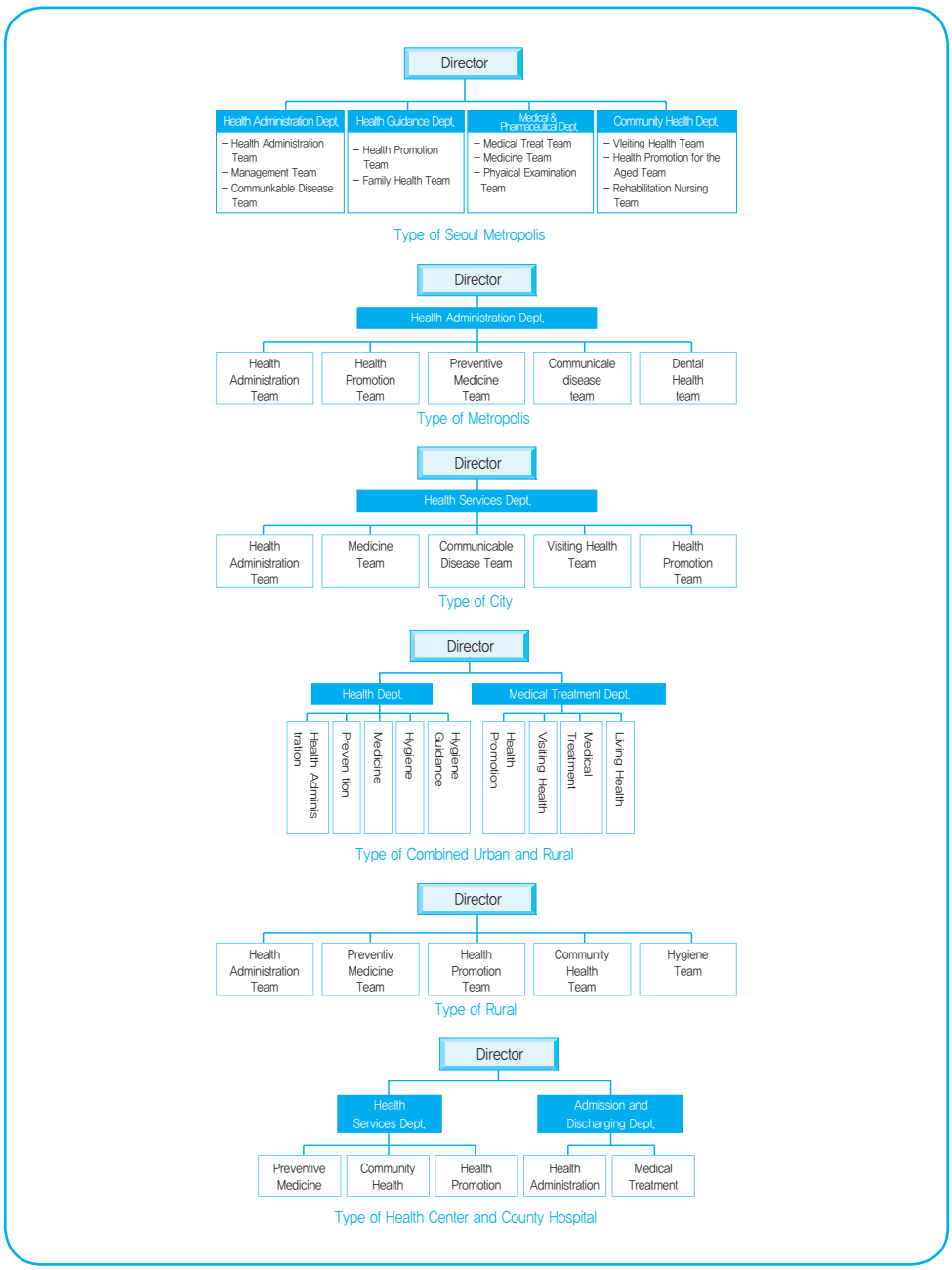
According to a survey conducted in 2008, a Health center had 1.1 departments on average. But the difference in the number of departments was found to be wide as some of the centers had no department while others had up to 3.2.

Figure 2-2 | Organization Chart of National Central Health Centers: 1949



Source: Lee JH, Health administration and activities of Health Center, Tamgudang, 1963

Figure 2-3 | Organization Charts by Types of Health Center



Source: Lee SJ, Study on reestablishment of the role of public healthcare institutions and ways to reorganize the delivery system of healthcare service to vitalize healthcare investment Korea health industry development institute, 2008

1.3 Functions and Tasks

The roles of the centers have changed as the demands of the people changed in line with economic advancement and improvement in health. Until the middle of the 1970s, the centers were usually engaged in communicable disease control, family planning, MCH, vaccination and public health projects. In 1977, it was turned into a primary medical institution by the "Medical Aid Project", and in 1988, the medical functions of county hospitals, established in medically underserved areas, were reinforced by being transformed into hospital-level medical institutions. In 1991, with the introduction of the local self-governing system, the amended Public Health Center Act required the local governments to make their own health plans and widened the scope of the center's roles by incorporating the management of health information, establishment and assessment of local health plans, mental health, rehabilitation for the disabled and health for the senior into the center's work. Later the act was fully revised into the local health act, which made it mandatory for Community governments to draw their own health plans. The act added health improvement and chronic degenerative disease control projects to the work of the centers considering an increase in chronic diseases from bad daily habits. For projects, the centers have run house calls programs, community-oriented rehabilitation, rehabilitation for the disabled, mental health, and senior health programs.

Table 2-2 | Transition of Health Centers' Function and Task

Year	Contents	
1956 (Public Health Center Act enactment)	· Preventative treatment of infectious disease and others · Maternal health · School hygiene · Environment hygiene/Industrial health	· Health statistics · Distribution of health ideas · Improvement of public health
1962 (Public Health Center Act amendment)	· Distribution of health ideas · Health statistics · Environment hygiene/Industrial health · School hygiene · Improvement and promotion in medical business · Preventative treatment of infectious disease and others	· Maternal health/Family planning · Oral hygiene · Nutrition improvement and food hygiene · Experiment/examination related to health · Study and control of endemic disease · Administrative tasks (guidance for public health doctors and instruction for medicines) · National health promotion and improvement

Year	Contents	
1991 (Public Health Center Act amendment)	· Preventative control and treatment of infectious disease and others	· Supervise and guide for sub health-center/primary health care post's employees
	· Health statistics	· Monitoring of Healthcare Institution
	· Nutrition improvement, food hygiene and public hygiene	· National health promotion and improvement and medical care service
	· School hygiene	· Health information control
	· Experiment/examination related to health	· Planning and evaluation for community health
	· Oral hygiene	· Health education
	· Maternal health /Family planning	· Mental health, health activities for the aged and rehabilitation people with disabilities
1995 (Community Health Act enactment)	· Health education, Oral hygiene and nutrition improvement	· Medical treatment for local residents, physical examination
	· Preventative control and treatment of infectious disease and others	· Experiment/examination related to health
	· Maternal health/Family planning	· Rehabilitation of people with disabilities
	· Health activities for the aged	· Health care promotion and studies related to local residents
	· Public hygiene/food hygiene	· Project for national health promotion
	· Guidance for medical personnel and health care center	· Work related to emergency medical care
	· Guidance for medical technician, Medical record officer and optician	· Health care activities like as visiting households and social welfare facilities
	· Guidance for public health doctors, C.H.P and primary health care post	· Control of chronic degenerative disease
	· Pharmaceutical work	
	· Mental health	

Year	Contents	
After 1995	· National health promotion, Health education, Oral hygiene and nutrition improvement	· Health care activities like as visiting households and social welfare facilities
	· Preventative control and treatment on infectious disease	· Disease control like as medical treatment for local residents, physical examination and chronic degenerative disease
	· Maternal health/Family planning	· Experiment/examination related to health
	· Health activities for the aged	· Rehabilitation of people with disabilities
	· Public hygiene/food hygiene	· Health care promotion and the study related to local residents
	· Guidance for medical personnel and health care center	· Expand health promotion activities
	· Guidance for medical technician, Medical record officer and optician	· Expand home health activities
	· Work related to emergency medical care	· Expand community-oriented rehabilitation activities
	· Guidance for public health doctors, C.H.P and primary health care post	· Increase support activities related to various medical expenses
	· Pharmaceutical work	· Expand National Immunization Program, computerized registration program, etc.
	· Mental health	

Source: Lee SJ, Study on reestablishment of the role of public healthcare institutions and ways to reorganize the delivery system of healthcare service to vitalize healthcare investment Korea health industry development institute, 2008

1.4 Human Resources

In 1963, the following three types were suggested as the ideal deployment of employees: Type A (Seoul, Busan and Daegu) with 78.5 workers (1 director, 7.5 medical officers, 1 fifth-rank officer, 9 pharmacists, 15 sixth-level engineer officers, 3 sixth-level officers, 16 nurses, 10 typists, 7 eighth-level officers, 9 entry-level workers, and 9 assistant officers); Type B (cities with the middle or higher level of culture and economy) with 33 workers including a director; Type C (guns with poorer economies) with 19 workers including a director.

A qualified person with a doctor's license was appointed to be the director of a public health center as the Public Health Center Act stipulated, but in some cases, health officers were appointed to the post. In the latter case, the director was required to hire a doctor as

a part-time officer. In 1995, the "Community Health Act" made health officers with recent 5-year experiences in the field, in which his/her public health center would carry out health projects in that year, eligible for the director position, based on the "rules on appointment of local public officers", when it was difficult to appoint a qualified person with a doctor's license to the post.

The guideline of the employment of a Health center can be found in the "public center act", made in 1976, which required the center to have officers taking an exclusive charge of medical consultation, pharmacy, health, nursing, health guidance, radiology, germ control and statistics. Later, the rules of the appointment of local public officers, The Ministry of Government Administration and Home Affairs Directive that included the guidelines of the employment of officers with specialty (The Ministry of Health and Welfare Directive Section 639, May 27, 1992), made it possible to acquire officers for special posts. In 1992, the guideline suggested officers with specialties be deployed according to populations either greater or less than 100,000. In 1997, according to Community Health Act Article 6 Section 1, the criteria was first fragmented into Seoul, metropolitan city and gun, and then subdivided by population, types and whether the city had a hospital-type Health center to deploy the officers. The act added more specialized workforce including oriental doctor, midwife, nurse aid, medical record officer, hygienist, mental health officer, information processing engineer, information processing craftsman, and medic officer to the existing workforce of doctor, dentist, pharmacist, nurse, medical laboratory technologist, radiologist, physical therapist, dental hygienist and nutritionist. The minimum number of the employers for a gun with Health center and County Hospital was set at the highest in the range of 48 to 58, and the lowest for a Health center in a gun, 22 to 29. The standard was set 35 to 42 officials for each Health center in Seoul.

The Korean government is now progressing with the survey to find out whether the necessary training programs for the special officers are implemented and how the officers are deployed. The study conducted in 2008, however, points out that the special officers were not deployed according to the characteristics of the projects of each Health center. An increasing number of irregular workers were also found to affect the center's abilities and functions.

Table 2-3 | Minimum Criteria of Healthcare Personnel in Health Centers: 1992

	Si, Gun, Gu of more than 100,000 people	Si, Gun of less than 100,000 people	Gun, Health Center and County Hospital
Physician	2[1]	2	6[2]
Dentist	1	1	1
Nurse	10	9	15
Pharmacist	2[3]	1[7]	2[7]
Clinical Pathology Technician	4	3	4
Radiological Technician	2	2	3
Physical Therapist	1	1	1
Dental hygienist	1	1	1
Medical record officer	-	-	1
Nursing aid	(2)[4]	(2)[7]	(6)[5]
Dietitians	(1)[6]	(1)[7]	(1)[7]

Notes: 1) Take also among the director, treatment chief and general treatment chief
2) Take also among director, chief of treatment department, internal medicine, surgery, obstetrics/gynecology, pediatrics, emergency
3) Guidance for medicine, preparation and administration of medicine etc.
4) Nursing assistants who are able to replaceable to nurses among the whole nurses
5) Nursing assistants who are able to replaceable to nurses among the whole nurses, in particular in the out-patients services
6) Nurses who are replaceable to dietitians
7) Same as above

Sources: 1) Ministry of Health and Social Affairs' instructions, 639, 1992.5.27
2) Moon OR, A Search for Methods of Activated Function in Health Center, The Korean Journal of Public Health, Vol.45 p37~64, 1992

Table 2-4 | Minimum Criteria of Healthcare Personnel in Health Centers by Licenses or Qualifications: 1997

	Gu of Metropolitan Cities	Gu of metropolitan City, Gu of more than 500,000 people and Si of more than 300,000 people	Si of less than 300,000 people	Si of urban and Rural Complex	Gun	Health Center and County Hospital in Gun
Physician	3	3	2	2	1	6
Dentist	1	1	1	1	1	1
Oriental Doctor	-	-	-	1	1	1
Midwife	(1)	(1)	(1)	(1)	(1)	(1)
Nurse	18	14	10	14	10	23
Pharmacist	3	2	1	1	1	2
Clinical Pathology Technician	4	4	3	4	2	4
Radiological Technician	2	2	2	2	2	3
Physical Therapist	1	1	1	1	1	2
Dental hygienist	1	1	1	1	1	1
Dietitians	1	1	1	1	1	2
Nurse aid	(2)	(2)	(2)	(2)	(2)	(6)
Medical record officer	-	-	-	-	-	1
Sanitary Technicians &Laboratory Technicians	(3)	(3)	(2)	(2)	(2)	(2)
Mental Health Professional	1	1	1	1	1	1
Engineer Information Processing ·Craftsman Information Processing	(1)	(1)	(1)	(1)	(1)	(1)
Emergency Medical Technicians	-	-	-	-	(1)	1

Notes: 1. This standard is applicable for all medical personnel except health center directors. Medical personnel and other experts could be disposed to the appropriate job positions when the local autonomous entities' status permits.
2. The standard of physicians and dentists includes public health doctors
3. The standard of oriental medical doctors is applicable to those who are disposed to oriental medical doctors as public health doctors
4. The midwives and Nursing assistants can be disposed, depending on the total number of nurses.
5. The standard of sanitary technicians&laboratory technicians is applicable to those who take charge of sanitation duties in the health centers.
6. The standard in brackets among the standard of engineer information processing&craftsman information processing and emergency medical technicians can be adjusted when each Si/ Gun/ Gu's status permits.
7. The standard of dietitians can be adjusted when there are fewer than 50,000 residents in the gun (except guns which have the Health Center and County Hospital) and each gun's status permits.

In 1998, a study analyzed 243 Health centers nationwide and found that on average, 81.2 officers were working in Seoul centers, 43.6 officers in metropolitan city centers, 105.2 officers in hospital-type centers, 47.2 officers in urban type centers, 89.7 officers rural type centers, and 114.7 officers in combined urban and rural type centers. The centers in rural areas (hospital-type, rural type and combined urban and rural type) have more employees since the workforce of Sub health-centers and primary healthcare posts are included in the counting.

Table 2-5 | Number, Population and Area of Jurisdiction by Type of Health Center: 1998

(Unit: establishment, person, ㎢)

Type	No. of Health Centers	Average Population	Average Area	No. of Dongs	No. of Officials	No. of Officials per H.C.
Metropolis	25	408,687.1	24.2	530	2,031	81.2
Metropolitan	44	267,982.1	61.8	758	1,917	43.6
Gun	17	43,020.9	625.5	155	1,788	105.2
City	41	212,945.4	163.7	581	1,937	47.2
Rural	74	63,722.6	669.9	772	6,635	89.7
Urban and Rural Complex	42	198,863.1	693.6	934	4,818	114.7
Total	243	1,195,221.2	2,238.7	3,730	19,126	-

Source: Jang WG et al, A study on development of public health care&evaluation system for health promotion in 21th century. Korea health industry development institute, 2000

The study also analyzed the types of licenses that the employees had. Of 19,126 employees, 27.2% people had a nurse's license, 19.8% a nurse aid's license, and 10.5% a doctor's license. Nurses constituted most of the workforce of Health centers as lots of community health practitioners having a nurse's license were deployed in rural areas.

Table 2-6 | Healthcare Personnel of Health Centers by Seoul, Metropolitan City and Provinces by Licenses and Qualifications: 1998

(Unit: person, %)

	Seoul Metropolis/ metropolitan		Province		Total	
Physician	298	6.9	1,703	11.5	2,001	10.5
Dentist	69	1.6	761	5.1	830	4.3
Oriental Doctors	15	0.3	26	0.2	41	0.2
Midwife	26	0.6	104	0.7	130	0.7
Nurse	1,274	29.4	3,932	26.6	5,206	27.2
Pharmacist	164	3.8)	61	0.4	225	1.2
Clinical Pathology Technician	290	6.7	484	3.3	774	4.0
Radiological Technician	188	4.3	274	1.9	462	2.4
Physical Therapist	64	1.5	193	1.3	257	1.3
Dental hygienist	67	1.5	1,192	8.1	1,259	6.6
Dietitians	26	0.6	63	0.4	89	0.5
Nursing Aids	234	5.4	3,561	24.1	3,795	19.8
Medical record officer	3	0.1	18	0.1	21	0.1
Sanitary Technician	55	1.3	200	1.4	255	1.3
Mental Health Professional	8	0.2	2	0.0	10	0.1
Engineer Information Processing	5	0.1	5	0.0	10	0.1
Emergency Medical Technicians	1	0.0	2	0.0	3	0.0
Unqualified	1,543	35.6	2,207	14.9	3,750	19.6
Etc.	4	0.1	4	0.0	8	0.0
Total	4,334	100.0	14,792	100.0	19,126	100.0

Note: The number of nurses = nurses + community health practitioners
Source: Jang WG et al, A study on development of public health care&evaluation system for health promotion in 21th century. Korea health industry development institute, 2000

1.5 Facilities and Equipment

On October 15, 1973, the "Standards of Health Service Institutions" was made to set the guidelines for the construction of the building of a Health center or Sub health-center. Later, on January 25, 1982, the criteria were adjusted demanding a higher standard for the building of a Health center in gus of metropolitan cities. They were obligated to have two stories above ground and one underground and cover 900m^2 or 1,100m^2. Buildings in medium-sized cities and urban areas were required to cover 600m^2 or 750m^2 with two stories above ground. In rural areas, the centers of 450m^2 had a building with one story above ground and another underground and the centers of 350m^2 had a one-story building.

The construction and renovation of the centers' buildings were mainly undertaken in the 1980s and 1990s. With the construction of the National Central Public Health Center in 1958, 33 more centers were built in the 1960s, 25 in the 1970s, 126 in the 1980s, and 56 in the 1990s. 64 centers in the 1980s, and 66 in the 1990s, were renovated. In 1994, The Special Tax for Rural Development Act was enacted, launching the Project to Improve Medical Services in Rural Areas, by which local health institutions, including public health centers, were provided with better equipment and facilities. The project was carried out until 2010 and made up to KRW 92.82 billion in investments (83.63 billion for facilities, 52.1 billion for medical equipment, 14.1 billion for computer equipment, and for 15.8 billion for vehicles) The project aimed to help "health institutions in guns with eups and myeons" and "health institutions in mixed urban/rural areas". "Health institutions in areas without eups and myeons" were excluded from the project. The project has funded 144 Health centers, 1,258 Sub health-centers, and 1,864 primary health care posts up to 2006, and will be carried on until 2014. The Project to Improve Medical Services in Rural Areas set the reference size of the building of the health institutions: a Health center in a gun covers about 1735m^2; integrated Health centers 2115m^2; the area for optional facilities 1018m^2; general Sub health-centers 347m^2; integrated Sub health-centers 647m^2; primary healthcare posts 115m^2. The minimum ratio of common space was set at 35%. Accordingly, the buildings of Health centers have been transformed to the current one.

In 1995, the new programs-home visiting, dementia management, healthcare for the senior, rehabilitation, mental health, oriental treatment, dental treatment, and physical therapy-were included in the work of public health centers. In 2000, health promotion, dental examination and nutrition were also added. The changes in the health programs and health environments brought changes in the center's ways to organize space. For example, a new room for consultation was established or the space was reorganized. Laboratories were divided and space for pregnant women and children was prepared. A room for health education was made. Offices for administrative affairs were integrated into one office. The space organization, as seen in the Table below, for the center's roles and work has actively reflected the changing demands of the residents.

Figure 2-4 | Building of the Health Center: 1971, 2011

Sources: Ministry of Health and Social Affairs, a white book, 1971
2) Bonghwa Health Center (Rural Health center) Homepage:http://health.bonghwa.go.kr

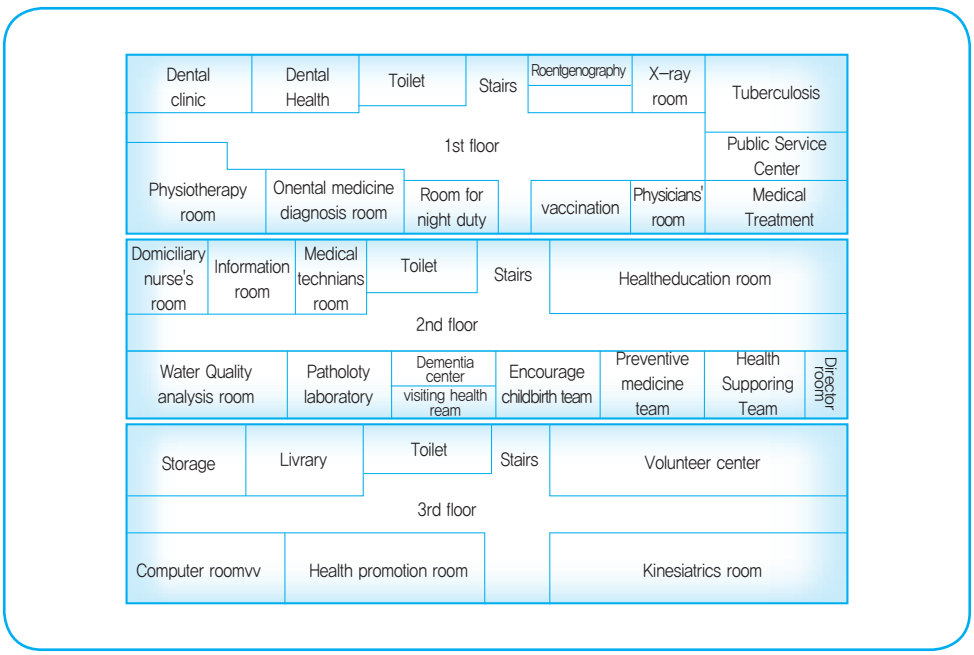
Table 2-7 | Internal Facilities of Health Center's Building in the City: 2006

Classification			Relevant room
Type of treatment	General treatment		Reception desk/payment, pharmacy, diagnosis, treatment, physician's room, waiting room
	Optional treatment	Oriental medicine	Oriental medicine diagnosis, acupuncture and moxibustion
		Physiotherapy	Physiotherapy room
		Rehabilitation	Kinesiatrics room, thermotherapy room, Operation Treatment room, hydro psychotherapy room
		Dental activity	Dental clinic
		Health promotion	Health care room, evaluation room, exercise room, mental health room, sex consultation room
		Day care center	Ward, nurse's room, treatment, utility room etc.
Treatment support			Radiation oncology room, clinical laboratory room
Maternal and child health			Maternal and child health room, maternity room, recreation room for young children, vaccination room etc.
Health services			TB Control room, X-ray room, warehouse, counseling office, home visiting room

Classification	Relevant room
Administrative	Director's room, meeting room, office (health Dept./medical care Dept.), Public Service Center etc.
Common Use	Corridor, stairs, elevator, lobby, entrance, lounge etc.

Source: Kim JY et al., A Study on the Spatial Composition and Area Distribution of recent Urban Health Centers, the Korean Journal of Healthcare Environment, 24, 51-58, 2006

Figure 2-5 | Internal Structure of Bong Hwa Health Center (Rural)



Source: Bong Hwa Health Center Homepage: http://health.bonghwa.go.kr

In 1994, the Ministry of Health and Welfare made a standard list of medical equipment as part of the guidelines for the Project to Improve Medical Services in Rural Areas and announced 262 kinds of standard medical equipment. 142 kinds were for emergency care (surgery), general consultation (internal medicine) and dental examination and other tests; 55 kinds of examination equipment for radiology, clinical pathology and special tests; 8 kinds of consultation supporting equipment for sterilization and pharmacy; 20 kinds for rehabilitation, physical therapy, and oriental treatment; and 34 kinds for health projects such as health promotion, TB control, MCH, home visiting, disinfection and health education. The past ideal list of the equipment for Health centers shows remarkable differences in the

kinds and number of equipment, compared to the current one. The differences in the two lists reveal, directly or indirectly, the development and advancement of the Health center system. The Health centers in the past received different standard lists according to the situations of the region as follows:

A study conducted in 1998 found that more than 80% of Health centers were equipped with an automatic film developer, a bed for physical therapy, a stethoscope for adults, a blood pressure gauge with a mercury cylinder, a microscope, a compressor, a cultivator and a dryer, a transcutaneous electrical nerve stimulator, a car for home visiting, a dental unit and chair, a centrifugal separator, a liver-specific x-ray, an infrared light treatment machine, an X-ray machine with film cassettes, an interference current therapy machine and an ultrasound treatment machine. However, fewer than 10% of the Health centers had a warm-air injector, a teeth cleaning machine, a scale for oriental therapy, a portable high-speed engine, a digital hard pulse analyzer, an enema kit, a stomach pump, a pediatric endobronchial tube, an ultrasound washer, a portable dental examination chair, a fluoride ion applicator, a caliper gauge, a cell counter, a pipet rotary shaker, an UV light, an adult endobronchial tube, an X-ray photo reader, a portable low-speed engine and a balance scale.

Table 2-8 | Standard Equipment of Health Centers: 1962

Type of activity	Standards for each Health center class		
	First level	Second level	Third level
Health education	Projector, microphone, slide projector, recorder	Microphone, slide projector	Slide projector
Health statistics	Typewriter (English, Korean) draft equipment, calculator	Typewriter, draft equipment	Draft equipment
Environment hygiene	Machine for water quality, machine for insect extermination, sterilizer	Same as first level	Sterilizer, machine for insect extermination
Prevention	Vehicle for patient transportation	-	-
Maternal and child Health	Pelvic examination chair for prenatal test, bed for childbirth, scale for children, height measuring instrument	Same as first level	Same as first level
Laboratory	Bacteria laboratory chemical examination laboratory, clinical pathology laboratory	Bacteria laboratory, clinical pathology laboratory	Clinical pathology laboratory
Dentistry	Dental Unit, dental prosthetics device 1	Dental Unit	-

Type of activity	Standards for each Health center class		
	First level	Second level	Third level
X-ray	Machine for direct x-ray examination (100mA), machine for indirect x-ray examination (portable 100mA), other accessories 1	Same as first level	Same as first level

Source: Lee JH, Health administration and activities of Health center, Tamgudang, 1963

1.6 Operation

The budget of a Health center is made of the subsidies from both the central and local government. A survey in 1998 recorded that the average budget of Health centers was about 3 billion Korean won (KRW), constituting only 3.39% of the whole budget of a local government. Health centers in cities or guns had a higher ratio of the subsidies from the central government while the centers in rural areas had difficulties in acquiring enough funds since the amount of subsidies from the local governments was smaller.

Table 2-9 | Average Budget and Proportion by Type of Expenditure in Health Centers by District: 1997

(Units: Person, 1,000 won, %)

	Avg. Jurisdiction Population[1]	Avg. Budget[2]	Proportion[3]	Proportion by source of revenue		
				Government expenditure	Expenditure of metropolitan local Gov. (Si/Do)	Expenditure of local Gov. (Si/Gun/Gu)
National average	185,829	3,037,999 (100.00)	3.39	168,912 (5.56)	158,279 (5.21)	2,710,806 (89.23)
Seoul	430,018	3,635,984 (100.00)	3.61	66,538 (1.83)	575,212 (15.82)	2,993,869 (82.34)
Metropolitan Cities	292,840	2,162,064 (100.00)	3.22	92,968 (4.30)	91,671 (4.24)	1,977,423 (91.46)
Si	206,215	3,184,607 (100.00)	2.70	166,873 (5.24)	87,895 (2.76)	2,929,837 (92.00)
Gun	67,872	3,045,042 (100.00)	4.03	223,748 (7.30)	158,156 (5.16)	2,682,831 (87.53)

Notes: 1) Average Jurisdiction Population: National Statistical Office, "Estimated Future Population", 1996.12.

2) Budget, 1997 (average): The budgets of the Seoul metropolis and Si Health Centers is significant to those of metropolitan Health Centers (ANOVA, $p<0.05$).

3) Proportion: Weight of budgets belonging to the local government.

Sources: Jang WG, Kim JS, Park YT, Lee SB, Issues on the reform of local public healthcare facilities, Korea Institute for Health and Social Affairs, p40, 1998

In 2001, a study analyzed the total expense of a Health center in Guro-gu, Seoul and found that labor costs took up 43.38%, current expenses (administration and management) 41.95%, project costs 12.28%, and costs to improve facility and equipment 1.37%, of the total KRW 5.25 billion in expenses. The health center was spending more of its budget on labor costs, administration and management than on health projects.

Currently, a large number of Health centers find it difficult to acquire sufficient funds as their local governments' level of financial independence widely varies. Even if the center had budgeted as it had planned, most of the budget would be spent on labor costs and administration, not health projects. In 1997, the average budget of a Health center was KRW 3,037,999,000, only 13.34% (405,205,000 won) of which was spent on health examination, MCH, vaccination, disinfection, and STD control. Furthermore, some projects such as the chronic degenerative disease control project receive a smaller fraction of the budget because most of the budget was allocated to the health examination and vaccination projects and the central government's subsidy usually gets included in the budget for the MCH project.

Table 2-10 | Average Budget of Disease Prevention and Control Projects: 1997

(Units: 1,000 won, %)

	Avg. Budget	Proportion by source of revenue		
		Government expenditure	Expenditure of metropolitan council (Si/Do)	Expenditure of Local government (Si/Gun/Gu)
Total	405,205			
Physical examination[1)]	131,288	4.20	20.83	74.98
Maternal health	33,531	24.19	6.44	69.37
Vaccination	130,715	8.98	9.26	81.77
Disinfection	99,899	0.18	4.64	95.18
S.T.D. business	9,772	2.92	1.79	95.29

Note: These are the results from 144 Health centers.

1) Health promotion: Includes the resident's physical examinations and particular physical examinations according to their ages and diseases

Source: Jang WG et al., Issues on the reform of local public healthcare facilities, Korea Institute for Health and Social Affairs, p39, 1998

According to the Community Health Act, a Health center is able to use the profits from medical consultation through replacing revenue with the money, based on the Local Finance Act Article 13. Its accounting procedures can be simplified according to the rules of the local governments.

Figure 2-6 | Logo of Health Center and Sub Health-center

2. Sub Health-center

2.1 Regulation

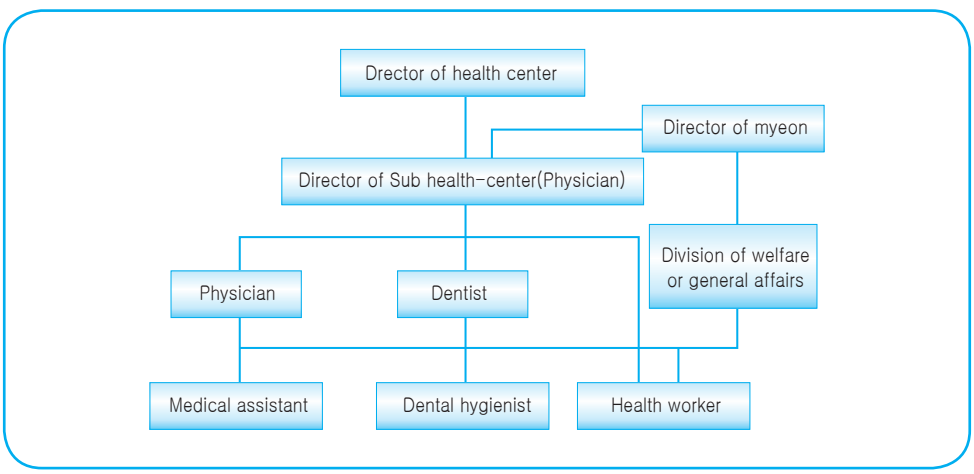
According to the legal base of establishing Sub health-center is the Public Health Center Act Article 7, enacted in 1969, the law required to establish at least 1 Sub health-center in every eup or myeon and have 1 commissioned doctor in addition to family planning workers, MCH workers, and TB control workers. The Sub health-center was almost nonexistent until the 1970s, because only there were few doctors working in the institutions; however, after 1980, when the Special Act for Healthcare in Rural areas was enacted, public health doctors were dispatched to the Sub health-centers. In the beginning, however, there was no improvement in productivity of treatment and efficiency of management, due to bureaucratic process, restrictions in the system, backward facilities, and the absence of doctors' position in the law. To solve the problems, the government abolished the titular operation committee of Sub health-centers, turned public health doctors' status into special local public official in 1993, and lastly reformed the system to make health workers of eup or myeon offices work in the Sub health-centers. Finally, the Sub health-center system began to take the shape of the current one.

The Community Health Act, a largely amended version of the Public Health Center Act, prescribed the standards for establishment of Sub health-centers and work of the director of

the Sub health-center. The criterion for establishment of Sub health-centers was one center per eup or myeon, except for those with Health centers. In cases where governors of cities or guns and directors of gu offices recognized the necessity, an additional Sub health-center could be established and operated or several Sub health-centers could be merged into one integrated center.

In March 1994, the government launched the "Project to Improve Medical Services in Rural Areas" based on the "Act on Special Rural Development Tax," and recommended to merge 2 or 3 Sub health-centers with 1 or 2 Primary health care posts into an integrated Sub health-center to locate it in high-traffic areas.

Figure 2-7 | Organizational Chart of Sub Health-center: 1991



Source: Hong MS, Analysis of operation of healthcare organizations in the military and performance of health personnel in myeon: focusing on family health program. Korean Institute for Health and Social Affairs, 1992.

Table 2-11 | Overview of Sub Health-center System

Classification	Contents
Legal base for establishment	· Public Health Center Act (Revised as Community Health Act in 1995)
District government department (dualistic system)	· Ministry of Home Affairs (administrative supervision) · Ministry of Health and Social affairs (consultant service)
Jurisdiction	· Eup / myeon
Personnel	· Director of sub health-center · Multipurpose health workers (family planning, maternal health, tuberculosis worker) · Medical assistants (after 1984), dental hygienists (after 1988)
Main tasks	· Maternal health and family planning · Health education · Vaccination · Infectious disease control · Health statistics data collection · General practice · Public health administration · Others
Government funding	· Within two thirds of the cost of equipment and extra expenses · Within one third of the operating expenses 1. Personnel expenses - Total amount of public health doctor expenses - Half of commissioned doctor expenses (Another half is for local expenditure) 2. Basic expenditure prerequisite for operating facilities

Source: Nam CH et. al., A research study of improvement on public health service of Sub health-center: focusing on public health doctor assigned to Sub health-center. Korean Institute for Health and Social Affairs, 1986

2.2 Function

Sub health-centers carried out their work based on the work of their health centers, to which they belonged, for their work was not clearly defined. Their initial work included Mother and Child Healthcare, family planning, health education, vaccination, communicable diseases control, statistics collection, medical consultation, and public health administration. But later, as the plans to improve functions of the Sub health-centers directed, their work was changed to include primary health care (from general medical treatment for patients to health consultation for non-patients), control of chronic diseases (including clinical visits),

visiting health management programs (teaching residents how to practice healthy habits and managing patients of chronic diseases on the list), MCH (growth checks for infants and children, and vaccination), and senior health improvement programs (providing long-term care to senior citizens). However, treatment and preventive health services provided by the Sub health-centers fell short of the mark, in terms of both quality and quantity.

The rules of operation and management of Sub health-centers (The Ministry of Health and Welfare Directive Section 666, Mar. 1993) stipulates types of accounting, persons charge of accounting, implementation and settlement of a budget, and purchase of medicine under the supervision of the director of a public health center. But the rules were amended into the "Guideline for Management of Public health doctors" in March 2001, and later into the "rules of management of Public health doctors." The guideline book for Sub health-centers specifies task division of the employees, but in a simple way.

2.3 Human Resources

Sub health-centers were established based on the "ordinance for the establishment of Gun Sub health-centers". Only doctors or high-ranking officers could be appointed as Directors and public workers, on their governors' plans to deploy them, in the Sub health-centers. According to the "regulations for operation of Sub health-centers", the Sub health-center could have a director, nurses, and hygienists. The "regulations for employment of military officers" did not determine the number of public employees, but contained rules about appointment of commissioned doctors and directors and deployment of Public health doctors. In most cases, a public doctor was designated to his workplace by the governor of the province, but not appointed as director of the Sub health-center. Moreover, only few nurses and hygienists were working in the Sub health- centers.

Public health doctors and medical assistants (mostly nurse aid licensees) constituted the most part of the initial workforce for the Sub health-centers. Public health workers from myeon offices worked in a few Sub health-centers. In 1992, 4 workers-a doctor, a dentist, a dental hygienist, a nurse or nurse aid-were required to work in a Sub health-center by the "criteria of deployment of healthcare officers for Health centers and Sub health-centers" and in 1997, the number of nurses or nurse aids was increased from 1 to 3. According to a 1995 survey, the number of the Sub health-centers was 1,327 and that of public employees was 7,067. On average, 5 public employees were working in each Sub health-center. Multipurpose health workers for comprehensive work constituted 41.3% of the workforce: public health doctors 28.9% (physician 18.3%, dentist 10.6%), nurses 5.2% and dental hygienist 13.6%. Of the employees, most of medical assistants and public health workers were not qualified to carry out their due work because of their lack of knowledge and skills needed to satisfy residents' new demands for better health.

Table 2-12 | Minimum Criteria of Healthcare Personnel by License or Qualification in Sub Health-center

(Unit: person)

Classification		Doctor	Dentist	Nurse or nurse aid	Dental hygienist
1992*	SHC	1	1	1	1
1997	SHC	1	1	3	1
	Integrated sub health-center	1× the number of eup/myeon	1× the number of eup/myeon	3× the number of eup/myeon	1× the number of eup/myeon

Notes: *There was an agreement with the minister of home affairs about the standard for dispatching health care personnel of health center and sub health-center
1) Standards for dentists can be adjusted according to the personnel situation of public dentists
2) Standards for dental hygienists can be adjusted considering the dispatch of dentists.

Source: The Ministry of Health and Welfare Directive Section 666, Mar. 1993, the rules of operation and management of Sub health-centers, the Community Health Act enforcement regulation No.6 legislated on 1997.2.14

Table 2-13 | Status of Public Health Doctors, Dentists, and Oriental Doctors and Staffing Rates in Sub Health-center: 1980-2010

(Unit: establishment, person, %)

Year	SHC	Doctor		Dentist		Oriental doctor	
		Director and other professionals	PHD (staffing rate)	Non-PHD	PHD (staffing rate)	Non-PHD	PHD (staffing rate)
1980	1,303	-	1,000 (76.7)	0	0 (0.0)	0	-
1985	1,303	-	999 (76.6)	0	77 (5.9)	0	-
1990	1,318	-	1,432 (108.6)	0	1,188 (90.1)	0	-
1995	1,327	-	1,317 (99.2)	0	753 (56.7)	0	-
1997	1,315	13	1,291 (98.2)	0	661 (50.3)	0	-
2000	1,271	25	1,264 (99.4)	1	619 (48.7)	0	3 (0.2)

Year	SHC	Doctor		Dentist		Oriental doctor	
		Director and other professionals	PHD (staffing rate)	Non-PHD	PHD (staffing rate)	Non-PHD	PHD (staffing rate)
2002	1,268	19	1,299 (102.4)	2	664 (52.4)	1	100 (7.9)
2005	1,280	17	1,310 (102.3)	0	757 (59.1)	1	471 (36.8)
2010	1,294	47	1,313 (101.5)	2	477 (36.9)	3	639 (49.4)

Notes: 1) Public health doctors and public health dentists in 1980-1995 were doctors and dentists subject to sub health-center in annual report.
2) Staffing rate = (the number of people ÷ the number of institutions) × 100

Source: Annual reports, 1982, 1985, 1988, 1992, 2000, 2007, 2010, 2011

Table 2-14 | Status of Healthcare Personnel in Sub Health-center: 1984-1996

(Unit: person)

Year	Medical assistant	Dental hygienist	Multipurpose health worker	FP worker	MCH worker	TB worker
1984	57	0	-	1,319	480	1,271
1985	809	0	2,959	-	-	-
1986	941	0	2,961	-	-	-
1987	1,229	0	2,982	-	-	-
1988	1,222	196	2,140	-	-	-
1989	1,251	1,137	2,757	-	-	-
1990	1,265	1,174	2,758	-	-	-
1995	1,273	970	2,695	-	-	-
1996	1,270	843	2,339	-	-	-

Source: Ministry of Health Welfare&Family Affairs, Annual Reports, 1985, 1992, 2000

Table 2-15 | Status of Healthcare Personnel in Sub Health-center: 1997-2010

(Unit: person)

Year	Pharmacist	Nurse	Nutritionist	Medical technician				Nurse aide	Administrative official	Health official	others
				Radiological technician	Medical laboratory technologist	Dental hygienist	Physical therapist				
1997	3	472	0	11	15	835	8	2,976	8	78	65
2000	3	422	1	37	36	693	53	2,171	14	87	51
2005	2	539	6	25	30	667	70	1,792	5	48	31
2010	2	739	19	30	43	561	111	1,359	10	29	20

Source: Ministry of Health Welfare&Family Affairs, Annual Reports, 2000, 2007, 2010, 2011

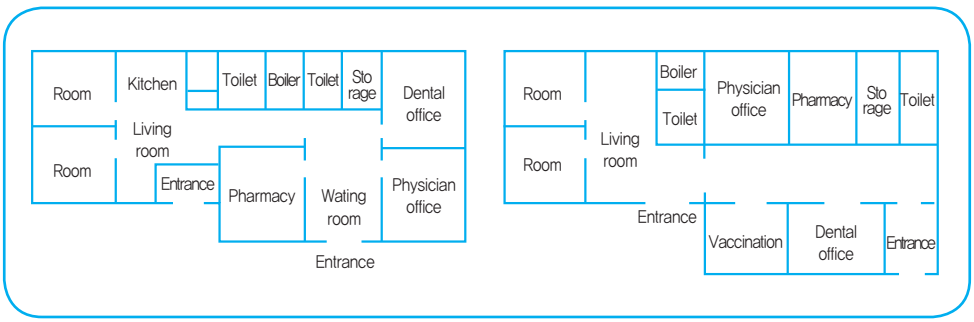
2.4 Facilities and Equipment

As of 1984, 31.2% of the Sub health-centers (407) occupied an area of 132.2m^2, 33.1% (431) between 69.4m^2 and 132.2m^2, and 35.7% less than 66.1m^2. Most of their buildings of less than 66.1m^2 were 15 to 20 years old, and therefore required new construction. In an effort to improve dilapidated facilities, the government constructed 30 new buildings for the Sub health-centers every year, and increased the number of new constructions to 122 in 1984. In 1985, 150 new buildings for the Sub health-centers were constructed.

In 1984, a total of 112 kinds of standard equipment-100 kinds of medical equipment and 12 kinds of equipment for health education and other purposes-made the list of "standard equipment for Sub health-centers." 122 Sub Health-centers were granted 1 million KRW each for the purchase of the equipment. In 1985, the government provided 1.5 million KRW to each of 751 Sub health-centers to help them purchase the equipment.

In the initial stage, most Sub health-centers were one-story buildings with narrow space. The humble facade of the buildings, even shabbier than the residents' houses, was one of the factors that affected the residents' trust in the Sub health-centers as a health care provider. But the new buildings were constructed into single-story concrete slab houses with cement blocks, helping the Sub health-centers live up to their name as a public healthcare provider.

Figure 2-8 | Inner Structure of Sub Health-centers in Gyeonggi-do: 1998



Source: Seoul National University, Unit for District Health Care System Development Project, Developing a model of sub health-center for serving comprehensive health care service, 1993

The guidelines for construction of Sub health-centers (1993) required the inner area of the buildings to consist of a surgical ward, covering 33m^2, a 30m^2 dental ward, a 15m^2 reception room, a 21m^2 waiting room, a 15m^2 health workers' office, a 9m^2 restroom, a 66m^2 residential area, a 6m^2 warehouse, a 9m^2 pharmacy, an 3m^2 entrance area, and 6m^2 of extra space . But in reality, only a few Sub health-centers measured as such.

At the beginning of the 1980s, the amount of the equipment in the Sub health-centers was not sufficient. But the government, with the new construction project, provided the materials and equipment that the Sub health-centers needed the most. But most of the equipment was second-hand or decrepit and had been used and handed over to commissioned doctors or residents. According to a study published by Korea Institute for Health and Social Affairs, KIHASA, in 1985, the average number of kinds of equipment provided to the Sub health-centers was 46. The study found a number of cases where Public health doctors themselves had purchased necessary equipment varying from basic stuff, such as a mortar-and-pestle, to high-priced goods, bought for the doctors' personal interests. Most of the Sub health-centers were under the fifty percent mark of the list of the 100 kinds of necessary equipment, suggested by the Ministry of Health and Society. In 1985, KIHASA conducted a mail survey to ask what kinds of equipment the public health doctors thought were most needed. The survey showed that most of the doctors polled needed an electronic autoclave, followed by suture set, ophthalmoscope, auriscope, drug storage fridge, and examination table. There was a high demand for motorcycles, with which the doctors could quickly respond to emergency cases and boost their mobility. On the other hand, the equipment for obstetrics was hardly used. Therefore, it was recommended that equipment be selectively given to the Sub health-centers according to their needs rather than providing the same sets of equipment to all Sub health-centers.

Figure 2-9 | Building of Eun Nam Integrated Sub Health-center in Yang Ju si

Source: Pictures from Yang Ju Health Center

2.5 Operation

In 1983, the budget account for the operation of the Sub health-center was not separately set in the military budget. Therefore, its public health center received "a budget for the operation of a Health center" and paid electricity, phone, water bills and maintenance fees of the buildings for the Sub health-center with the budget. It also allotted a certain amount of medicine to its Sub health-center after making a bulk purchase.

According to the "Rules of Operation and Management of SHC" set in 1993, the accounting for the Sub health-center was divided into "business accounting" and "healthcare accounting". The rules required the Sub health-center to buy medicine and medical equipment itself except for frequently used items or expensive medical tools costing more than KRW 100,000. The Sub health-center purchased them together with its health center or the director of the center made a purchase contract. In the healthcare accounting, profits from medical consultation, and their interests, and donations from the residents were recorded in revenue, and expenses for medical consultation and purchase of equipment, and performance grants in expenditure. In fact, the costs of buying medicine and performing medical practices were covered with profits from consultation because "donations from residents" were hardly made and recorded in healthcare accounting. A study, conducted in 1993, found that most of the debts of the Sub health-centers were generated for the costs of drugs and in many cases, were passed from predecessors to their successors. The financial records in the healthcare accounting of the Sub health-centers were, however, balanced between fund reserves and debts or sound. Some Sub health-centers even had more reserves than debts.

After 1993, the right to control and manage the budget and accounting of the Sub health-centers was transferred to its Health center and their implementation was administered based on relevant provisions of the Community Health Act. The abolition of the self-pay system served to establish a cooperative system with Health centers regardless of the generated profits of their Sub health-centers.

The government pushed ahead with projects to streamline the work of the Sub health-centers and establish data networks in order to provide healthcare services and useful health information to individuals or families more efficiently. It also embarked on a project to build a computer-based system for primary healthcare and healthcare projects. In 1994, the information system for primary healthcare of Health centers (or Sub health-centers) was developed. The set-up of the patient database and the computer-based billing system reduced time and resources in billing and producing statistics.

A study in 1985, when the Rural Health Insurance System had not yet been introduced, found that the average number of patients per month was 56, the profit from consultation and treatment KRW 132,900 and the average fee per visit KRW 2,373. The monthly average cost of personal purchase of medicine was KRW 64,700; the net profit, the cost of personal purchase of medicine deducted from the profit from consultation KRW 68,200; and the average number of different medicines 25. According to a report from Nam Cheolhyeon, one Sub health-center had 61 kinds of drugs on average, and used 50 to 59 of them. Most of the drugs used were digestives and antibiotics.

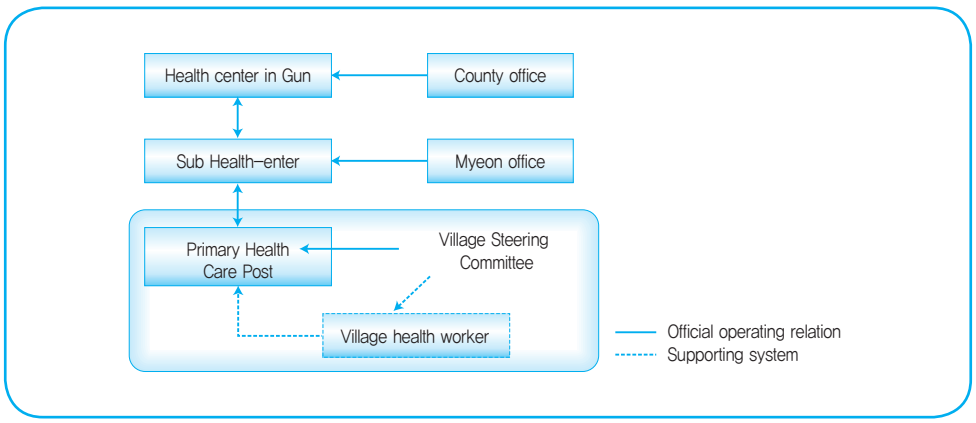
3. Primary Health Care Post

3.1 Regulation

On December 31, 1980, the government enacted and pronounced the "Special Act for Healthcare in Rural Areas" to redesign the health care system for rural areas and reduce medical imbalances between urban and rural areas. The act was legislated to contribute to promoting health and medical equality by effectively providing medical services to the residents in medically underserved areas. It consisted of 4 clauses-general provision, public health doctor (PHD), community health practitioner (CHP) and Primary health care post (PHCP)-bylaws and 17 articles.

A PHCP is established as prescribed in the community health practitioner center establishment ordinance, laws of their local governments, and the Special Act for Healthcare in Rural Areas. The practitioner to the center was appointed by the governor of the gun, and operation of the center was autonomously run by the operation council. The governor is required, by the law, to supervise and steer the work of the center or entrust the director of the center or Sub health-center with the rights of supervision. But specific codes for the supervision have not been set in subsidiary laws, such as ordinance. The centers, therefore, are established by governors and run by their operation council without direct supervision of Health centers or health workers of eup and myeon offices. They just receive equipment and medicine from their Health centers for their work.

Figure 2-10 | Operating System of Primary Health Care Post



Source: Kim JT, A research report for primary health care project in rural areas, the Korea Institute of Population Health, 1985.

As opposed to Medical Law Article 25, CHPs were given the right to perform simple medical practices, determined by Presidential decree, in medically underserved areas to which they were sent. The enforcement ordinance and regulations of the law took effect respectively on 11 June 1981, and 5 September. The guidelines on operating procedures and management for PHCPs were established on 1 January 1984.

The "rules of operation and management of PHCPs" were set, according to the Special Act for Healthcare in Rural Areas Article 14, to promote a prudent operation of the centers by setting standards for organization, financial accounting, rewards and travel expenses, documentation. The rules consist of 11 chapters and 81 articles. The chapters are organized into: general provisions, organization, appointment, dismissal, service, training, rewards and travel expenses, financial accounting, medical equipment and medicine, audit, and documentation.

The "Special Act for Public Health Scholarship" aimed to recruit students of medicine or dentistry to secure medical personnel for doctorless areas. Later, on December 20, 1983, the law was revised to expand the scope of recipients of the scholarship for nursing students who later would mandatorily work in public health sectors.

On January 29, 2004, the "Special Act for Healthcare and Welfare Development for Residents in Rural Areas" was added with an article (Article 11) that governors of their local governments must gather and reflect the resident's opinions when they merge or close PHCPs, having been established by the Special Act for Healthcare in Rural Areas Article 2 Section 4.

Table 2-16 | History of Primary Health Care Post System: 1976-2011

Year	Contents
1976	· Launching Korea Health Development Institute (KHDI)
1977-1980	· Implementing and evaluating "Village Health Worker Project" of KHDI
1980. 10	· Administrative long-term plan of Ministry of Health and Social affairs: establishing a plan for dispatching primary health care posts in medically underserved areas
1980. 12	· Legislating the special act for healthcare development in rural and other areas and proclaiming
1981. 1	· Starting to construct primary health care posts
1981. 3	· Starting to dispatch of primary health care posts and job training
1981. 6	· Promulgating an enforcement ordinance of the special act for healthcare development in rural and other areas
1981. 8	· Starting to organize PHCP operation council
1981. 9	· Promulgating an enforcement regulation of the special act for healthcare development in rural and other areas
1981. 10	· Starting to provide medical appliances and medicine for PHCPs systematically
	· Operating PHCPs assigned to operation council composed of representatives of communities
1983. 2	· Starting to build PHCPs
1984. 1	· Promulgating the rules of operation and management of PHCPs
1984	· Providing PHCPs nationwide with a scooter and a slide projector
1991. 12	· Officials in special government service of PHCP (sixth and seventh levels in official ranking)
2003. 12. 29	· Legislating the Special Act for Healthcare and Welfare Development for Residents in Rural Areas
2011. 8	· Establishing a local public service employee as "Primary healthcare official position"

Sources: Kim CY, Primary Healthcare and Primary Health Care Post System, Graduate School of Public Health, Seoul National University, 2011

3.2 Facilities and Equipment

3.2.1 Construction of the Buildings of Primary Health Care Posts

In the initial stage, the government had to borrow an outer building of a resident's house, as the buildings of PHCPs were not prepared. But later, in 1983, it began to construct the buildings. The residents voluntarily donated their land on which the buildings of the centers were built. From 1982 to 1989, 1,997 centers were newly built or expanded. To better equip

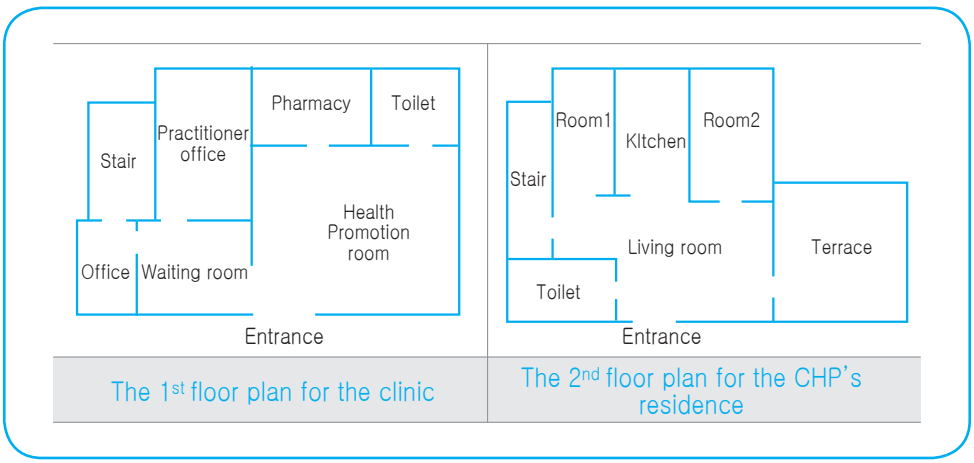
the center, a scooter for mobility and a projector for health education were provided. The building of the center was required to cover an area of more than 66㎡ and have a consulting room, a pharmacy, a disinfecting room, communications facilities and a residential area.

Since 1994, when the Uruguay Round was concluded, 1,008 new buildings were constructed with the funds garnered from the Special Tax for Rural Development, achieving the 54% mark of the new construction aim. The new building was required to cover an area of 495㎡-116 ㎡ for basic government-sponsored facilities and 33㎡ for optional facilities. The level of the government's support was differentiated according to the local governments' levels of financial independence. Optional facilities included health promotion rooms and physiotherapy rooms. Residential facilities for CHPs were usually located on the second floor of the building.

Figure 2-11 | Building of Saje Primary Health Care Post: 1983, 1984, 2004

Source: Pictures from Saje Primary Health Care Post

Figure 2-12 | Inner Structure of the Primary Health Care Post in Won Ju-si



Source: Pictures from Saje Primary Health Care Post

3.2.2 Equipment

The Guidelines on Operating Procedures and Management for Primary Health Care Posts presents 80 kinds of medical equipment, and still is applicable to their operation. Medical equipment and medicine are purchased with the budget of the operation committee, and the president of the committee notifies the centers of the purchase after submitting a purchase request form to the governor. The center is required to write and keep a book that has records about all medical equipment it purchases and maintains.

3.3 Residents' Organizations

To promote active participation of the community in primary healthcare projects, the operation committee of PHCP and the village health worker system were established. Currently, these community-based organizations are only found in PHCPs.

3.3.1 Village Steering Committee

The purpose of the establishment of the operation committee of PHCPs is to help residents participate themselves in running the centers in order to carry out health and welfare promotion projects with their voluntary and cooperative support. The residents of the community are eligible for membership of the committee. The general assembly of the committee consists of fewer than 100 members elected from each li or dong. The executive board of the committee is made up of 20 members, 1 president, 1 vice president, 2 inspectors, and 1 manager. The articles of the committee should be approved by the governor. Important matters are discussed in the committee, then put for a vote. To issue assent, a majority vote of the quorum, a majority of the members, is required.

In the first place, the committee helped CHPs get on with their work by donating land on which the centers would be built, lending buildings in the community for public use or raising funds to improve the circumstances of the residential space of the posts. However, since the work of the posts entered onto the track, the committee has not been paying enough attention to the work of the post.

According to a report published in 1991, the average number of committee members was 15.8, and they held 2.8 meetings a year. 84% of the CHPs answered that the committee was of no help for running the centers.

3.3.2 Village Health Worker

To protect and enhance health of the residents, the government selected and trained a large number of village health workers who would work as a bridge between residents and the centers, and be in the vanguard of the healthcare delivery system. To be a village health worker, a person was required to be a woman, more than 20 years old and have graduated from at least middle school. The CHPs and the village chief selected the workers considering their abilities to understand lectures and carry out what they learned, their experiences of volunteer activities in the community, abilities to adapt to the community, maturity, and the sense of responsibility and dedication.

The government aimed to deploy at least 1 village health worker per li-an administrative unit – under the jurisdiction of its PHCP. It selected and trained about 15,000 workers: 6,000 workers each in 1985 and 1986, and additional 3,000 workers in 1987. But the number decreased to 10,642 workers in 2001. The Ministry of Health and Society provided guideline books, textbooks and an emergency kit that included a bottle of dichloride of mercury, ethanol, hydrogen peroxide, band aids, elastic bands, bandages, Vaseline, gauze, cotton wool, terramycin, a thermometer, a medical faucet, scissors, and splints; but, excluded internal medicine.

The training sessions for village health workers were provided at 3 levels by central, local and gun governments but later, in 1987, the system was changed into 2 levels-do and gun offices. Training materials were developed by PHCPs and the costs for training have been covered by do or gun governments since 1987.

According to a study conducted in 1990, 6.2 village health workers, on average, were working at a center; 4.8 workers attended meetings, and they held 11.9 meetings per year. 50.5% of their activities were about detecting and referring people subject to services, 45.9% writing the document of move-ins and outs, 45.7% writing a death notice, 44.4% detecting and referring patients to hospital, 38.2% writing a birth notice, and 18.5% aftercare of patients. The rate of their contribution to the work was 41.0%.

Their work included collection and reporting of health statistics, healthcare projects for infants and children, healthcare projects for pregnant women, family planning, TB control, and emergency care.

Figure 2-13 | Health Education of Village Health Workers and Residents: 1998

Source: Shin YA, Primary Health Care Nurse Practitioners in Korea, Korea Human Resource Development Institute for Health&Welfare, 2011

3.4 Operation

3.4.1 Source of Revenue

The government gave support through its national budget and military budget for capital costs, such as construction, purchase of medical equipment, and labor costs, included in operating cost, from the national and military budget equally. The government provided the budget to purchase a two- or three-month amount of medicine needed for primary health care at the outset of a center's operation. After the initial provision, the center had to acquire the budget itself and pay for bills, travel expenses, and public utility bills.

Table 2-17 | Initial Operating Cost of Primary Health Care Post

	Details	Amount (won)	Proportion (Weight)
Capital costs	1. Building for each primary health care post	16,458,997	2/3 state coffers, 1/3 local expenditure
	2. Medical appliances for each	1,000,000	2/3 state coffers, 1/3 local expenditure
	3. Scooter for each	360,000	2/3 state coffers, 1/3 local expenditure
	4. Slide projector for each	130,000	2/3 state coffers, 1/3 local expenditure

	Details	Amount (won)	Proportion (Weight)
Operating costs	1. Expenses for community health practitioner (per month)	Basic salary 193,000~233,000 District allowance 75,000~120,000 bonus 400% Bonus for good attendance 100% Bonus for promoting actions[1)]	1/2 state coffers 1/2 local expenditure Operation council of primary health care post 2/3 state coffers, 1/3 local expenditure
	2. Expenses for medicine (for each primary health care post)	360,000 (Amount for using 2~3months after constructing)	-
	3. Other operating costs (traveling expenses, public utility charges)	-	Burden itself for primary health care post
Note	Support fund for operating 237 health centers	15,173,364,000	(for each 64,022,632 won)
	Support fund for operating 1,303 sub health-centers	14,537,290,000	(for each 11,156,784 won)
	Support fund for operating 2,000 primary health care posts	8,990,134,000	(for each 4,495,067 won)

Note: Bonus for promoting actions: Whether a bonus is given or not and its amount are different regarding the cost for operating primary health care posts.

Source: Public health division, Ministry of Health and Social Affairs, Present situation of public health project, 1987.6.

3.4.2 Profit and Expense

Most of the incomes of PHCPs come from medical consultation fees and subsidies from the central government and their local governments. The operation committee of the center can draw up a budget with profits from consultation, membership fees, subsidies, aid funds, and donations made to support the centers.

In 2000 and 2001, medical consultation fees took up the biggest part-74.0% or KRW 19,012,696 and 73.4% or KRW 23,151,292, respectively-of the profits of the centers. Regardless of their locations – urban, rural areas, islands or mountains-medical consultation fees occupied most of the profits. It leads to a conclusion that out-of-pocket payment by their patients, and medical fees returned by the National Health Insurance Corporation, constitute most of their profits.

Their profits fluctuated as the legal amounts of medical fees changed; the co-payment for the first and re-consultation fees were KRW 600 and 500 before the introduction of National Health Insurance. But later it decreased to in 1978, when the pilot project was in progress, the cost of the training program was 1,000 US dollars per person. But the cost rose to KRW 1,269,278 in 1981; 1,480,000 in 1987; 1800,000 in 1991; and 3,500,000 in 2011. 400 with the introduction of the Rural Health Insurance System. Currently, the co-payment is set at a low price, KRW 900, for all residents in rural areas except for those insured by the Medical Aid Program.

Table 2-18 | Fee Criteria in Primary Health Care Post: 1981-Present

Year	Description
1981-1987 (Before NHI)	• For general patients, temporary administration period is within 3 days (Charge for medicine on the first day is 600 won, adding 500won per day after then)
	• For chronic disease patients, temporary administration period is within 15 days (Charge for medicine on the first day is 600 won, adding 500 won per day after then)
	• Fee for one delivery: 5,000 won
1988-1993 (After NHI)	• Individual co-payment has increased from 400 won to 500 won since 1989.7.1.
	• Since 1988, 10, 1, PHCP has claimed its fee for service to National Health Insurance Cooperation (NHIC)
	• Period for claiming benefits in medical was restricted to 180 days
1994- present	• Maintaining 900 won as individual co-payment since 1998.7.1 (before then, 800 won to 1995.12.10)
	• Since 1998.11.20, fees for services using special medical device or treatment for outpatients have been changed.
	• Since 2000.7, no restriction for benefit period

Source: Community Health Practitioner Association, 30 Years' History of Community Health Practitioner, Malguagul, 2011

Table 2-19 | Fee for General Practices and Delivery

(Unit: won)

Classification	Total amount	Individual co-payment	
		Health insurance	Medical aid
A. Fee for general practices			
each visit	2,170	900	-
added per a day	930	-	
B. Fee for delivery			
First baby	34,130	(Doctor bills 12,000, 30% of total amount)	-
After second baby	17,060		

Source: Community Health Practitioner Association, 30 Years' History of Community Health Practitioner, Malguagul, 2011

Since 1988, PHCP had invoiced their medical bills with a computer. After 1998, each post developed and used a computer-based chronic disease management system for its own purposes. In 2005, an integrated on-line information system for the center was developed and has been operated since then. The system is linked with related authorities (Korea Center for Disease Control and Prevention, KCDC, for example) and enables the authorities and the centers to share information together. In 2007, the system's security was improved by requiring users to log onto the system with an officially approved certificate under the supervision of the Ministry of Health and Welfare. In late 2009, the system was linked to the system of Sub health-centers but is not still compatible with the system of public health centers. Since the 1st of July of that year, they have sent bills using the Electronic Data Interchange (EDI) system, a web-based standard information system (the billing portal service of the Health Insurance Review and Assessment Service, for example).

PHCPs' operating expenses include purchase of medicine, purchase of medical equipment, purchase of supplies, expenses for health projects, maintenance costs, car maintenance costs, heating bills, commissions, and public utility bills. Labor costs include costs for training CHPs (job training allowances and refresher training allowances), travel expenses, performance incentives, and pay for the members of the operation committee, extra pay for holding meetings, training costs for village health workers, and payment for assistants. In 2000 and 2001, the average operating costs were KRW 11,745,048 (66.0%) and 13,893,887 (66.1%) respectively, making up most of the total expenses.

3.4.3 Budgeting and Balancing

The operation committee of PHCP plans budgets for its PHCP 30 days before the beginning of a fiscal year. Then the president of the committee applies for the mayor or

governor's approval. The budgets are executed after the mayor or governor notifies the president of his approval. During the process of execution, a CHP is in charge of accounting under the president's supervision. The budgetary procedures are established and included in the budget plan according to the Rules of Operation and Management of Sub health-centers. Even though the budget plan may be denied approval, a budget for such essential items as pay for assistants, basic expenditures for work, purchase of medicine, and maintenance can be drawn up based on the last year's budget plan. If necessary, the president of the committee is able to redirect the budget set for minor items toward other business with the assent of the committee. In preparation for any unexpected expenditure, reserves for contingencies can be added in the budget. To make use of the reserves, a document that stipulates the reason and the precise amount should be written and sent for a vote of the committee, and then for the approval of the mayor or governor.

To see achievements and financial status of the year clearly, the books are balanced at the end of every fiscal year. The results of the balancing are reported to the mayor or governor within 30 days. Earned surplus is carried forward to the next fiscal year to be included in the revenue. Closing, updating and carrying over the books are performed at the same time.

The profits mostly come from medical consultation fees and most of the expenses are spent on activities related to medical consultation and treatment. The operation committee plans, redirects, and executes its budget separately from the budget of the local government. It shows that its fiscal management is independent from its local government for the purpose of promoting people's health. It is also notable that the balancing of the books of PHCP is not subject to inspection and review of the specialized authorities. It is for guaranteeing autonomous fiscal management of the center. Moreover, the budgeting and balancing process are too simple to be put to inspection and carried out by the operation committee, consisting of the village residents.

2011 Modularization of Korea's Development Experience
Healthcare Improvement Activities of Public Health Centers in Rural Areas

Chapter 3

Introduction and Operation of Health Worker, Public Health Doctor and Community Health Practitioner

Introduction and Operation of Health Worker, Public Health Doctor and Community Health Practitioner

After liberation from Japanese colonial rule and the Korean war, Korea struggled due to an absolute shortage of medical resources. The existing colleges could not accept and train enough doctors and nurses to meet a growing demand from the people. With limited resources and time, there was a desperate need to nurture health workers who could provide essential primary health care to the people. Furthermore, the medical resources were concentrated in urban areas, so more medical workers were in demand for rural and remote areas.

This chapter reviews the Korean government's efforts to provide primary healthcare services to rural and remote areas by introducing family planning workers, MCH workers, TB control workers, community health practitioners, and public health doctor systems.

1. Development of Health Workers

1.1 Introduction

The family planning workers were placed in the vanguard of Korea's family planning project in the 1960s and the 1970s. The workers were trained through the basic training course right after appointment and follow-up training programs. In 1962, the Korean government established family planning centers inside Health centers in 183 cities and guns across the nation. In 1964, family planning workers and nurse aids were deployed in 1,473 eups / myeons, and put in charge of health PR, awareness-raising, home visiting programs for spreading contraception into homes, and group education. In 1967, additional 152 MCH workers were sent to eups and myeons. In the initial period, most MCH workers were midwives and nurses that later gave the dominant ratio to nurse aids. In 1976, the number of MCH workers increased to 993. As a result, 75% of all eups and myeons came to have MCH workers. From 1962 to 1963, TB control workers were selected among male health workers in charge of TB control in Health centers and trained by the Korean National Tuberculosis Association. Over time, the workers in the position were also replaced with nurse aids.

The nurse aid system was developed based on the Medical Assistant Act, enacted on July 31 1963. Later the legal base of the system was prepared in the Medical Act when the Act was fully amended in 1973. To acquire a sufficient number of nurse aids, the Korean government trained nurse aid aspirants and granted a nurse aid license on the condition that they would mandatorily work for 2 years. In 1967, the Korean government decided to put trained health workers in the frontline of the government's health projects with the aim of developing the health system of Korea. Therefore, it applied a 9-month training program rather than the 18-month training program for middle school graduates recommended by the WHO. In 1967, the government received aid from the Population Association of America and made a special training program to entitle family planning workers with nurse aid status to cover the gap period before the end of the first training session.

On the other hand, nurses were not trained by an independent education agency, but by nurse training schools, established as an affiliated agency under hospitals, or midwife training schools. The training for nurses was not supervised by the Ministry of Education, but by the Ministry of Health and Human Services. To bring the different levels of education programs to the same level, the Ministry of Health and Human Services abolished the nurse training school system in July 1946, and established a 3-year senior nurse school which required applicants to have at least 4 years of education in junior high school. The senior nurse schools, most of which were temporarily closed during the Korean war, were continually run in the form of a nursing high school. Starting with Ehwa Woman's University, 4-year college courses and 2-3 year college courses began to be provided in 1955.

1.2 Human Resources

1.2.1 Status of Health Workers

In the first place, health workers were not deployed in proportion with the number of women living with their spouses, population, or the size of the area, but sent to each gun (eup or myeon). In 1979, the average number of health workers per Sub health-center was 3.12 workers. But it started to decrease after 1981, when the status of health workers was changed into that of a full-time public officer, to record 2.09 workers in 1990.

Table 3-1 | Number of Sub Health-centers and Health Workers: 1979-1995

(Unit: Estb., Person)

Year	Sub health-center	No. of Health worker in Eup/Myeon	Avg. Health Worker
1979	1,336	4,167	3.12
1980	1,321	4,166	3.15
1982	1,361	3,443	2.53

Year	Sub health-center	No. of Health worker in Eup/Myeon	Avg. Health Worker
1985	1,303	2,959	2.27
1987	1,303	2,982	2.29
1989	1,315	2,757	2.10
1990	1,318	2,758	2.09
1995	1,327	2,695	2.03

Note: No. of Health worker in Eup/Myeon, Number of Health worker in Eup/Myeon

Source: 1) Hong MS, Analysis on operation of healthcare organizations in gun and performance of health personnel in myeon: focusing on family health program, Korean Institute for Health and Social Affairs, 1992

2) Ministry of Health&Welfare, Yearbook of Ministry for Health, Welfare and Family Affairs, 1997

Table 3-2 | Number of Health Workers in Eup/Myeon: 1979-1984

(Unit: Person, %)

Year	FP workers		MCH workers		TB control workers		Total	
1979	1,615	38.9	870	20.9	1,672	40.2	4,157	100.0
1980	1,627	39.1	866	20.8	1,673	40.2	4,166	100.0
1981	1,449	38.1	828	21.8	1,525	40.1	3,802	100.0
1984	1,319	43.0	480	15.6	1,271	41.4	3,070	100.0

Notes: MCH workers; Maternal and Child Health workers, TB control workers; Tuberculosis workers

Source: Ministry of Health and Social Affairs, Yearbook of Health and Social Affairs, 1980-1985

From 1979 to 1984, before the different positions of health workers were integrated to one comprehensive position, the percentage of MCH workers of a Sub health-center declined while that of family planning workers increased.

Table 3-3 | Health Workers (HW) by Position: 1981

(Unit: Person, %)

Approved number (%)				Si/Do (Office)		Si/do, Gun Health Center			Eup/Myeon (Dong)		
Total	HW	MCH HW	TB HW	FP HW	TB HW	Senior FP	MCH advisor	TB HW	FP HW	MCH HW	TB HW
4,870 (100)	2,076 (43)	994 (20)	1,800 (37)	23	21	214	388	254	1,452	993	1,525
Qualified position grade of Health workers				Level 6 Nurse	Level 6 Nurse	Level 7 Nurse		Health	Level 8 Nursing Health	Level 9 Health	

Notes: MCH; Maternal and Child Health workers, TB; Tuberculosis management service workers, *Exclusive charge

Source: Jang JS et. al., Report on health personnel, Korean Institute for Health and Social Affairs, 1981

In 1981, when the status of health workers was changed into that of full-time public officers, the absence of senior MCH workers or instructors in civic and provincial governments and Health centers made other workers instruct and supervise the work. At the moment, the shortage of workers brought difficulties in carrying out MCH projects.

1.2.2 Characteristics

In 1981, among 4,443 health workers, 66.3% were under 30. The average ages of family planning workers, MCH workers and TB control workers were respectively 30.5, 30.5 and 26.2. The average age of 42 nurse managers was found to be 38.2 years, and that of 68 multipurpose health workers was 28.8 years. Most of the workers were female while males constituted only 2.1% (1,591) of the total TB control workers and 0.3% (1,892) of family planning workers. Of 4,436 health workers, 77.4% of the workers had a nurse aid's license, followed by workers with a nurse's license (15.8%), workers with a nurse's license and a nurse aid's license (5.3%) and workers with a midwife's license (1.0%). According to statistics in 1992, nurse aids again constituted most of the workforce of health workers (91.7%), followed by nurses (5.5%) and medical record officers (2.8%).

The statistics in 1981 show that 53.5% of the health workers were high school graduates, 33.8% middle school graduates, and 12.7% college graduates. Among the health workers with college or higher level of diploma, 18.8% were working as MCH workers, 13.6% as family planning workers and 7.5% as TB control workers. The percentage of TB control workers was barely half that of MCH workers. A study, which analyzed the education levels of family planning workers, found the education gap was widening with an increasing number of workers having graduated from college or at least middle school and a decreasing number of workers from high school.

Table 3-4 | Educational Background of Nurses, Nurse Aids: 1981

(Unit: %, Person)

Classification	Middle school	High school	College	Total
Nurse	4.0	43.6	52.4	100.0 (974)
Nurse aid	42.5	56.3	1.1	100.0 (3,385)
Total	41.1	51.5	6.6	100.0 (4,359)

Source: Jang JS, Report on health personnel, Korean Institute for Health and Social Affairs, 1981

Table 3-5 | Educational Background of Family Planning Workers: 1965-1981

(Unit: %, Person)

Year	Middle school	High school	University*	Total
1965	6.6	82.8	10.6	100.0 (379)
1971	20.8	72.1	5.6	100.0 (2,046)
1975	21.1	71.3	7.0	100.0 (342)
1977	23.9	62.7	13.3	100.0 (2,531)
1979	24.4	58.1	17.3	100.0 (2,524)
1981	30.9	55.4	13.6	100.0 (1,874)

Note: *No answer rate 1.5% (1871), 0.6% (1975), 0.1% (1977), University including junior college
Source: Jang JS, Report on health personnel, Korean Institute for Health and Social Affairs, 1981

1.3 Education and Training

Health workers were trained by various agencies such as the National Institute of Health, The Korean Research Institute for Population and Health (formerly the Research Institute for Family Planning), the Korean Institute of Tuberculosis, The Korean National Tuberculosis Association, city or provincial governments and Health centers. With the acquisition of loans from the World Bank, the status of health workers was changed into that of full-time

public officers in 1981 and the National Institute of Health took full charge of training health workers. Before acquiring the loans, education and training for health workers was not well managed. For example, some health workers took the same training course several times in two or three agencies, or the workers started working without taking any training program.

The training programs for health workers were not properly provided until the education system was better developed with the IBRD loans and the NIH's taking exclusive charge of education and training. The NIH adopted its "Competency-Based Curriculum Development Model" to pursue modern education methods such as learner-demand oriented education, adoption of management system, practice-oriented education, learner-oriented education, goal achievement based on each learner's abilities, development of textbooks reflecting analysis of demands and individual achievement.

However, due to the insufficient supply of education materials and equipment necessary for their work, for example a blood pressure gauge, the workers were not able to fully understand the lectures and had difficulties in carrying out their projects.

1.4 Function and Role

About 4,000 health workers in Sub health-centers in eups or myeons worked as temporary officers without any guarantee of their status. Their paycheck was provided 50/50 by the central and local governments. As a result, numerous problems arose in their morale, qualifications, performance and the management system. In 1981, the government established plans to turn the status of health workers into full-time officers and integrate their work. With the IBRD loans, the government launched a 12-week training program for nurses and a 14-week program for nurse aids. The training was first provided to 400 health workers and later to about 4,000 health workers working in eups or myeons.

On July 1 1985, health workers in different positions were given an integrated position, termed multipurpose health workers, and required to take a 3-month training program designated by the National Institute of Health and the department of health of their city or provincial government. Their status was also changed into that of full-time officers who work in a Health center or Sub health-center and mainly take care of disease prevention. The chief of their eup or myeon supervised the workers. A study in 1986 found that 60.6% of the health workers were working at myeon offices while 38.4% were at Sub health-centers. In 1984, the government raised the level of qualifications for nurse aids, from middle school graduation to high school graduation, considering nurse aids constituted most of the workforce of health workers.

The health workers, who had been in charge of a separate task, were required to work for MCH, family planning, TB control and home healthcare in a comprehensive way.

A study conducted from 1982 to 1983 analyzed the amount of the time myeon health workers spent on each task and found that they spent most of their time on family planning,

TB control, infant and child health, communicable disease control, health education and MCH. Health workers in myeon offices usually worked in the afternoon, rather than morning, and outside the office, rather than inside the office. According to a study in 1986, one health worker in a myeon office provided 8 health services per day. Of the services, 3.8 cases, the highest number, were related to infant and child health care and 0.4 cases, the lowest, to MCH, which required a high level of knowledge and service. The number of cases for family planning was 2.2, but the average time spent for the service was relatively longer (16.4 minutes). The time for infant and child health care was 3.7 minutes since most of the service was vaccination. Sub health-centers were found to have big workload differences coming from different sizes of population since the Sub health-centers were established without considering the population of the region or the health demands.

Table 3-6 | Work Hours of Health Workers in Myeon Offices: 1982, 1983

(Unit: min., %)

Year	Total (minutes)	MCH	Infant health	FP	TB Control	Communi-cable Disease Control	Health education
1982	100.0 (93min)	7.5	9.7	44.1	21.5	2.1	15.0
1983	100.0 (100min)	2.0	17.0	37.0	18.0	20.0	6.0
Total	100.0 (98min)	4.1	14.3	39.8	19.3	13.3	9.2

Source: Nam CH, Kim HR, Lim MH, A research study of improvement on public health service of Sub health-center: focusing on public health doctor assigned to Sub health-centers, Korean Institute for Health and Social Affairs, 1986

1.4.1 Multipurpose Health Workers

With the support of the WHO, the Korean government launched a comprehensive pilot project for health in Yongin city, Gyeonggi province, from 1976 to 1977. In 1978, the government made plans for multipurpose health work and pushed ahead with training workers and integrating their work at the same time. But later, the government had to progress with the two projects separately as training workers took a substantial amount of time. Good sides of the integration project were found along with bad sides such as conflicts between nurses, including midwives, and nurse aids; difficulties in integrating TB control work; increased training sessions for home healthcare; incomplete management system; and unclear division of work with CHP workers. After the integration in 1985, the work was not performed smoothly. Eventually, the government transferred the management of eup/myeon officers from the department of health and social affairs to the department of family health.

According to the "guidelines of the employment of officers with specialty" in the Community Health Act in 1997, the term "multipurpose health worker" is not used

anymore. The work of Health centers and Sub health-centers is taken by specialized health officers, such as doctors, dentists, nurses and nurse aids, according to the guidelines. But the activities and performance of health workers that started in the 1960s are highly acclaimed as they contributed to increasing practice rates of family planning, expanding vaccination and having more TB patients registered on the TB list in the early stage.

2. Public Health Doctor

2.1 Introduction

In 1959, Community doctors began to be dispatched to every doctorless village with the aim of eliminating doctorless areas and increasing the number of Health centers. The dispatched doctors were responsible for carrying out health and disinfection projects. With the government's strong will to eliminate doctorless areas, a number of Community doctors started to be dispatched. 429 doctors were sent to the areas in 1961, 303 doctors in 1961, and 289 doctors to remaining doctorless villages in 1963. In the early 1960s, doctors who had not served in the military were sent to rural areas and, oriental doctors to doctorless areas after the preventive medicine training.

In 1962, when the Public Health Center Act was enacted, the commissioned doctor system was initiated to appoint general practitioners as commissioned doctors for medical consultation and disinfection work. In 1969, based on the Public Health Center Act, Article 7, 1,336 Sub health-centers were established in eups and myeons across the country, but not with enough medical personnel and equipment. Under the circumstances, the government tried various measures to solve the doctor shortage problem by supplying public medical resources to medically underserved areas. In 1972, a project by which residents were sent to doctorless areas and worked for 6 months was launched. In 1976, based on the "National Special Act for Healthcare", the government initiated the "doctor for special duty project" where it granted "a conditional doctor's license" to those who had failed to pass the national examination to acquire the license on the condition that they work in doctorless areas for 2 years. In 1978, based on the same act, an exemption was made in the military service law for doctors or dentists not to be drafted in the military but registered on the reserve, thereby sending them to rural areas instead. After the 1970s, more programs were implemented to send young doctors to farming or fishing villages instead of going to the military or as a continuation of their specialist training.

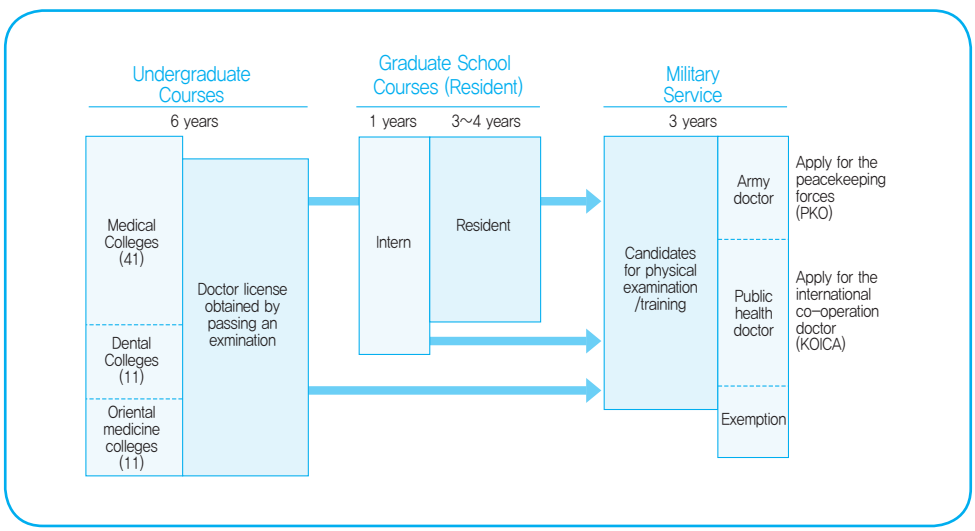
Oddly, the gap in medical personnel and facilities between urban and rural areas arose as a more serious social problem after the introduction of National Health Insurance in 1977, later turned into universal health insurance, was widened. Efforts to increase the number of colleges of medicine and of doctors, which started in the 1970s, bore fruit in the 1980s. That is, the number of medical college graduates surpassed the demand for military doctors. As a result, the public doctor system was established to send surplus doctors to medically underserved areas. "Public Health Doctors" are defined as "doctors or dentists who were

ordered by the Minister of Health and Society, based on Military Service Law Article 30, to be registered as a reserve officer and work for public health projects."

In December 1978, the PHD system was initiated as the National Special Act for Healthcare was enacted. For a certain period, the doctors' status had not been defined by any laws until the National Special Act for Healthcare was amended into the Special Act for Healthcare in Rural Areas in December 1980. With the amended act, the doctors started serving their term as contract-based public officials. The new act aimed to contribute to striking a balance in medical access and improving health by efficiently providing medical services to people in medically underserved areas. The act was once again amended in December 2002, to expand public doctor-deployed institutions and facilities, and prepare the ground for an assessment on appropriateness of dispatching Public health doctors.

Since 1981, when the first public health doctor was produced, the supply of public health doctors has been very stable and since 1988, a pool of more than 3,000 available public health doctors has been maintained. The pool consists of general practitioners, doctors having finished internships, specialists, dentists, and oriental doctors. Its quality is also superior in that more than 1,000 specialists have been registered on the list since 1996. The term of their service is 3 years, and a third of them are replaced with newly enlisted doctors in every April. The public health doctor system contributed to achieving the government's aim of eliminating doctorless areas by deploying doctors, dentists and oriental doctors to medically underserved areas and Health center or Sub health-centers for their military service.

Figure 3-1 | Entry Process of Public Health Doctor, Dentist, Oriental Doctor



Note: Considered only the status before the graduate school medical college introduced in 2005

Source: Kim YI et. al., Improvement methods on public health doctor system, Presidential Commission on Policy Planning. 2001

Table 3-7 | History of Doctor Procuration Measures in Doctorless Districts

Year	Classification	Contents	Related laws	Period
1962	Community Doctor	The physicians in rural and limited areas are assigned to disinfection and medical care activities as non-regular members.	Medical Service Act	No limits
1969	Commissioned Doctor	More than one place for each Borough Health Branch is to install. An appointed Dr., family planning workers, MCH workers and workers for TB control placed but mobilized temporarily only when needed (e.g. vaccinations)	Public Health Center Act	
1972	Resident Dispatching system	The training period of six months Public Health Agency of rural areas primarily	Provisions for training and qualification of residents	6 months
1976	"Certain obligations" Doctor	Those who failed regular doctor state examination have a conditional license for two years to work on the condition at a specific region after performing screening tests	Chapter 7 of the Medical Service Act	2 years
1977	Scholarship for public health doctor, dentist	After the government paid scholarships to medical students, depending on the payment year, they should be working in a doctorless area	Special Act for Public Health Scholarship	2~5 years
1979	Public Health Doctor	A doctor who was incorporated into a reserve officer, serves three years in a doctorless area and then receives a military service exemption.	Special Act on Health and Medical Services enacted after 1980, the law changed to Special Act on Health care in Rural areas	3 years
1981	* Health workers become full-time staff			
1983	* No more doctorless regions			

Year	Classification	Contents	Related laws	Period
1998	Oriental Doctors dispatch system	Dispatching public health oriental doctors in the rural health centers for the first time	Practice of oriental medicine, and resident regulations (Nov. 1996), enacted	6 months
2002	Public health Oriental Doctors	Revision of Military Service Act (2000. 12)		3 years

Sources: 1) Shin UH, Healthcare Delivery System&Primary Healthcare, Medical insurance, Vol.33. 1981. 4. p37
2) Ministry of Health&Welfare, Guidance for Public Health Service Program, 2011

2.2 Dispatching

2.2.1 Dispatching Public Health Doctors to Sub Health-centers

In 1969, the Public Health Center Act required the establishment of Sub Health-centers and employment of a commissioned doctor. The commissioned doctors did not stay in the centers but were engaged in primary health care projects such as vaccination. In 1979, Public health doctors who stayed in the Sub health-center started to be deployed. In 1980, SAHRA was enacted, resulting in more doctors being sent to rural areas.

The criteria of the areas for the deployment of Public health doctors were ① medically underserved areas set by presidential decree such as military contact areas, and remote or mountainous areas ② public health centers in guns and Sub health-centers in eups and myeons and ③ medical institutions designated by presidential decree. In 1992, the criteria came to include national hospitals, clinical ships, mobile clinic teams, social welfare organizations, correctional institutions, private hospitals, and health organizations. Later, in 2002, the scope of the criteria was again expanded to include hospitals run by central or local governments or public institutions, public health research institutes, organizations or agencies commissioned to public health projects.

Two to three Sub health-centers and one to two primary health care posts were merged into integrated Sub health-centers that were located in high-traffic areas. Until 2004, the integrated Sub health-centers were required to have more than two doctors and a dentist. In 2007, they were allowed to have more than one doctor and one dentist.

The criteria of the deployment of medical personnel for a Sub health-center was a doctor and a dentist in 1992, then changed to add a oriental doctor in 2004. Specialists who hospitals needed in priority for such departments as anesthesiology, radiology and emergency medicine were seldom deployed to centers. A doctor was deployed to a Sub health-center which was, in some cases, integrated and operated together with other Sub

health-centers, when it was necessary for the city or province. Dentists were first deployed to the areas without private dentists' offices.

The criteria of 2007 was the same as the one made in 2004 except that two doctors could be sent to the Sub health-centers on islands to provide emergency care at night and on weekends. The doctors specialized in family medicine, internal medicine, anesthesiology, pediatrics, neurology, neurosurgery, and surgery; cardiothoracic surgery and emergency medicine specialists were the first ones to be deployed. The Sub health-centers in the areas whose medical personnel were prohibited from leaving by SAHRA were allowed to have two doctors, considering the special working environments and the status of supply and demand of Public health doctors. The rules of a business trip were made based on the rules of Sub health-centers.

The Public health doctor system started with 300 doctors and 304 dentists in 1979. Doctorless villages in eups and myeons were completely eliminated in 1983 as all Sub health-centers had a public health doctor. The supply of public health doctors has been very stable, and since 1988, a pool of more than 3,000 available public health doctors has been maintained. The pool consists of general practitioners, doctors having finished internships, specialists, dentists, and oriental doctors, who started to be deployed in 1988. Since 1989, the deployment rates of public health doctors to the Sub health-centers have been more than 100%, which means a few Sub health-centers have more than 1 doctor. The rates of public health dentists, however, still fall short of the mark.

The number of public health doctors has continually increased since 1995 to the point of sending 2,538 doctors (1310 doctors, 757 dentists and 471 oriental doctors) to Sub health-centers in 2005. An increase in the entrance quota of medical schools in 1996 and the beginning of the deployment of oriental doctors in 1998 contributed to increasing the number of public health doctors. But the introduction of medical, dental, and oriental schools, which only accept college graduates, in 2005, and an increasing number of female medical students are the factors that decrease the supply of public health doctors.

2.2.2 Working Conditions

Public health doctors do given work under the supervision of the director of the center as a contract-based public official for 3 years, including the military drill period, and receive the salary of a military medical officer. They move to another work place once or twice during their term and provincial governors are authorized to appoint and place public health doctors. Public health doctors must work in a Sub health-center designated by the government for 3 years instead of going to the military. In some cases, they have to move to another gun, eup or myeon under other jurisdictions rather than staying in one area for a long time. But frequent moves hinder the transition of work from a predecessor to a successor and development of relationships with the community. Recently, the doctors move only once during their term except for those working in special areas.

In the initial stage, public health doctors were required to live in the area where they worked during the term, and not to leave without permission of the director of the Health Center. Their house should be kept in the area. In 2007, the requirement was changed into doctors not being able to leave their work place without permission of the mayor, the governor, or the director of the gu office or centers during "duty hours" only.

The mayor, the governor, the director of gu office or the director of the health center were in charge of supervising the doctors' work. Since 1992, the supervisors have placed the personnel management book to record transfer, situations and other things necessary for management in it. Public health doctors should work during the duty hours of public work as the Public Officer Act is applied to the work of PHDs.

Korea Institute for Health and Social Affairs conducted a study in 1985 to examine the living conditions of public health doctors. The study found that 49.8% of the doctors polled were living in the building of Sub health-centers, 25.3% in board houses or alone near their working areas. Overall, 75% of the Public health doctors were living in their working areas.

PHDs, however, are not authorized to appoint, manage or supervise as directors of Sub health-centers; therefore they, in many cases, were not fulfilling their due responsibilities as chief of an institution for the low given rights.

2.2.3 Education and Training

Public health doctors should be knowledgeable and skillful enough to work as a primary care doctor for a community. The education of medical colleges cannot solve the health problems in communities alone as it mostly focuses on "healthcare in hospital." Therefore, the job training for public health doctors is very important. But for more than 10 years, the job training was not supported by any laws; the laws had only defined the doctors' appointment and service. In 1992, SAHRA mandated all mayors and governors to provide job training programs to the doctors after they receive a list of new public health doctors and report the results to the Minister of Health and Welfare.

The job training is made up of the health administration course (10 weeks) and clinical training course (2weeks). The former was provided by provincial education institutes for public workers, and the latter by provincial hospitals or general hospitals designated by the governor. The practicum course was run from 1980 to 1991, but abolished in 1992 due to a shortage of trainer doctors and patients.

The job training has two parts: the pre-training for newly appointed public health doctors and the post-training after their deployment. In the pre-training, the doctors learn the roles and functions of PHDs, characteristics of the community they would work for, healthcare projects, and administration. The post-training covers public health work including the rules of PHDs' service. This training can be held in the form of an academic conference.

Table 3-8 | Contents and Training Process of Public Health Doctors

Classification		Educational Institutes	Contents	Duration
Newly	Health administration Course	Institutes for public officers in Metropolitan City/ Do	Health social policy, Laws related to health and medical, Health management for community, Preventive medicine, Medicine related to working, Others	2 weeks
	Clinical Training Course	General hospitals or hospitals designated by mayors and governors (In the case of dentists, Health centers including dental clinic facilities)	Basic Clinical Training for patient treatment	10 weeks (It is possible skip Clinical training for medical specialists who completed intern-ship and lack of manpower)
After Arrange-ment	Mayors/Governors/Chief of Central arrangement		Job training related to public health working	More than once a year
	Mayors/Governors/Gu Chiefs		Job training related to public health working including office regulation of Public health workers (including academic conferences)	More than once a quarter

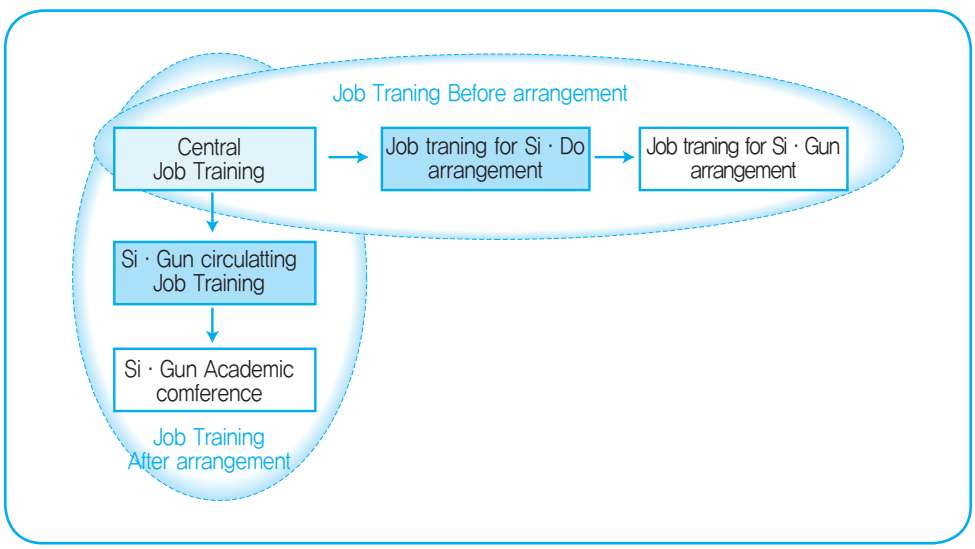
In 1994, the working group consisting of public health doctors was formed for preparation of the pre-training, bringing doctors in the training. In 1995, the three-level training was launched where the doctors took the main training for 2 weeks and other training programs at Si/Do level and Si/Gun level for 1 and 3 days respectively.

The first level of the three-level training course is the main program that is provided to all new public health doctors of the year. The purpose of the program is to help them set their identity as public doctor and guide future activities. The program had 3 classes for 3 different groups-general practitioners, dentists, and specialists. The second-level training is the program at the city or province level for new doctors appointed to the areas. The training

team of the city or provincial office is in charge of running the program with the support of a responsible department of the local government. The program runs for 3 days.

However, the Korea Health Industry Development Institute took the charge of running the job training in 2001 for the city or provincial governments lacked necessary educational abilities to run the program. Moreover, the survey in 2001 found that only 55% of the monthly academic conferences, a doctor's voluntary study session in a city or province, covered the issues of patient-oriented treatment and most of the conferences were one-offs without follow-up academic research. The survey also pointed out that enough budgets were not acquired by civic and provincial governments or gun offices.

Figure 3-2 | Contents of the Training Process of PHD



Sources: Ministry of Health Welfare&Family Affairs, A report on job training of public doctors in 2008, 2008

2.3 Job Activities

In general, public health doctors hold three duties: basic, that of public service as public officer, and that of medical officer. The basic duty is about the rules that public health doctors should abide by as a contract-based public officers who work in the public health sector instead of serving in the military. The doctors should sincerely fulfill their duties for 3 years in public health, complying with relevant laws. The duties of public service require the doctors to follow the rules set in the Local Public Officer Act and the National Public Officer Act except for those set separately in the SAHRA. The duty of a medical officer demands that they perform due activities set in the Medical Act.

Public health doctors are responsible for medical consultation, preventive projects, health education and research, but most of their work is related to medical consultation. According to a study in 1986, one public health doctor in a Health center saw 22 patients per day, and a dentist 20 patients. In a Sub health-center, a community doctor consulted with 17 patients, a PHD with 13, and a dentist with 30 per day for 84, 112, and 125 minutes, respectively. According to the study in 1992, 43% of public health doctors said they were aware of the necessity to carry out preventive projects and health education, but in reality, 90% of them were focusing on the consultation. The preventive projects, which were relatively more carried out by the doctors, were school health projects (health check-ups and health education), the control of lifestyle related diseases and the control of tuberculosis.

In 1995, the Public Health Center Act was fully amended into the Community Health Act, which included the establishment of the plans to improve local healthcare, improvement of health of community people, and the control of chronic diseases in the scope of the work of Sub health-centers. In 2010, the support group for local health projects was established under the Korea Health Industry Development Institute to help public health doctors and local governments make efficient progress in health projects.

Table 3-9 | Survey of Tasks and Activities of PHDs: 1988, 1990

(Unit: %)

Classification	Activities done		Activities should be done	
	1988	1990	1988	1990
Medical Treatment	97.5	99.1	33.6	43.0
Prevention projects	0.5	0.2	27.6	29.0
Health Education	1.0	0.0	0.8	13.0
Operation management	2.2	0.3	0.8	0.2
Research and investigation	0.1	0.0	1.1	0.7
Others	0.8	0.7	1.6	0.6

Sources: Seoul National University, Unit for District Health Systems Development Projects, Workshop for developing a role of sub health-center and improving performance of public doctors, 1992

3. Community Health Practitioners

3.1 Introduction

The Korean government participated in the International Economic Consultative Organization for Korea (IECOK), and asked for loans to expand medical infrastructure, such as government-run hospitals, to solve the problems in providing medical services to rural areas. As a result, the government and USAID launched the first pilot project in primary health care after a series of discussions and adjustments. The Korea Health Development

Institute (KHDI) was established to progress with the relevant projects. See the table 3-10 for its establishment process.

In 1976, a pilot project, named the "Village Health Project", was launched in 3 places; Hongcheon, Gangwon; Okgu, Jeonbuk; Gunwi, Gyeongbuk. Plans to train, dispatch, and manage community health practitioners were passed by the government's Health Policy Council. Community health practitioners were selected through 3 stages. First, nurses having graduated from a 3-year nursing school or a 4-year nursing college and worked in medical institutions for more than 1 year were selected in each area. Secondly, they were again selected on recommendations from the health committees of guns. Finally, KHDI chose the candidates to become practitioners. Through the stages, 25 practitioners (11 for Hongcheon, 9 for Gunwi, and 5 for Okgu) were selected and dispatched after training.

The training sessions ran for 48 weeks: 12 for lectures, 12 for practicum in hospitals, and 24 for on-the-job training. Lectures were provided by KHDI, and clinical education took place in Chuncheon Provincial Hospital, Gunsan Provincial Hospital, and Gunsan Gaejeong Hospital. Ex-post assessment of the pilot project of "community health practitioner for primary health care" produced positive results that led to the establishment of the community health practitioner system. On 31 December 1980, the "Special Act for Healthcare in Rural Areas" took effect, upon which public health doctors were dispatched to Sub health-centers in myeon districts (Apr.1981), and CHPs to li districts (Mar. 1981). Establishment of Primary health care posts(PHCP) and the village steering committee to support the centers were respectively completed in January and August 1981. Provision of medical equipment and medicine began in October 1981, and the construction of the buildings of the centers in January 1983.

In the 23rd World Health General Assembly, the then-Minister of Health and Society declared to the leaders of other countries that the Korean government had developed a Primary Health Care Plans that fit Korea's situation, and would assess and analyze in the same year to expand them into remote and mountainous areas. On 16 October, the Ministry of Health and Society announced the determined long-term plans for health and society administration by which nurses were dispatched to islands or remote or mountainous areas and given the right to treat patients, therefore completing the medical delivery system. That is, the three-level medical delivery system where patients with mild symptoms go to Sub health-centers, patients with serious symptoms to Health centers or general clinics, and patients with critical symptoms to special doctors or general hospital was completed. The government also made plans that required CHPs to treat mild symptoms of residents living in medically underserved areas. The WHO's declaration of Alma-Alta, calling for "promoting the health of all the people of the world" helped remove Korea's doctorless areas.

Before implementing the system, there had been controversies over the practitioners' qualifications. The doctor's society questioned whether a nurse was capable of providing primary health care and claimed that it should be undertaken by doctors since it is part of medical practice. The Pharmaceutical Association also claimed that pharmacists should be

able to prescribe and sell drugs at drug stores since they took up 60 to 70% of primary health care. Some people insisted on hiring middle school graduates as practitioners after short-term training sessions to save funds. With the results of the pilot project, the government held meetings, hearings, and seminars with the organizations to handle their claims. However, the claims made by these groups could not steer the direction of the government's plans. The deployment of community health practitioners to medically underserved areas was planned to be finished in 1984. But the working environments for the practitioners were very poor, and some practitioners were even sent to the areas where the building for their work was not constructed yet.

Table 3-10 | Process of Korea Development Institute Foundation

Classification	Contents
1972.12	· The Korean delegation applied for a loan of IECOK in Paris to establish health medical foundation such as government-run hospitals in gun
1973.11	· Recommendations of USAID research group based on the above request: ① The demand survey of health medicine; ② To establish health medical system of economy in expenditure; ③ To set up a unit to take charge of health planning
1974.6	· Korean and USAID signed agreement on Health planning project: → AID support: US $ 710,000
1974.11	· Asked Economy Planning Board (EPB) introduce to apply for a loan of about $ 5 billion
1975.1	· Adjustments about Health development loan project between Korean EPB, Health and Social Affairs and USAID
1975.8	· Submitted the final report of Health development loan project
1975.9	· Agreement of ADI Development load between Korean (Head of Economy Planning Board) and American (Head of United States Agency for International Development) for Model Health Project
1975.12	· Enshrined the Korea Development Institute into law
1975.4	· Proclaimed the regulation of same law
1976.4.3	· Held the first meeting of the Council for Health Policy : ① Approving appointed member of establishment in Korea Development Institute; ② Approving the articles of association of Korea Development Institute; ③ Appointing Dr. Park Hyeung-Jong the first Minister of Korea Development Institute; ④ Approving a pre-requisite as the plan of project
1976.4.12	· Permission of incorporation
1976.4.19	· Opening ceremony of KHDI

Sources: Kim CY, Primary Healthcare and Primary Health Care Post System, Graduate School of Public Health, Seoul National University, 2011

Table 3-11 | Plan for Dispatching the CHP

Step	Target area	No. of CHP	Remarks
1st step (1981)	① Areas having the dispatched residents currently or the remote rural area having no doctors. ② Securing the building where possible	500	
2nd step (1982~84)	① Areas where people do not get medical benefits from town doctors due to poor transportation and geographical condition. ② Where there is available property, For example: Saemaeul Hall, welfare centers, etc	1500	500 CHPs each year

Source: Shin UH, Healthcare Delivery System&Primary Healthcare, Medical insurance, Vol.33. 1981. p40

3.2 Dispatching

The CHP system was expanded in 1981. As a result, the number of primary healthcare posts increased to 1,310 and that of community health practitioners to 1,163 in 1984. The number further increased to 2,039 and 2,039 for primary healthcare post and community health practitioners respectively. The number decreased due to the restructuring of a few local governments in the Asian Financial Crisis period, and was maintained. Recently, the number of CHPs has been decreasing compared to that of PHCPs, leaving 2% of the posts without enough practitioners.

Table 3-12 | Number of PHCPs and CHPs: 1981-2010

(Unit: Establishment, person)

Year	Primary Health Care Post	Community Health Practitioner
1981	396	396
1982	752	752
1983	1,140	1,140
1984	1,310	1,310
1985	1,640	1,533
1986	2,000	1,943
1987	2,038	2,038
1988	2,038	2,038
1989	2,038	2,038
1990	2,038	2,034
1995	2,039	2,039

Year	Primary Health Care Post	Community Health Practitioner
2000	1,906	1,839
2005	1,905	1,876
2006	1,911	1,878
2007	1,908	1,861
2010	1,906	1,877

Source: 1) Ministry of Health and Social Affairs, Yearbook of Health and Social Affairs, 1985
2) Ministry of Health and Social Affairs, Statistical Yearbook, 1987, 1990,
3) Ministry of Health and Welfare, Statistical Yearbook of Health and Welfare, 2006, 2008
4) Data from that Community Health Practitioner Association, 2010. 10

3.2.1 Working Conditions

Community health practitioners were required to work in their first work place for 2 years. After one year, they could be appointed to another place in the same gun district. After two years, they could move to another post in other provinces. But exceptions were made for those who would move to the areas where their spouse was working or move with their family. If they quit the program during the job training period or did not work as a practitioner within 6 months of training, they had to return all the training allowances. If they could not finish the initial 2 years, they had to return a certain amount of the allowances. The practitioners were required to record their work in a work journal, live in the jurisdiction and retire at the age of 60. They needed to submit a day-off request form to the governor after getting approval from the President of the Health Policy Council to take days off. They also had to acquire prior approval from the president of the council or the director of the public health center when going out of town. The director of the center or the president of the council was allowed to order them to work on holidays when they found it necessary considering the health conditions of residents. The practitioners had to get permission for business travel from the director of the center when going out of town to perform their work. They were required to take a job training program at least once a year, which was provided by the Korean Research Institute for Population and Health (currently the Korea Institute for Health and Social Affairs) in the initial stage, and later by the provincial government.

In 1982, the criteria for the payment of community health practitioners (Rule 428, the Ministry of Health and Society) were prepared. The basic salary at the entrance level was KRW 164,700 and the 20th-level class 354,700. The amount of allowances was 68,000 and bonuses for up to 100% of their salary that was paid 4 separate times. Other than salary and bonus, extra allowances up to 70,000 won (120,000 for rural areas) could be paid upon the decision of the Health Policy Council. Travel expenses were also paid separately. The budget of primary healthcare posts was placed into a term deposit in a designated bank to the name of the Council. The maximum amount of cash that could be kept in the post, in a secure safe, was 50,000 won.

3.2.2 Education and Training

a. Job Training

The chief of the local government reported the list of training candidates with their medical check-up records, nurse or midwife licenses to the director of the public health center under its jurisdiction then to Minister of Health and Welfare.

In the initial period, the job training programs were developed and provided by the Korean Research Institute for Population and Health (currently the Korea Institute for Health and Social Affairs). From 1981 to 1986, 8 medical colleges and nurse colleges were designated as training centers for producing community health practitioners while the Korea Institute for Health and Social Affairs managed and supervised the programs. Each training center carried out the training programs in accordance with the training guidelines. From 1987 to 1997, 3 nurse schools took charge of providing the training providing; since 1997, Yonsei nursing college has been delivering the training courses.

From 1981 to 1986, a total of 2,284 trainees were given with the certificate. In 1987, another training program to add extra community health practitioners started and 3,228 trainees completed the course by 2010. In 1984, 134 nurses on public health scholarships were selected, but only a few candidates have applied for the post after the first appointment. When the Asian Financial Crisis landed on the Korean peninsula, the administrative systems of local governments started to be restructured. As a result, zero job training programs were provided from 1999 to 2001. Since 2002, however, local governments having a lot of remote areas or mountainous areas have been selecting a relatively larger number of trainees.

In 1978, when the pilot project was in progress, the cost of the training program was 1,000 US dollars per person. But the cost rose to KRW 1,269,278 in 1981; KRW 1,480,000 in 1987; KRW 1800,000 in 1991; and KRW 3,500,000 in 2011.

Table 3-13 | Number of CHPs Completing the Training Courses: 1981-2011

(Unit: person)

Classification	Year	Total	Accumulation	Classification	Year	Total	Accumulation
Training for dispatching CHP	1981	365	365	Training for supplementing CHP	1990	137	2,869
	1982	360	725		1991	133	3,002
	1983	391	1,116		1997	50	3,052
	1984	363	1,479		1998	29	3,081
	1985	390	1,869		2002	26	3,107
	1986	415	2,284		2005	24	3,131
Training for supplementing CHP	1987	179	2,463		2009	65	3,196
	1988	144	2,607		2010	32	3,228
	1989	125	2,732		2011	0	3,228

Source: Korea Institute for Health and Social Affairs, A study on improvement for operating Community Health Practitioner system, 1991, p. 21, added Yearbook of 1997-2010

The 24-week training course consists of 8 weeks (312 hours) of lectures, 12 weeks (528 hours) of practical training, and 4 weeks (176 hours) of practicum. During the practical training, the trainees study basic skills for the treatment of patients and then learn, during the practicum, how to assimilate into a community and work with exiting health institutions.

Lecture sessions consist of 9 modules: primary healthcare, community organization and development, planning for communities, development of health information system, health management in communities, mother and child health care, control of common diseases, business management and skill guidance. Most of the classes of the lecture programs were on the control of common diseases, followed by health management in communities, mother and child health care, family planning, and business management and skill guidance. During the practical training, trainees spend 2 weeks on internal medicine, 4 weeks on obstetrics and gynecology, 1 week on surgery, 2 weeks on pediatrics, 1 week on the first aid, 1 week on ENT/ ophthalmology, 1 week on dermatology, and 1 week on rehabilitation (or in the center). According to the purpose of the class, the practice locations are chosen among affiliated hospitals, general hospitals, private clinics, midwife clinics, MCH centers, Health centers, and Sub health-centers. But the training for internal medicine takes place in the department of internal medicine or family medicine. The training for obstetrics and gynecology focused on practicing normal delivery aids, IUD insertion, and management skills. Practicum takes 2 weeks in public health centers (or local hospitals and clinics) and 2 weeks in Sub health-centers.

b. Refresher training

According to the "Guidelines on Operating Procedures and Management for Community Health Practitioner Centers", CHPs should take an extra training course at least once a year to improve knowledge and skills necessary for their performance. The course is about the work of the practitioners and runs less than 6 days. The governor could run the training or designate relevant organizations to take the responsibility. The results of the training should be reported to the Minister of Health and Welfare. The expenses for the training were drawn from the operational budget of a PHCP.

The extra training course has been run since 1982, once a year, to improve the abilities and roles of the practitioners and carry out the government's primary health care projects more efficiently. Before 1987, the training programs focused on primary health are that the residents in rural areas highly demanded and the practitioners also felt insufficient and necessary. Issues reflecting changes in the health environment-for example, the introduction of National Health Insurance, development of local health information system, and changed roles of health workers after the introduction of self-governing system-were included in the training programs so the CHPs could quickly respond to changes in residents' demands.

In the 1980s, the extra training program covered mostly the operation of the Health Policy Council and the posts; in the 1990s insurance claims and computer-based and automated work process, the activities of the practitioners after the introduction of the Local Health Act and the Health Promotion Act, and house calls; in the 2000s changes in their roles, the control of chronic diseases, the Act on Long-Term Care Insurance for the Aged, and the Standard Information System for Sub health-centers (2005). Recently the programs focus on the control of hypertension and the management of the health of senior citizens with actual cases rather than lectures.

3.3 Function and Role

Despite the Article 27 of Medical Act, the practitioners could provide simple medical practices following the Guidelines on Treatment of Patients, set by presidential decree, in medically underserved areas (areas that were 30 minutes away from the nearest medical institution). They were usually in charge of primary health care and health management. Due to changes in Korea's demographics as well as medical environments, the ratio of types of work performed varies by the characteristics of each area, but mostly the ratio of medical consultation to health care work is 50 and 50. In the initial stage, however, medical consultation constituted most of their work.

Table 3-14 | Two Main Category Works of Community Health Practitioner

Primary medical care service	Public Health service
① Medical examinations and checkups to determine the conditions of symptoms ② Patient transportation ③ Medical treatment for common disease such as trauma and first aid ④ Treatment to prevent worsening of the sick and wounded ⑤ Recuperation guidance and management of chronic patients ⑥ Help labor in normal delivery and insertion of contraceptive devices for family planning ⑦ Vaccination ⑧ Medication according to number 1~7 medical practice	① Work related to environmental hygiene and nutrition improvement ② Work related to disease prevention ③ Work related to Maternal and Child Health, including Family planning ④ Work related to education and guidance for people who are in charge of the residents' health program ⑤ Other work related to the residents health promotion

The work of CHPs changed as new demands and needs from the residents emerged. Home healthcare and rehabilitation were added to their work in 1994 and the health information system in 2002.

Table 3-15 | Transition of CHP's Tasks

1982	1994	2002
① Organization and activity of community	① Organization and activity of community	① Organization and activity of community
② Establishment of service plan	② Establishment of service plan	② Establishment of service plan
③ Development of health information system	③ Development of health information system	③ Development of health information system
④ Community health service	④ Community health service	④ Community health service
⑤ Maternal and Child Health services and Family planning	⑤ Maternal and Child Health services and Family planning	⑤ Maternal and Child Health services and Family planning
⑥ Common disease service	⑥ Common disease service	⑥ Common disease service
⑦ Project management&consultant service	⑦ Project management & consultant service	⑦ Project management & consultant service
	⑧ Home care management	⑧ Home care management
	⑨ Rehabilitation management	⑨ Rehabilitation management
		⑩ Health information system

Source: Community Health Practitioner Association, 30 Years' History of CHP, Malguagul, 2011

3.3.1 Primary Medical Care Service

Most of the medical conditions that the CHPs dealt with were related to internal medicine and other symptoms such as peptic ulcers. If the condition did not get better in 2 weeks after treatment, based on guidance, the CHPs referred the patient to a doctor. In 2002, the guidance was amended to include the control of hypertension and diabetes, which enabled the CHPs to follow up on the medication for chronic diseases.

To evaluate peoples' health conditions, the practitioners interview people about their address, current medical conditions, medical history, family history, and general physical condition; carry out medical examinations that include ocular inspection, palpation, auscultation etc; and consider physical status-skin color, hair, lymph nodes, eyes, nose, ears, mouth, throat, chest, back, abdominal, limbs, reproductive organs, anus, and nerve system. They are able to check blood (hemoglobin, CBC, blood type, blood sugar level, cholesterol), urine (general urine test), and stool (occult blood and general stool test).

CHPs should refer patients with serious symptoms to their Health center, Sub health-centers or hospitals. The symptoms are as follows: ① a patient who needs immediate surgery ② a patient who is suspected to have a fracture, or damage to internal organs or the brain ③ a patient who is suspected to have peritonitis ④ a patient who needs a blood transfusion due to a serious loss of blood ⑤ a patient in coma or with respiratory difficulty. ⑥ a patient with hemoptysis, melena, or hematurasis. ⑦ a patient with complications from any chronic diseases ⑧ a patient with severe symptoms ⑨ a patient with high fever and chills. ⑩ a patient who received treatment for a light symptom but did not get better or even worse in 3 days ⑪ a patient who is impossible to be treated in the post.

CHPs should refer the patients in emergencies to hospitals right after first-aid treatment. A patient in emergency is defined as a patient who is in a life-threatening situation or likely to have physical disabilities if not treated at the moment or in 12 hours. Emergencies include respiratory difficulty, external hemorrhage, internal hemorrhage, shock, coma, burn, frostbite, bite, poisoning, drowning, head injuries, fracture, and acute communicable diseases. Emergency medicine for the treatment should be kept in a separate cabinet. Emergency care services by the practitioners include ① measures to stop bleeding ② surgical suture, ligation, and compression ③ measures to help patients with respiratory problems ④ measures to relieve pain of a patient with fracture ⑤ measures to help a patient in coma ⑥ injection or catheterization in an emergency car.

The medicine that is authorized to be used by the practitioners rarely has side effects and is used for conservative therapy that is thought to fall within the scope of primary health care. In 1980, the CHPs could prescribe 68 kinds of medicine but they can currently handle 104 kinds, according to the Guidelines on Treatment of Patients for Sub health-centers (Code 65520-28, the Ministry of Health and Welfare, 2002), which was amended in 2002. The kinds of medicine that could be prescribed by the CHPs were determined based on its components (chemical names), therefore they could be replaced with other drugs of the same components if the medicine stops being produced or supplied.

3.3.2 Job Activities

According to the "study on evaluation of activities of CHPs" in 1981, the CHPs being onboard for the first six months had had 5.9 years of former experience, and performed 181.5 activities per month during the six months. The medical conditions that took up more than 70% of CHPs' activities were indigestion (81.2%), skin troubles (79.7%), trauma (79.7%), respiratory problems (74.3%) and helminthism (65.6%). 55.1% of the practitioners answered they had experienced emergency situations. 34.8% of them said they had handled addiction to or poisoning by agricultural pesticides, which arose as a health problem in rural areas. 98% of primary health care posts were equipped with necessary medical equipment and facilities though there were slight differences in their kinds. According to a study conducted in 1981, the CHPs visited homes for MCH such as labor, postpartum care, and infant care (45.8%), medical consultation (22.6%), health education (13.1%), family planning (9.7%) and control of tuberculosis (7.6%).

Compared to 1991, CHPs' annual performance, the average number of medical activities per day and consequent performance increase by 1.7 fold. The volume of work related to the control of tuberculosis, diabetes and hypertension rose in order.

Table 3-16 | CHPs' Primary Medical Care Service Activities: 1986

(Unit: Case, %)

Scope	Activity Rate (%)	Average case of activity (SD)	
Common cold	75.7	36.8	(23.1)
Other respiratory problems	78.3	18.4	(17.1)
Indigestion	81.2	22.8	(19.7)
Other gastric problems	74.3	19.8	(16.0)
Neuralgia	77.5	19.5	(16.9)
Helminthism	65.6	7.8	(11.7)
Skin problems	79.7	16.0	(14.0)
External injuries	79.7	11.0	(11.3)
Agrichemical poisoning	34.8	4.1	(5.3)
First aids	55.1	5.0	(6.5)
Referral	60.9	10.7	(11.1)
Others	46.0	9.6	(11.0)
Total	-	181.5	

Source: Kim JS et. al., Korea Institute for Population and Health, A study of operations research in CHP, 1987

Table 3-17 | CHPs' Activities: 1999, 2002

(Unit: Case, %)

Classification	Annual Activity Case (%)				Avg. activity case per CHP		Avg. activities per CHP per day	
	1999		2002		1999	2002	1999	2002
Total	25,573,261	(100.0)	44,218,544	(100.0)	13,382	23,381	49.6	86.6
Health Promotion	7,504,178	(29.3)	11,786,850	(26.7)	3,926	6,233	14.5	23.1
Primary health care	14,675,157	(57.4)	26,402,779	(59.7)	7,679	13,962	28.4	51.7
MCH	231,035	(0.9)	144,486	(0.3)	120	76	0.4	0.3
TB Control	40,417	(0.2)	144,523	(0.3)	21	76	0.8	0.3
Home visiting	1,333,595	(5.2)	2,133,897	(4.8)	697	1,128	2.6	4.2
Hypertension	1,454,999	(5.7)	2,644,157	(6.0)	761	1,398	2.8	5.2
Diabetes	333,880	(1.3)	840,351	(1.9)	174	444	0.6	1.6
Eye care	-	-	121,511	(0.3)	-	64	-	0.2

Note: Annual working days based on 270 days (In 2000, 1,863 establishments)

Source: Ministry of Health Welfare&Family Affairs, Annual Report, 2000, 2003

Figure 3-3 | Pictures of CHPs' Activities

Home Delivery in the 1980s

Newborn Baby Weighing at home in the 1980s

School Vaccination in rural areas

Walking Program in the 2000s

Muscle Strength Exercise Program in the 2000s

Activity Center Operation in the 2000s

Source: Community Health Practitioner Association

2011 Modularization of Korea's Development Experience
Healthcare Improvement Activities of Public Health Centers in Rural Areas

Chapter 4

Successful Cases of Healthcare Improvement Activities

1. Infectious Disease Control Project
2. Parasites Eradication Project
3. Maternal and Child Health Program
4. Family Planning Program

Successful Cases of Healthcare Improvement Activities

1. Infectious Disease Control Project

Communicable diseases and parasitic diseases, in addition to digestive troubles and respiratory diseases, were the three highest killers of Koreans in the 1930-1940s (Kim, Jung Soon, 1993). Today, cancer, cerebrovascular disease, cardiac disorder and suicide have taken their place (National Statistical Office, 2011). This change indicates that the share of deaths from infectious diseases has decreased while that caused by damage from chronic ailments and poisoning has considerably increased.

Table 4-1 | Status of Decreasing Incidence of Infectious Diseases

(Unit: person, %)

Classification	The largest patients (Year of incidence)	Number of notified patients (2010)	Decreasing rate
Tuberculosis	179,838 (1969)	36,305	79.8
Diphtheria	1,281 (1966)	0	100.0
Pertussis	16,887 (1961)	27	99.8
Tetanus	16 (1983)	14	12.5
Poliomyelitis	2,003 (1961)	0	100.0
Measles	32,647 (2000)	114	99.7
Mumps	7,269 (1966)	6,094	16.2
German measles	128 (2001)	43	66.4
Japanese encephalitis	3,563 (1966)	26	99.3

Source: Ministry of Health&Welfare, Korea Centers for Disease Control&Prevention, The joint declaration about first Vaccination Week in the Western Pacific Region, 2011

The 'Communicable Disease Prevention Act' was passed in 1954 and implemented to manage 20 communicable diseases that consist of categories 1, 2 and 3. The Korean government strictly managed patients with category 3 communicable diseases by mandating diagnostic and therapeutic treatments.

Lower death from communicable diseases is explained by several factors, including better quality of life that comes with economic development, better living and nutritional conditions gained from increased awareness on health, the introduction of effective antimicrobials and vaccines, and better health and medical technological standards (Kim, Jung Soon, 1993). The government is taking public health approaches to mediate infectious diseases, including blocking the infection by means of quarantine and segregation, forming mass immunity through vaccination, stamping out host animals, controlling carrier insect population, disinfecting tap water with chlorine, and applying the hygienic treatment of feces. As such, approaches are adopted such as the removal of pathogens, preventive chemical therapy and nutritional improvement, and the resolution of housing shortages and illiteracy (KCDC, 2011). Among them, vaccination has been continuously strengthened since the adoption of the Vaccination Act of 1882 and it is carried out nowadays with the distribution of the standard vaccination schedule table.

This chapter intends to look at the successful reduction of tuberculosis-a disease that is still a formidable health threat which claimed 9 lives a day in 2003-its epidemiology, and the tuberculosis plan 2030. Also covered here are the government's public health methodologies and its outcomes to fight communicable diseases, especially centered on polio, measles and hepatitis B, which are internationally certified by the WHO, and leprosy, sexually transmitted diseases and HIV/AIDS. Korea has successfully eradicated soil-borne parasites, like roundworm, whipworm and hookworm, according to the 54th WHO World Health Assembly Secretariat Report dated the 30th of March 2001, discarding the past dishonor of being 'a nation rampant with parasites.' This internationally unprecedented success story of parasite control will be discussed here as well.

Table 4-2 | History of Vaccination in Korea

Year	Target	Content
1948	TB	· Production of vaccines and vaccination
1952	TB	· Mass production of BCG vaccines; increased vaccination
1954	TB	· Routine vaccination in accordance with established infectious disease control project
1958	Polio	· Introduction of killed vaccine, some children carried the conduct of charged vaccination.
1961	Polio	· Introduction of an oral vaccine (cease to use the killed vaccine)
1963	TB	· BCG vaccination of Preschool/School age children after PPD test.

Year	Target	Content
1965	Measles	· Introduction of live vaccine, vaccination
1980	Measles, Mumps, German measles (MMR)	· Introduction of MMR vaccine, vaccination
1983	Measles, Polio	· Introduction of routine vaccination
1985	Hepatitis B	· Introduction of temporary vaccination
1995	Hepatitis B	· Change to the routine vaccination
1997	TB	· Abolition of re-vaccination
	Polio	· Changes from 4 to 3 times the basic dose
	Measles, Mumps, German measles (MMR)	· Add re-vaccination to Ages 4-6
	Hepatitis B	· Abolition of an additional dose (booster dose is limited to high-risk)
2000	Measles, Mumps, German measles (MMR)	· Stopped using the MMR vaccine containing Urabe, Hoshino ('00 .2.15)
2001	Polio measles (MR)	· Introduction of an injectable killed vaccine · The vaccination according to Five-year national measles elimination (2001-2005)
2002	Measles, Mumps, German measles (MMR)	· Stopped using the MMR vaccine containing the Rubini strain (5/18/02) in accordance with WHO Advisory (11/09/01)
2004	Polio Revised Terminology	· Health center changed OPV to IPV since Nov. · Routine&temporary vaccination→mandatory vaccination

Source: Korea Centers for Disease Control&Prevention, Division of VPD Control&NIP, Epide miology and control&prevention of infectious disease for vaccination, 2009

1.1 TB Control Project

During the Korean War, tuberculosis spread explosively due to the collapse of the health system, poor housing and nutritional conditions, and a shortage of tuberculosis vaccines, claiming 300-400 lives per 100,000 populations in 1953. The nature of the disease, which continuously remains latent for those infected, caused such high casualties.

According to a national tuberculosis sample survey, conducted first in 1957 as a three-year plan covering total population (all ages), its infection rate stood at a whopping 72%, and 9.4% of children in the age between 5 and 9 were at risk of the infection annually. It was found with chest X-rays that active pulmonary tuberculosis was estimated to be prevalent among 4.4% of the population (of 5 years old or older). Estimation was that 130,000 new

patients were added and 40,000 lost their lives from this infectious disease every year in the early 1960s. Yet the government was able to cure only 70,000. Afterwards, the nation embarked on a national tuberculosis survey every five years, from 1965 to 1995, to identify the extent and trend of tuberculosis using a stratified systematic sampling method. It has been operating a web-based tuberculosis surveillance system called TB net since August 2008.

Table 4-3 | TB Prevalence Rate: 1965-1995

(Unit: %)

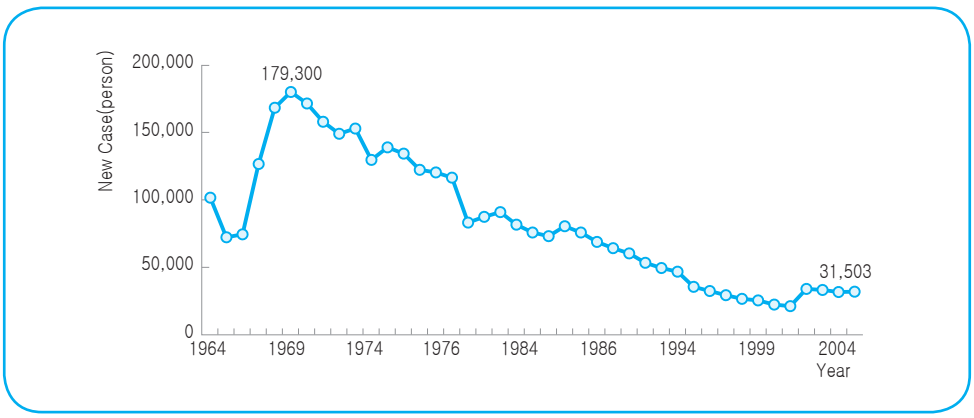
	1965	1970	1975	1980	1985	1990	1995	Yearly reduction rate
Prevalence (Diagnosed by Chest X-ray)	5.1	4.2	3.3	2.5	2.2	1.8	1.00	5.0
Prevalence (TB positive)	0.94	0.74	0.76	0.54	0.44	0.24	0.22	5.1
Infection rates (under age 30)	44.5	46.9	46.9	41.7	38.7	27.3	15.50	-
Annual risk of TB infection	5.3	3.9	2.3	1.8	1.2	1.1	0.50	7.5
Drug resistance rate	38	39.3	38.3	47.5	35.3	27.4	9.9	-
BCG vaccination rate (under 30)	24.3	44.4	60.6	69.9	80.1	86	91.8	-

Sources: Ryu WJ, Present situation and prospect of tuberculosis in Korea, The Korean National Tuberculosis Association, 1999

The death toll from tuberculosis has been declining from 300-400 cases in 1953 to 18 cases in 1983, 7.3 cases in 1997, 6.9 cases in 2003 and 4.8 cases in 2008 per 100,000 people. 3331 people died from the illness in 2003 alone, meaning 9 persons lost their lives daily. It is the 11th-largest cause of death and 8th-largest killer among diseases.

Newly reported cases of TB have continuously been on a downward curve for about the past four decades, reaching 31,503 cases in 2004, down from 179,300 cases in 1969. In 2004, new tuberculosis patients numbered 65.4 cases per 100,000 people and patients with smear-positive sputum were 23.9 cases per 100,000 people. The launch of the Korean tuberculosis surveillance system in 2000 explains why the new cases in the figure below seem to have suddenly jumped in 2000.

Figure 4-1 | Trend of New TB Case by Notification: 1964-2004



Sources: Korea Centers for Disease Control&Prevention, Division of VPD Control&NIP, Epidemiology and control&prevention of infectious disease for vaccination, 2009

To defeat tuberculosis, the government began the development of BCG vaccine in 1948. BCG vaccine was produced on a small scale from the National Central Health Research Institute, a predecessor of the current National Institute of Health, after the government was founded in 1948. However, it failed to reach the stage of use. Yet in 1952, during the Korean War, domestic BCG vaccine was introduced and increasingly used for inoculation and in 1961, it was successfully produced by the National Institute of Health. Liquid-type vaccine was manufactured in 1961-1962 and it was placed under the UNICEF support during the period from November 1962 to January 1964. In 1964, BCG produced in Korea was approved by the WHO. Freeze-dried BCG, which started to be produced in 1977 and was manufactured by the Korean Institute of Tuberculosis until 2007, is no longer domestically produced and it has since then been replaced with one imported from SSI in Denmark. Nowadays, BCG vaccination is given to newborns less than 1 month old, but revaccination of elementary school 6th graders was suspended in 1996. Tokyo-bacteria-based single-dose BCG vaccine has been widely used among private clinics since the 1990s.

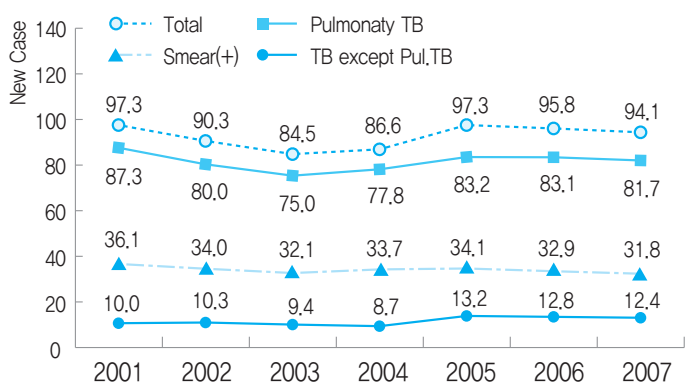
In 1962, the government accepted a WHO recommended control plan and deployed the national tuberculosis control system to nationwide health centers under the technical auspice of the WHO. To this end, a central organization was formed within the Ministry of Health and Society to control tuberculosis and it was placed in charge of providing coaching on the plan. Anti-tuberculosis departments were set up at the civic and provincial level and education and training was given to tuberculosis and relevant personnel across the nation. Thanks to the national tuberculosis program, which started in 1962 and was led by nationwide health centers, prevalence rate among active pulmonary tuberculosis patients discovered from chest X-ray fell to around 1% in 1995 from the 5.1% found at the first tuberculosis survey conducted nationwide in 1965.

Until the 1970s, just 2-3 tuberculosis treatments (isoniazid, streptomycin, PAS) were used and such medication helped decrease the death rate. Yet such practices also increased the development of drug-resistant tuberculosis. Drug resistance among those new patients in 1965 stood at 26.2%, and it continuously increased up to 1980. In 1980, ethambutol, in place of PAS, was prescribed for 18 months and a short-term treatment of nine months containing the administration of rifampicin became popular nationwide in 1982-1985. Another short-term treatment using pyrazinamide took its place in 1990. Though drug resistance had dramatically dwindled since 1985, multi-drug resistance of new reported patients went up by 1.6% (1994), 2.2% (1999), 2.4% (2003) and 2.7% (2004).

From the start, chest X-rays and bacterial culture tests, in addition to sputum examination, were adopted to diagnose the disease if it is smear-negative tuberculosis. Drug sensitivity test was made on retreatment cases after the 1960s and the test began to be applied to initial treatment cases beginning in the mid-2000s.

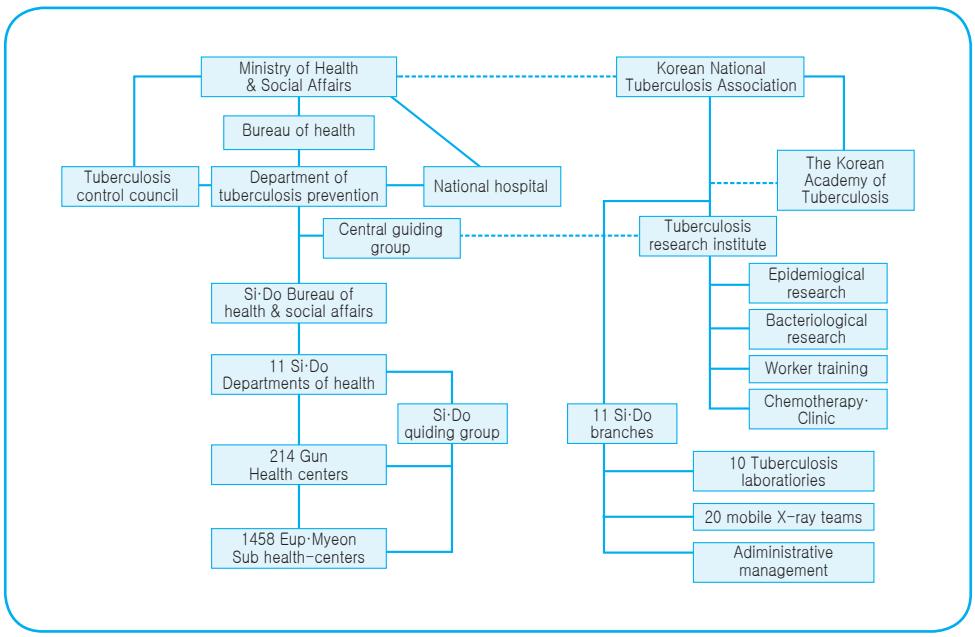
The percentage of tuberculosis patients visiting private hospitals has grown with the National health insurance system being widened to be applied to the entire population in 1989. Tuberculosis cases reported to private hospitals jumped from 53.2% (2001) to 77.2% (2007) and 85% (2010). While tuberculosis treatment staff mobilized at public health centers ensures strict management of the patients until they complete their treatment, management of the treatment at their private counterparts is not as systematic as it is at public health centers, resulting in the failure to lower drug resistance of new patients. Case of pulmonary tuberculosis in patients with smear-positive sputum (the rate of new patients per 100,000 people), an important parameter indicating the extent of the ailment, has not budged much lately and the percentage of new cases in total tuberculosis incidents has not changed much. Reported cases of extra-pulmonary tuberculosis are rather going up.

Figure 4-2 | Trend of Newly Registered TB Patients: 2001-2007



Source: KCDC, Annual Report on Notified Tuberculosis Patients in Korea, 2008

Figure 4-3 | Organization Chart of TB Control Project: 1980



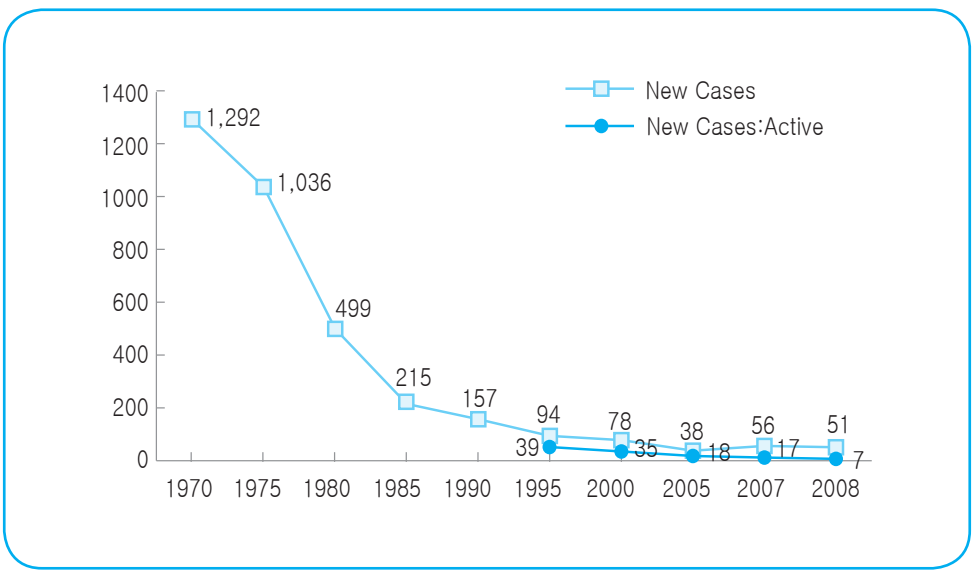
1.2 Leprosy Control Project

The epidemiology of leprosy in Korea can be verified from the record on leprosy patients in the nation in around 1300 and that on 8000 patients quarantined in locations like Sodo Island rehabilitation center, UnsuAeyang Island and DaeguAerak Island until 1946. The government, which found a breakthrough in its fight against leprosy after embracing an excellent leprosy cure called sulfonamide in 1953, began an outpatient clinic and the mobile therapy program for leprosy patients in 1955 and started the WHO-recommended home therapy service in 1962-1963. It amended the Public Health Center Act and the Act on Prevention of Infectious diseases and raised the job of home therapy to the role of health center. The Korea Leprosy Institute came into being in 1976, with the drive to stamp out the disease coming into gear with the administration of rifampicin and lampren as secondary drugs in 1978. Thanks to these efforts, cases of new patients, which outnumbered deaths until 1980, were outnumbered by those who lost their lives from the sickness starting in 1981; this drove down the number of registered patients. The total number of nationwide leprosy patients under control amounted to 38,000 cases in late 1970 and its actual number was estimated to be around 80,000 cases. But the number of new patients continuously fell, recording 1292 cases in 1970, 499 cases in 1980, 157 cases in 1990, 78cases in 2000 and 29 cases in 2010. Leprosy prevalence rate in the nation has been in decline from 16,290 cases in 2004 and 14,207 cases in 2008 to 13,316 cases in 2011, with active patients standing at 283 cases in 2011 (positive rate of 0.06%). Korea's leprosy control is as good as that of developed nations. 1179 leprosy patients are residing

at facilities including St. Lazarus Village, Wilson Leprosy Center and Rehabilitation Hospital, Andong Sung Ja Won, Daegu Aerakwon, Sanchung Sungshimwon, Damian's House, and Sorokdo National Hospital. Among them, 4607 patients are at Hansen's disease facilities and 7530 patients are at home.

Incidence of leprosy in Korea is noticeably falling and the management of registered patients is good, claim many scholars (Ko, Young Hoon, 1995). Continued checkup and treatment of patient families, those who came into contact with the patients and general public by 21 Hansen's disease mobile service teams, 253 health centers and 17 outpatient clinics nationwide aimed at stopping the disease, in conjunction with a strong mutual cooperation between the government and relevant organizations, explains why the leprosy control program is efficient. As part of the design to raise the state of welfare to guarantee better quality of life for the patients, the government is sponsoring Hansen's disease care centers and temporary senior homes and helping them stand on their own feet by supporting their rehabilitation, while enhancing education and promotion to stop prejudice and discrimination against leprosy patients. Education is also conducted for professionals in relevant areas, such as doctors, nurses and municipal/provincial staff, so that they can be more efficient in dealing with the program recipients and make new patient discoveries using the latest expertise and techniques gained from such education.

Figure 4-4 | Trend of New Hansen Disease Case Notification Rate: 1970-2008



Source: Korea Centers for Disease Control&Prevention, Annual Report, 2010

1.3 Sexually Transmitted Disease (STD) Control Project

To control sexually transmitted diseases (STDs) in Korea, the government provided free medical services to patients with STDs at the health centers, primary clinics, and secondary-level hospitals.

Korea's venereal disease control project was led by Mobeum Public Health Center as prescribed by Provision No. 1 of the Military Government Office Law of the US Military Government Office in 1945. This was an aggressive drive of the preventive health program under health administrative reform. Afterwards, the project was mostly made up of two components, namely the management through registration of those to receive a regular STD test at health centers and the follow-up management through the issuance of a health check booklet (health certificate) to those to receive a general health checkup. The health check booklet system was abolished in 1999. After the Act on Punishment of Sex Trafficking and the Law on Prevention of Sex Trafficking and Victim Protection came into effect in 2004, those who are to get the venereal disease test were hesitant to get the checkup for fear of being caught for violating the laws and of clampdown, making it difficult to check and access those susceptible to the infection. Against this backdrop, the provisions on the STD test included in relevant laws, such as the Act on Prevention of Infectious Diseases, were revised in 2008 and the scope and criteria was set on the candidates of the STD test. Assessment is also made on the efficacy of the public health center centered surveillance system and venereal disease clinics, with the objective of turning them into a more efficient system and clinics. More professional education opportunities are provided to those relevant to the project. Through STD sample surveillance activities that have been made by medical institutions since 2001, all university hospitals, public health centers and some designated municipal and district health clinics in the nation got involved, with a total of 562 institutions in September 2008 staging venereal disease sample surveillance activities. The percentage of the infected among those who received the test annually declined in 1961-1980, and most STD cases are gonorrheal infections.

Table 4-4 | STD Screening Performance (Registrant Only): 1961-1980

(Unit: person, %)

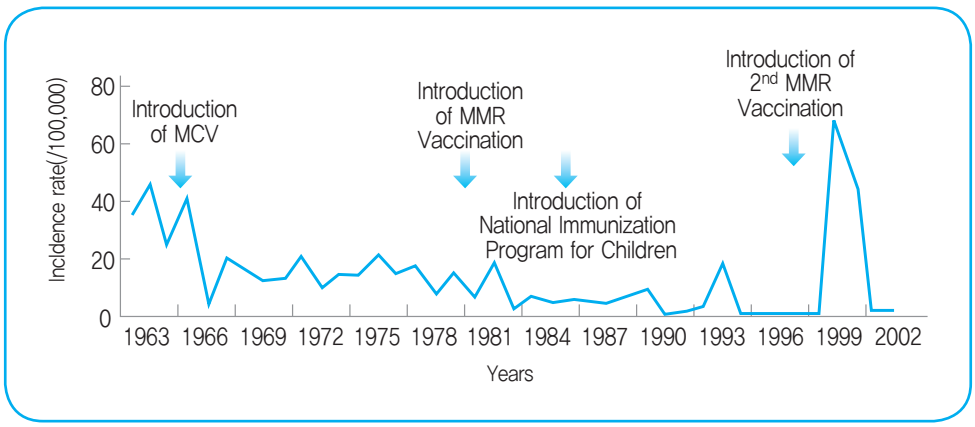
Year	Annual Screeings	STD Infections									
		Total Infections		Syphilis		Gonorrhea		Chancroid		Others	
1961	644,358	31,203	22.4	1,273	4.0	26,761	85.76	1,450	6.40	1,719	5.50
1965	1,438,272	45,723	13.9	3,230	6.5	37,366	81.72	1,647	3.60	3,489	7.63
1970	996,862	41,082	16.0	2,698	6.3	22,659	55.15	725	1.76	15,000	36.51
1975	1,141,675	63,970	5.6	3,746	5.9	36,169	56.50	1,504	2.40	22,551	35.3
1980	1,067,655	91,223	8.5	11,434	12.5	43,742	48.00	1,412	1.50	34,635	38.0

Source: Ministry of Health and Social Affairs, Annual Report, 1981

1.4 Measles Control Project

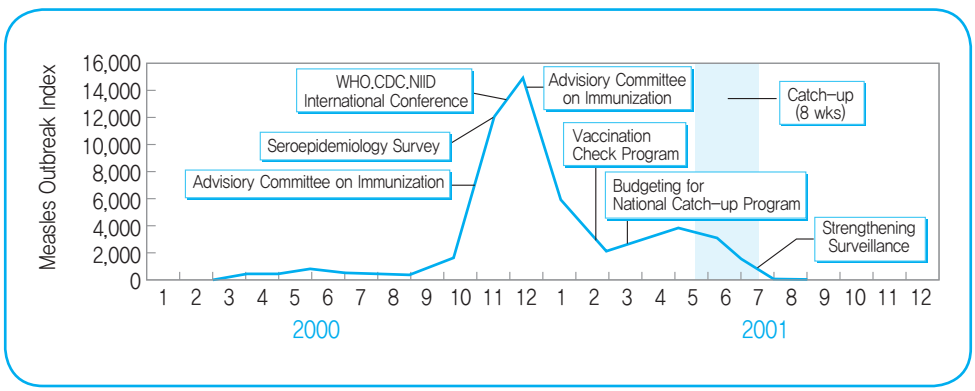
Korea introduced measles-containing vaccine (MCV) in 1965 and mandated measles, mumps and rubella (MMR) vaccination for infants 9-15 months old in 1983. An average of 4000-6000 measles cases a year were reported in the early 1980s, but it fell to a yearly level of 1000-2000 cases after 1985 thanks to sustained vaccination efforts at the private level and partially free vaccination at the national level in 1985. However, there were rampant outbreaks of 2,394 cases in 1989 and 3,415 cases in 1990 when the disorder was spreading worldwide. Since then, there was a nationwide outbreak in 1993-1994, and measles affected more of those over 6 years old then than during the previous epidemic of 1989-1990. In response, the Korean Pediatric Society in 1994 temporarily recommended MMR revaccination on 6-year-olds in addition to the recommended MMR vaccination of 15-month-olds and the nation changed its vaccination time-schedule to include the 1st MMR vaccination at 12-15 months old and the 2nd MMR vaccination at 4-6 years old. Afterwards, measles, which stood at less than 100 cases a year, experienced a sudden jump six years later to 52,897 in 2000-2001, claiming 7 lives. What caused the outbreak of 55,696 cases in an 8-month window, mainly in the demographic groups of 2 years old or younger and 10 years old, was that those sensitive to the disease had accumulated to a pandemic level. In order to stem the epidemic, the government formulated the national anti-measles five-year plan in 2001 and mandated the catch-up of MR vaccination on 8-16-year-olds for 6 weeks. It also ran an abnormal symptom surveillance system through manual monitoring and call centers established on the health center and private clinic level. All measles patients were subject to case studies and lab diagnosis and these virus hosts were placed under surveillance via a molecular epidemiological study. As a consequence, 5.7 million out of 5.9 million who were to be vaccinated (97.3%) received vaccination and the increase in the number of patients of measles, which was in full strength until the mid 2001, nose-dived after July 2001. It became a compulsory job for elementary school authorities to check whether a child is measles-vaccinated by the time the child joins the school and allow the 2nd measles vaccination rate of current newborns kept at over 95%. This drive was well aligned with the WHO measles eradication assessment index and as a result in November 2006 the disease was declared gone before the presence of national anti-measles officials and domestic and international measles experts (WHO/WPRO, UNICEF etc). Korea is recognized as the nation that quickly put an end to and eradicated measles epidemic leveraging the three WHO/WPRO-recommended strategies (catch-up, keeping a high vaccination rate, and strengthening surveillance) and emerged as the WHO-recognized exemplary nation that successfully fought the pandemic.

Figure 4-5 | Measles Incidence Rate in Korea: 1963-2002



Source: Korea Centers for Disease Control&Prevention, Division of VPD Control&NIP, Epidemiology and control&prevention of infectious disease for vaccination, 2009

Figure 4-6 | Measles Pandemic: 2001-2002

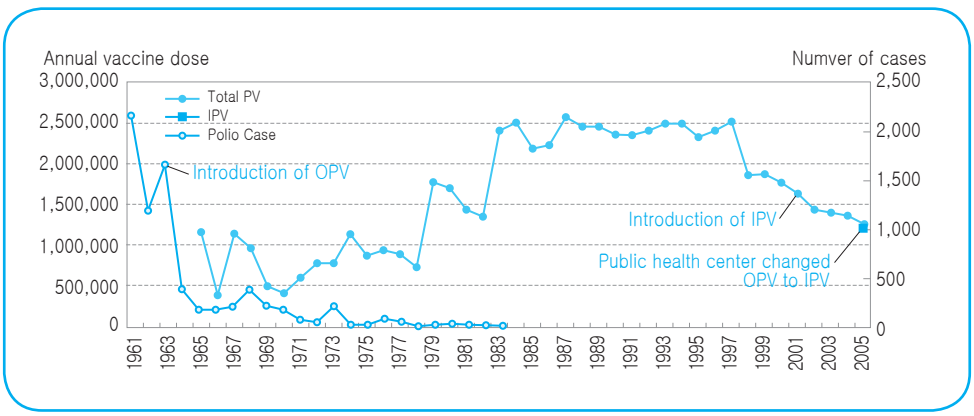


Source: Korea Centers for Disease Control&Prevention, Division of VPD Control&NIP, Epidemiology and control&prevention of infectious disease for vaccination, 2009

1.5 Polio Control Project

Since polio vaccine was adopted in the 1950s, it was virtually impossible to find paralytic poliomyelitis patients in the locations where the inoculation became common. Polio vaccination was made partially using Salk's inactivated poliovirus vaccine after 1958. Sabin's live vaccine was introduced in 1961 and injection was made partially in 1962 and expanded to the population in 1964. Since the introduction, cases dropped below 0.1 case per 100,000 people and the death rate was 0.1-0.4%. No reported case of wild polio virus induced polio since five cases were reported in 1983. The WHO Regional Committee that certifies polio eradication declared on the 29th of October 2000 that the West Pacific region, including Korea, as being free of endemic polio infection and endowed the nation with international polio eradication accreditation. The region is the second to get this honor following the Americas region in 1994 (the last case was reported in the USA in 1979). Today, Korea's poliomyelitis vaccine injection rate is estimated to be over 95% (Bin, Jung Hyun et al, 2009).

Figure 4-7 | Comparison between Introduction of OPV/IPV and Polio Cases: 1961-2005

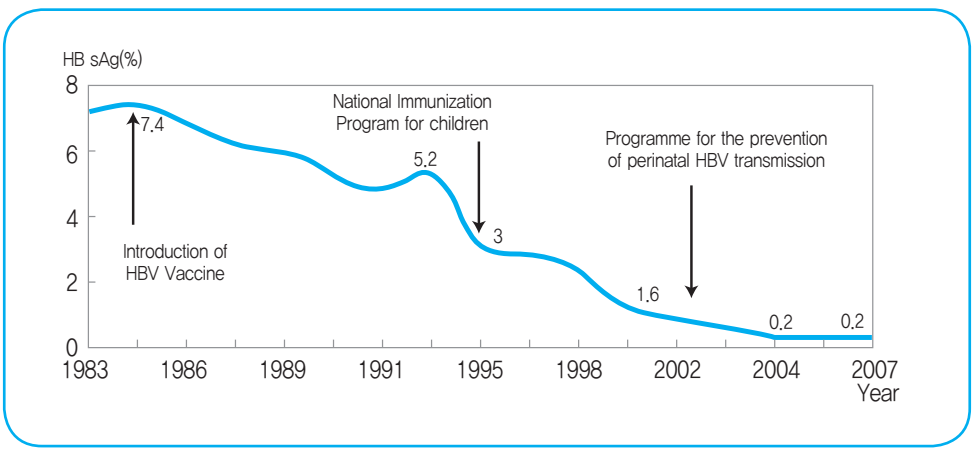


Source: Lee JK, Role of government and disease control&prevention, National Medical Center, public administration senior executive program in public health service, 2011

1.6 Hepatitis B Control Project

The HBsAg-positive rate of the total population stood at 7-8% in the 1980s but has since dropped continuously to a record 3.7% of those 10 years old or older (male 4.8%, female 3.0%), according to a 2005 national health&nutrient survey. The HBsAg-positive rate of blood donors, which was about 7.4% in 1985, declined to 3% in 1995 and further to 0.2-0.3% after 2005. Hepatitis B vaccination has shifted and has been part of a regular vaccination since 1995 after being introduced as a temporary vaccination in 1985. 90% of newborn babies who caught the hepatitis B virus during the perinatal period become HBV carriers and are ex Hepatitis B led to the risk of developing chronic hepatitis or liver cirrhosis when they are 40-50s. So the government launched a project in July 2002 to fully subsidize immunoglobulin tests, hepatitis B inoculations, and hepatitis B antigen and antibody tests on newborn infants born from hepatitis B mothers, lowering the hepatitis B infection rate of newborn cohorts to less than 1%. In September 2008, Korea won the 'certification of hepatitis B control' from WPRO and became the first West Pacific nation to get such acclaim.

Figure 4-8 | HbsAg-Positive Rate among Blood-transfused Subjects: 1983-2007



Source: Lee JK, Role of government and disease control&prevention, National Medical Center, public administration senior executive program in public health service, 2011

2. Parasites Eradication Project

2.1 Status of Parasites Project

Korea, experiencing liberation from Japanese colonial rule and the Korean War, had serious issues with its health and hygienic system arising from poor health and medical facilities and non-hygienic conditions. Intestinal parasitic infection rate revealed by a foreign study was a whopping 82.4%. Intestinal parasitic infection garnered spotlight as the No. 1 parasite to be stamped out, as it inflicted enormous damage to the nation, including a loss of valuable labor force and increased medical expenses. Against this background, the Korea Association on Eradication of Parasites was founded in 1964, aimed at better public health awareness gained from defeating parasites.

The government employed the following approaches for its parasite control policies:

1) Established the Korea Association on Eradication of Parasites (HQ and 11 city and provincial branches)

2) Selected roundworm as the primary parasite to control

3) Selected primary, middle and high school students as the prime demographic groups to watch

4) Promulgated the 'Law on Prevention of Parasitic Diseases' as a legal framework for the policies

5) Selected mass examination and mass medication as its control tactics

In the early days of the Korea Association on Eradication of Parasites, a main driver of the policies, many hurdles stood in its way; these originated from shortage of equipment, facilities, technologies and resources needed to examine parasites. But these hardships were more or less eased thanks to the practical technical support and equipment and medicine supply from Japanese Overseas Technical Cooperation Agency (OTCA). Foreign aid between Korea and Japan came into full swing through a bilateral arrangement between the two nations.

The association embarked on a parasite eradication campaign under the banner of a 'Ten-year campaign to achieve zero national parasite infection' and deployed a systematic parasite removal project, leveraging legal frameworks like the enactment of the Law on prevention of parasitic diseases in 1966 and designating elementary, middle and high schools as those subject to parasitic infection tests. However, using students' stool test results as the measurement of national infection was not sufficient so the Ministry of Health and Society, jointly with the Korea Association on Eradication on Parasites, carried out a national intestinal parasitic infection survey at every 5-year interval to address this shortcoming. The survey, which was started in 1971 and done for the 7th time in 2004, was applied with the examination of the parasitic eggs, based on a statistical sampling of 1/1,000 of the population and it became a useful national health index. A regular sampling study on the entire population to figure out the state of parasitic infection is virtually unheard of in the world and served as a scientific record

of the successful parasite control of the nation. Owing to these efforts, parasitic infection rate that was near 90% is now almost 0%, with the exception of some parasites, and the efforts are praised as having greatly contributed to raising public health standards. The 54th WHO World Health Assembly Secretariat Report, dated the 30th of March 2001, cited Korea as the country that has successfully exterminated soil-borne parasites like roundworm, trichuristrichiura and hookworm; this honor has helped the nation to remove the stigma of being a nation rampant with parasitic infections and became an unprecedented success story in the world. This successful parasitic control has led to other benefits, such as the improved physical development indexes of elementary, middle and high school students, better public nutrition and health indexes, and dwindled cases of roundworm particle-induced bile duct surgery.

2.2 Strategy of Parasites Eradication Project

The national strategy employed to stop parasites in Korea can be broadly broken down into mass examination and mass medication; health lecture and health education; and environment improvement programs. In addition, a legal framework based on the law on prevention of parasitic diseases, environmental cleanup campaign relevant to the Saemaeul Undong and economic development are what considerably affected this control.

2.2.1 Mass Examination and Medication

For the entire primary, middle and high school populations, mass examinations (stool test) and mass medication of the positive were carried out twice a year during spring and autumn to observe the declining trend of parasitic infection for about 35 years from the late 1960s to 1995. Sampling of 1 out of 1000 in the general public was also done every five years to study intestinal parasitic infection of the whole population; mass anthelmintic medication was given to those who tested positive to maximize the effect of the control. Vermifuges initially administered were santonin, digenia, piperazine, pyrantelpamoate, mebendazole and albendazole.

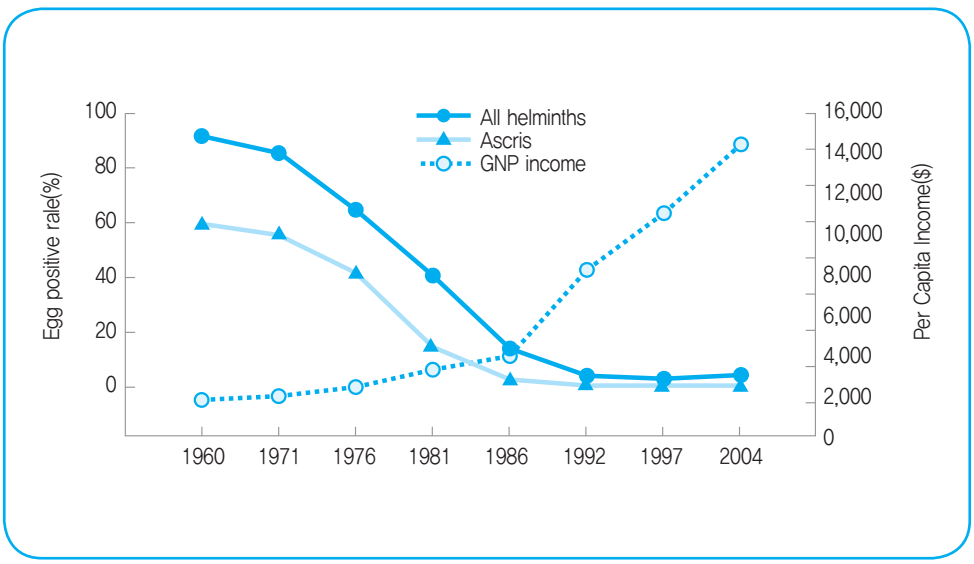
2.2.2 Health Education for Student and People

By publishing various education media, promotion and education was done on the harm of the disorder and preventive methods were given that can be used when infected with intestinal parasites like roundworm. These media explained how roundworm is introduced to our system (by hand and from eating vegetables and fruits) and they highlighted the ways to prevent such infection. For example, instructions are given like, wash vegetables 2-3 times with running water before you eat them; wash your hands before you have a meal; keep your hands and clothes clean after coming back from outside or playing in the mud; take a bath frequently; and use a nail clipper. These instructions produced and distributed as video clips, films, slides, publications and promotional materials.

2.2.3 Environment Improvement Movement

Living conditions in rural villages nationwide improved through the Saemaeul Undong. Roundworm was controlled by building flush toilets equipped with a sewage disposal tank. Environmental cleanup was aided by banning the use of manure; this directly and indirectly helped drive down parasitic infection rate.

Figure 4-9 | Comparison between Intestinal Parasitic and Roundworm Infection Rates and GNP Income: 1969-2004



Source: Hong ST, Chai JY, Choi MH, Huh S, Rim HJ, Lee SH., A successful experience of soil-transmitted helminth control in the Republic of Korea., Korean J Parasitol. 2006 Sep; 44 (3): 177-85.

2.2.4 Regulation

In the 1960s, more than 90% of the Korean people were infected with parasitic diseases. Thus, the government enacted and promulgated the Law on Prevention of Parasitic Diseases (Law No. 1789, enacted on the 25th of April, 1966) designed to raise public health standards by preventing and eradicating such disorders. In line with the law, parasitic diseases were defined as ascariasis, ancylostomiasis, oriental liver fluke, lung fluke, taeniasis and the other ailments as set forth by the order of the Ministry of Health and Society, and those who are in the occupations susceptible to them or residents of the vulnerable areas are subject to examination more than once a year and students more than twice a year. There is a provision for punishment, requiring a fine of less than 5000 won for violating this law. In accordance with the revision of the law (8th of March 1991, Law No. 4354), the definition of parasitic diseases was broadened to include those from roundworm, whipworm, pinworm, distomasinensis, lung fluke, fasciolopsisbuski, tapeworm and the provision on obligatory

examination and treatment was detailed out to specify the location-the one at risk of lung fluke or fasciolopsisbuski infection. The frequency of compulsory student tests was eased by order of the Ministry of Health and Society. Currently, the law is abolished and the Law on prevention and management of infectious diseases (Law No. 9847, wholly amended on 29th of January 2009, enforced on 30th of December 2010) was drafted and announced. Parasitic diseases are classified as '5th-class infectious diseases' and defined thus as infectious sicknesses requiring surveillance through regular studies under the order of the Ministry of Health and Society. The Korea Association of Health Promotion is in charge of preventive programs, like surveys and studies.

2.2.5 Anti-Parasite Project in PHCP

Before 2000, PHCPs were involved in Anti-Parasite Projects, and distributed anti-helminth medications twice a year. Since 1997, The Korea Association of Health Promotion (KAHP) discontinued the APP because the infection rate decreased to less than 0.1%, and they were certain that there was no possibility for the parasite infection to break out again (KAHP, 1997). As the necessity to continue the APP decreased, the PHCP began to provide anti-helminth medications once a year only.

Despite the evident progress, the KAHP's 7th survey found that the Nakdong river, Sumjin river, Youngsan river, and Keumkang river areas had high risk for liver fluke infection. Liver fluke infection is the most common food-borne parasite disease in Korea because infection is caused by eating raw freshwater fish. It is known as one of the major causes of bile duct cancer along with bile calculus (bile duct stone). The Government established Anti-Liver Fluke Project focused in 5 river areas to eliminate liver flukes, Yokogawa's flukes, and others parasites. PHCPs located near 5 river areas were involved in the Anti-Liver Fluke Project.

Figure 4-10 | Pictures of Infectious Disease Control Activities

The 14th World Leprosy Day ceremony, Jan. 29, 1967

Source: National Archives of Korea

Newspaper advertisement for TB examination and treatment at health centers, March 21, 1967

Source: The Maeil Kyungje Shinmun (newspaper)

Ceremony marking the 14th TB Prevention Week, Nov. 6, 1967

Source: National Archives of Korea

A sign reading entrance not allowed due to cholera outbreak, Sept. 9, 1969

Source: The Kyung Hyang Shinmun (newspaper)

Elementary school students receiving medicine after parasite checks in a mass chemotherapy program started since 1969

Source: Korea Assocoation of Health Promotion Homepage

Vaccination against cholera in a street, Aug. 14 1970

Source: National Archives of Korea

3. Maternal and Child Health Program

3.1 Status of Maternal and Child Health Program

Maternal and child health is about protecting the lives of mother and child and improving their health. Primarily speaking, it is about concentrating on protecting and keeping the expectant mother healthy during pregnancy, birth, puerperium (6 weeks after birth) against threats to the mother and newborn's life, and inducing safe delivery. It also involves focusing on protecting and managing the health of newborns and infants. MCH started in Korea with the enactment of the Public Health Center Act in 1956. Maternal and childhood health care became a formal job of health centers as they were set up in the nation's cities and counties. But based on the judgment that a high birth rate including the baby boom in the 1960s was impeding economic growth, the family planning project, together with the 1st five-year economic development plan in 1962, was chosen as one of the national policies, hindering maternal childhood care from gaining ground. Though the Mother and Child Health Act was promulgated in 1973, the government could not afford to look further than the need to merely fill the positions of maternal childhood health staff. The period of the 1960s and early 1970s can be called the time when maternal and childhood health was born with the enactment of the Mother and Child Health Act and securing professional staff required for this purpose. The focus of the 4th five-year economic development plan, which began in 1977, was social development. A community health program was deployed on a pilot basis in poor rural areas, with the backing of international organizations. The maternity and childhood health project was executed as the primary concern of the community health program and gained pace with the Saemaeul Undong, a campaign based on the spirit of self-reliance and economic development. MCH centers were established in 1980 with the IBRD population credit assistance to decrease maternal death from giving birth at home and increase delivery at hospitals in marginalized areas. In the same year, SAHRA was formulated for rural village health and medical services, which paved the way for the government to nurture and dispatch public health doctors and community health practitioners who could take care of the health of the residents in remote areas as well as MCH. 1986 is the year when the resources and facilities required for the MCH program were secured. The Mother and Child Health Act was amended for quantitative service expansion and qualitative improvement of public MCH service during the year. Meanwhile, the adoption of the National Health Insurance System increased the access to professional medical care by the marginalized class and strengthened the coverage of MCH service. It is the period when many pregnant mothers received prenatal care and gave birth at hospitals rather than at home, and got medical examinations from doctors at hospitals. It was when the system of hospital delivery got entrenched. People increasingly realized the value of having only a small number of children thanks to the enhanced family planning program and this heightened the social awareness on the need of safe and healthy birth. This change drastically drove up the visits to hospitals. Total Fertility Rate (TFR) then was lower than the replacement level of 2.1 and this figure shows that Korean society paid more interest on improving the qualities of the

children they gave birth to than on the policy to curb population growth. Prenatal care and hospital delivery, which were the focus of maternal and childhood health care at the time, reached 95% owing to the expansion of the National Health Insurance System covering the entire population and better living standards. This success led to the goal of keeping mothers and children more healthy, in addition to preventing disease and disability. The government, in response, introduced a new population policy in 1996 and concentrated on building and pushing up the level of the social safety net to that of advanced nations via qualitative, not quantitative, population management. Granted, the period until 1972 was when MCH resources were secured; the period of 1973-1985 was when the MCH system was established and qualitative resource development was made; the period of 1986-1995 was when the MCH service was expanded; and the period after 1996 when a new population policy was adopted can be called the time in which disability prevention and health promotion services were rolled out, moving away from simply reducing maternal and infant death.

Table 4-5 | Korea's Annual Maternal and Child Health Implementation System and Main Strategy: 1954- since 1990

Year	Health and Socioeconomic Issues	Implementation System	Main Strategy
1954	Poor socioeconomic condition after Korean War	· Legislation of law of prophylaxis for infectious disease	· Elimination of poverty · Development of vaccination and disease control system
1956	-	· Legislation of Health center law	· Construction of Health Center
1962	High birth rate; Maternal, infant and child death	· Establishment of supporting system with private sector (Family Planning Association)	· Introduction of 5-year Economic Development plan · Introduction of family planning program
1963	-	· Foundation of MCH Dept. in MOH	
1967	Maternal, infant and child death; High birth rate		
1973	-	· Legislation of Mother and Child Health Act	

Year	Health and Socioeconomic Issues	Implementation System	Main Strategy
1980	Maternal, infant and child death due to low facility birth rate	· Establishment of collaboration system by financial support of international organizations	· Amplification of delivery facilities in vulnerable area
			· Development of primary health care and workers (PHD, CHP, HW)
			· Construction of maternal and child health centers
1981	-	· Foundation of Family health Dept.	· Comprehensive Approach with FP
1986	-	· Revision of Mother and Child Health Act	· Expansion of MCH services (eg. health screening for expectant mothers, infants and children)
			· Notification of death and stillbirth of expectant mothers, newborn infants
1989	Decline in access to health facilities due to high medical expanses	· Establishment of health care delivery system	· Introduction of National Health Insurance
			· Supply of doctor manpower
since 1990	Emphasizing qualitative service rather than quantitative service		· Introduction of free screening for inborn error of metabolism
			· Support medical expenses for premature infants and congenital abnormal children
			· Prevention of transmission of hepatitis B between mothers and children

Source: Korea Institute for Health and Social Affairs, Korea Foundation for International Healthcare: 'Development of ODA Model for Maternal and Child Health,' 2011.10

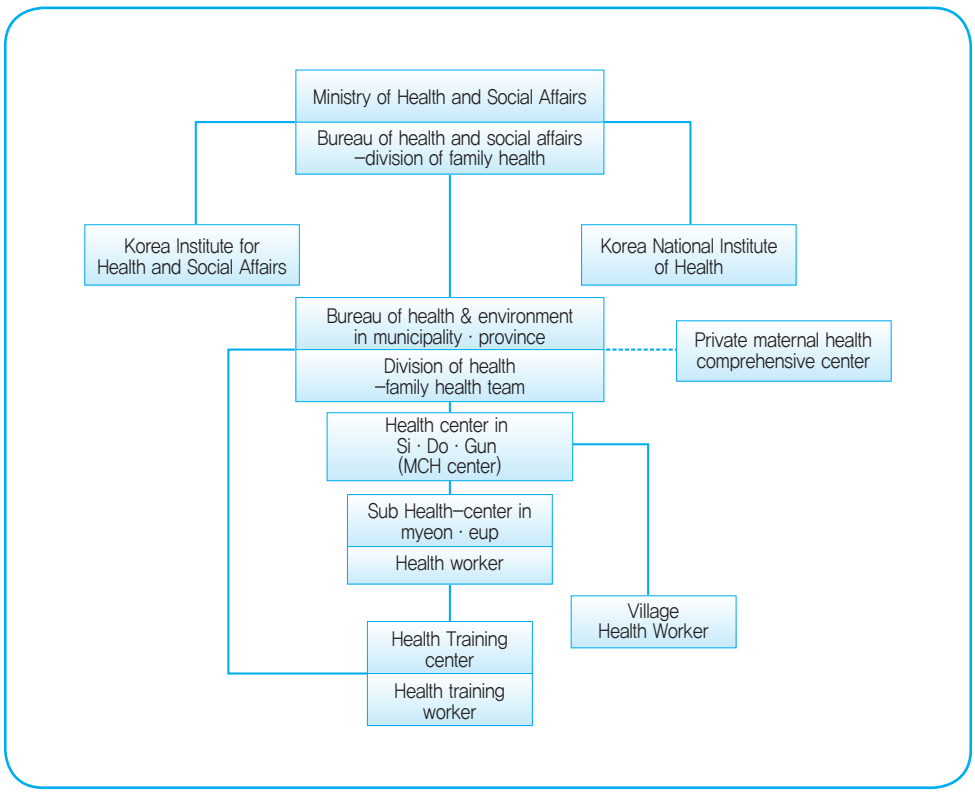
3.2 Strategy of Maternal and Child Health Program

3.2.1 Construction of MCH Delivery System

Korea did not have the budget to invest in maternal and child health in 1963 so it formed the 'Maternal and child department' within the 'health division' of the Ministry of Health and Society to mainly take charge of family planning activities. It also raised the status of this maternal and child health care organization in 1972 to the 'maternal and child health care office' reporting to vice minister, to get better results from its population control policy. As a result of the integration and consolidation of government organizations in 1981, the 'family health department' was created from the merger of 'maternity and childhood health department' and 'family planning department' and it changed to 'community health department', taking the additional job of the comprehensive health and hygienic planning work of local residents in 1999. Yet the 'female health department' was the one that was responsible for maternal and child health because of the direction that it had to be integrated with female welfare. Then the job was transferred back to 'community health department' due to the limitation of being unable to provide the service at a close range in the community.

Meanwhile, local governments' project delivery structure did not change much, with the health department of health society division of municipal and provincial government offices acting as a medium and each city and county's public health center organizations providing the service. Sub health-centers were installed at the eup and myeon (district) level in 1967 and PHCPs (approximately 1,800) were formed in poor agricultural and fishing villages in 1980. Hospital delivery services have been given at MCH centers (89 in agricultural and fishing areas) since 1983. The primary function has significantly shrunken since the implementation of the National Health Insurance System in 1989 and maternal and child health has been taken care of primarily by secondary institutions (maternity wards of general hospitals or children's hospitals, metropolitan and provincial hospitals, local corporation clinics) or tertiary institutions (higher-level general hospitals).

Figure 4-11 | Organization Chart of MCH Program: 1992



Source: Hong MS, Analysis of operation of healthcare organizations in gun and performance of health personnel in myeon: focusing on family health program, Korean Institute for Health and Social Affairs, 1992

3.2.2 Allocating MCH Workload by Si, Gu and Gun

In 1967, the government allocated some workload to midwives and gave them incentives depending on their individual performance (average 20 cases of indirect assisted delivery a month). A target-based performance system was embraced in 1976 and such targets were applied to MCH worker (23 registrations of pregnant women, 11 assisted deliveries and 35 infant registrations a month per worker) in 1976-1981. Such targets of MCH workers were adjusted reflecting each region's given features and the assessment of meeting this target was made by the Korea Institute for Health and Social Affairs (previously the Korea Institute for Family Planning). Progress was monitored by making the assessment every quarter, and site checks and verifications were conducted every year. Staff was motivated and their sense of responsibility was emphasized by giving rewards and promotions to public health center personnel with extraordinary performance.

3.2.3 Enactment and Revision of MCH Act

The maternal and childhood health care program took substance with the enactment and proclamation of the Mother and Child Health Act in 1973. But it served as a basis to legally implement population control policy, including abortion. The law was amended and supplemented in 1986 to include a pregnancy reporting system, general medical tests for pregnant women and regular health checkups of infants as well as the requirement to report any deaths of mothers or infants, or any stillbirths. The Medical Law was revised in 1987 to forbid ascertaining the gender of fetus by medical professions and revoke their license upon caught breaching this law. The Public Health Center Act changed to the Community Health Act in 1995, allowing planning, execution and evaluation of the MCH program befitting the conditions of each region. The Mother and Child Health Act was amended again in 1999 to introduce registration of and the medical care system for the newborn babies with high risks, such as preterm infants and those with congenital aberrations. The scope of maternity was broadened from just pregnant women to include reproductive age women between 15 and 49 years old.

3.2.4 Reinforcement by MCH Workers and CHP

a. MCH Activities of MCH Worker

Family planning staff (consisting of educational personnel, health center coach and senior coach) and maternal and childhood health staff were active in the 1960s-1970s to guarantee smooth family planning at each local community. MCH staff was primarily midwives and nurses in 1967 but they were gradually replaced with nurse aids. The integrated health staff system was introduced in 1978 so that each of the personnel could be responsible for each community in consideration of the close relevance between maternal and childhood health and family planning and access of rural residents. In other words, overall training on family planning, maternal and childhood health and tuberculosis was given to all personnel but the training was only short-term due to budget and facility constraints, resulting in the production of unqualified personnel. So a 14-week education and training program of FP, MCH and TB control worker was conducted using IBRD credit assistance in 1981-1985. In total 3,877 workers, including nurse aids (3,428) and nurses (449), underwent the program and were put in charge of the following jobs (confined to those related to MCH):

- Normal delivery and prenatal/postpartum care
- TB vaccination, detection and management of tuberculosis patients
- Slight wound and disease treatment
- Family planning counseling, nutritional coaching, health education and sample collection
- Prenatal test of pregnant woman: blood corpuscle count and proteinuria test for a pregnant mother on her first visit, weight measurement (yet urinal test on the pregnant

woman with high blood cells and swelling when she makes additional visits), syphilis serum test and proteinuria test during the early stage of pregnancy, and the WHO-recommended frequency of tests (7 times by gestational age).

Since then, the poor quality of MCH worker became an issue so the 'health risk factor score table' developed in 1978 was customized to fit Korea's conditions and was made to be used by county area health officials in 1987. But the education and training program of integrated health education involved drawbacks like a short supply of educational materials, lack of public understanding, too much other work, health organizations' shortage of medical equipment, relatively lower level of interest compared to that in the family planning project, poor quality of service personnel (mainly nurse aids), lack of transportation system for those at high risk, and an insufficient use of the score table due to overlap. Besides, MCH service provided by integrated health staff failed to meet the demands and expectations of the residents of the locations where MCH centers were opened and in operation in 1983.

b. MCH Activities of CHP

Hospital delivery in agricultural and fishing villages was lower than the level of urban areas in the 1960s-1970s. Hospitals and clinics were mainly established in cities, raising the concern of unequal medical access. Pursuant to the Special Act for Healthcare in Rural Areas in 1980, community health practitioners were assigned at the li (village) level of remote farming and fishing areas to be in charge of primary medical service. Their job was mostly delivering primary health medical service and this entailed maternal and childhood health management, infant health management and family planning management. They also, jointly with Public health doctors, transported those at high risk to a MCH center or to an adjacent hospital. However, they no longer provided MCH service after the expansion of the National Health Insurance System for all Korean nationals, an absolute decline of rural population, aging, a decrease in the recipients of the service and a shift of disease trend toward increased chronic diseases.

3.2.5 Building MCH Center

Bearing low hospital delivery rates in mind, the government negotiated with IBRD on population credit in 1979 and decided to spend it on building MCH centers mainly in rural regions to consolidate MCH program. MCH program was launched in October 1979 on a pilot basis and it sought integrated management encompassing MCH services, family planning and nutritional project. Delivery at hospitals was encouraged and an approach was taken by individual risk symptom to take care of pregnant mothers' health. As such, basic data needed to build and run MCH center was arranged. The intention of the IBRD credit was to spend it on the program and was confined to use on a building and medical equipment. The government set aside 34 million dollars, 30% of the IBRD credit, for MCH program. So 89 MCH centers were set up in agricultural and fishing areas across the nation from 1981-1984; they were classified as type A or type B depending on local population. Type A (325

pyeong (1 pyeong ≒ 3.3m²)) centers had a total of 11 personnel (1 doctor, 3 midwives, 3 nurses, 4 nurse aids), and type B (222 pyeong) center had a total of 14 personnel (1 doctor, 3 midwives, 3 nurses, 7 nurse aids). 25 type A and 52 type B centers were installed; 12 took the form of a health clinic. A public health doctor was the doctor at the center initially, and a public health doctor specializing in obstetrics and gynecology was assigned in 1983. But such doctors were replaced with general public health doctors again. MCH center was mostly responsible for maternal and infant care like prenatal care, assisted delivery, postpartum care, and the center with any OBGY doctor-provided FP service, such as intrauterine device and tubal sterilization. The government also supplied ambulances to speedily transport pregnant women at high risk. The hospital delivery rate in 1982, before MCH center was established, was 62.9%; however, this rate was only 35.3% in rural areas, indicating a wide gap between urban and rural regions. But hospital delivery in rural regions in 1988 recorded 73.3%, meaning that hospital delivery, in addition to growing prenatal care, jumped rapidly in those areas (nationwide hospital delivery was 87.8%). Therefore, MCH centers built with IBRD credit assistance helped narrow the rural and urban discrepancy and ensured equal access to medical services by proving the facilities both for safe delivery and to care for the health of pregnant mothers and infants. However, the centers, which involved midwife-oriented assisted delivery as opposed to that by professional doctors, poor equipment and no 24-hour operation, became idle as the expansion of the National Health Insurance System and better economic standards, coupled with the popularity of having only a small number of children, made it easier to visit hospitals and clinics. 12 such centers were absorbed to health clinics in 1988 and 1989 and other centers were in operation as MCH related substitute program facilities after 1991, but they were used for the health medical projects suited to individual local characteristics after their concession was bestowed across the board on given local governments in 1994.

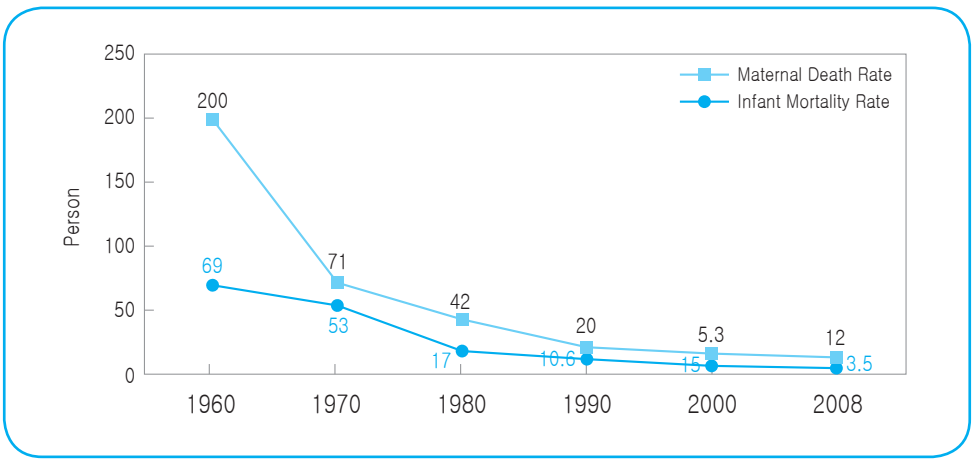
3.3 Major Outcomes of MCH Program

3.3.1 Decrease in Infant Mortality Rate and Maternal Mortality Rate

Yearly infant mortality rate in Korea fell from 69 people out of 1,000 live births in the 1960s to 10.6 people per 1,000 live births in the 1990s, which has been lower than the OECD average since 1996.

In 1960, birth from high risk pregnant mothers of less than 20 years old and more than 35 years old accounted for 27.3% of total births, but it lowered to 3.7% in 1987. The maternal mortality rate was assumed to be 100-200 people per 100,000 live births in the 1960s but dropped to 40 people 100,000 live births in 1980. The figure further fell to 18 people per 100,000 live births according to a systematic survey conducted nationwide in 1999.

Figure 4-12 | Infant Mortality Rate and Maternal Nortality Rate: 1960-2008



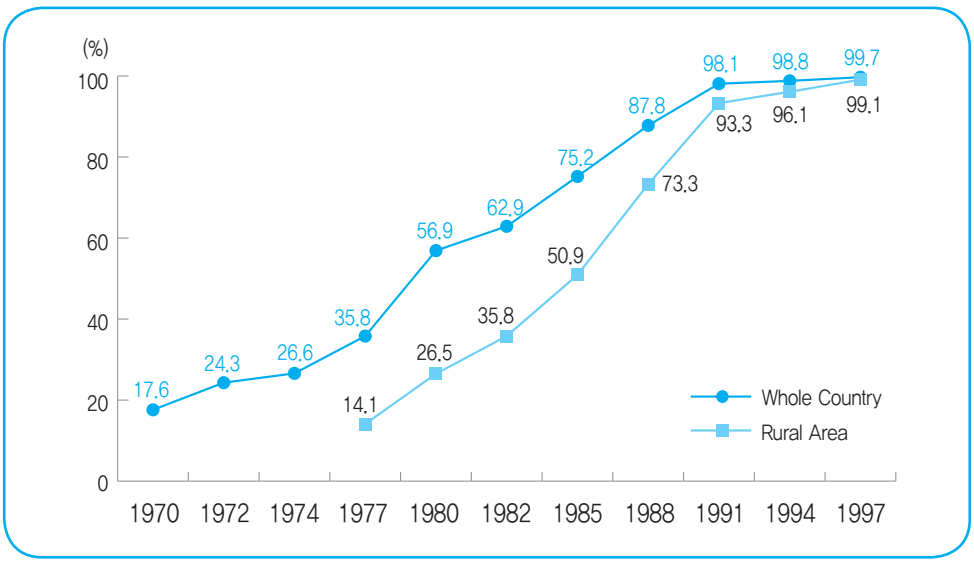
Note: IMR per 1,000 live births, MMR per 100,000 live births

Source: Korea Institute for Health and Social Affairs, Korea Foundation for International Healthcare, 'Development of ODA Model for Maternal and Child Health', 2011.10

3.3.2 Reinforcement of Prenatal Care, Delivery and Postpartum Care

Hospital delivery at Health centers was encouraged by assigning 152 midwives to nationwide eup and myeon health organizations in 1967. Yet the fact that they could earn more from practicing their own businesses forced these people to be substituted with nurse aids at Health centers and this trend prevented professional prenatal care and assisted delivery from growing. A 1958 study on the delivery locations of 560 pregnant women in the Chungnam region revealed that only 1 did hospital delivery, indicating the poor state of such delivery. But continuous growth was witnessed in the number of registered pregnant mothers and infants and midwife-assisted deliveries although no increase was made in MCH budgets until the mid-1970s, and this growth led to more safe deliveries. Hospital delivery went up, driven by expanding MCH centers and the NHIS, and it reached 98.1% in 1991.

Figure 4-13 | Trend of Hospital Delivery Rate of Last Birth: 1970-1997



Source: Korea Institute for Health and Social Affairs, Korea Foundation for International Healthcare, 'Development of ODA Model for Maternal and Child Health', 2011.10

3.3.3 Decrease in the Infectious Disease Rate of Child

The government drafted the Act on Prevention of Infectious Diseases in 1954 and expanded the infant vaccination program through routine and temporary inoculations (currently mandatory national vaccination) to fight such diseases that seriously affect infant health. It also tried to secure safe drinking water to avoid the outbreak of water-borne communicable diseases by improving the water supply rate from 16.9% (1960) to 54.6% (1980), then to 78.5% (1990). Consequently, the population of such patients and their morbidity rate fell significantly, leading to better infant health and a lower mortality rate.

4. Family Planning Program

With the baby boom after the Korean War in 1953, birth rate was high although the economic situation was hard in the early 1960s. So, family planning emerged as something calling for special attention. Family planning was introduced as the priority national policy under the conclusion that a high average birth rate of 6 children per household impedes economic growth.

4.1 Strategy of Family Planning Program

4.1.1 Training of FP Worker

In 1968, the government signed a basic agreement on technical cooperation in the area of family planning with Sweden, and in 1969 it conducted training, jointly with the Swedish International Development Agency (SIDA), on the personnel in the family planning sector of the Korean government.

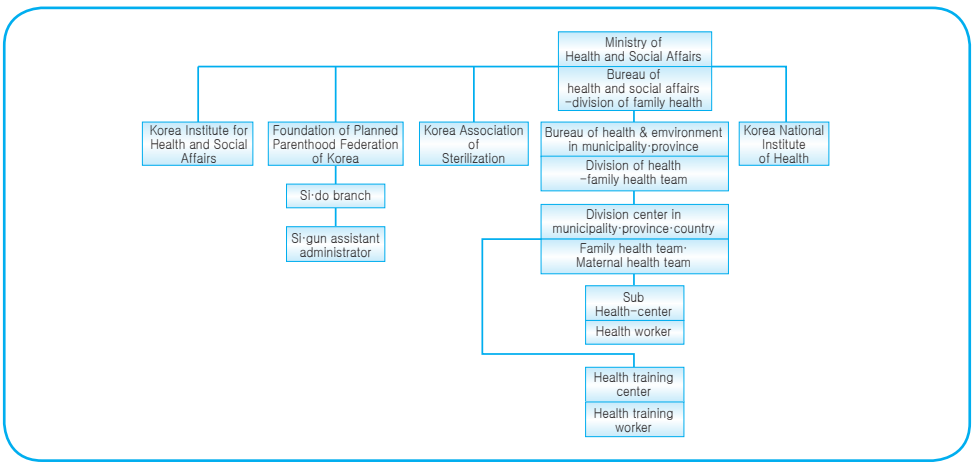
4.1.2 Foundation of PPFK and Monitoring FP Program

Korea launched a government project organization network linking the government health organizational network and administrative bodies of eup, myeon and dong, together with the operation of the Planned Parenthood Federation of Korea (established in 1961), and developed it as project organization built on the two axes of promotion and enlightenment regarding family planning and birth control service activities. The Family Planning Institute was founded in 1970 to consolidate the family planning program and embark on study and survey activities on population growth. The Planned Parenthood Federation of Korea was changed to the Family Health and Welfare Federation of Korea in 1999.

4.1.3 FP Project Target System

A target was set for each birth control method to be supplied by government subsidies through the project target system in 1964, and annual project volume was given to each unit of city, province, Health center and project staff member. The Family Planning Institute gathered monthly statistical project data and monitored the progress of its projects through holding an annual nationwide family planning evaluation seminar from 1971-1983. It gave incentives, including rewards, to those cities, provinces and medical health personnel with outstanding performance.

Figure 4-14 | Organization Chart of Family Planning Program: 1992



Source: Hong MS, Analysis on operation of healthcare organizations in gun and performance of health personnel in myeon: focusing on family health program, Korean Institute for Health and Social Affairs, 1992

4.1.4 Support from International Organizations

In the early days of the family planning initiative, financial and technical support from developed nations and international bodies played a critical part. The technical and financial supports extended by the U.S. Population Council (PC) and the International Planned Parenthood Federation (IPPF) in 1960 were especially pivotal in laying the groundwork of this initiative. Support from SIDA and USAID that started in the late 1960s accelerated the family planning program research and evaluation, the establishment of training organizations to this end, the attainment of family planning related equipment and drugs, and the development of resources.

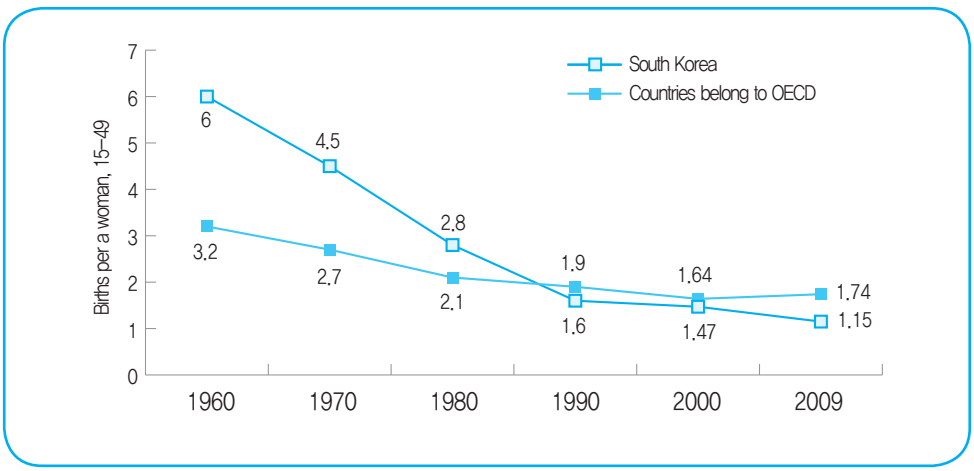
The support from the United Nations Fund for Population Activities (UNFPA) starting in 1974 provided various pilot projects that helped develop a new program. Family planning program research was active thanks to financial assistance from the International Commission for Application and Research of Population (ICARP), the International Development Research Centre (IDRC), the East West Center (EWC) and USAID in the late 1970s. 'Population and family planning research centers' opened at universities, backed by international organizations' financial help, and these centers carried out research work aimed at strengthening family planning and its results. Private behavioral science research institutes identified and reviewed the values, attitudes, environmental features and group social psychological factors impacting reluctance to birth control and thus made efforts toward an effective implementation of the family planning project. In 1979, the government submitted a credit application form to IBRD, enclosing its plan to establish the hospitals attached to the Family Planning Institute, leading to the signing of the pact between the Korean government and the bank that enabled the new foundation of 11 attached hospitals, the production of promotion materials and the expansion of studios.

4.2 Major Outcomes of Family Planning Program

4.2.1 Decrease in the Total Fertility Rate (TFR)

Thanks to the family plan program strongly initiated by the government since 1962, total fertility rate dropped from 6.0 people in 1960 to 4.5 people in 1970 and the government in 1988 formally announced that it had met the target of 1% population growth earlier than was scheduled. The number of babies born fell from 1,006,645 people in 1970 to 444,849 people in 2009 and yearly crude birth rate showed a downward trend of 31.2 people per 1,000 people, 22.6 people per 1,000 people, 15.2 people per 1,000 people, 13.3 people per 1,000 people, and 9.0 people per 1,000 people respectively; today, low birth rate is emerging as a serious social issue.

Figure 4-15| Comparison between TFR of Korea and OECD Countries: 1960-2000



Source: Korea Institute for Health and Social Affairs, Korea Foundation for International Healthcare:' Development of ODA Model for Maternal and Child Health,' 2011.10

Table 4-6 | Birth, CBR, Age-specific Fertility Rate, TFR, Population GR: 1970–2009

(Unit: persons, %)

			Age-specific Fertility Rate (Births per 1,000 Women)							Year	No. of Births
			15~19	20~24	25~29	30~34	35~39	40~44	45~49		
1970	1,006,645	31.2	19.3	193.1	320.6	205.7	105.9	46.0	13.1	4.53	-
1975	874,030	24.8	14.3	178.3	263.8	146.1	58.1	20.8	5.0	3.43	-
1980	862,835	22.6	12.4	135.9	242.7	114.0	40.2	15.1	5.6	2.82	1.57
1985	655,489	16.1	10.1	118.7	159.1	41.1	8.8	2.2	0.5	1.66	-
1990	649,738	15.2	4.2	83.2	169.4	50.5	9.6	1.5	0.2	1.570	0.99
1995	715,020	15.7	3.7	62.4	175.3	68.6	15.0	2.4	0.2	1.634	-
2000	634,501	13.3	2.5	38.8	149.6	83.5	17.2	2.5	0.2	1.467	0.84
2005	435,031	8.9	2.1	17.8	91.7	81.5	18.7	2.4	0.2	1.076	0.21
2009	444,849	9.0	-	16.2	80.7	101.2	27.4	-	-	1.149	0.29

Note: 1) Per 1,000 people

2) Persons per woman, 15-49

Sources: 1) National Assembly Research Service, Effect of Demographic Transition in political, economic, social area, NARS report by research service team, 2010

2) Statistics Korea, Social Indicators in Korea, 2009

3) Joo JS, Gender Statistics in Korea, Korean Women's Development Institute, 2009

4.2.2 Increase of Contraceptive Practice Rate

The rate of birth control practice with a married spouse present for women aged 15-44 rose to 79.4% (1991) from 44.2% (1976) and the induced abortion experience rate rose from 39% (1975) to 49% (1993), before falling back to 26.2% (2008).

Table 4-7 | Achievement of FP Activities of the Planned Period: 1962-1980

(Unit: 1,000 people)

Methods	1962~1996	1967~1971	1972~1976	1977~1980	Total (%)
Loop Procedure	725.50	1,460.80	1,619.30	899.80	4705.4 (42.5)
Vasectomy	82.30	84.90	156.10	144.60	470.0 (4.3)
Sterilization	-	-	65.60	749.20	812.7 (7.3)
Condoms (Average per month)	706.10	760.00	859.00	368.60	2,693.7 (24.3)
Oral pills (Average per month)		487.60	1,134.30	521.00	2,142.9 (19.4)
Procedure of Menstruation Control	-	-	14.40	232.40	246.8 (2.2)
Total	1,513.90	2,793.30	3,848.70	2,915.60	11,071.5 (100.0)

Source: Ministry of Health and Social Affairs, Annual Report, 1981

Table 4-8 | Contraceptive Practice Rate of Married Spouse Present for Women Aged 15-44: 1976-2009

(Unit: Percent)

	'76	'79	'82	'85	'88	'91	'94	'97	'00	'03	'06	'09
Total Avg.	44.2	54.5	57.7	70.4	77.1	79.4	77.4	80.5	79.3	84.5	79.6	80.0
by Age												
15 ~ 24	15.4	18.3	22.5	35.8	44.4	45.7	40.6	45.2	43.5	56.8	43.3	39.5
25 ~ 29	31.9	40.9	44.6	60.8	65.4	61.4	60.1	60.6	57	64.8	51.3	50.1
30 ~ 34	55.8	68.5	71.7	84.2	86.7	84.4	81.3	82.6	81.3	80.8	74.2	71.2
35 ~ 39	61.5	71.9	79.9	87.2	89.6	93.7	89.6	91.1	89.3	90.8	88	88.4
40 ~ 44	45.1	53.3	62.3	69.6	81.6	87.2	87.4	89.6	87.7	91.5	90.3	90.4
Method												
Sterilization	4.1	14.5	23.0	31.6	37.2	35.3	28.6	24.1	18.3	15.6	11.3	7.3
Vasectomy	4.2	5.9	5.1	8.9	11	12	11.6	12.7	13	15.7	19.7	21
Intra-uterine devices	10.5	9.6	6.7	7.4	6.7	9	10.5	13.2	13.7	16.1	15	16.1
Oral pills	7.8	7.2	5.4	4.3	2.8	3	1.8	1.8	2.1	2	1.1	2.7
Condoms	6.3	5.2	7.2	7.2	10.2	10.2	14.3	15.1	16.5	8.5	19.2	25
Others	11.3	12.1	10.3	11	9.2	9.9	10.6	13.6	15.7	26.6	13.3	18.2

Source: 1) Joo JS, Gender Statistics in Korea, Korean Women's Development Institute, 2009

2) Korea Institute for Health and Social Affair, The Survey on the National Fertility, Family Health and Welfare in Korea, KIHASA, 2009

4.2.3 Imbalance of Masculinity at Birth

Sex imbalance was even more pronounced than that of Japan in the Asian cultural sphere because of the trend of having only a small number of children and higher birth rates of boys, foreshadowing the emergence of social issues like the imbalance of population at legal age to marry and the threat of sexual violence.

Slogans and posters of yearly family planning initiative are as follows:

Table 4-9 | Posters and Slogans for Family Planning: 1970-2000

Year	Poster	Slogan
1970s		"Daughter or son, stop at two and bring them up well." "Family planning practiced 10 years earlier, a richer life 10 years earlier."
1980s		"One child in blessing makes him/her healthy in love." "A daughter well grown up surpasses ten sons." "Two is more enough."
1990s		"Have one child with love and bring him/her up healthy with a true heart." "Parents' generation favors sons, our generation lives without a spouse." "A precious life is born not by selection but with love."
2000s		"Two children are happier than one child; three children are also happier than two children." "Many candles are brighter than one candle." "Marriage and childbirth! They are the best presents given to human beings."

Figure 4-16 | Pictures of Family Planning Activities

FP street campaign in the 1960s

Source: Korea Association of Health Promotion Homepage

Worker for FP Enlightenment working in rural areas

Source: The Kyung Hyang Shinmun (newspaper), Feb. 26 1968

Family in urban areas in a newspaper article related FP project

Source: The Kyung Hyang Shinmun (newspaper), Oct. 9 1971

FP Enlightenment team's campaign on a market day in a rural area

Source: The Kyung Hyang Shinmun (newspaper), Aug. 22 1977

An hour-education by FP worker during reserve forces training

Source: The Kyung Hyang Shinmun (newspaper), Aug. 23 1977

Newspaper article on special offer for public housing and other supportive policies for families with one child and no more childbirth

Source: The Dong-A Ilbo (newspaper), Mar. 31 1985

2011 Modularization of Korea's Development Experience
Healthcare Improvement Activities of Public Health Centers in Rural Areas

Chapter 5

Evaluation and Implication of Healthcare Improvement Activities in Rural Areas

1. Composition and Operation of Health Center System in Rural Areas
2. Introduction and Operation of Health Worker, PHD and CHP
3. Successful Case of Healthcare Improvement Activities

Evaluation and Implication of Healthcare Improvement Activities in Rural Areas

1. Composition and Operation of Health Center Systems in Rural Areas

Social conditions have changed a lot along with the economic growth after the 1945 Liberation of Korea. With the higher level of income and education, the level of the nation's consciousness changed remarkably and expectations for health got higher. In addition, nutrition status, housing conditions, family planning practice rates and other health-related matters have greatly improved. Dramatic development in transportation and communication allowed more access to medical facilities, and with the national health care system, medical infrastructure has been expanded, facilitating health care management as a whole.

Incidence rates of various infectious diseases and infant and maternal mortality also sharply decreased, contributing greatly to longer life expectancy.

Rural areas also have experienced rapid socio-economic changes. First, with the collapse of agricultural and fishing industries, younger generations have moved to urban areas. Along with the increasing elderly population, demographic changes in rural areas are faster than in urban areas. Even some gun areas have already entered into a "post-aged society." Second, most residents in rural areas, as a result, have seen a decrease in financial conditions. Third, the overconcentration of health and medical facilities in urban areas has gotten worse.

The rate of patients with chronic diseases is higher in gun areas (rural) than in si areas (urban), and higher in older groups than in younger groups; it is especially high in the group aged 60 and over. Lifestyle-related diseases and chronic degenerative diseases in rural areas are emerging as the most important issue of local health and medical projects.

In 2007, the government announced a health investment strategy to build a consecutive national health investment system according to life cycle, aiming at improving national health conditions, reducing inequalities in health by incomes and areas and managing reasonable

national medical costs. In 2008, the government launched the long-term care insurance system for the elderly aged over 65, and patients of senile diseases aged under 65.

1.1 Health Centers

Since the Public Health Center Act was enacted, the health clinics built with foreign aid after the 1950 Korean War have been systemized into the Health center organization, expanding the national health center network. Thanks to the central government's quantitative goal-oriented project implementation system, the Health center organization's goals for infectious disease prevention, MCH projects and family planning projects were achieved in a short time. When Health centers were first introduced to Korea, the nation's health and medical infrastructure was very poor, and, in particular, many rural areas have no medical facilities, so they have poor access to medical services. In order to get rid of doctorless myeons, Sub health-centers (SHCs) were built and doctors were dispatched to rural areas, and finally in 1983, the doctorless myeon problem was completely solved. At a time when private medical organizations were not accessible at all, Health centers contributed a lot to tackling rural health and medical issues. The expansion of Korea's health projects for prevention led by health centers focused on rural areas. However, it was hard to secure medical personnel due to the fact that the payment offered to medical personnel was less than that by private medical organizations. Also, health projects for prevention might be unfamiliar and cumbersome to rural residents who were accustomed to oriental medical culture.

Health centers were supposed to focus on health work; private, national and public medical organizations were supposed to focus on treatment. Function allotments and requests between the organizations have not gone well. The health administrative system in rural areas is to secure public health doctors and CHPs and from the central government (Ministry of Health&Welfare) to local governments (Health centers), to eup&myeon (Sub health-centers) and to remote villages&li (Primary Health Care Posts). The system was more intensified than in urban areas, but the function to provide health and medical services was insufficient. There is no organic system among the health centers, Sub health-centers and PHCPs, and only formal guidance and supervision, so health and medical projects are hard to implement in a systematic and efficient way.

After 1995, when it was amended to the Community Health Act, the existing Top-Down way of health project implementation system was transformed to a Bottom-Up one based on the health and medical plans of local society. However, it is still difficult for the metropolitan and local autonomous entities to plan and operate such projects due to lack of funds and experts. In addition, while the Health centers' duties demanded by other laws have been diversified since 1990, the human resources and budget supports do not meet the demands.

This is because while the guidance and supervision of project plans of Health centers, which are local bodies, are carried out by the Ministry of Health&Welfare, general

administration of Health centers is under the supervision of the local autonomous entity and the Ministry of Public Administration and Security. In general, health projects come lower on the priority list than other projects of the local autonomous entities, and get not enough support when promoted.

Since Health centers and county hospitals were introduced in rural areas to reinforce medical care function, expanding and integrating the function of care and prevention projects. However, they have less access to financial support than other private medical organizations. It was in 1976 that a standard for health center personnel was first mentioned, and in 1992 that a clear standard was set for professional personnel dispatch. Though, such professionals have not been fully dispatched to rural areas. It is very urgent for the Health centers to improve the quality of the human resources because the personnel are less professional, the numbers of doctors are absolutely low, and a half of the nurses in the Health centers (representing half of the Health centers' total personnel) are nurse aids. The representative personnel in the Health centers are nurses, thanks to about 1,900 nurses dispatched to the PHCPs in rural areas.

Korea's policies have only focused on the Health centers and national and public hospitals, which are very small part of the whole health and medical system, failing to set a comprehensive development direction for the health and medical sector. However, the Health center network for rural areas under the private-centered medical system plays a pivotal role in balanced medical shares.

1.2 Sub Health-center

The early eup and myeon Sub health-centers was mainly for health care, operated by a self-supporting accounting system. After the mid-1990s, the self-supporting accounting system was stopped, but the care-centered function is still maintained. Recently, functional modification to meet residents' various medical demands is underway, but the efforts to secure human resources and facilities and the accompanying organizational modification are led by the Health center. Also, the head of each Sub health-center, who is a public physician, is not forced to have any right and responsibility as the practical chief of the organization. As a result, public physicians have stayed passive and evasive to the communities due to the discord between necessity and role.

The personnel of the early Sub Health-centers were mostly licensed nurse aids, so it was hard to implement independent health projects led by Sub health-centers. In addition, the head of the Sub health-center was not a person experienced in local health projects, but only on a short-term service as a duty-not familiar with local conditions-so had limitations in implelmenting community health projects. Meanwhile, information exchange or cooperation between the relevant organizations such as the regional health centers or eup/myeon offices was inappropriate. A transfer system for emergency patients or serious patients was not set

up, and prior consultation or contracts for patient requests between organizations did not exist, so it was hard to provide timely and appropriate treatments.

Recently, health and medical project coordination and integration efforts for the Sub health-centers to serve as local health care providers are underway, but they have some obstacles because the health and medical sector comes lower on the priority list.

1.3 Primary Health Care Posts

The government made PHCPs operated in an autonomous way, together with the residents of the community. The project principle reflecting community participation started about 20 years earlier than the District Health Plan Project of health centers (stared in 1998). The residents' participation in the initial stage was to mobilize potential resources. Since the basic infrastructure has been set up, the activities of the Village Health Workers and the PHCP operating committee were very insignificant, so other methods of residents' participation are required.

The first health and medical services in the late 1970s was defined as "an approach through diverse measures necessary to improve residents' health at the community level" by the World Health Organization. Based on the definition, the PHCP operating committee is a self-supporting accounting system responsible for the PHCP's budget accounting, but in fact it is next to impossible for the committee to play the accounting role.

Immediately following the 1997 financial crisis, two local administrative organization restructurings shut down 118 PHCPs out of 2,029 PHCPs in 1997, and the remaining 1,911 PHCPs have been maintained since 2000. At that time, the public opinion on the reduction of PHCPs was not favorable. As socioeconomic and health&medical conditions change, PHCPs' preliminary care functions become more controversial. It is natural given that private medical organizations are increasing and the functions of health centers in vulnerable areas are being strengthened. Also, requests for reducing PHCPs led by group of doctors are still continuing. The local autonomous entities have difficulty in deciding policies because budget, personnel operation and residents' welfare are mostly conflicting interests. The local politicians representing the residents and their interests generally ask to maintain and expand PHCPs and other public health organizations. The decision-making about PHCPs is becoming a matter for local politics at the very micro level.

1.3.1 Reorganization of Operating System

While operating the CHP system, the government has so far guaranteed autonomy and independence through allowing the establishment, implementation, and operation of the PHCP project plans to be self-administered with the residents. Upon the residents' health demands, the local health management project with the residents was carried out about 20 years earlier than the District Health Plan Project of health centers started in 1998. While residents' participation

in the initial stage was to mobilize potential resources, now the necessity has been largely reduced. Nowadays, the following are more emphasized: strengthening the residents' ability through the change of level of knowledge and attitude toward health issues; increasing the acceptance of residents' participation by health and medical officials; and laying an institutional foundation for residents' participation in the process of health policy through local autonomy and others. Since the activities of the Village Health Workers and the PHCP operating committees are not sufficient, not traditional but new methods for residents' participation are required. The major role of PHCPs was preliminary medical treatments, and most of the operating costs also came from the treatments. Recently, however, a comprehensive health management project for disease prevention is required. In order to diversely carry out the activities to meet the new health demands of the residents amid changed health and medical conditions, the health centers' administrative, technological and financial supports as well as subsidies for needed goods and operating costs are required. The residents' recent health demands are community-centered comprehensive medical services to manage chronic and lifestyle-related diseases coming from aging. To this end, the health organizations' roles and functions need to be separated under the health&medical transfer system, and a connected network is to be built with the help of local hospitals and clinics (Public-Private Partnership system).

1.3.2 Cost-Benefit Ratio Analysis of PHCP

The policy to get rid of doctorless myeons nationwide coincided with the government policy to conduct then core projects such as family planning, TB control, and mother and child health projects effectively in rural areas. PHCPs are operated by the residents under the concept of a rural community development movement named "Saemaeul UnDong" and preliminary medical treatment, and have various activities according to the ability of the dispatched CHPs and residents' participation. As a public health&medical organization and as a gate keeper of preliminary medical treatment under the private medical organization-centered healthcare delivery system, the function and role of CHPs have recently been getting new attention as key personnel to provide a comprehensive health&medical services.

By providing the residents of rural and other vulnerable areas in terms of health&medical services with the services more efficiently, the government has operated the CHP system to contribute to a more balanced share of medical services and better health of the people, and also guaranteed autonomy and independence through allowing the establishment and operation of the PHCP project plans to be self-administered by the residents. PHCPs are evaluated to have contributed a lot to the preliminary medical treatment of the residents, and they are partly self-supporting in spite of some financial help from the government. Given that most of the operating costs came from the profits of treatments, the PHCPs have been efficiently operated.

The cost-benefit ratio of the CHP system increased from 1.86 in 1990 to 2.20 in 1999, showing a high benefit per cost. Also, amid the intensifying overconcentration of health&medical resources (organizations and personnel) in cities and aging populations, the growing cost-benefit ratio means that the economic benefit of the PHCPs in rural

remote villages has increased. Given the fact that the overconcentration of health&medical resources (organizations and personnel) in cities are worse than in the early period of the PHCP system, the intangible benefit of securing residents right to health is more significant than the economic benefit of the CHPs dispatched in rural remote villages.

Table 5-1 | Cost-Benefit Ratio of Community Health Practitioners' Activities: 1990, 1999

<table>
<tr><th colspan="4">Cost-benefit analysis</th></tr>
<tr><th colspan="4">1. Cost-Benefit Ratio[1] 1.86</th></tr>
<tr><td colspan="2">Gross Costs
(13,771,024,000 won)</td><td colspan="2">Gross Benefits
(25,552,045,000 won)</td></tr>
<tr><td>Operating Costs</td><td>Capital Costs</td><td>Direct Benefits
(activity number cost × per activity)</td><td>Indirect Benefits</td></tr>
<tr><td>-Labor
-Material
-Administrative</td><td>- New Building construction
- Land purchase
- Equipment</td><td>Maternal Health 6,721 won
Infant Health 6,721 won
Family Planning 6,721 won
TB Control 6,721 won
Treatment 6,721 won
Counseling 6,721 won
Health education 2,323 won</td><td>Time-saving Cost: 2,280 won
Transportation-saving Cost: 280 won
Waiting savings Cost: 0 won</td></tr>
<tr><th colspan="4">2. Cost-Benefit Ratio[2] 2.20</th></tr>
<tr><td colspan="2">Activity Cost Analysis
(3,053,436 won/m)</td><td colspan="2">Activity outcome -benefit analysis
(6,711,525 won/m)</td></tr>
<tr><td>Direct expenses</td><td>Indirect expenses</td><td colspan="2">Direct benefits</td><td rowspan="2">Indirect benefits</td></tr>
<tr><td>2,392,647 Won/m</td><td>660,790 won/m</td><td>Inside services</td><td>Visiting service</td></tr>
<tr><td>- Labor
- Materials (rentals, supplies, etc.)
- Administrative costs</td><td>- (PHCP operating expenses)-(administrative costs,etc)
- Building depreciation expense</td><td>Average medical fee/day/subject 4,913 won
Outpatient cost/day 11,927 won</td><td>Cost of one visit 8,148 won
(Approx. 25% of home care services 25%)</td><td>Reductions savings in productivity
Approximately 1,350,000 won/m
Transportation savings cost (300 people*1,000 won = 300,000 won</td></tr>
</table>

Source: 1) Lee KH, Cost-Benefit Analysis on CHP Program in Korea, Graduate School of Public Health, 1993, survey period: 1990.1.1-1990.12.31

2) Lee TW, Ko IS, Cost-Benefit Analysis on Community Health Practitioner, 2002 survey period: 1999

2. Introduction and Operation of Health Workers, PHDs and CHPs

2.1 Development of Health Workers

The family planning project, which launched when infrastructure of the national health project was not fully equipped, has contributed to establishing local health project systems. Initially, a health worker was dispatched with the title of "family planning enlightening personnel." In the 1960s, when health workers with nurse or licensed midwife were rarely found in rural areas, female graduates from a middle or high school were employed and placed at public service centers in eup and myeon to propagate the planning, visit individual households to enlighten people and to spread contraception, and to educate people in groups under the guidance of technical support workers and supervisors dispatched in si/do and si/gun/gu. The enlightening personnel were called family planning workers, which later attributed to the development of an institution qualifying them to be a nurse aide upon completion of a nine-month education program. At the beginning, family planning workers were sent in advance, followed by maternal and childhood health workers and workers for TB Control. The temporarily-employed workers conducted assignments in units and have had frequent turnover and change in work.

Family planning workers, MCH workers and workers for TB control have been at the forefront in terms of development of public health policy in Korea. According to a survey in 1981, 77% of the workers were nurse aides, which increased to 92% in 1992, mostly women under 30. 87% of them had finished middle or high school. They had felt insufficient in knowledge and skills necessary to practice MCH policy and their services suffered low popularity, but gained favorable feedback in terms of neonate and youth vaccination services. Especially, guidance and supervising systems for MCH workers, compared to that of FP and TB Control workers, was less developed. It was attributed to the lack of an organization that offers MCH education while the Family Planning Association and Tuberculosis Association provided education in their respective specialities.

As for the educational background of the workers, in 1965, the majority of them were high school graduates. However, middle school graduates and graduates from community colleges and above increased in 1981, widening the educational disparity between them.

Training of health workers has been conducted by Korea National Institution of Health, Korea Population Health Institution (former Family Planning Institution), Tuberculosis Institution, si and do branches of Tuberculosis Associations, and health centers; but before the acceptance of debt from the World Bank in 1981, education and training were missed. Education for multipurpose health workers has been systematized as Korea National Institution of Health took full responsibility to educate and train the workers with the introduction of IBRD debt. Still, insufficient educational materials and equipment made it hard for them to learn properly.

A survey in 1986 showed a health worker in a myeon had more assignments out-of-office than in-office and provided a daily average of around 8 cases of public health services, with 3.8 neonate and youth health cases in the highest demand, and 0.4 maternal health case requiring relatively professional knowledge and service space.

Multipurpose health workers have brought problems such as conflicts between nurses including midwifes and nurse aides, difficulty in integrating TB Control work, more frequent trainings of family health management, absence of leadership and supervision, and obscuring definition of duties between CHPs and multipurpose health workers. The health worker system evolved in 1992 based on the "Criteria of professional health care personnel dispatch to health centers and sub-health centers" and separated the duties of Health centers from multipurpose health workers and made professional health care personnel take a responsibility.

The health worker system, which undertook public health policies in the 1960s in substitution for insufficient health care and medical service personnel, has led to successes like an increase in participation in family planning, expanded vaccination, and improved early registration of TB patients. It has been credited for contributing to the establishment of a better public health system in Korea, but also now accounts for a reason explaining low numbers of regular professional workers in health centers. The health workers, trained quickly as health care and medical service personnel with basic function, could help advertise policies and enlighten people, but their roles were limited.

2.2 Public Health Doctor System

The PHD system, which is to nurture doctors to dispatch surplus army doctors to vulnerable rural areas, is praised as an important health policy, reducing inequalities of doctor distribution between cities and rural areas worsened in the process of Korea's rapid urbanization and industrialization. Dispatch to doctorless villages instead of army service tackled the doctorless eup&myeon issues in a short time with small government budget, even solving the rural residents' geographic and economic health&medical problems. The early role of public health doctors was mainly providing treatment, and it still is.

Countries with conscription can apply the public health doctors system, but the system is applicable for a limited time until the funds for doctor recruitment are secured. However, some doctor personnel pool is a prerequisite, so otherwise a doctor-nurturing policy is first needed. In Korea, the number of entrants increased from 1,110 students (coming from 12 medical schools) in 1970, to 2,090 students (19 medical colleges) in 1980, and to about 4,700 students (41 medical colleges and 27 graduate schools) in 2011.

In the divided country Korea, the system is to allow the medical, dental and oriental medical school graduates on duty serve in rural Health centers and Sub health-centers instead of performing their military service, and pay them military wages. So, young inexperienced doctors can be utilized for 3 years at a low cost. In the early period of the system, preliminary medical treatment and self-supporting accounting system were the

operating principles, but it was hard to continue due to the short service term and untimely transfer of work to incomers.

The public health doctors' practice conditions in the medical colleges or colleges' hospitals are very different from those in the Sub health-centers, so it is limited to medication-centered, simple and basic treatment services for patients. Also, the healthcare delivery system is not fully equipped, reducing the efficiency of personnel utilization.

PHDs are mostly young unmarried doctors and move to the Sub health-centers and surrounding areas, and their personal and work conditions are unstable. In addition, because they are supposed to serve in vulnerable rural areas for their military service, they largely lack of sense of duty, understanding of rural society, and experience with the local health project. After being dispatched as a new public health doctor, the transfer of work from the predecessor is not directly done, making it hard to understand the community environments and work. Also, the vacuum of public health doctors (head of SHC) due to discharge from military service is not only bad for work, but also a matter of dissatisfaction among residents. Cooperation with an experienced older, SHC officer is another problem.

PHDs are alienated from the establishment and assessment of the SHC's project plan, weakening their willingness and sense of responsibility. In particular, the budget for public health doctors to promote prevention and home care projects including traveling and other allowances are not usually provided, making their activities harder.

In addition, job training is underway in an attempt to better utilize personnel, but the term is short and curriculum is basic, so the education is not that useful in practical work and the support for it is not appropriate. The public health doctor system only focused on doctor dispatch to doctorless village SHCs, and the only defined duty was preliminary medical treatment was. Sometimes, health centers, the upper organization, have no experts to manage. Occasionally, the chief of the health center, if he or she is a former doctor, plays such a role, but gun health center's chiefs are mostly administrative officers, so the supervision of public health doctors relates to general work management rather than expertise.

Other systems applicable with minimum costs for developing nations are resident dispatch, special duty doctors and public doctor scholarships, which are alternatives for doctorless villages.

2.3 Community Health Practitioner System

At that time, Korea suffered a lack of medical personnel, especially in public organizations where the wages are lower than they are in private ones, so health centers found it hard to recruit the personnel needed. Also, in the 1960s, nursing aids were introduced to carry out health projects instead of the nurses required, but the project was not well implemented due to lack of expertise. In the late 1970s when the medical protection project was launched it was very important for preliminary medical organizations to play the roles, but the project's

object was not fully fulfilled due to lack of medical centers in rural areas. When requesting the loan, expansion of health&medical infrastructure in gun areas was the main purpose. Upon the proposal of USAID, however, it was developed as a pilot project to build a cost-saving health&medical system. There were rural and community development projects started by foreign aid and missionary organizations late in the 1950s, the Geoje Health Worker Project (World Christian Academy's Christian Medical Mission) in the 1960s, and local health pilot projects conducted by universities, medical and research organizations in the 1970s. Dr. Lee Young-chun, who promoted rural health project in Gunsan in the 1930s, insisted that in order to implement rural health projects the role of nurses was more important than that of doctors.

The CHP system was created by the strong policy will of the government at a time when rural medical problems were in urgent need of being solved. It was a pan-governmental policy, and quickly settled as medical personnel nurturing policy, public health scholarship system, medical protection project (medical protection designated preliminary care center), family planning (loop surgery conducting organization designation), and Saemaeul Undong. Then, the projects were conducted with personnel being dispatched in advance of securing the building for the Primary Health Care Post. The Primary Health Care Post system was possible to be quickly settled based on their sacrifice and sense of duty. The condition that guarantees autonomy for CHPs by operating as a self-supporting accounting system, but is responsible for the operating profits, made them have more responsibilities. It was when Saemaeul Undong was booming in rural areas and the residents had a strong willingness to solve their own local issues. Earlier dispatched young Community Health Practitioners lived together with the residents to give advice to and treat the residents 24 hours, greatly contributing to environmental sanitation and infectious diseases management, family planning and mother and child health project, neonate and youth vaccination and school health projects. Thanks to the NHI, patients are more likely to visit close private medical organizations rather than Sub Health-centers. As the residents' demands diversify and the two-stage care insurance makes it easier to use third medical organizations, more requests toward private medical organizations are needed.

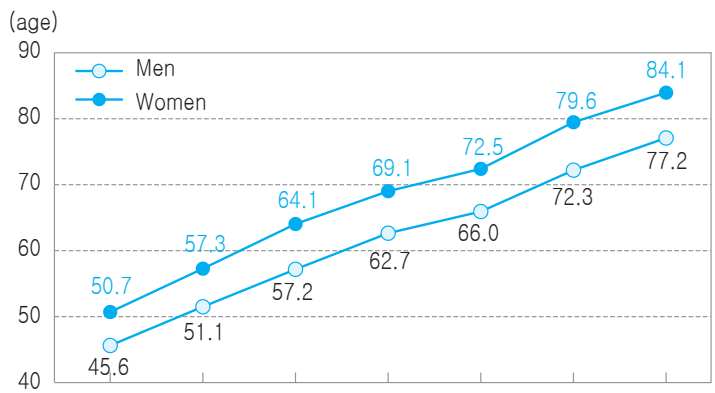
It is said that there are sustainable and effective preliminary medical personnel in rural areas, but the self-supporting accounting system has only limited assistance from the public health organizations, and no professional support system for technology upon rapidly changing health and medical environment. Recently, the role of the personnel, who act as health care gatekeepers in giving comprehensive health&medical services to residents of rural remote village residents, is getting new attention.

Compared to the 1980s, after introducing the rural health insurance system, increasing rural medical facilities, separating pharmacies and clinics, implementing local autonomy, launching Long-Term Care Insurance for the Aged and changing CHPs' status, the roles and functions of CHPs are required to be restructured Effective guidance and supervision are also required

3. Successful Case of Healthcare Improvement Activities

Infectious diseases that need to be managed were part of health and medical services improvement policies which included major and common illnesses like Hansen's disease, tuberculosis, sexually transmitted diseases, dysentery, typhoid, diphtheria, cerebrospinal meningitis, malaria, smallpox and Japanese encephalitis. However, there were few health and medical centers that could cure such diseases. To improve the poor conditions, the government has established a health center network focusing mainly on infectious disease prevention, maternal and childhood health and family planning. The infectious disease prevention policy was not only a high yielding investment, but gave a favorable impression of Korea to other countries, leading to invaluable contribution to improvement of public health considering the Korean economy of the time. Infection rates of tuberculosis and leprosy had been greatly reduced, and acute infectious diseases decreased. Good control of the diseases paved the way to boost life expectancy of the nation from citizens' 40s to their 60s. Major achievements and their meaning in infectious disease prevention will be discussed focusing on projects on tuberculosis, parasites eradication, maternal and childhood health and family planning.

Figure 5-1 | Trend of Life Expectancy: 1950-2010



	1950	1960	1970	1980	1990	2000	2010
Men	45.6	51.1	57.2	62.7	66	72.3	77.2
Women	50.7	57.3	64.1	69.1	72.5	79.6	84.1

Source: Statistics Korea Homepage http://Kostat.go.kr/porta/Korea/index.action

3.1 TB Control Project

The key success factors of Korean tuberculosis project were as follows: First, the government's strong willingness and driving force on tuberculosis control from the project setup was a firm foundation. Since the government started the project in lean times, it set the control system with an insufficient budget and promoted the project under concerted measures in a firm but steady manner. Later, the budget sharply increased, with economic development becoming a huge stimulus. Second, the WHO/WPRO contributed significantly during the project setup period and the Korean government's wisdom to accept them also made a great contribution to the project. Third, at the beginning of the control project, the government, academia and private body Tuberculosis Association united together and divided the roles congruously to promote the project. Fourth, human resources were emphasized. Personnel at all levels were continuously trained and regularly evaluated to seek improvement measures and reflect them directly on the project. Moreover, devoted and dedicated efforts and practices of the officials in charge at all levels were a tremendous drive. Fifth, in spite of hard times when the national tuberculosis control system was formulated, the public donation to Christmas seal campaign was a big help under the government's full sponsorship.

The success factors in detail are as follows.

3.1.1 Support of KNTA and International Institutes

After the Korean War, the Korean National Tuberculosis Association (KNTA) was born as a result of the merger of different private organizations, such as the Chosun Tuberculosis Prevention Association, the Korean Tuberculosis Association and Korean Christianity, and the council on measures against tuberculosis of the Ministry of Health. Activities to educate on tuberculosis, academic activities, mobile X-ray examinations, bacteriological examinations, and the technical support of the national tuberculosis control project and tuberculosis treatment have been actively pursued. Regional hospitals like the Incheon Red Cross Nursing Home, Gwangju Jejung Medical Hospital and Hanno Hospital provided professional treatment of tuberculosis patients. International bodies, such as the WHO and UNICEF, supplied technological support and equipments and the Peace Corps dispatched volunteers to public health centers to help them with tuberculosis cases in 1966-1981. Save the Children Foundation of Sweden was also engaged in such activity mainly in Busan in 1966-1974. The WHO's contribution at the time of the tuberculosis control project was formed was substantial, and the wisdom of the government in fully accommodating it also helped the project bring about social advancement.

3.1.2 TB Control System of Health Center

Leveraging the WHO's help, the government established a tuberculosis control project system built on nationwide public health centers in 1962. Public health centers gave free

treatment to their registered patients to achieve 100,000 tuberculosis patient registrations, and they also provided various examinations and vaccinations to patient families, leading to the number of new patients at health centers growing from 15,969 patients in late 1961, 85,971patients in 1962 to 179,838 patients by the end of 1969. The project was rolled out in accordance with the ambitious goals set under the 2nd five-year economic development plan of 1967. The government budget allocated for this purpose grew gradually and the Korean National Tuberculosis Association conducted education on tuberculosis doctors as part of its reinforced education and training efforts and it beefed up its BCG vaccination campaign. The decline in the cases of drug resistance and the number of patients gained pace with the introduction of a short-term prescription in the mid-1980s.

3.1.3 Economic Growth

Better nutritional and medical conditions that accompanied economic growth and consequent higher income standards lowered the cases of tuberculosis. Early diagnosis and treatment became possible as those who contracted the disease sought medical help earlier and shortened the infestation period, decreasing tuberculosis cases.

3.1.4 Efforts of Human Resources Management

Continued education and training was made on various levels of relevant people while improvement opportunities were sought through regular evaluations of such programs, whose findings were reflected on the project. Tuberculosis control staff at community health practitioner centers and health centers were mostly nurses, especially women. This workforce was mobilized to be engaged in tuberculosis prevention and discovering and treating patients and their integrity, devotion and action has considerably helped lower the occurrence and prevalence of the disorder.

In detail, health personnel at the health center and PHCP level is focused on detecting tuberculosis patients and giving BCG vaccinations in the given community; while tuberculosis control staff at the public health center level is mainly working on discovering patients, registering and treating them and applying the primary patient education and public health program to avoid the patients dropping out from treatment (it is hard for private health care to ensure patient education and his/her management during treatment to get better patient compliance with the treatment and this is where the national/public tuberculosis control comes in, hence why it is relatively better than its private counterpart). On the municipal and provincial level, doctors caring only for tuberculosis visit health centers under their individual jurisdiction to determine appropriate prescriptions and treatments for the registered patients, monitor their progress, try to address any problem of such patients and decide to discharge the patients upon their treatments are completed. Tuberculosis nurses in cities and provinces mainly decide what drugs to prescribe and collect documents (monthly reports) of the registered patients to be sent to the Ministry of Health and Welfare.

At the central level (the Ministry of Health and Welfare, the Tuberculosis Clinic), data gathered at the municipal and provincial level is analyzed to assess tuberculosis control and relevant policies are decided or changed depending on its outcome. The future direction is determined accordingly.

The table below shows the mix of TB control personnel in 1960-1990. Initially, there were 7 tuberculosis doctors when the intended count was 11; the number grew to 10 for the aimed headcount of 11 by the 1970s. However, their number dropped to 7 in early 1990, falling far short of the intended number of doctors (15), and fell even further to 5 out of 16 in 1998, unable to meet even a third of the intended capacity. Public health doctors instead have been assigned since 1983 in 2-3 year rotations. Clinical nurses decreased to 17 from the initial 20, yet they were dispatched to every city and province.

Table 5-2 | Healthcare Personnel for TB Control Project: 1960-1990

(Unit: persons)

Year	MOHW	Si/Do				Si/Gun/Gu	Eup/Myeon
	Exclusive charge		Drs (quota)	PHD	Guide Nurse	HC (TB HW)	SHC (TB HW)
1960	Chronic disease Dept. TB Dept.	12	7 (11) 10 (11)		20	189	1,473
1970	TB Prevention Dept.	8			19	192	
1980	Chronic Disease Dept.	4		8	22	214	1,673
1990	Disinfection Dept	3 2	7(15) 5(16)	8 7	19 17	433 661	2,758 2,339

Source: Korean National Tuberculosis Association, Korea Foundation for International Healthcare, Development of the Korean-type ODA Model for Tuberculosis Eradication, 2011.9

3.1.5 Building of Systematic Diagnosis System

With the aim of diagnosing culture-negative patients required for early diagnosis, a bacterial cultural test, alongside a sputum examination, and a drug sensitivity test to diagnose drug-resistant patients were applied from the early stage of the project. These measures helped lower the spread of mycobacterium tuberculosis. Under the mycobacterium tuberculosis examination system, a sputum test is taken at the health center level where patients are found and treated, a bacterial cultivation test at the municipal and provincial level, and a drug resistance test at the central level (a test center at the Tuberculosis Institute).

3.1.6 Development of Patients Detection Programs

Mobile X-ray tests and home visits were applied to the demographic groups highly exposed to the danger of TB, in addition to the patients visiting public health centers, to collect and test such groups' sputum. This, consequently, led to the early discovery and treatment of many patients in the 1960s-1970s.

3.1.7 Christmas Seal Campaign

Though life was very difficult when the national tuberculosis control system was formulated, the public nevertheless extended their generosity to the Christmas seal campaign. This help, combined with the government's sponsorship, turned out to a valuable backing to the system. The share of the TB budget in the Ministry of Health's total budget hovered around 9% in 1962-1966 and jumped to around 15% in 1967-1975. But it fell back to 9% in 1976 and has since been in continued decline. Meanwhile, the TB control budget has grown. Per capita TB expenditures went up while their percentage of the total budget dropped in 1980, moving up from 2.3 cents (1962) to 2.07 dollars (1995). TB expenditures per patient were less than 20 dollars in 1965, but rose to over 3,000 dollars by 1995, allowing public health centers to administer rifampicin beginning in 1980 and employ a six-month short-term treatment containing pyrazinamide in 1990.

3.1.8 2030 TB Eradication Project

Some scientists argue the state of near-eradication for means the occurrence of less than 1 case of smear-positive pulmonary tuberculosis per 1 million people a year, or a TB infection rate of less than 1% of total population and in continued decline since then. They claim the state of eradication is the case of less than 1 smear positive patient per 10 million people a year, or a TB infection rate of less than 0.1% of total population and experiencing continued decrease afterwards.

Although efforts were made to root out tuberculosis in the past, many municipal and provincial TB specialists have retired and their successors have failed to demonstrate the same strong drive as their predecessors. Also, with the decline of tuberculosis, the awareness of the seriousness and risk of the disease is weakening on the part of policy makers and the public, calling for endless efforts to fight the disorder. Yearly decrease of TB cases has to be kept at 15% year on year if smear-positive new patient case is to reach the developed country level of less than 1 per 100,000 by 2030. Therefore, KCDC in 2008 revised the TB eradication plan 2030 again to dramatically improve patient detection and treatment efficiency and raise annual TB decline rate to 15%. Under the vision of "Healthy, TB-free society", the nation set the target of less than 10 smear-positive pulmonary tuberculosis new cases per 1 million by 2030. If the yearly TB occurrence decline rate is sustained at 15%, new smear-positive pulmonary tuberculosis patients will drop to 205 (2010) and 46 (2020)

per 1 million, arriving at the target in 2046. On the project management side, the goal is to raise the patient detection rate from 77% (2007) to 96% (2030) and treatment success rate from 67% (2007) to 97% (2030). The inoculation rate is maintained at over 90% for better TB vaccination, under the 2030 plan, with BCG vaccination costs partially paid for from the government coffers if such vaccination is made at private clinic or hospital, starting in 2009. Also the plan aims at better BCG vaccine production and the national health insurance covering some of the spending on the treatment if abnormal conditions occur after vaccination. An examination program designed to get early patient detection is applied mainly to high-risk demographic groups vulnerable to the disease and Web-PACS (Picture Arching Communications System) -based national TB control central information handling system is deployed to address the issue of a shortage in radiology doctors at health centers. Early detection, treatment and prevention of worsening and spread of tuberculosis are made possible thanks to the interface between Web-PACS and TB net. TB diagnosis has improved with the introduction and buildup of infrastructure for a mycobacterium tuberculosis diagnosis quality assurance system designed to standardize test methods, and this has led to the adoption of a rapid diagnostic methodology.

3.2 Parasites Eradication Project

Korea suffered serious health and sanitation problems due to poor health and medical facilities, and insanitary conditions. The intestinal parasitic infection rate of Korean people was a whopping 82.4%. Against this background, the Korea Association for Eradication of Parasites was founded to raise public health awareness by defeating parasites and to promote parasite control policies. The government selected roundworm as the primary parasite to control, selected primary, middle and high school students as the prime demographic groups to watch, promulgated the "Law on Prevention of Parasitic Diseases" as a legal framework for the policies, and selected mass examination and mass medication as its control tactics.

The shortage of equipment, facilities, technologies and human resources needed to examine parasites were largely eased thanks to the practical technical support and equipment and medicine supply from Japanese Overseas Technical Cooperation Agency (OTCA).

The association launched a parasite eradication campaign under the banner of a 'Ten-year campaign to achieve zero national parasite infection rate." Among the key factors to having a successful parasites control project in Korea were the three national strategies of mass examination&mass medication, health lecture&health education, and environment improvement programs. One of the main success factors was the steady mass examination&medication and monitoring of students. Health lecture and health education for Korean students and the whole population explained how roundworm is introduced to our system (by hand and from eating vegetables and fruits) and highlighted the ways to prevent such infection. Roundworm was controlled by building a sewage disposal tank and banning the use of manure, which directly and indirectly helped drive down parasitic infection rate.

3.2.1 Parasite Eradication Project for Students

The roundworm control project for students was very successful. Also, for the whole population, a national intestinal parasitic infection survey at every 5-year interval was first performed in 1971. Thanks to these efforts, the infection rates of roundworm and other soil-borne parasites were dramatically decreased, and eradication of intestinal parasites in Korea is close at hand. As a result, if the positive rate of parasite eggs turns out less than 0.5% in the upcoming 8th national intestinal parasitic infection survey, the national survey might be stopped after that.

3.2.2 Investment of Student Population Health

This successful parasitic control has led to various medical and health benefits for Korean people, such as the improved physical development indexes of elementary, middle and high school students, better public nutrition and health indexes and the dwindling cases of roundworm particle-induced bile duct surgery (almost '0' since 1988), contributing greatly to public health.

3.2.3 Change of Target Parasites

During the past 1950-1960 years, the change of Koreans' parasite infection was remarkable and totally different from the past in some respects. In particular, the total parasite infection rate (especially intestinal parasite) was reduced, while the types became varied. In addition, it became one of the specially-controlled diseases which is very hard and requires expertise to diagnose and treat. Recently, more concerns and countermeasures to infection from pinworm, distomasinensis and fasciolopsisbuski are needed. In particular, distomasinensis is clinically important and locally prevalent in many areas, so consistent scatoscopy and medication programs from area to area are essential. Meanwhile, new or newly spreading various kinds of parasite infections also require concern and countermeasures.

3.3 MCH and Family Planning Program

Maternal and child health care levels continuously improved after 1960 due to MCH and family planning, but it also resulted in social concerns like induced abortion and sex imbalance. That no strong action was taken to cope with declining breast feeding rate had a negative influence on the reproductive health of pregnant mothers and infants. Nonetheless, Korea's MCH initiative gives many lessons to developing nations and the following are the major benefits gained from the nation's MCH program:

First, active political leadership was displayed as the MCH project, in conjunction with the FP project, was designated as a national program. All government agencies, including the Ministry of Public Administration and Security and the Ministry of Education, extended

their cooperation and support to bring results, leveraging the Ministry of Health and Society centered government administrative organizational network.

Second, maternal and child health care grew in close tandem with social development. Successful implementation of the five-year economic development plans (the economic social development plan from the fifth installment), which were executed seven times starting in 1962, raised national living standards. International organizations, like the UNFPA, and many scholars, including Lewis and Oakley, suggested that declining birth rate helps reduce maternity and infant mortality. The UK's decreased maternity and infant mortality is said to be attributable to its successful escape from poverty thanks to rising living standards and better socioeconomic contributors like the improvement in non-hygienic conditions and nutrient deficiency (Lewis 1980: Overall, 1987). Per capita GNI in Korea was once only 81 dollars in 1960 but grew to 1,590 dollars in 1980 and 6,300 dollars in 1990, demonstrating that better economic standards led to better MCH. Water supply rates rose from 16.8% in 1960 to 42.4% in 1975, driven by economic development. This improvement can be explained by the better living conditions of rural regions enabled by the Saemaeul Undong starting in 1970.

Third, education and promotion was made on FP and MCH service was given to local community people by the village health workers made up of the Saemaeul Women's Club and female members and this allowed a proactive chance for the female population in the local community to get maternity and child health care services. The ' The operation council' consisting of local residents formed, to have a sustained and efficient operation of PHCPs met community demand by forging local governance and it raised a sense of ownership on the health facilities in villages.

Fourth, the maternal and childhood health program was implemented through an integrated approach with family planning that was executed as the national policy's core agenda in the 1960s. A delivery kit was supplied to expectant mothers before they gave birth and house calls were made to offer prenatal and postpartum care during their pregnancy or after their delivery. Focus was placed on increasing the distribution of contraceptives required to avoid unwanted pregnancy. In particular, mobile promotional surgery vehicles were introduced to remote regions to provide the birth control service needed to care for maternal reproductive health. Free infant vaccinations and enhanced infectious disease control to place communicable diseases under control as a national policy helped guard the lives and health of mothers and infants from infectious troubles.

Fifth, incentives were adopted to promote the program. Regional competition was encouraged by giving program subsidies to a village recording a 100% birth control practice rate. Such series of incentives generated better results. Free assisted-delivery service was extended to mothers who planned permanent birth control after giving birth to two children and free medical help was given to newborn babies. These actions were intended to change the paradigm of Korea from many births and many deaths to few births and few deaths. The status of project staff was shifted from that of being a contractor to a full-time employee to

ensure the stability and sustainability of the program. Their project activities were motivated by setting up yearly maternal and childhood health targets and arranging a system of rewards and prizes for those areas and public health center staff with extraordinary performance based on these targets.

Sixth, the primary health and medical initiatives of the 1980s contributed both indirectly and directly to better maternal and childhood health standards. This program was executed through the delivery of primary health and medical services by public health doctors and public health practitioners assigned to very rural villages, and they fulfilled the demand of health and medicine of the areas where service by doctors was not provided enough in the 1980s. Health practitioners were mobilized to establish primary, secondary and tertiary medical service delivery structure and these people, who acted as a bridge between doctors and local communities, offered treatment of slightly sick patients, care for pregnant women, and prevention activities. The maternal and child health centers were founded and run with IBRD's financial assistance as the primary maternal and childhood health care facilities of the rural area where delivery systems were lacking.

Seventh, the expansion of the National Health Insurance System enforced in 1989 and the installation of private medical institutions eased economic and geographical limitations and allowed easier access to hospitals and clinics in local communities. This change led to 100% prenatal care and hospital delivery. The number of babies born in 1992, upon the system's introduction, was about 728,000; that roughly 830,000 mothers received delivery benefits (in cash) under the system proves this (The National Statistical Office, 1993; the Ministry of Health and Welfare, 2001). With the burden of medical expenses having become lighter with the introduction of the National Health Insurance System, the government increased the number of doctors by newly establishing medical schools to meet the public demand generated from increased access to medical service. A significant jump in private medical facilities also played a part in creating better maternal and childhood health services.

Last, the financial and technical assistance of international society served as a critical component of the successful MCH program. The international community supported the development of project tools and methodologies and the establishment of research centers to plan, monitor and evaluate projects, by employing the means of supporting the education and training of integrated health practitioners to raise their level; giving financial assistance and advice to develop resources to ensure access to primary health and medical programs on the regional level; and supporting the set-up of maternal and child health centers. IBRD especially demanded that Korea establish maternal and child health centers by forcing the condition that 30% of its credit assistance was to be set aside for health programs. Leveraging international organizations' assistance, the nation grabbed a chance to enter into partnerships with international agencies and reinforce its technical and administrative capacities.

Meanwhile, low female illiteracy rates and high educational eagerness helped bring about improved maternal and childhood health standards in Korea. Most women, though their

social status was low, were able to read and write, making it easier to give health education to them and that only a single language is spoken, unlike in some developing countries, enabled the program to proceed without much difficulty and to deliver the message of health education.

Another element that helped is that there were no cultural and religious barriers. In traditional Korean culture, in which giving birth to the child (especially a son) who will keep the bloodline, was, for the most part, considered a major event of a household and this belief on strong blood and descendants allowed many families to see the period before and after the delivery very important. A three-week period after delivery (called 3.7 days in Korea) is the time for postpartum care when the mother is not allowed to go outside and meet people. This traditional cultural practice aimed at preventing infection of mother and newborn infant greatly contributed to the improvement of the mother and child's state of health.

3.3.1. Maternal and Child Health Program of Health Centers

a. Prenatal care, Delivery and Postpartum Care of Health Centers

In 1963, the government dispatched maternal and childhood health program staff such as midwifes to 189 public health centers across the nation at the eup and myeon level to deploy its maternal and childhood health program. They were assigned to eup and myeon Sub health-centers from 1967, and they provided regular checkups and health guidance to the pregnant women visiting them or through making a house call. They also developed a delivery kit and distributed it to those expecting delivery or made early detection and requested help from hospital or clinic on any abnormal conditions. After the industrialization of the 1970s, some staff, unable to make a house calls, checked the state of health of pregnant mothers by phone. 813 such people were assigned to only 56% of 1443 eups/myeons in 1981, and those with a professional license were fewer than 20% so nurses were trained by midwifery programs. In 1981-1984, the integrated health staff education and training program was given to them so that multi-functional integrated health personnel could cover all family planning, maternal and childhood health care and tuberculosis control. Nutritional supplements were supplied to the low-income class from 1982, and syphilis serum tests were done on the pregnant women registered at Health centers (or MCH centers) from 1984. The Mother and Child Health Act was revised in 1986 to allow health checkups for the pregnant women visiting Health centers. In 1992, the government introduced the rubella vaccination program for female high school students, designed to prevent the birth of congenital anomalies (this was made subject to medical insurance coverage from 2004). The government's initiatives, include subsidizing the intrauterine insemination operation of couples having difficulty in getting pregnant; expanding the support to double income households; giving priority in housing to newlyweds; increasing support to households with multiple children; subsidizing child-rearing expenses of children from farmer and fishermen households; providing a post-natal care-giver; and allowing fathers maternity leave.

b. Infant Health Care of Health Center

(1) National Immunization Program for children

In 1954, the government formulated the Law on prevention of infectious diseases and designated smallpox, diphtheria, pertussis, typhoid fever, epidemic typhus, paratyphoid fever and tuberculosis as those requiring regular inoculations. Infant vaccination was managed as the priority national project in a measure to prevent the outbreak of diphtheria, pertussis, polio, measles and Japanese encephalitis that has led to tens of thousands of patients since the 1960s. Since 1965, polio vaccination has been offered at nationwide Health centers. Japanese encephalitis vaccination began in 1971. The beginning of vaccination service of measles in 1980 and MMR (measles, mumps and rubella) in 1985 gradually expanded to free infant vaccinations at public health institutions. Standard infant vaccination has been designed and managed under the maternal and childhood health program using a maternal and childhood health check booklet since 1990. Currently, tuberculosis, hepatitis B, diphtheria, tetanus, pertussis, polio, measles, epidemic parotitis, rubella, chicken pox, Japanese encephalitis, influenza, typhoid fever and epidemic hemorrhagic fever with renal syndrome are designated as those requiring mandatory national inoculation.

Table 5-3 | History of Vaccination: 1950-1995

	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Smallpox						'78				
Cholera									'90	
Typhoid										
Typhus fever						'74				
BCG	'52									
Diphtheria	'51					'74				
Pertussis		'55				?				
DPT						PDP				
DT						'74				
Poliomyelitis			'62							
Japanese encephalitis					'71					
MMR				'65 (Measles)			'80 (MMR)			
Rubella										'94
Hepititis B								'85		
Leptospirosis								'88		
Epidemic hemorrhagic fever									'92	

Source: 1) Lee DH, Past, current, and future of national vaccination program, 1995
2) Korea Centers for Disease Control&Prevention, Division of VPD Control&NIP, Epidemiology and control&prevention of infectious disease for vaccination, 2009

(2) Movement of Breast Feeding Practice

Breast feeding rates dramatically nose-dived as many businesses produced baby formula and better living conditions raised the rate of artificial feeding in the late 1970s. The breast feeding rate was around 90.0% in the 1970s but the rate continuously dropped up until 2000, according to a national sample study, to 68.9% (1982), 59.0% (1985), 48.1% (1988), 11.4% (1994), 14.1% (1997) but it started to pick up for the following ten years. Full breast feeding rate at sixth months, however, is declining rapidly, showing that the breast feeding period is getting shorter.

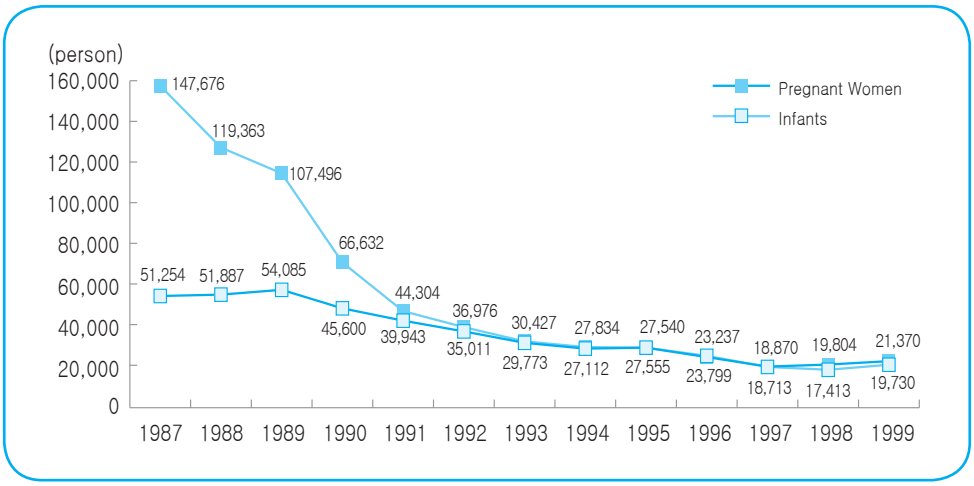
In 1981, the WHO drafted an international convention on the sale of breast milk substitute food products requiring nations around the globe to fulfill national obligations and report their individual progress so that they can be discouraged from engaging in sales activities that may hinder breast feeding. In response, Korea changed related laws to curb advertisements that exaggerate the efficacy of baby formula and ban free promotions of artificial feeding products at obstetrics and gynecology clinics and hospitals. In 1989, the government recommended that medical institutions follow the breast feeding guidelines of '10 steps for successful breast feeding'. Since 1992, UNICEF, jointly with the WHO, has been designating medical institutions that pro-actively support breast feeding of mothers as meeting a 'baby friendly hospital initiative (BFHI)' and set aside spending to nurse breast feeding. Health centers have purchased and rented breast feeding assistance machines, and the staff have conducted education on the benefits of the practice and developed and distributed breast feeding promotion materials. Demonstration of complementary feeding and practice programs were offered. As such, a breast feeding campaign in Korea was carried out on the basis of a cooperative relationship between Health center organizations and private groups in line with the trends of international society.

(3) Inborn Error of Metabolism Tests and Others

In 1991, the government introduced inborn error of metabolism tests and since 2006 it has been offering free tests on six diseases with high occurrence among Koreans (phenylketonuria, hyperphenylalaninemia, hypothyroidism, homocystinuria, maple syrup urine disease, galactosemia, and congenital adrenal hyperplasia). Health checks on infants are provided free of charge based on the Act on maternal and childhood health revised in 1986. Nowadays, 6 medical checkups (at 4 months, 9 months, 2-5 years old) and 3 oral checkups (at 2 years old, 4 years old, 5 years old) are offered at nearby hospitals to all infants (both health insurance subscribers and medical benefit recipients) until they reach the age of 5. Since 2001, based on the 1999 amended act on maternal and childhood health, the system has been adopted allowing newborn babies at high risk (preterm infant, and those with congenital esophageal astrcsia/esophagus stenosis, intestinal obstruction, anal/renal atresia/stricture, congenital diaphragmatic hernia, and omphalocele), upon registration at Health centers, to be eligible for medical expense subsidies and be managed and cared for by the Health centers. The government, to lead the maternal and childhood health program, reinforced staff at 23 nationwide Health centers for two years after 1999, and developed 14

types of maternal and childhood health projects built around the key health issues of each life cycle. In 2002, it called it a women and children's health initiative and expanded it.

Figure 5-2 | Number of Pregnant Women and Infants who had Health Examinations in Health Centers: 1987-1999



Source: Korea Institute for Health and Social Affairs, Korea Foundation for International Healthcare: 'Development of ODA Model for Maternal and Child Health,' 2011.10

3.3.2 FP Programs Connected to 5-Year Economic Development Plans

a. Supply System of Contraceptive devices: 1st 5-Year Economic Development Plan, 1962-1966

Family planning counseling services were delivered at 183 nationwide municipal and county public health centers in 1962, and family planning education staff were assigned to 1473 eup and myeon in 1964 so that they could be responsible for house calls and group coaching to promote and educate family planning and distribute contraception. In 1966, a family planning mobile medical service was installed and operated to ensure a smooth supply of contraceptives to doctorless areas. Main activities of the family planning program were the promotion and education of family planning and birth control services. The intrauterine device (IUD) contraceptive program, which had been at a clinical trial stage until then, was recommended from 1964. The government established a family planning evaluation team at the maternal and childhood society department of the health society division to take charge of the family planning initiative.

b. Community-based Contraceptive devices Distribution: 2nd 5-Year Economic Development Plan, 1967-1971

The Planned Parenthood Federation of Korea, founded as a private body in 1961, ran its own health practitioner centers to supply contraceptives and a total of 26,000 FP mother meetings were formed in 1968 at li and dong levels nationwide to promote the family planning initiative. The National Family Planning Institute was changed to the Family Planning Institute in 1971 to maintain objectivity in its research evaluation program and to secure professional manpower.

c. Project for Metropolitan Area and Special Group: 3rd 5-Year Economic Development Plan, 1972-1976

As population migrated from rural to metropolitan areas, the FP program executed the projects that befit the characteristics of urban regions. For example, a hospital family planning project, a poor region resident project and population education through regular schooling were implemented. After tubal surgery was introduced in 1977, intrauterine device operation rates dropped while tubal surgery was recommended.

d. Introduction of FP Incentives: 1970-1995

In 1982, contraceptive operation and intrauterine device surgery were changed to those covered by medical care and the policy was strictly enforced with limiting the qualification of public officials' family allowance and children's educational expenditures to two children. The total fertility rate in 1983 reached the replacement level of 2.1, but the birth control policy was sustained for some time because of policy inertia.

e. Introduction of New Population Policy: 1996~

In 1996, the government embraced a new population policy to shift from birth control-oriented family planning to health service-centered maternal and childhood health. Major components of the program include social policy initiatives like the mother and children health project, increased social promotion to address gender ratio imbalance caused by preference for male children, sex education of teenagers, prevention of induced abortion and the utilization of women and senior labor force. Its focus shifted to family welfare.

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Community Health Practitioner (CHP)

A "Community Health Practitioner" is a medical staffer working at a Primary Health Care Post. Community Health Practitioners can only do minor medical activities that are stipulated by national law in designated medically-poor regions.

Public Health Doctor (PHD)

PHDs are medical doctors, dentists, and oriental medicine doctors, who are assigned to practice rural areas by the government instead of doing their military duties. PHDs are newly-graduated doctors or newly-registered specialists assigned to 'doctorless areas'.

Health Center (HC)

Public medical facilities placed at every city, county and district to promote public health and diagnose and prevent disease.

Health Centers operates the following projects:

① Projects to improve people's health, healthcare education, oral health and nutrition

② Diagnosing, managing and preventing communicable disease

③ Mother and child health care and family planning projects

④ Elderly health care projects

⑤ Public hygiene and food sanitation

⑥ Educating or guiding medical staff and medical institutions

⑦ Educating or guiding medical observers, medical record technicians and optical mechanics

⑧ Emergency service

⑨ Educating or guiding public health doctors, community health practitioners and primary health care posts under the Special Act for Health care in Rural Areas

⑩ Pharmacist and drug or narcotic drugs management

⑪ Mental health care

⑫ House calls or welfare center visit health care projects

⑬ Health check-ups for residents, diagnosis and management of disease such as chronic degenerative disease

⑭ Health care related experiments and tests

⑮ Rehabilitation projects for the disabled and social welfare projects under the Ministry's order

⑯ Other research projects to improve health care of residents

Sub health-center (SHC)

Local governments can establish SHCs abiding by the law when a Sub health-center is needed to assist a health center.

Primary Health Care Post (PHCP)

A "Primary Health Care Post" is a health care facility with a community health practitioner providing medical service, and is established and operated by the mayor or governor in medically underprivileged regions without doctors or regions expected to have difficulty finding and retaining doctors.

Special Act for Healthcare in Rural Areas (SAHRA)

The law was enacted to provide balanced medical service to all Koreans and to improve healthcare by offering healthcare effectively to the people living in medically underprivileged areas.

Community Health Act (CHA)

The "Public Health Center Act" was revised to "Community Health Act" due to changes in disease patterns and the introduction of a local autonomous system. The Act stipulates establishment and operation of health care facilities, that Health centers should take care of district health planning and management as well as providing health care services. Its aim is to improve people's health. According to the law, Health centers should submit district health plans and get regular evaluations every 4 years.

Saemaeul Undong

Basically, Saemaeul Undong Movement is a movement seeking community development and modernization. Of all things, it is a movement to escape from poverty. This ideal is not limited to individual lifestyles and living conditions, but encompasses the whole community.

It means not working for only oneself, but for one's village and for one's country; not depending upon somebody else for help nor dreaming of a lucky fortune, but doing things with one's own hands in the right ways.

It cannot be done alone. Citizens must stand together and help each other to move forward. The village is a community where citizens work and live, and that is why they should develop it together, hand-in-hand.

It is also a fight against old, deep pessimistic views such as 'poverty is one's fate' or 'it is impossible.' It is a movement with the goal of overcoming pessimism; a movement of mental reformation.

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