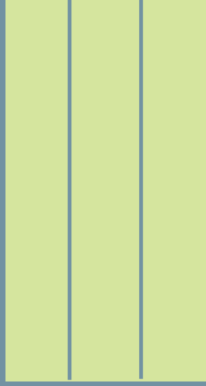


Chapter 6.

Medical Care

6

Chapter 6. Medical Care

Along with the rapid changes in health and medical care and the social-economic environment, the issues of medical care involve not just the provision to the people of professional care to diseases; they are also concerned with the challenges of how the medical care system and medical care teams can best assure the public of safety of medical care. The medical care behavior of the public in general and their lack of confidence on the physicians of primary care institutions have posed certain difficulties on the practice of the patient referral system to result in the polarized development of medical care institutions, and the goal of holistic care has become more difficult to attain.

How to construct a medical care system that provides holistic (covering the biological, mental, social and spiritual aspects) primary health and medical care (including preventive medicine, diagnosis of diseases, long-term care) for all (every one); how to build a holistic care health system that avoids too much detailed division of work by specialties; how to improve physician-patient relationship; and how to realize community medical care and preventive medicine to improve the health and quality of life of the people are some of the priorities in the year 2005.

Section 1. Medical Care Systems

In the medical care systems in Taiwan, clinics in communities provide services in primary care; district and regional hospitals provide secondary care; and medical centers provide tertiary care services. As the public is free to visit any medical care institutions at own will, the vertical division of labor of medical care institutions at various levels and the consultation systems are not effectively practiced; physicians are over-specialized and family medicine doctors are declining in number; the public has less access to comprehensive, continuing and convenient healthcare, the reform of medical care systems brooks no delay. In the following sections, review will be made of the medical care resources, development of community-based health and medical care systems, reform of public hospitals, and establishment of health information network with a view to provide the public with comprehensive holistic medical care services.

1. Medical Care Resources

To promote the balanced development of medical care resources, regional medical care systems have been established in accordance with the Medical Care Act and the medical care network plan. Through regional supervision and organization, health needs of the public are assessed, and regional medical care resources are integrated to upgrade the standards of regional medical care.

The Medical Care Development Fund continues to be used to subsidize the construction of 159 medical care institutions in areas of relatively poor medical care resources. In accordance with the Principles on the Management of Unoccupied Acute General Beds of Hospitals, and Principles on the Management of Unoccupied Psychiatric Beds of Hospitals, the permission and use of acute general beds and psychiatric beds of hospitals has been investigated. As a result, 7,364 beds have been terminated (including nullified) their use. By the six regions of the National Health Insurance, supervision plans have been implemented in six medical care regions to integrate medical care resources in the region, and to provide the public with more adequate and accessible medical care services.

1) Current status of medical care institutions: In the past years, the number of both public and private medical care institutions has been increasing. By the end of 2005, there were 556 hospitals and 18,877 clinics (see Figure 6-1). Development of medical care institutions has shown a polarized trend; the number of hospitals is declining year by year by 0.57% over the previous year; whereas the number of clinics is increasing, by 1.22% over the previous year. The average number of person-times served by each medical care institution per year is declining year by year. It was as low as 856 persons per institution in 2005. The number of medical care institutions per 10,000 population

had increased from 6 in 1989 to 11.6 in 2005.

2) Current status of hospital beds: Since the inception of the National Health Insurance, the number of hospitals has been declining; while the number of hospital beds is increasing rapidly. In 2005, there were 146,382 hospital beds (including general beds and special beds); of them, general beds accounted for 65.4% of all; beds of the DOH hospitals and county/city hospitals accounted for 16.7%; beds of other public hospitals accounted for 19.6%; beds of corporate and private hospitals affiliated to medical schools accounted for 34.5%; and beds of other private hospitals accounted for 29.2%. The number of beds in private hospitals was 1.7 times more than that of public hospitals. Since the implementation of the medical care network in 1985, the number of acute and chronic general beds and psychiatric beds has reached the

Figure 6-1 No. of Hospitals and Clinics by Year

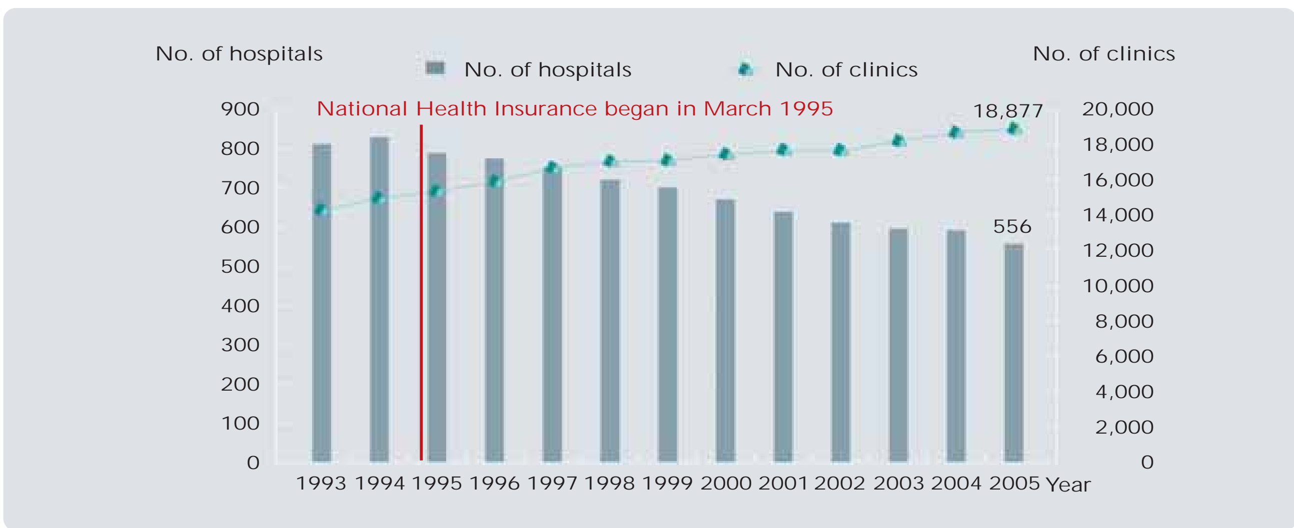
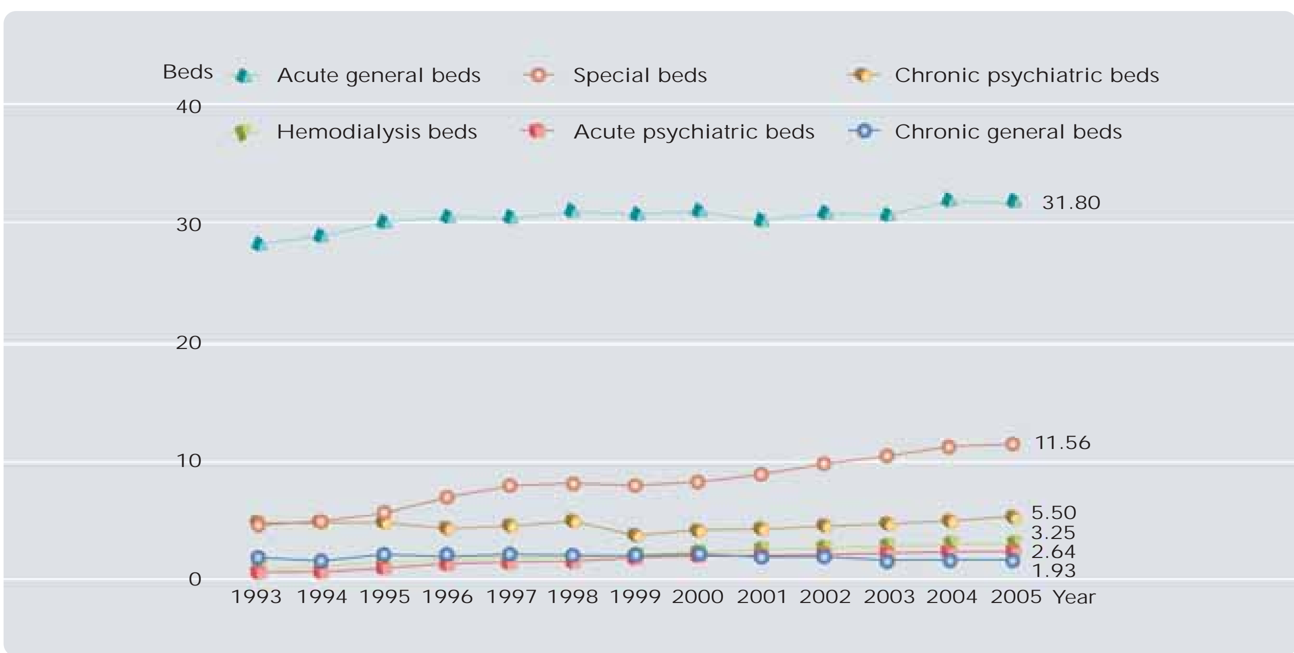


Figure 6-2 Average No. of Hospital Beds per 100,000 by Year



planned goal. Beds in all medical care institutions are, 95,810 general beds, 72,411 acute general beds, 4,415 chronic beds, 6,012 acute psychiatric beds, and 12,544 chronic psychiatric beds. Changes of the number of hospital beds by year are shown in Figure 6-2.

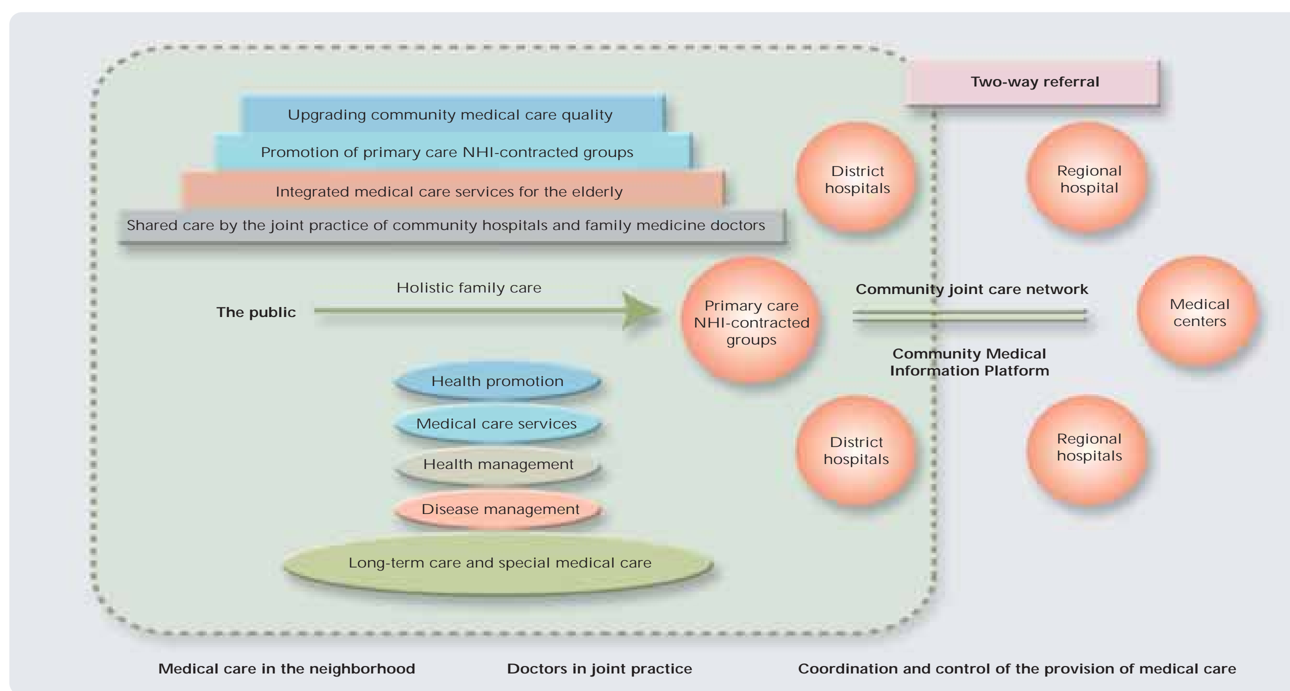
2. Community Health and Medical Care Systems

To meet the post-SARS needs for the reform of medical care systems, since 2004, a pilot project on the establishment of community healthcare groups has been tried out. Since 2005, two pilot projects, development of community-based health and medical care system, and community healthcare groups have been tried out. Community hospitals, clinics and health stations join together to identify medical care needs of the community; and through adequate referral of patients, to function as family medicine doctors. Household records are established; and a medical care network is constructed jointly with community hospitals to provide the public with comprehensive holistic medical care services. By the end of 2005, 268 primary care NHI-contracted groups and 20 community healthcare groups had been set up. Supervision has been given to the establishment of primary care NHI-contracted group demonstration sites; and a quality assessment system for community medical care has been developed. The framework of the community health and medical care system is shown in Figure 6-3.

Work has been done to strengthen community health and medical care systems, to establish regional shared care networks and medical care information platforms, to supervise district hospitals to provide the elderly with integrated medical care services, and to encourage joint practice with clinic physicians. Changhua County is made a demonstration county to implement the regional shared care pilot project to realize the ideas of medical care by level and the two-way referral of patients.

Action has also been taken to realize the indigenous model of the two-way referral of patients; to promote vertical integration of primary care clinics and hospitals; to adopt the regional integrated healthcare service models; and through disease management and case management, to help the public establish correct medical care behavior, and thus to reduce wastes of medical care resources due to repeated medical care, and also to regain the

Figure 6-3 Community Medical Care System



confidence of the public on primary care to build a sound physician-patient relationship.

Modern information techniques are utilized to promote the sharing of information regarding the two-way referral of patients between primary care physicians and their collaborative hospitals. Integration of local resources and the peer group conditioning mechanism have been strengthened.

3. Management of Public Hospitals

In the past, public hospitals had always been denounced as ineffective institutions of poor medical care functions under long-time government subsidies. To improve management flexibility of public hospitals and to upgrade their operation efficiency, reform of public hospitals has been underway to direct them toward more pluralistic and corporative-type management.

1) To improve management flexibility of public hospitals and to upgrade their operation efficiency.
2) DOH hospitals are integrated by functions into regional alliances. Through personnel exchange, resource sharing, and joint promotion and marketing, operational costs will be reduced and efficiency improved.
3) Plans have been promoted to transform public hospitals into administrative corporations, to reconstruct the organization of the DOH hospitals, and to promote participation of the private sectors. In the DOH hospitals, a plan to promote participation of the private sectors in public works is implemented. A total of NT$ 410 million private sector investments have been made.
4) Safe operational environment is created in hospitals to provide high-quality medical care services and community concerns.
5) Special features of hospitals are developed. For instance, in the Hengchun Branch of the Pingtung Hospital, tourism-cum-medical care services are offered; and the Chiayi Hospital set up the first in the Southeast Asia MRI services exclusively for breasts. Thus far, services have been offered to 770 cases.
6) An electronic commercial trade platform, Joint Procurement Network for Pharmaceuticals and Supplies, has been set up for the DOH hospitals. Orders are made automatically, and payments are requested and made jointly. Each year, some savings of NT$ 300 million in procurement costs are made.
7) Financial information of public hospitals and corporate hospitals is made transparent. Supervision of corporate medical care institutions is strengthened. In December 2005, a set of guidelines on the drafting of financial report for corporations was announced for medical corporations to follow.

4. Medical Information

The rapid development of information technology has also brought about major changes on medical care systems. The timeliness of medical information, reports of laboratory testing and medical imaging for instance, will have significant impact on the operational procedures of medical care institutions. The web-based technologies have become more and more ripe and popular, they not only can provide medical personnel with needed real-time information, can also be used to facilitate communication with patients and services for them. Action has, therefore, been taken to promote the online healthcare service, hoping that the public can, at all time and places and under legal, safe and privacy-protection circumstances, access through the Internet to their own medical records, and thus to reach the goal of establishing a lifelong healthcare system for all.

1) A Health Information Network is established. In it, a service center (SC) is set up to meet the need for exchanging and sharing of health information. A medical affairs management system is also established to assist the Department and the local health bureaus in the management of medical care institutions and medical personnel.
2) Promotion of the online healthcare service
   (1) Promotion of the electronic medical records: To maintain the security of the electronic medical records and to protect the privacy of patients, the Department, since 2003, has promoted the electronic medical records in medical care institutions. The basic format of the contents of electronic medical records was drafted in 2004.

In 2005, the basic formats of the electronic medical records for outpatient, emergency and inpatient care were formed and tried out. Technical counseling services were provided at the same time to help solve problems encountered by medical care institutions in the use of the format. On November 24, 2005, a set of regulations governing preparation and management of electronic medical records by medical care institutions was announced. Survey on the current status of the use of electronic medical records by medical care institutions shows that the domestic medical care industries have laid a considerable foundation on the infrastructures, and that the integration within the hospital of the use of the electronic medical records has been reached and is now moving toward sharing and mutual usage between hospitals.

(2) Establishment and operation of a Health Certificate Authority: On June 13, 2003, the Health Certificate Authority was inaugurated for operation to provide service in medical electronic certificates. By the end of 2005, a total of 142,267 IC cards of medical certificates had been issued for use in the promotion of the electronic medical records, online public services of health bureaus, online birth reporting, certification of laboratory testing reports, exchange of electronic documents between medical care institutions, and reading of such columns as severe illnesses and injuries, allergic medicines, prescriptions, and agreement to organ donation on the ROC NHI cards.

(3) Promotion of standards for medical information: To promote the popular use of electronic medical care information, and to facilitate exchange and sharing of medical information between hospitals, the Department is actively promoting the standards of medical information. In the year 2000, the Department joined the HL7 (Health Level Seven) Association. Thus far, draft recommendations for 13 items of HL7 standards have been prepared; a medical information standard HL7 verification system and an international LOINC and NHI codes (NHI-LOINC) contrast system have been set up to serve as standards for medical care institutions to verify the medical information upon the exchange.

Section 2. Quality of Medical Care

The several medical care incidents in the recent years in Taiwan, and the SARS outbreak rampages in late April of 2003, all indicate problems in the nosocomial infection control, in the safety of patients, and in the inadequacy of training for medical personnel. In this connection, the strengthening of patient safety, upgrading of the quality of medical personnel, strengthening of the quality management of hospitals, and the effective and continuing external monitoring of hospital quality to establish a high-quality, all-directional and safe medical care quality are of vital importance.

1. Quality of Medical Care Services

The objectives are to strengthen quality of medical care services, to establish a patient safety-oriented medical care environment, to plan for a patient-oriented hospital accreditation system, to improve the care of patients by family members in hospital, to develop a monitoring system for patient safety, and to set up a mechanism for the reporting of safety incidents. Some major achievements are as follows.

1) Patient Safety

Patient safety is the most highly-regarded issue of the World Health Organization, the US and the European countries in the recent years. Several relevant studies and measures have been taken to promote the safety of patients. To protect the safety of patients, and to upgrade medical care quality, the Department has, in addition to the strengthening of the functions of the medical care quality committee and the patient safety committee, promoted several priority measures.

(1) In the six medical care network regions of the National Health Insurance, patient safety week activities have been organized. A "drug use card" has been specifically designed for the use of the public to remind them the safe use of

drugs. 385 hospitals, 6,000 clinics and 4,000 community pharmacies have participated in the activities.

(2) A set of operational guidelines on hospital safety, another set of operational guidelines on clinic safety, and a set of operational guidelines on the safety of Chinese medicine medical care institutions have been formulated.

(3) Labeling of Demerol and Morphine has been improved to avoid confusion of medical personnel and to protect the safety of patients.

(4) A plan to exchange for learning with the British National Patient Safety Agency has been completed.

(5) A plan to mark operation sites prior to operation, initially for five operations, total knee replacement, spinal fusion, total femur replacement, amputation and peripheral blood vessels, has been promoted. They will be inspected with priority.

(6) To realize the patient-oriented medical care, and to gradually build a patient safety culture, a non-punitive learning environment has been set up to avoid repeating of errors, and to promote patient safety. A Taiwan Patient Safety Reporting System (TPSR) has been created. Thus far, 169 hospitals have participated in this system. An unscheduled newsletter of the Taiwan Patient Safety Reporting System is issued for the reference of medical care institutions.

2) The Hospital Accreditation System: "Patient-oriented " and "priority on patient safety" are the directions to proceed with the reform of the hospital accreditation and teaching hospital accreditation.

(1) The priority of the new accreditation system has moved from accreditation of structure gradually to accreditation of process and outcomes. It is a fair and high-quality accreditation mechanism that stresses on the functions of hospitals and the quality of holistic care. In the reform of teaching hospital accreditation, the focus is on teaching and training programs, and their teaching and training processes and outcomes, to improve the quality of physician manpower and to upgrade the overall quality of medical care.

(2) A "scheduled but not on fixed time" system for follow-up supervision and inspection has been practiced. Thus far, 499 hospitals have passed the accreditation, accounting for almost 90% of all hospitals. 102 hospitals have been followed-up and inspected.

(3) Accreditation of psychiatric hospitals and psychiatric rehabilitation institutions has been made. Three psychiatric hospitals (including teaching hospitals), and 75 psychiatric rehabilitation institutions have been accredited to assure the quality of medical care and community rehabilitation of psychiatric patients.

(4) To upgrade the service quality of Chinese medicine care, and to strengthen the management of chinese medicine hospitals, a task-force group on the regulations concerning accreditation of Chinese medicine departments was formed on September 21, 2005, to prepare for the formulation of relevant regulations on the operational procedures, criteria and scoring for the accreditation of the Chinese medicine hospitals.

3) A project, 2005 plan to promote healthcare quality for the public, has been carried out. The project includes issues such as patient safety special project, survey of nursing manpower, investigation of the allocation models of clinical nursing manpower, measures to keep nursing personnel on job, study on the roles of nursing personnel, rights and ethics of nursing personnel, history and images of nursing, and management indicators for nursing care institutions, to upgrade the quality of nursing care.

4) To strengthen the quality of the application and use of certain medical care techniques, examinations and medical devices for laboratory testing, a set of regulations governing management of the application and use of some specific medical care techniques, examination and medical devices for laboratory testing was announced on December 24, 2003. Medical care institutions, when applying or using specific examinations or items of laboratory testing, shall, by regulations, apply to the local municipality or county/city competent health authorities for registration before such application or use can be

made. By the end of 2005, 24 items of medical care techniques and medical devices had been announced. In accordance with regulations governing review and assessment on the procurement and use by medical care institutions of expensive or dangerous medical care instruments, announcement has been made to place PET and Cyclotron under control.

2. Environmental Sanitation Quality of Hospitals

Medical wastes can be classified into general and hazardous wastes. In accordance with regulations of the Waste Disposal Act, the infectious medical wastes of the hazardous wastes must first go through the intermediate processing of either incineration or sterilization before they can be eventually treated by landfill. Since 1989, the Department has, by medical care region, set up a joint disposal system for medical wastes to be cost-beneficial through centralized ways of disposal.

On December 28, 2001, the Department announced in collaboration with the Environmental Protection Administration a set of regulations governing management of institutions for the joint disposal of medical wastes. Currently, the total capacity of the existing public and private disposal institutions for medical wastes and institutions for the joint disposal of medical wastes is 167 tons a day, sufficient to handle the 60 tons of infectious medical wastes produced each day. In May 2005, the Department approved one institution for the joint disposal of medical wastes to electrolyze the recalled fixation fluids produced by medical care institutions to solve the problems of disposing these fluids of medical care institutions.

Section 3.
Psychiatric Care and Mental Health

In the recent years, there have been frequent incidents of psychiatric patients posing hazards to the society to cause panic in the public. Major disasters, traumas or serious conflicts often produce indelible scars on the minds of individuals and also pose certain impact on their daily life. For this, the Department, for the medical care of psychiatric patients, has spared no effort in planning for mental health services to promote physical and mental health education, to provide the public with mental health counseling, and thus to prevent the occurrence of the post-trauma syndromes and other related psychiatric diseases.

1. Prevention of Suicide

Estimates by the World Health Organization are that by the year 2020, suicide will be the ninth leading cause of death world-wide (the eighth in developed countries). Estimates by the Year of Life Loss and the Survival Years of Accompanying Disabilities show that, of the ten leading diseases and injuries, serious depression will be the second, only next to ischemic heart disease. Since 1997, suicide rates in the Asia region, except Singapore, have been on the rise (see Figure 6-4).

Suicide rate in Taiwan has also been rising. On average each year, 18.84 persons per 100,000 population succeed in committing suicide (see Figure 6-5). For this, the Department has made suicide prevention one of the priority public health projects to promote various preventive measures.

1) A national action plan on strategies for the prevention of suicide was drafted, and approved for implementation by the Executive Yuan in May 2005. The plan is formed on the concept of prevention in three stages and by five levels on an overall planning basis to draft short, mid and long-term prevention goals from three dimensions, the all-directional, selective and indicative.

2) On November 1, 2005, a suicide prevention reporting and concern system was activated. Reporting units are asked to fill out detailed and analytical reports on the interview with suicide cases and their referral, and send them to health bureaus and the Department. By the end of 2005, 686 cases had been reported.

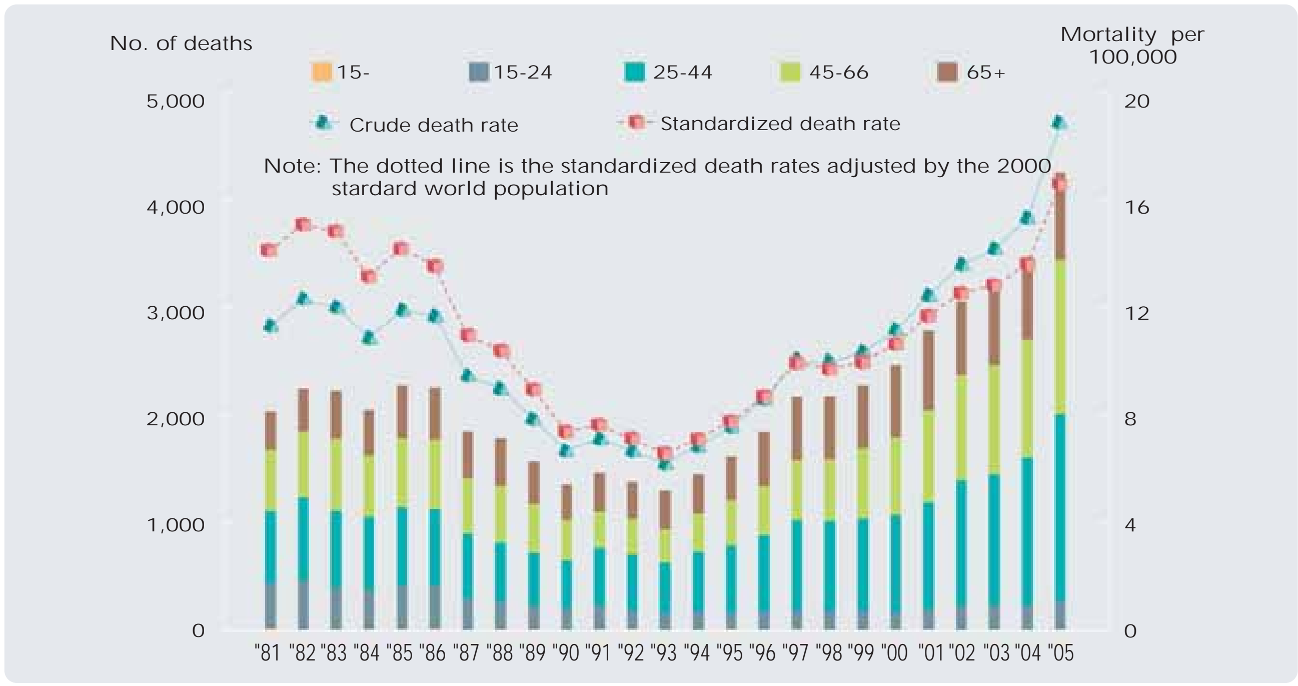
3) On December 9, a suicide prevention center was established (commissioned to the Taiwan Depression Association); and a hotline, 0800-788995 was set up to provide the public with professional counseling services. Some 3,136 person-times of services have been rendered.

4) In collaboration with community mental health centers, community supporting networks are activated. The shared care network for depression

Figure 6-4 Suicide Deaths in Taiwan and Selected Asian Countries

Sources: 1. WHO Suicide: Country Reports and Charts.
2. Department of Health, Hong Kong; Ministry of Health and Social Affairs, Korea; Ministry of Welfare and Labor, Japan, monthly reports.

Figure 6-5 No. and Rates of Suicide by Year



has been expanded to provide professional personnel with training and certification. Workshops have been held to improve reporting of suicide attempts and their follow-up interventions.

2. Psychiatric Care Services

To provide adequate medical care to serious psychiatric patients, the psychiatric medical care network has been improved. Community rehabilitation services are intensified to care for mild

psychiatric patients upon their return to the community. To provide adequate care to victims of sexual assaults, action has been taken to implement the prevention of family violence and sexual assault. Major activities are as follows.

1) To improve the medical care services for psychiatric patients, governments at various levels and private sector institutions are subsidized year by year to start or intensify their instruments and facilities for psychiatric care, rehabilitation, and psychiatric nursing care to make psychiatric care more accessible to patients. Thus far, one psychiatric care institution, seven psychiatric rehabilitation institutions (four community rehabilitation centers and three houses of restoration), and three psychiatric nursing homes have been subsidized.

2) To encourage psychiatric patients of stable conditions, with deterioration of local functions but likely to be rehabilitated to return to the community, community rehabilitation services have been strengthened and facilities are substantiated. By the end of 2005, services had been provided to 2,061 cases by the community rehabilitation centers; and 2,937 beds had been made available at houses of restoration.

3) Municipality and county/city governments are subsidized to set up community mental health centers to provide the public with mental health care and counseling, and to promote education on mental health. Thus far, 25 such centers have been set up, and the goal of one center for each county/city is attained.

4) To provide victims of sexual assaults with rapid and professional medical treatment, examination of injuries and discovery of evidence, action has been taken to strengthen medical care services for victims of family violence and sexual assaults and treatment and correction of the injurers. The number of sexual assault responsibility hospitals has increased to 168; and the number of institutions providing treatment for family violence injurers is 62. They provide injurers with treatment in drug cessation care, psychiatric care, psychological guidance, and cognitive education. Since June 1998 till present, an accumulated number of 2,514 persons have taken part in the project. A work manual for medical personnel on maltreatment and negligence of children, and a teaching disc for the online learning of professional personnel in family violence and sexual assault have been produced to upgrade the professional capabilities of medical personnel.

Section 4.
Long-Term Care Service Systems

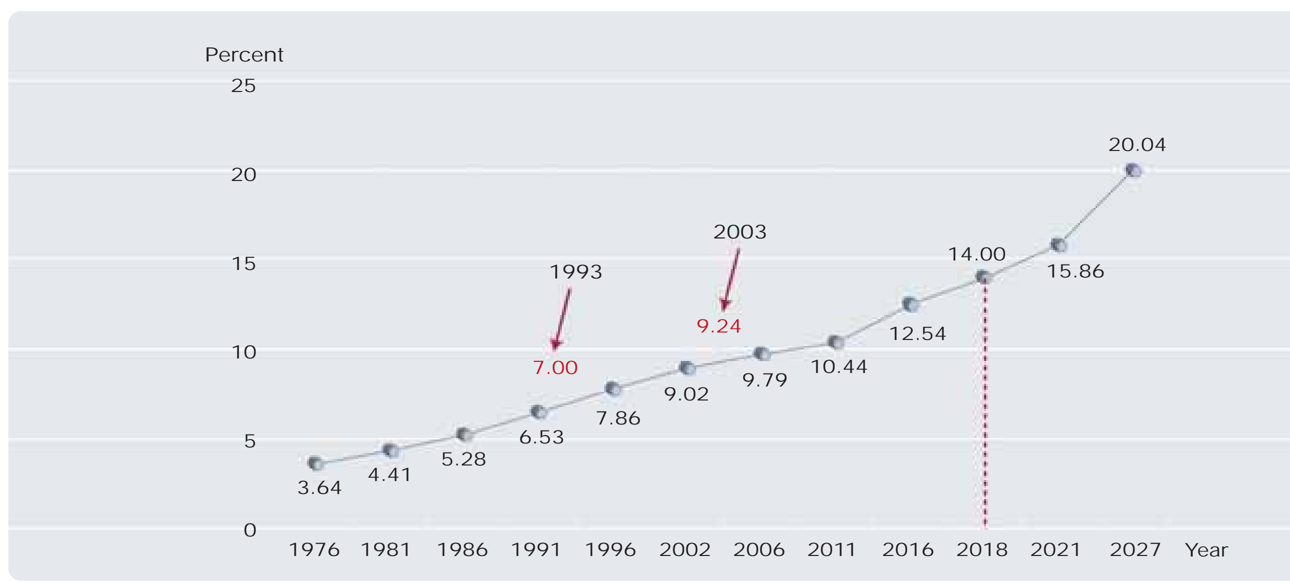
Acting on the policy of "aging in community", through governments at various levels, plans for vertical and horizontal integration have been implemented to closely link health professions and community support services to set up community long-term care systems. Disabled individuals in community will then be able to maintain independent, autonomous, safe and dignified life capacity. Special care models have also been developed to provide the mentally and physically impaired with sound care services.

1. Community-Based Long-Term Care

In 2003, the population above 65 years accounted for more than 9% of the total population (see Figure 6-6). Population projections by the Council of Economic Development, the Executive Yuan, are that by 2020, the elderly population will be 14% of the total. Along with the aging of population, prolongation of life expectancy, changes in disease patterns, and the sharp increase in the number of disabled persons, the needs for long-term care have risen sharply. How to provide adequate long-term care will become an important policy concern of the government. The Department, to meet the demands, has rendered considerable efforts in promoting long-term care systems to assure the public with integrated, accessible and continuous care services.

1) A pluralistic long-term care service network is developed to strengthen care resources in community, to realize the idea of aging at home and aging in community with priority on community care to be supported by institutional care. Hospitals and nursing homes are encouraged to provide home care services. Thus far, there are 450 home care institutions and 45 day care centers.

Figure 6-6 Percent of the Elderly Population to Total Population, (Estimates after 2003)



2) A long-term care system is established to link acute medical care with follow-up care, to implement plans to prepare for discharge from hospitals, and thus to provide continuous care services. 74 district teaching hospitals have been subsidized to implement this plan.
3) A single-window management system has been set up. 25 counties and cities have been supervised to set up long-term care management centers. Criteria for the assessment of long-term care management centers have been established. On-job training for long-term care professionals has been conducted to promote their professional skills.
4) County/city health bureaus (Taichung County, Taichung City, Chiayi City, Kaohsiung City, Hualien County and others) have been commissioned to conduct plans to integrate models of long-term care services, and to try out the single-window management of long-term care resources.
5) A long-term care information network has been set up to include systems for the management of county/city long-term care management centers, information management systems for cases of nursing homes, and systems for the management of hospital long-term care management centers to key-in information of long-term care management centers, nursing homes and hospital discharge services for promotion, to monitor quality, and to upgrade service efficiency.
6) In coordination with the application procedures for alien caregivers of the Council of Labor Affairs, the Executive Yuan, various necessary measures have been taken to link the procedures with the long-term care management centers to promote the development of care services.
7) Respite care service plans have been implemented to provide family members with respite services. Caregiver-support groups have been organized. Training for caregivers has been held to relieve caregivers of emotional and physical stresses, and to improve their care capabilities. In total, 2,164 persons have accepted this service.
8) The National Taiwan University is subsidized to conduct a plan on the rehabilitation and care for individuals hurt in the process of medical care or prevention of cases of acute respiratory tract syndromes. The plan includes case management service, health assessment, patient groups, and occupational therapy.

2. Services for the Mentally and Physically Disabled

Medical care and rehabilitation services are provided to the mentally and physically disabled to intensify health and medical care for the less

privileged groups.

1) The Taipei Union Hospitals and the Kaohsiung Medical University Hospital are subsidized to implement a pilot project on service network for the care of the mentally and physically disabled.
2) To improve the quality of dental care services to the mentally and physically disabled, a special project on the development of dental care for the mentally and physically disabled has been conducted. Four hospitals, the Tze-chi General Hospital and its Talin Branch Hospital, Taipei Veterans' General Hospital, and the Catholic Cardinal Tien's Hospital have been subsidized to procure facilities for anesthesia.
3) 16 district teaching and above hospitals have been subsidized to implement a plan to set up auxiliary aid centers for medical care and rehabilitation. Auxiliary aids are displayed, assessed professionally, and counseling given. They can be individually designed. Training is also given, and services for home care aids are offered.
4) 23 regional and above hospitals have been subsidized to conduct a plan for the establishment of joint assessment centers on child development to set up an easily accessible assessment, diagnosis and care service network, and to provide children with occupational, physical and language therapy and follow-up at clinics.

Section 5. Emergency Medical Care

To strengthen the national emergency care and rescue service system, to upgrade the quality of emergency care and rescue, and to assure the life and health of the injured patients, the Department announced in September 1995 the Emergency Medical Care Act, and ever since, promoted the emergency care response mechanism.

1) The National Taiwan University and the National Chengkung University medical teams have been subsidized to set up national disaster medical care and rescue teams to meet demands for emergency medical care at times of major disasters. The establishment and operation of the emergency operation centers (EOC) in six regions in Taipei, the north, central, south, east and the Kaoping area have been completed.
2) Preparation for health mobilization has been completed. In coordination with disaster control laws and other relevant regulations, disaster control and mass casualty emergency care are intensified. Six drills on the emergency care of mass casualties have been conducted. A commanding system for the management of emergency medical care and rescue for mass casualties has been set up.
3) A referral system for the emergency care in perinatal period has been established. There are currently 92 emergency care responsibility hospitals for the newborns, and 82 emergency care responsibility hospitals for high-risk pregnancies. Functional adjustment and development of new functions have been made to provide more convenience for the use of hospitals and the inquiries of the public.
4) A reporting system of beds for critically and severely ill patients has been established to prevent the severely ill patients from overstaying in emergency wards. The normal operation of the transmission of information on unoccupied beds in emergency responsibility hospitals is maintained to provide the fire and rescue units with real-time information on unoccupied beds. Thus far, 206 hospitals transmit automatically through this system information on unoccupied beds.
5) Emergency care and rescue systems on chemical hazards, nuclear hazards and poisons have been improved.
   (1) Care for chemical hazards and radiation injuries has been integrated. Six coordination centers have been set up in Taipei, the north, central, south, east and the Kaoping area to improve response capabilities in the care of mass casualties of poisonous and chemical hazards.
   (2) The Taipei Veterans' General Hospital is made responsible for the establishment of a poison counseling and laboratory testing center. Its branch hospitals in the central, south and east are integrated to form a counseling and laboratory testing network for poisoning.
   (3) The Taipei Veterans' General Hospital is made responsible for the establishment of a specific

antidote control center to prepare for specific antidotes required for emergency care, and to adequately allocate them to 52 hospitals.

6) Training in CPR is promoted nation-wide. Training for employees of the central government has been conducted for some 1,000 participants. Private sector organizations have been subsidized to organize CPR training for the public.

Section 6. Health and Medical Care in Mountain Areas and Offshore Islands

Residents of the mountain areas and offshore islands, as compared to other areas, for insufficiency in medical care resources and manpower, and restrictions by geographic conditions, their life and access to medical care are greatly affected. To narrow the discrepancy in health and medical care between urban and rural areas, the Department has actively implemented various health and medical care measures and projects of health building in communities of indigenous peoples and on offshore islands, to upgrade the quality of health and medical care, and to create healthy communities.

1. Strengthening of medical care resources and facilities: Health and medical care facilities have been improved. Four health rooms in the mountain areas have been subsidized for reconstruction (the Hsinhsien Health Room in Wulai Township of Taipei County, the Tahsing Health Room in Taian Township of Miaoli County, and the Hsiulin Health Station in Hualien County), and 27 health stations on offshore islands have been subsidized for renovation to renew buildings and to prolong their use. Health stations have also been subsidized to procure 140 items of medical equipment and facilities and 187 items of information facilities to improve their standards of health and medical care. 17 ambulances and mobile clinic vans in health stations of the mountain areas and offshore islands have been replaced to improve their mobility in medical and emergency care.
2. Protecting the rights to health and medical care of residents of mountain areas and offshore islands

1) In coordination with the Council of Indigenous Peoples, subsidies have been made on insurance premiums to reduce the medical cost burdens of the indigenous peoples and make more available services of the National Health Insurance.

2) Local primary care resources and medical care resources of hospitals have been integrated and efforts of the academic and private sectors are coordinated to strengthen medical care programs. In addition to the support of public and military hospitals, since November 1999, a National Health Insurance integrated delivery system in mountain areas and offshore islands has been promoted in the forms of support to specialty care, fixed spot clinics on holidays, mobile clinics, and commissioned medical care to attain the goal of "medical care in every township; support in every village". In total, 48 townships in mountain areas and offshore islands have participated in this project for a total of some 400,000 people.

3) A project on the air-transfer of emergency patients has been implemented to provide adequate care to severely ill and emergency patients. The Taipei Medical University is subsidized to set up a National Aeromedical Counseling Center (NACC) stationed in the Disaster Rescue Commanding Center of the National Fire Administration, the Ministry of the Interior, to assist in the review of applications throughout the country for emergency transfer of patients, and to provide 24-hour counseling services. In total, 408 applications for air transfer have been received; of them, 341 have been approved, giving an approve rate of 83.6%.

4) In accordance with the principles governing transportation subsidies to severely ill or emergency patients of mountain areas and offshore islands for medical care, since 1998, subsidies have been made to Penghu, Kinmen, Lienchiang, Pingtung and Taitung health bureaus to subsidize transportation costs for the air-transfer of patients to Taiwan proper for medical care. By the end of 2005, a total of NT$ 119,993,430 had been spent to evacuate 349 emergency patients and 19,233 severely ill

patients to Taiwan proper for medical care.

5) Since 2005, studies have been made on the issue of nutrition care in Kaohsiung County, Taichung County and Lienchiang County to review the practicability of nutrition care models in mountain areas and offshore islands.

3. A telemedical consultation system has been set up in Penghu, Kinmen, Lienchiang, and Taitung health bureaus to provide medical consultation. There are at present 25 link points.

4. To encourage medical personnel to practice in mountain areas and offshore islands, a set of regulations governing incentives and supervision of medical care institutions practicing on offshore islands, and another set of guidelines governing subsidies to medical personnel practicing in mountain townships have been formulated.

5. The community health building project is promoted from three dimensions, indigenous, focusing on health issues, and establishing mechanisms, to strengthen organization, to consolidate local resources and to activate community health strategies, to encourage participation of the community people to jointly build a healthy life and a healthy community. In total, 52 projects have been promoted on the health issues identified.

6. Integration of medical care resources in Penghu and Kinmen-Matsu area:

1) The Kinmen County Hospital (including the Liehyu Branch) and the Taipei Hospital Huakangshih Branch have been integrated into one. On October 1, 2005, the Kinmen County Hospital was made a DOH hospital.

2) When the Armed Force Matsu Hospital was dissolved on July 1, 2005, the Department, on the principle of no interruption of medical care, has asked the Taipei Union Hospitals to support medical care; and the hospitals of the DOH central alliance have also been asked to support surgery and psychiatric care. Regular meetings are held to review the support to satisfy the actual needs for medical care.

3) An investment of NT$ 760 million was made to build a medical building in Penghu. On September 24, 2005, the Tri-Service General Hospital was requested to manage and to integrate medical care resources in the Penghu area.

7. Continuing education for various kinds of medical personnel has been organized. Both the quantity and quality of medical personnel in mountain areas and offshore islands have been improved. In 2005, a total of 10 physicians for health stations in mountain areas and offshore islands had been trained to help enhance the professional quality of medical personnel in mountain areas, offshore islands and remote areas.

8. Medical and rescue teams in mountain areas have been set up. 90 members are employed to provide education and training in emergency care, to assist in the promotion of the public health programs of health stations in mountain areas, to upgrade the quality of medical care, and to help solve unemployment problems of the indigenous peoples.

Section 7. Medical Manpower

The number and quality of medical personnel have certain impact on the quality of medical care. For this, the Department has made the distribution of medical personnel and their training a priority project. Major activities are as follows.

1. Current Status of Medical Manpower

There are in total 11 laws and regulations governing the management of medical personnel namely, the Physician's Act, Pharmacist's Act, Midwifery Personnel Act, Dietitian's Act, Nursing Personnel Act, Physical Therapist's Act, Occupational Therapist's Act, Medical Technologist's Act, Medical Radiology Technologist's Act, Psychology Counseling Technologist's Act, and the Respiratory Therapy Technologist's Act. In the future, more laws and regulations for the management of dental technologists, optometrists, hearing technologists and language therapy technologists will be formulated.

By the end of 2005, there were 15.15 western medicine physicians, 2.10 Chinese medicine doctors, 4.51 dentists, 12.34 pharmaceutical personnel, and

48.93 nursing personnel per 10,000 population. By the goal of the holistic healthcare plan, the number of western medicine physician per 10,000 has reached the goal, and is close to that of Korea, Hong Kong and Singapore. The number of Chinese medicine doctors, dentists, medical technologists, medical radiology technologists, physical therapists, occupational therapists, pharmaceutical personnel, nursing personnel and dietitians has also met the needed number. Manpower in clinical psychologists and hearing and language technologists, however, are still insufficient.

2. Development of Medical Manpower

To improve the quality of medical manpower, on-job training and plans for development and cultivation for various kinds of medical personnel are organized each year. Major achievements are as follows.

1) The development of various kinds of medical manpower is done on control basis. The ceiling for the development of western medicine physicians, for instance, is 1,300 medical students per year. Manpower of other kinds of medical personnel is under special control. Applications should be made prior to the establishment of schools, and are reviewed by the Ministry of Education for control. Planning for medical personnel in the future will shift from growth in number to the goals of balanced distribution of physician manpower and the establishment of a periodic assessment mechanism. The number of medical personnel licensed and in practice is shown in Table 6-1.

2) To develop local personnel, a plan for the development of local medical and nursing personnel began in 1969. Indigenous peoples and residents of offshore islands are trained as medical personnel on government scholarship, and are returned to their original residence for service upon completion of training. Since 2002, development plans of Kinmen County and Lienchiang County have been integrated to train, thus far, 256 physicians on government scholarship. Military draftees serving alternative duties with specialty in medical care are assigned with priority to mountain areas and offshore islands for service to strengthen local medical manpower and to upgrade their medical care quality. In the period 2003 to end of 2005, 228 such draftees had been assigned. To strengthen the social functions of the DOH hospitals, to support medical care services in remote areas, and to stabilize physician manpower resources in remote areas, since 2005, all graduates on government scholarship are assigned to work in

Table 6-1 Medical Manpower

Category	No. Licensed	No. Practicing	No. Practicing/10,000
Physicians	49,587	34,093	14.79
Chinese medicine doctors	10,618	4,610	2.02
Dentists	13,411	10,141	4.45
Pharmacists	32,823	19,660	8.63
Assistant pharmacists	12,645	7,090	3.11
Nursing personnel	307,299	104,786	46.02
Midwives	164	2	0.00
Assistant midwives	53,238	395	0.27
Dietitians	4,349	1,056	0.46
Medical technologists and technicians	16,505	7,323	3.22
Physical therapists	3,863	2,391	1.05
Physical therapy technicians	2,790	1,351	0.59
Occupational therapists	1,820	1,274	0.56
Occupational therapy technicians	414	173	0.08
Medical radiology technologisits and tecdnicians	5,375	3,880	1.70
Clinical psychologists	596	379	0.17
Counseling psychologists	703	170	0.07
Respiratory treatment technologists	1,226	899	0.39

DOH hospitals for six years. They are also assigned to work in remote areas on regular basis.

3) The training of physicians on government scholarship began in 1975, initially by the Ministry of Education, and since 1993, by the Department of Health. Thus far, 5,225 physicians have been trained. Currently, 1,315 are fulfilling their obligations; of them, 738 are in some special branches of medicine, and 376 of them are doing their second-stage obligations.

4) A set of regulations governing classification, screening and review of specialty physicians was announced on June 29, 1988. Professional medical societies are commissioned to conduct screening and review of specialty physicians, and to upgrade the quality of professional training. Since 2001, hospitals for the training of specialty physicians are accredited and certified each year to maintain certain quality of specialist training and to balance the distribution of specialists. Thus far, 25 specialties have been announced; of them, two sub-specialties are sub-specialties of dentistry specialty. A total of 35,967 person-times of physicians have thus far been issued after screening and review certificates of specialists. Subsidies have been made each year for advanced training overseas to physicians in eight specialties namely, gerontology, genetic medicine, occupational medicine, nuclear medicine, anatomy and physiology, clinical pathology, radiological therapy, and forensic medicine, to improve manpower and quality in these specialties.

5) To strengthen in physicians the concepts and capability of holistic care, to improve the quality of training of resident physicians, to practice the idea of "patient-oriented" holistic medical care, since 2003, a plan for the training of physicians in general medicine after graduation has been promoted. Physicians are required to go through training in general medicine for three months. The purpose is to correct the organ-oriented treatment models, and to provide more comprehensive medical care services. In total, 116 hospitals have participated in this plan, and 1,300 physicians have gone through the training.

6) On November 25, 2005, sets of curriculum outlines for the training of nurse practitioners (NP) in internal medicine and surgery specialties, criteria for the certification of hospitals for NP training in internal medicine and surgery specialties were announced. On December 1, the Examination Direction of Internal Medicine and Surgery Nurse Practioner was announced to promote the screening, review and continuing education of nurse practioners.

7) The training of Chinese medicine doctors comes in a seven-year program (extended to eight years in 1996) and a five-year post-baccalaureate program. To select among individuals who have considerable knowledge of Chinese medicine and pharmacy to practice Chinese medicine, the Ministry of Examination has held qualifying examinations and special examinations for them. To promote the normal development of education in Chinese medicine, and to improve the ratio of Chinese medicine doctors trained via regular education, the qualifying examination for Chinese medicine doctors will be discontinued in 2008, and the special examination will be discontinued in 2011.

8) For the training of Chinese medicine doctors in clinical practice, 463 Chinese medicine teaching clinics have been set up to train 1,706 person-times. 12 case conferences for teaching have been held in the north, central and south regions to provide opportunities for Chinese medicine doctors throughout the country to discuss cases and share experience. A medical record and its abstract for teaching are prepared for each case and will be used as clinical teaching materials. Teaching outcomes of each hospital are evaluated.

9) Continuing education is conducted. 3,765 Chinese medicine doctors have participated in the training, accounting for 80.6% of all practicing Chinese medicine doctors. 672 nurses have partiipated in the training of Chinese medicine nursing care, accounting for 57.8% of all nurses in Chinese medicine hospitals. A plan to promote quality of Chinese medicine nursing care is implemented. The curricula include basic principles of Chinese medicine, training in nursing care and advanced training.