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Taiwan Public Health Report

Department of Health, Taiwan, R.O.C.

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Words from the Minister

Chien-Jen Chen, Sc.D.,M.P.H

Minister of Health

December 2004

The drastic changes in environmental ecology have induced and accelerated the occurrence of emerging communicable diseases. In the past years, we have experienced increasing threats. Although the world has entered the electronic era, some heinous killers like cancer, cardiovascular diseases, metabolic syndromes, accidents and injuries, and suicide are continuing to plague us. How to build a healthy environment for all people to enjoy a safe, healthy life is the common goal of the public health personnel at both central and local levels.

Following are some of the major administrative priorities we carried out in 2003:

1. Sharing Taiwan's SARS control experience with the world

Taiwan paid a terribly heavy price for SARS, but the epidemic also won Taiwan the world's concern about its 23 million people's right to health as well as the world's approval of their effort. Judging from the WHO travel advisory schedule, SARS reined China, Hong Kong, and Taiwan for 63 days, 52 days and 28 days respectively. This shows that the Taiwan government was no less efficient than governments of other countries. The infection rate per 100,000 population was lower than in other areas. According to a January 2004 poll made by the Executive Yuan's Research, Development & Evaluation Commission, the people's approval rate for SARS control was as high as 81%, the highest among the administrative priorities of all ministries.

After the SARS epidemic, we worked hard to fortify our disease control system by establishing a medical care network for managing infectious diseases. Our measures included improving the hospital's infection-control system; intensifying personnel training for 22 responsibility hospitals; opening negative-pressure wards; planning the moving lines of patients; implementing the evaluation and rewarding plans for the quality of nosocomial control; tightening the monitoring of fever in community; fortifying border quarantine measures; establishing an effective case investigation and follow-up system; upgrading the facilities, flowchart management, and research and testing capability of laboratories; and initiating a plan for controlling disease-control resources.

During the outbreak of SARS, public hospitals timely played their roles by going all out to implement government policy. So, we could break through the predicament and effectively bring the epidemic under

control. This won the hospitals more credit for their role and functions as public-interest facilities.

2. Strengthening the system of public health administration for better service

SARS, indeed, has made a strong impact on the public health system, and has also exposed the organizational shortcomings of the Department of Health (DOH) and its subordinate agencies. The DOH timely proposed an organizational reform plan in hope of strengthening its functions and operations in preparation for the onslaught of emerging diseases like SARS in the future.

In organizational readjustment, the main emphasis is placed on the reorganization of the health and medical care management and care systems, fortification of the disease control functions, expansion of the country's health diplomacy, and fulfillment of the mission of joining the WHO after entering the WTO, which will allow us to share our experience with other countries and facilitate our effort to exchange health information with others and obtain assistance due to us. This calls for, under the principle of not increasing the staff, establishing the bureaus of medical affairs, nursing and healthcare, and international cooperation under the DOH and adding, under the principle of flexible deployment of personnel, to the Center for Disease Control a research and laboratory testing center and an information center to assist in testing for diseases and in the control of disease information. In this end, we completed, on June 8, 2004, the enactment operations for the partially amended version of the Organization Act of the Department of Health, the Executive Yuan, and the partially amended version of the Organization Act for the Center of Disease Control, DOH, the Executive Yuan.

3. Providing all the people with a health-care system through the implementation of the National Health Insurance and the step-by-step improvement of the medical care network

Since its inception, the National Health Insurance Program has made the following achievements: covering all population, scoring a high approval rate, providing convenient care, collecting low insurance premium, offering a broad scope of protection, and controlling effectively the budget. We have succeeded in making people free from the fear of becoming poor by illness. According to a 2002 benefit analysis from the National Health Insurance of households, each of the poorest fifth of households in the country got NT$4.8 in medical payment for every NT$ it paid for insurance premium; whereas the ratio for the richest fifth was 1 to 2.4. Low premium with high benefit suggested that the National Health Insurance has realized the ideal of taking care of the low-income people. The success of Taiwan's National Health Insurance has drawn worldwide attention. In the past two years, 35 countries have sent 401 people to Taiwan to study the program.

In 2003, the National Heath Insurance initiated a financial mutual assistance scheme, a strategy to prevent minor diseases from becoming serious, a comprehensive care system by family doctors, and through family doctors, to maintain a community healthcare network so as to raise the quality of health care in the community. Under this program, 10 counties and cities are carrying on 18 pilot projects. It is expected that this program will be extended to 200 community medical care groups in 2004.

To establish a safe, ethical healthcare environment, we have completed the renovation on the system of hospital accreditation to meet people's real medical care needs. Last year, we revised the 2004 accreditation criteria for hospitals at all levels, the accreditation forms, and the data tables, and promulgated the 2004 accreditation procedure and criteria for hospitals and teaching hospitals, with 184 hospitals applying. A total of 94 hospitals offered training to medical school graduates with 1,427 doctors participating.

4. Promoting people's health to free them from the fear of illness.

To deal with the people's No. 1 killer, the Legislature enacted the Cancer Control Act in May 2003. Under this law, the DOH mapped out a five-year cancer-control plan, sketched the vision, set up a cancer-control network, and improved the quality of care and hospice care for cancer patients. We will continue to strengthen in communities screenings of breast cancer, cervical cancer, and oral cavity cancer. In 2003, 160,000 women over 50 years were screened for breast cancer, and 190,000 betel-nut chewers were screened for oral cavity cancer. Some 53.5% of women over 35 years received Pap smear test for cervical cancer in three years. To promote the control of tobacco hazards, we enlisted 175 schools, 160 working places, and 770 restaurants to join our non-smoking drive. In addition, focusing on health promotion factors such as healthy diet, health fitness and healthy environment, we launched the "Challenge 1824" plan, and promoted "the building of healthy environment program".

We have attained the world level in promoting National Health Insurance and in the prevention and control of SARS, and have applied our ability for the well-being of the people. In the future, we should make further improvement on this solid foundation. We should also seek cooperation with international professional healthcare organizations, foster healthy life in communities, and cultivate the culture of health for all people before we can carry out the vision of a healthy life for all.

CONTENT

Ⅰ・Introduction

I. Introduction

The Population

(1) Population and Growth Rate

In 2002, the Taiwan area (including Kinmen and Matsu) had a total registered population of 22,520,000, consisting of 11.490,000 males and 11,030,000 females. The growth rate was 5.14‰. The age structure of the population is shown in Figure 1-1.

(2) Birth, death, and natural increase rates

In 2002, the crude birth rate was 11.02‰ and the crude death rate was 5.73‰, with a natural increase rate of 5.29‰, as shown in Figure 1-2

(3) Age Composition

In the 2003 population of the Taiwan area, 20.42% was under the age of 15; 70.52% between the ages of 15 and 64 (the productive age groups); and 9.02% above 65 years. Therefore, every one hundred productive age people had to support 42 dependent people (under 15 and above 65 years). The age structures of population by year are shown in Figure 1-3.

Figure 1-1 Age Structure of Population, Taiwan Area, 2002

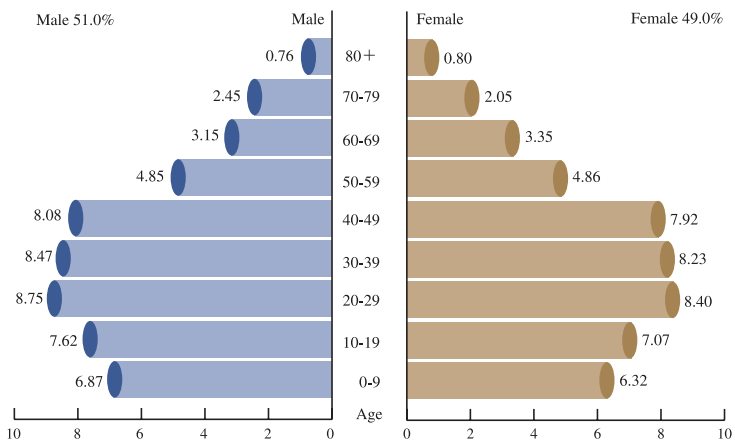
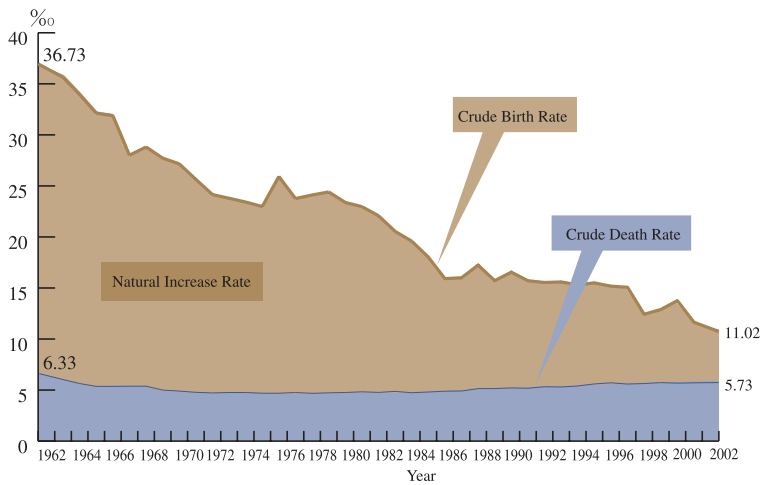


Figure 1-2 Crude Birth Rate, Crude Death Rate, and Natural Increase Rate of Population, Taiwan Area



Life Expectancy

Despite the advances in medicine and healthcare, improvement in nutrition and living environment, and enhancement of health and medical care, crude death rate continues to increase. This is mainly because of the aging of the population. If this factor of population aging is discounted, the standardized death rate is on the decrease, resulting in the yearly rise of life expectancy. In 2003, the average life expectancy was 75.58 years; 73.35 years for males, and 79.05 for females, as shown in Figure 1-4.

Ten Leading Causes of Death

In 2003, there were 129,878 deaths, with a rate of 575.63 deaths for every 100,000 population. Compared with the 1952 rate of 950.80, there was a 4 per thousand points decrease. The leading causes of deaths have changed from acute communicable diseases to chronicle illnesses, accidents and injuries (see Figure 1-5).

Neonatal, Infant, and Maternal Mortality

Thanks to medical advance, the neonatal mortality rate had decreased from 18.79 per 1,000 live births in 1956 to 3.01 in 2002, and infant mortality rate from around 40.0 per 1,000 live births to 5.35 in the same period. In the same

Figure 1-3 Age Structure of Population by Year, Taiwan Area

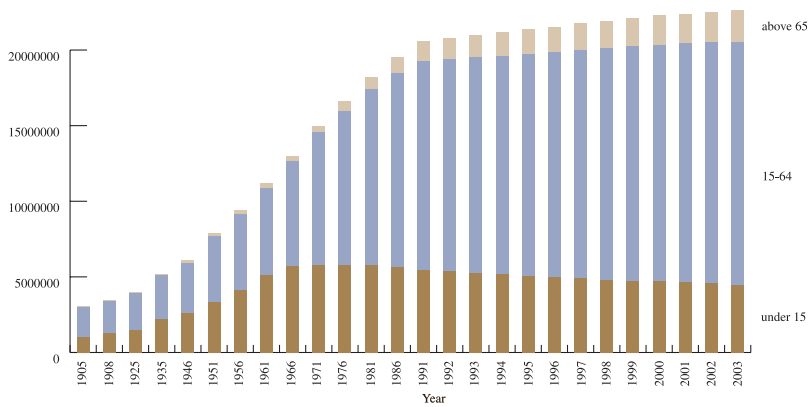
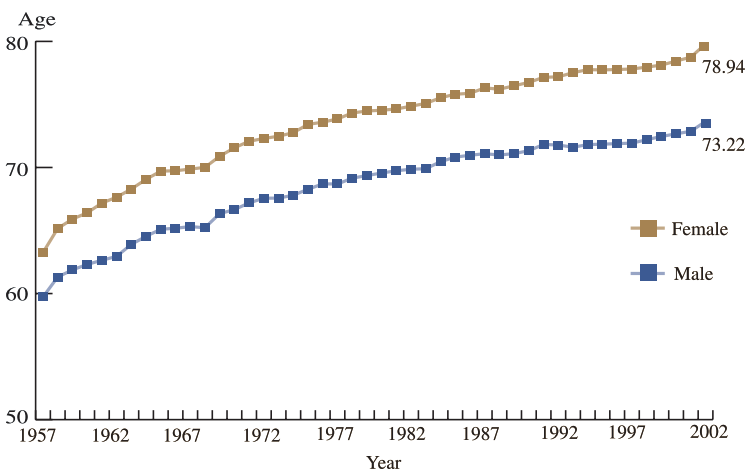


Figure 1-4 Average Life Expectancy, Taiwan Area



period, maternal mortality rate had declined sharply from 197 per 100,000 live births to only 8 (see Figure 1-6).

Health Expenditures

Beginning in 1991, Taiwan compiled its own National Health Expenditure (NHE) statistics by taking account of its national income system and other factors and by referring to the OECD system.

Taiwan's national health expenditures compose of expenditures by the government, the private sector, and the insurance sector. To avoid repetitions in calculation, statistics are first compiled on the purposes of final spending and then on the disbursement of the spending organizations, and finally on the financial sources of spending organizations.

Since 1991, the per capita health expenditure has been on a steady increase. After the implementation of the National Health Insurance, the national health expenditure even exceeded 5% of the GDP. The NHE in 2002 was NT$ 584.3 billion, an increase of 4.06% over the previous year, and was 5.99% of the GDP of that year. The per capita spending came to NT$26,013.

Figure 1-5 Changes in Ten Leading Causes of Death

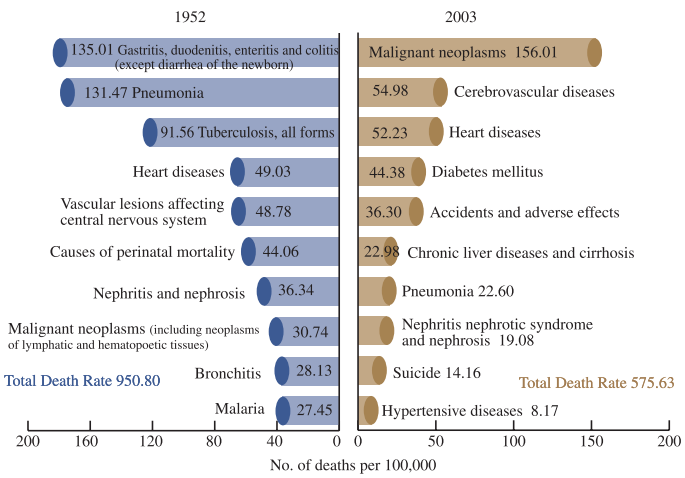
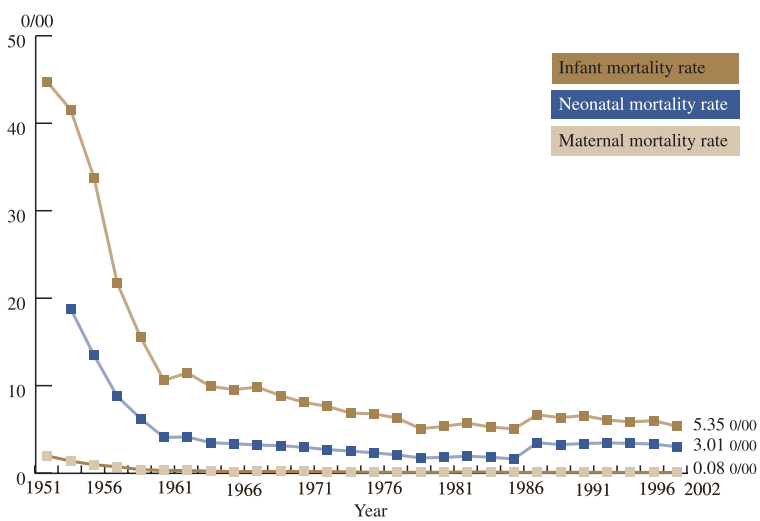


Figure 1-6 Neonatal Mortality Rate, Infant Mortality Rate, and Maternal Mortality Rate by Year, Taiwan Area



Ⅱ · Organization of Health Administration

II. Organization of Health Administration

In Taiwan, the organization of health administration is different from that of an ordinary administrative agency. It is divided into just two levels, the central and the local levels (special municipalities, cities and counties). At the central level, the Department of Health (DOH) under the Executive Yuan is the highest health authority of the nation, in charge of the formulation of national health policies, health administration, and guidance, supervision and coordination of local health organizations.

At the local level, there are health departments in the two special municipalities of Taipei and Kaohsiung, and health bureaus in the 23 city and county governments. Their major task is to promote various health programs in their respective districts in coordination with the national health policy. Every health bureau maintains health stations at every rural and urban township under the county or city jurisdiction to take charge of grass-roots health affairs. Besides, in every remote district, there is a health room to provide people with basic health and medical care services. At present, there are 25 health bureaus, 369 health stations, and 497 health rooms.

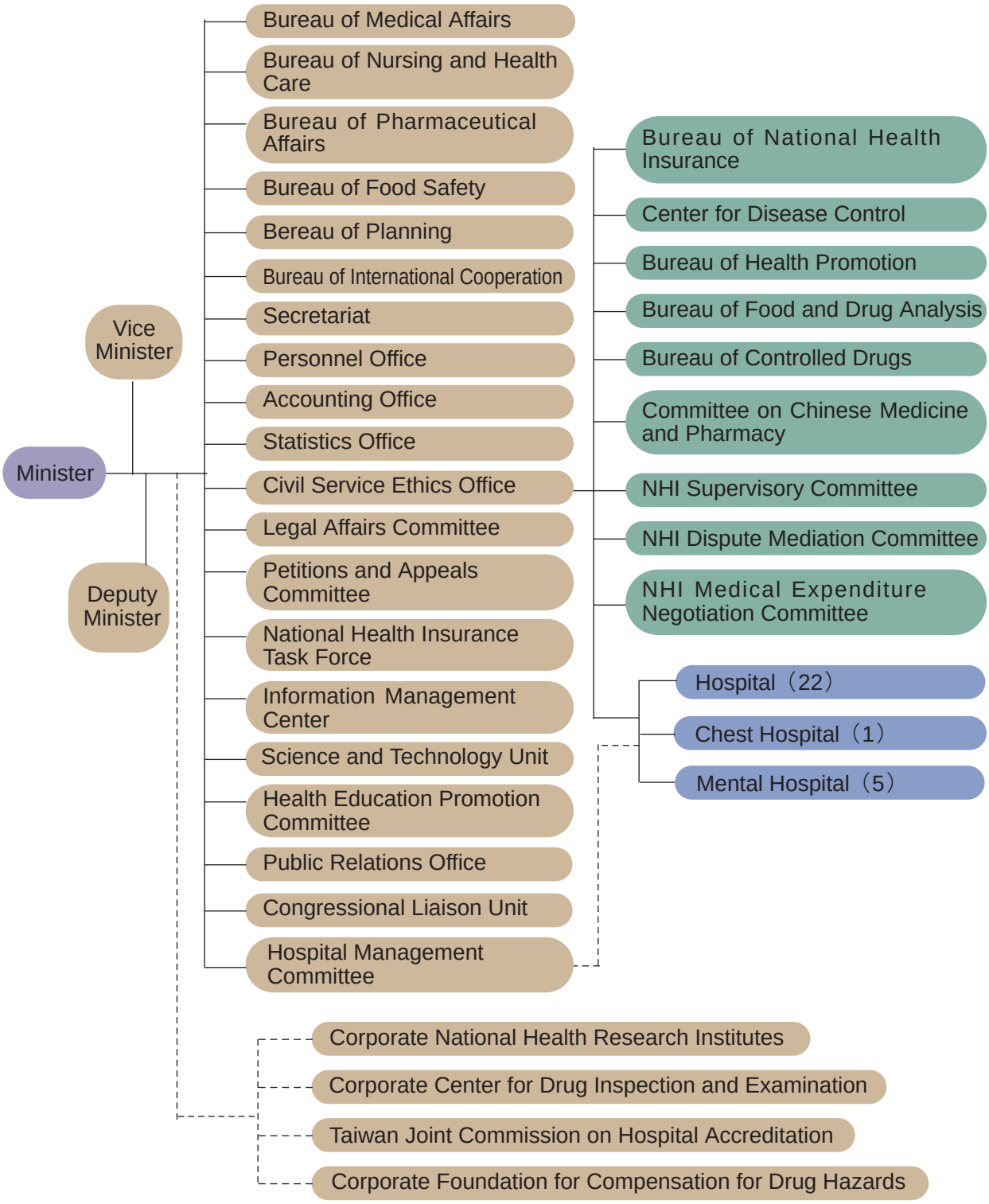
1. Health Organization at the Central Level

The DOH has four Bureaus, Medical Affairs, Pharmaceutical Affairs, Food Safety, and Planning, and a Central Region Office, a National Health Insurance (NHI) Task Force, an Information Center, a Science and Technology Development Unit, and an International Cooperation Unit. Its subordinate agencies include the Bureau of National Health Insurance, Center for Disease Control, Bureau of Health Promotion, Bureau of Food and Drug Analysis, Bureau of Controlled Drugs, Committee on Chinese Medicine and Pharmacy, National Health Insurance (NHI) Supervisory Committee, NHI Dispute Mediation Committee, and NHI Medical Expenditure Negotiation Committee. The DOH also sets up the Corporate National Health Research Institutes, Corporate Center for Drug Evaluation, Taiwan Joint Commission on Hospital Accreditation, Corporate Foundation for Compensation for Drug Hazards, 21 hospitals, one chest hospital, and five sanitariums (see Figure 2-1).

2. Restructuring of Organization

Beginning in the 1980s, countries all over the world, including the United States, the United Kingdom, Canada, New Zealand, Japan, and even the Mainland China, have vied for restructuring their government organizations in order to strengthen national competitiveness. The Republic of China instituted the process of restructuring in 1983. In 1998, the Executive Yuan promulgated the Guidelines for Government Restructuring to serve as the supreme directive and speeded up the restructuring. In July 1999, the Taiwan Provincial Government was downsized, reducing Taiwan's administrative structure from four levels to three levels, the central level, two

Figure 2-1 Organization of the Department of Health, the Executive Yuan



municipalities and the county/city level, and the urban and rural township level. In March 2001, President Chen Shui-bian convened a Government Restructuring Committee to accelerate the restructuring of the central government. In October 2002, the Department, jointly with the Ministry of the Interior, made a preliminary planning for a Ministry of Health and Social Security.

Beginning in 1999, the Department proceeded to restructure its organization in keeping with the principles of "downsizing organization, increasing administrative efficiency, and establishing a vigorous government," "carrying out division of labor in the making and implementation of policies to avoid role confusion," and "integrating the existing resources and unifying administrative authority." Since then, it has completed the following tasks: 1) integrating the disease control system by establishing a Center for Disease Control; 2) subsuming the various health-promotion units under the newly established Bureau of Health Promotion, 3) rebuilding the tuberculosis control system by giving the public health aspects of the system to the Center for Disease Control, and medical care to chest hospitals; and 4) before the amendment of the National Health Insurance Act, the National Health Insurance Task Force, NHI Supervisory Committee, and NHI Medical Expenditure Negotiation Committee were placed under one roof to integrate the planning, supervision, and management of the National Health Insurance.

SARS hit Taiwan in 2003, making a heavy impact on the healthcare system. It caused great damage to many people's health and economy; it also exposed the DOH's inadequacy in its restructuring. Therefore, while making an effort to recover from the SARS damage, the Department once again examined Taiwan's public health system, and made several restructuring proposals. Its restructured Organization Act was promulgated by the President in June 2004. These are the highlights of the law:

(1) Restructuring the administration of medical affairs by changing the Bureau of Medical Administration into the Bureau of Medical Affairs. The reorganized bureau is put in charge of the management of medical personnel, medical care institutions and groups, improvement of medical technology and management of medical quality, psychiatric diseases and mental health.

(2) Using the Central Region Office to establish a Bureau of Nursing and Health Care for the promotion of special medical care services, such as care in the mountain areas and offshore islands, and long-term care.

(3) Establishing the Bureau of International Cooperation and overseas posts to strengthen participation in international health affairs and to promote health diplomacy in an effort to join the WHO at an early date and in international medical cooperation. (See Figure 2-1 for the organizational chart as of July 2004).

(4) Facilitating the execution of difficult tasks by coordinating with the police authorities to establish health police to ensure the safety of health inspectors.

(5) Setting up under the Center for Disease Control a research and laboratory testing center to enhance the laboratory testing

capacity on various communicable diseases; and an information center for the installation of a nationwide epidemic information network to quickly gather disease information for reference by policy makers. Employment restrictions are made flexible to recruit high-tech personnel and professionals of medicine and preventive medicine for service in disease control.

3. Diversified Management of Public Hospitals

(1) Organization of the DOH Hospitals

Under the Department, there are 22 general hospitals (including the Yuli Hospital), six branch hospitals, five sanatoriums, and one chest hospital. All of them are managed and supervised by the DOH's Committee on Hospital Management.

(2) Organizational Development

a. Regional Alliance

To improve the management of hospitals, and to upgrade service quality, all DOH hospitals have been organized into regional alliances and, to meet the need of their management, four regional management committees, the Taipei Region (the Taipei Hospital), the Northern Region (the Taoyuan Hospital), the Central Region (the Taichung Hospital), and the Southern Region (the Chiayi Hospital) have been established. Through resource sharing, technology exchange, and joint marketing, service quality and efficiency of the hospitals are improved, operation costs are reduced, and competitiveness upgraded. The head hospital of each regional committee will act as a management center in the use of medical care resources, deployment of medical personnel, financial and property management, training of specialists, filing of claims for NHI payments, and information and administrative management.

b. Diversified Management

The BOT (build, operate, and transfer) mode is employed for the planned Shuanghe Hospital in order to increase the private sector's participation. On December 11, 2003, the Taipei Medical University was selected as the best applicant for the project. Besides, the Department commissioned, on November 1, 2001, the Taipei Veterans General Hospital to run the Ilan Hospital. It is also studying to entrust the National Taiwan University Hospital the management of the Yunlin Branch Hospital, and the Armed Forces Hospital the management of the Penghu Hospital. To overcome the difficulties in recruiting medical doctors, there is also a plan to share the facilities with hospitals in the private sector on a joint management and partially opening basis. The Department is also studying the feasibility of establishing one public hospital in each county and city.

(3) Upgrading the Quality of Medical Care Services

a. A Universal Improvement of Quality

To make the organization more flexible for the enhancement of competitiveness, the Department has helped its hospitals raise across-the-board the quality of their services as ordered by the Executive Yuan. Various activities have been initiated in this end. The DOH Fengyuan Hospital won the 14th National

Quality Award; the DOH Keelung Hospital bagged the Executive Yuan's 2002 Service Quality Award; the Chiayi Sanatorium snatched the Quality R&D Award; and the DOH Tainan Hospital got a National Golden Axe Medal and a Silver Axe Medal. In 2003, the Department subsidized 26 hospitals to conduct total quality management activities.

b. Introduction of the ISO Accreditation System

The Department has introduced into its hospitals the ISO9001, ISO15189, ISO17025, TQM, 5S, hospital identification systems, and the medical care quality indicators. In 2003, the DOH Keelung, Chutung, Nantou, Yunlin, and Taitung Hospitals passed the test for ISO17025 and ISO15189 accreditations offered by the ROC Laboratory Accreditation System.

Ⅲ・National Health Insurance

III. National Health Insurance

The National Health Insurance was launched to integrate the medical payment systems of the Government Employees' Insurance, Laborer's Insurance, and Farmers Insurance. It is aimed to establish a single health insurance system to promote health for all people by reducing the barriers to seeking medical care and improving access to adequate medical care through the collection of insurance premium in keeping with the spirit of self-help and mutual assistance. Although it is a government-operated program with only one underwriter, the program is operated by varied committees. They include the NHI Supervisory Committee, the NHI Dispute Mediation Committee, and the NHI Medical Expenditure Negotiation Committee. These committees, though placed under the Department, are organized by scholars, the insured, employers, and representatives of medical insurance service, related government agencies, and other organizations. These committees provide consultations on insurance policies, hammer out agreement on medical expenditure, process relief for medical disputes, and supervise the insurance program on behalf of the people through collegiate operations. This has effectively raised the efficiency of the insurance program and the quality of the services provided.

After a decade of operation, the program has reached its goal of fair burden for the people, guaranteed quality of service, and contained medical expenditure. However, obvious budgetary imbalance has emerged since 2000 as a result of economic development, aging of population, advance of medical science and technology, and the people's rising medical expectations. Hence, the Department raised the insurance premium rate in 2002 and organized a task force to plan for the second-generation health insurance and the structural changes for the ever-lasting management of the program. This chapter describes the current status and prospects of the insurance underwriting, insurance financing, medical payment, insurance payment system, and also the contents of the health insurance IC card.

1. Insurance Underwriting

The National Health Insurance is a compulsory social insurance. It is intended to provide the people with an equal right to access medical care through collective participation and risk sharing. All ROC nationals who have had domicile registration in the Taiwan area for four months and foreigners who have lived in the Taiwan area with residence certificates for more than four months are required to join the program and become the targets of insurance.

The insured are divided into six categories according to their employment status and insuring agencies. Wage earners are insured through their employers along with their dependents. The unemployed are insured through local governments. All those who have the status of the insured are not allowed to insure as dependents.

To attain the goal of insurance for all, the government has taken various measures to induce the uninsured into the program. By the end of 2003, the insured people, not including military personnel, came to 21,882,099.

To reduce the burden of the people in economic strains, the National Health Insurance has taken various assistance measures. These include paying the insurance premium by installments, referring them to charity organizations for subsidies, establishing a relief fund, and offering interest-free loans. For the disadvantaged groups, there are medical protection measures. When one is unable to pay for insurance premium and yet is in urgent need for medical care and is in possession of proof of low-income, the hospital may decide at its own discretion whether the patient is qualified, and if so, to provide medical care to him/her as an insured person. The patient will be assisted to join the insurance program later. The National Health Insurance Act was amended in June 2003 to include favorable measures for people who cannot afford the premium. Under the new provisions, disadvantaged people may postpone or be exempt from the payment due. This is intended to reduce their pressure and induce them to join the program for medical care at an early date.

2. Insurance Financing

In finance, the insurance program must be self-sustainable, that is, the expenditure must be limited to the amount of revenue. The insurance premium is calculated on the basis of the insured person's salary or wages and the burden is divided among the insured, the employer, and the government according to different contribution rates (see Table 3-1).

Table 3-1 National Health Insurance Premium Contribution Rates by Category

Category	The Insured	Contribution Rate (%)		
		The Insured	Employer	Government
Category 1	Government employees*	30%	70%	0
	Public service personnel Teachers and employees of private schools	30%	35%	35%
	Employees of public and private enterprises and organizations with definite employers	30%	60%	10%
	Employers Self-employed owners Practicing professionals and skilled technicians	100%	0	0
Category 2	Union workers Alien fishermen	60%	0	40%
Category 3	Farmers, fishermen and employees of water regulation associations	30%	0	70%
Category 4	Soldiers on compulsory military service Draftees serving alternate military service Students of military academies	0	0	100%
Category 5	Low-income households	0	0	100%
	Veterans and survivors of veterans	0	0	100%
Category 6	Dependents of veterans	30%	0	70%
	Other regional population	60%	0	40%

* Amended in August 2002

At the beginning, the premium rate was set at 4.25% of the monthly salary or wages. In recent years, because of the economic slowdown, the aging of the population, and the advance of medical science and technology, the growth of medical expenditures has far exceeded the increase of premium, resulting in the imbalance of the insurance finance. As the problem was becoming increasingly serious, the premium rate was raised in September 2003 from the original 4.25% of seven years ago to 4.55%. As for the insured that paid a fixed amount of premium, the insurance underwriter decided to increase this fixed premium to NT$1,078, if they belonged to the fourth and fifth categories of insurance, mostly people who were serving voluntary or substitute services or who belonged to low-income households. As the government is paying the premium for them, the adjustment does not increase their burden. As for the insured belonging to the sixth category, mostly retired servicemen and the unemployed, no adjustment was made in view of the fact that the economic slump was continuing and they could not afford the additional burden. They continue to pay the amount of NT$1,007. It is estimated that the adjustment of premium rate will increase the insurance revenue by NT$18.1 billion.

Between March 1995 and December 2003, the insurance income, calculated on the basis of right to collect and duty to pay, was NT$2,420.131 billion, whereas the cost was $2,412.367 billion. In 2003, the revenue was NT$336.875 billion and the cost was NT$337.774 billion, representing a shortfall of NT$899 million. The accumulated security reverses were reduced to NT$7.764 billion, lower than the amount of a month's spending (about NT$28.1 billion). According to Article 67 of the National Health Insurance Act, the premium shall be adjusted when the total

Table 3-2 Incomes and Expenditures by Year of the National Health Insurance (by Responsibility)

Year	Incomes	Costs	Balance	Surplus of Safety Reserves
Mar-Dec 1995	1939.91	1568.47	371.44	371.44
1996	2413.28	2229.38	183.90	555.34
1997	2436.38	2376.13	60.25	615.59
1998	2604.80	2620.40	-15.6	599.99
1999	2648.95	2858.98	-210.03	389.96
2000	2851.70	2842.06	9.64	399.60
2001	2861.46	3017.88	-156.42	243.18
2002	3076.96	3234.74	-157.78	85.40
2003	3368.75	3377.74	-8.99	77.64
Total	24,201.30	24,123.66	77.64	

Notes: 1. Incomes = Insurance premium + fines for delayed payment + net incomes from capital use + allocation from the public-interest lottery + health and welfare tax on tobacco products - reserves for bad debt
2. A total of NT$ 4.675 billion (NT$ 4.523 in 2000, NT$ 65 million in 2001, and NT$ 87 million in 2002) for subsidies on medical costs for victims of the September 21 earthquake has been deducted from the costs.
3. The bases of premium collection were amended and expanded in August 2002, and insurance premium rate was adjusted from 4.25% to 4.55% in September 2002.

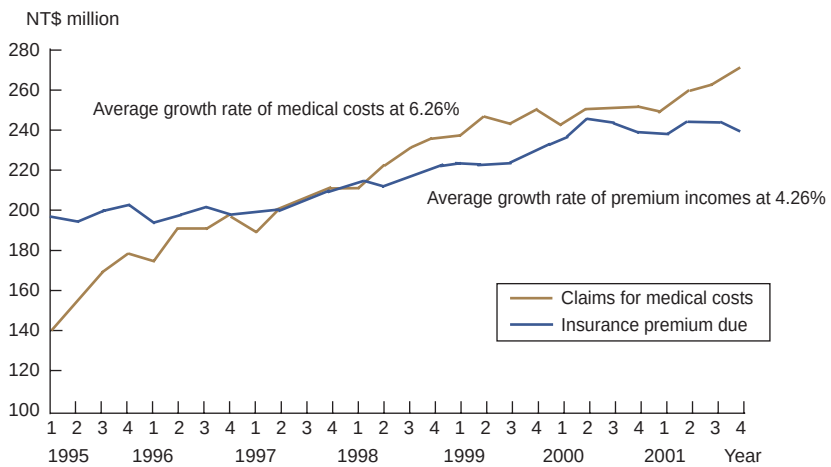
amount of reserves is lower than the amount of a month's spending. To ensure sound finance, the Bureau of National Health Insurance (BNHI) will continue its effort to open up new sources of revenue and cut down on the spending. But the final solution continues to be the compliance to the provisions of the National Health Insurance Act and to the improvement of the actuarial mechanism (see Table 3-2 and Figure 3-1 for details).

3. Medical Payments

To improve the access to medical care of the insured, the Bureau of National Health Insurance has contracted medical care institutions around the nation. By the end of 2003, there were 21,567 medical care providers, including 17,259 medical care institutions, 3,559 pharmacies, 23 midwifery clinics, 66 community psychiatric rehabilitation centers, 409 home care institutions (including home hospice care institutions), 251 designated medical laboratories, and 19 physical therapy facilities. In 2002, the number of out-patient visits per person was 14.45, increasing by 0.14% as compared with the 14.43 visits in 2001. Of these out-patient visits, 11.99 were made to doctors of western medicine, 1.15 to dentists, and 1.31 to doctors of Chinese medicine. As for hospitalization, the 2002 number was 13.33 times per one hundred persons, marking an increase of 3.56% over the 12.96 times of 2001. The average days of hospital stay were 9.07 days, an increase of 2.49% over the 8.85 days of 2001.

To strengthen medical care for people of the mountain areas and offshore islands, the BNHI launched a "health insurance payment enhancement plan" in November 1999 to encourage medical care institutions to move to the remote areas to provide medical care services, to increase supplies of medical care services, and to meet the inhabitants' demand for medical care. By the end of 2003, the BNHI had enforced the plan in all the 48 mountain districts and offshore islands to serve 400,000 inhabitants at a cost of about NT$2.1 billion a year.

Figure 3-1 Incomes and Expenditures by Year of the National Health Insurance (quarter average)



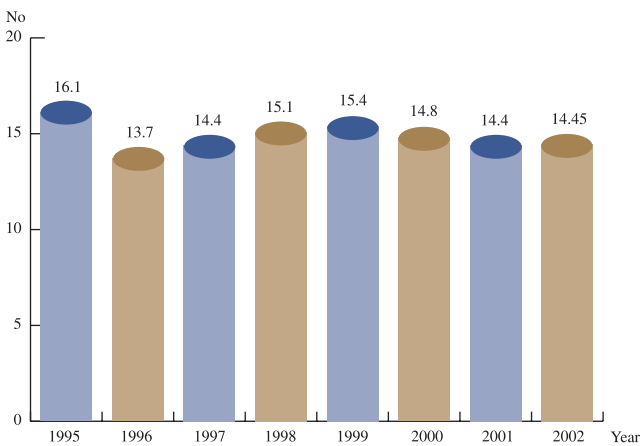
Notes: 1. Figures based on quarterly data.
2. Data up to June 2002.

To reduce their financial burdens, seriously ill patients such as patients of cancer, chronic psychiatric diseases, hemodialysis, congenital disorders, and rare diseases are exempt from co-payments. There are about 560,000 such patients. Although they account for a mere 2.9% of the insured, they use up NT$77 billion worth of medical resources in 2001, or 23% of the total medical costs. This indicates that under the National Health Insurance, seriously ill patients have really benefited from the participation of the masses who have shared the huge amount of medical care expenses. The number of out-patient visits per person is shown in Figure 3-2.

As for raising the quality of drug use of the public, the BNHI is accelerating the inclusion of new medicines and, on the other hand, relaxing the regulations on pharmaceutical payments by taking account of clinical needs. Regarding the inclusion of new medicines, the yearly additions were, 13 items in 1996, 54 in 1997, 75 in 1998, 42 in 1999, 36 in 2000, 73 in 2001, and 56 in 2002. The accumulated costs of these new medicines ran to about NT$12.6 billion. Payments for medicines were often restricted in the past even for indications already approved, because of the concern about abuse and the financial burden. To increase the options in drug use and reduce patients' burden, the BNHI has relaxed the payment restrictions in the recent years. For instance, restrictions on the payments of a number of medicines have been relaxed. They include medicines for depression (May 2002), second-generation medicines for mental diseases (September 2002), medicines for reducing cholesterol (September 2002), medicines for osteoporosis (October 2002), medicines for the treatment of respiratory tract infections of infants and children (January 2003), medicines for the 8th and 9th blood coagulation factors (May 2003), and medicines for digestive ulcer (October 2003).

In addition, the NHI also provides four preventive care services to the insured; namely, preventive healthcare for children, preventive healthcare for adults, cervical smear test for women, and prenatal examinations for pregnant mothers. Estimation by the number of the insured using the services between January and November 2003, the 2003 use rates for these

Figure 3-2 Average Number of Outpatient Visits per Person by Year



Note: The number of outpatient visits per person is calculated by dividing the total number of visits to western medicine, dental, and Chinese medicine clinics by the year-end total of the insured.

four services were 72%, 41.5%, 30.5%, and 77.5% respectively. As shown in Table 3-3, if households are divided into five categories according to their annual income, households in all these categories have been benefited by the insurance program for an amount more than double their payments for premium. The benefit for households in the category of the lowest income is as much as more than five times. Households in the category of the lowest income pay the lowest rate of premium. Their high benefit and low premium payment indicate that the insurance program has taken care of the low-income groups and lowered the barriers in their access to medical care services.

4. Payment System

Given the rapid growth of medical costs, to reasonably contain medical costs, to promote a balanced distribution of medical care resources, to upgrade the quality of medical care service and health of the population, and to ensure the ever-lasting management of the insurance program, payments by the National Health Insurance to medical care institutions have moved toward more diversified ways. In July 2002, it began to enforce a broad picture, across-the-board global budget system. In details, it went to reform the payment schedules and the claim review system. Measures included payments for quality of service rendered (such as a plan to improve payment for five major diseases, and a pilot project for integrated medical care through family doctors), expansion of the plan for case payment, and the study of formulating a table of payment schedules based on comparative values (the RBRVS system). These measures suggest that the BNHI is moving from case-by-case review toward medical-care pattern review based on file analysis.

The global budget for the year is compiled by the Department in accordance with the provisions of the National Health Insurance Act before the start of a fiscal year. After approval by the Executive Yuan, it is referred to the NHI Medical Expenditure Negotiation Committee, which will call the payers and medical care service providers to a meeting to reach an agreement on the total amount and the way of allocation among the specific branches of medical care services. The global budgets, the ways of allocation, and the results of negotiation are shown in Table 3-4.

The payment schedules for medical costs are reviewed and revised continuously in order to raise the quality of medical care services and reasonably reflect the comparative justification of the payment points, to promote the balanced development the various departments and the hospitals at all levels. The major adjustments

Table 3-3 Benefits and Expenditures from the National Health Insurance by Family Category, 2002

Family by income	Benefit (NT$)	Premium (NT$)	Benefit/Premium (NT$)
Ⅰ (lowest)	15,357	3,199	4.8
Ⅱ	13,367	3,903	3.4
Ⅲ	13,412	4,290	3.1
Ⅳ	13,196	4,662	2.8
Ⅴ (hightst)	13,412	5,528	2.4

Source: Statistics Office, Department of Health

made in 2003 included: adjusting upward pharmaceutical service fees for pediatrics and special medicines (including prescriptions of radioactive medicines, TPN, and chemical therapy medicines for cancer) to upgrade the quality of pharmaceutical services; adjusting upward fees which have been relatively low to encourage medical care for acute and critical illnesses such as chronic psychiatric care and psychiatric medical care, acute beds, surgical operations, cancer therapy, care of premature babies and treatment of infants and young children; and amended and restricted the daily number of patients receiving acupuncture and treatment for injury and joint fracture offered by each full-time medical doctor of a Chinese medicine hospital to 45 to ensure the quality of Chinese medicine care. In keeping with the provisions of the Administrative Procedure Act, 547 items already approved but not yet included in the payment schedule were included in the payment schedules. Planning is ongoing to promote case payment for inpatient care, and to establish the RBRVS system.

Table 3-4 Growth Rate of Medical Costs by Year of the National Health Insurance

Year / Category		2001		2002		2003	2004
		First half-year	Second half-year	First half-year	Second half-year		
Range approved by the Executive Yuan		2.21-4.54%		1.67-4%		1.55-4.02%	0.51-4.00%
Negotiation Committee	Negotiated by the NHI Medical Expenditure	4.11%		2.342-3.707%	3.883%	3.899%	3.813%
	Global Dental outpatient	3.32%		2.50%		2.48%	2.64%
	Chinese medicine outpatient	6.33%	3%	2.00%		2.07%	2.41%
	Western medicine outpatient	2.21-3.97%(targets)		3.727%		2.898%	2.70%
	Hospital	2.21-3.97% (targets)		1.61-3.727% (targets)	4%	4.01%	4.10%
	Others	-		-		Additional NT$ 1.3 billion	Additional NT$ 10 billion

Notes: 1. The first phase of the global budget payment system for the Chinese medicine outpatient was from July 2000 to June 2001; and the second phase, from July to December 2001.
2. The first phase of the global budget payment system for western medicine primary care was from July 2001 to December 2002.
3. The first phase of the global budget payment system for hospitals was from July to December 2002.

Table 3-5 Reduction Rates After Review of Claims for Outpatient and Inpatient Medical Costs to the National Health Insurance

Year	Reduction rate after initial review	Reduction rate after re-review	Reduction rate after dispute mediation
1997	3.28%	2.34%	2.21%
1998	2.73%	1.96%	1.81%
1999	3.48%	2.75%	2.53%
2000	3.97%	3.14%	2.94%
2001	3.29%	2.87%	2.84%

The review and administrative relief for NHI medical costs come in initial review, reply, and re-deliberation, dispute mediation, appeal, and administrative litigation.

The initial review is made by procedure review and professional review. The professional review for dentistry, Chinese medicine, and western medicine primary care has been commissioned to the respective national joint associations. By the end of 2003, 1,228 review doctors had been recruited. The rates of reduction of outpatient and inpatient medical costs by year are shown in Table 3-5.

The re-deliberation is a pilot attempt to determine the conditions to be prescribed in Paragraph 3 of Article 32 of the Regulations Governing NHI Review of Medical Care Service Rendered by Medical Care Institutions. For dentistry, the BNHI South Branch Office carried out, in 2002, a pilot project for "the Re-deliberation of Cases of Extraordinary Management by Dentists." For the review of western medicine primary care, the BNHI Central Branch Office conducted, in 2003, a pilot project on "the RE-deliberation Operation of Global Budget System for Western Medicine Primary Care."

To perfect the functions of mediation on NHI disputes, a review system was established on evidence-based medicine. It is intended to raise the quality of service and protect patients' right and interest through the analysis of ethical, legal and economic policies. In this fiscal year, a meeting of evidence-based medicine was held to establish the principles for the review. In 2003, the Department received 582 appeals, of which 127, or 21.82%, concerned the National Health Insurance.

5. Health Insurance IC Card

On January 1, 2004, an IC-chipped card for National Health Insurance was put in use across the nation to meet the requirement of the electronic age and improve the insurance and medical record. With the IC card, the insured can get safer and more convenient services. The IC-card has replaced the paper card, children's health manual, and pregnant women's manual of the past. As the IC-card is not to be renewed in the next five to seven years, the change has saved the insured time and much of the insurer's administrative manpower. This is consistent with the goal of "all cards in one and one card for all." As the IC card contains all the medical information of the holder, it also contributes to disease control to protect the health of the people.

The name-card size health insurance card contains a small IC chip that provides enough memory for use and is divided into the "personal information sector," "health insurance data sector," "medical special sector," and "health administration special sector." In the beginning, the card contains only the personal information of the holder such as the name, ID number, birth date, medical number and medical record. The medical record includes the dates and names of medical care institutions of the last six visits, the serial numbers of these medical care institutions, and the number of visits for preventive medicine and health care. The purpose of the IC card is same as the paper card, involving no privacy. Only doctors can

write medical record on the chip. As ordinary people cannot read it, it is more effective in the protection of privacy. In the future, when new information is to be added, public-interest organizations will be consulted. The addition will be planned taking into account the holder's right to choose and be carried out after reaching a consensus in an effort to strike a balance between privacy and health.

6. Prospects and Challenges

The Executive Yuan has established a task force to chart the course for the national health insurance of the second generation. Its vision is to create a sustainable national health insurance system based on justice, efficiency, and quality to provide the people with basic social welfare. To attain this goal, the second-generation NHI will continue to adhere to the three basic principles: consistence between financial right and duty, enhancement of medical-care quality, and enlargement of social participation. Bearing these principles in mind, the task force is working on a national health insurance mechanism that emphasizes participation by all, credibility of medical care institutions, equality of financial right, and sustainability of the program. It seeks to carry out the following tasks involving various disciplines, the exercise of collective wisdom, and the division of labor.

a. A plan to reform the premium system as the financial source of the National Health Insurance program;
b. Upgrading the operational efficiency by ensuring consistence of right and duty;
c. Enlarging the participation by the general public and legal persons in the making of health insurance policies;
d. Establishing a policy-making mechanism for the allocation of medical resources;
e. Strengthening the system of obligating the provision of best possible medical care service.

The government is persistently pushing a people-centered health insurance payment system based on human care in hope that both the individuals and their families can receive appropriate medical care. Measures include, for instance,package payment for the care of patients with special diseases, changes in the procedure and mode of acquiring medical care, thorough enforcement of the referral system and treatment by level, and promotion of the family doctor system. It is hoped that the people will enjoy tailor-made medical care service as well as easy access and that the National Health Insurance program can serve the welfare of families as well as individuals.

Ⅳ · Medical Care Systems

IV. Medical Care Systems

1. Medical Manpower

The Department has worked hard in recent years to augment medical manpower in remote areas and in some specialties in an effort to train doctors on government scholarship to provide medical care services in every urban and rural township in the remote areas and on offshore islands. In 2003, 160 doctors on government scholarship were recruited; and forensic medicine, occupational medicine, and genetic medicine were made specialties for the government-scholarship doctors. Relevant regulations on the assignment of doctors trained on government scholarship were also reviewed and amended reflecting changes in physician manpower. By 2003, a total of 5,740 doctors had been trained on government scholarship. Of them, 1,261 are rendering their obligatory services, with 609 working in special branches of medicine, and 294 are fulfilling their second-phase service, including 13 in the mountain areas and on offshore islands, and 23 at the DOH designated hospitals, and the rest are serving in health stations and public non-teaching hospitals.

In addition, doctors are encouraged to undergo complete professional clinical training and absorb new know-how continuously so as to enhance the quality of medical care services and promote the health of the people. In accordance with Article 7-1 of the Physician's Act, a set of Guidelines for Specialization and Qualification of Physicians was established on June 29, 1988. Under these guidelines, the Department has entrusted professional medical societies to screen the qualifications of specialist physicians. To balance the distribution of doctors by specialties, beginning in 2001, the reassessment and accreditation of teaching hospitals for different specialties have been carried out each year on a provisional basis to promote and realize a resident physician quota plan. From the implementation of the Guidelines up to the end of 2001, the Department had issued a total of 29,842 specialist physician licenses. Oral and maxillofacial surgery and oral pathology were made dentistry specialties on August 3, 1998,

Table 4-1 Goals of the Growth of Medical Care Resources

Goals	1st Phase (end 1990)	2nd Phase (end 1996)	3rd Phase (end 2000)	4th Phase (end 2004)
Population per physician (No. of physicians per 10,000)	1000 (10.0)	860 (11.6)	750 (13.3)	750 (13.3)
Acute beds per 10,000	26.6	32.0	35.0	33.1
Psychiatric beds per 10,000	7.5	9.0	10.0	10.0
Nursing home beds per 10,000 (Nursing home beds per 10,000 elderly)	–	0.6 (7.3)	3.0 (35.2)	– (65.0)

Table 4-2 Medical Manpower

Category	No. Licensed	No. in Practice	No. in Practice/10,000
Physicians	46,728	32,799	14.51
Chinese medicine doctors	9,972	4,532	2.01
Dentists	12,683	9,711	4.30
Pharmacists	30,759	19,193	8.49
Assistant pharmacists	12,644	7,622	3.37
Registered professional nurses	107,130	70,619	31.24
Registered nurses	164,946	32,364	14.32
Midwives	53,062	586	0.26
Medical technologists	13,565	7,364	3.26
Medical technicians	1,239	366	0.16
Dietitians	3,673	1,644	0.73
Physical therapists	3,376	2,230	0.99
Physical therapy technicians	2,207	1,235	0.55
Occupational therapists	1,504	1,095	0.48
Occupational therapy technicians	312	111	0.05
Medical radiological technologists	4,223	3,379	1.50
Medical radiological technicians	375	254	0.11

Notes: 1. Population at the end of 2003 was 22,604,548.
2. Data up to December 2003.

and November 3, 2000, respectively; and occupational medicine was announced as a specialty on December 4, 2001.

2. Medical Facilities

To protect the interests of patients, medical care institutions are supervised to the proper use of medical equipment, to avoid attracting patients with expensive equipment, resulting in heavy burden in medical costs for the patients, the insurance undertaker and the government. The Department has set up a set of Regulations Governing the Review and Assessment of Expensive or Dangerous Medical Equipment for Procurement and Use by Medical Care Institutions to provide a basis for medical care institutions to follow in the procurement and utilization of designated sophisticated medical equipment.

Equipment that has been designated by the Department as being expensive or dangerous includes computer tomography scanners, radioisotope equipment, supervoltage radiotherapy equipment, magnetic resonance tomography equipment, shock-wave lithotripsy equipment, ossatron orthopedic shock wave, excimer laser photorefractive keratectomy equipment, automatic implantable cardioverter defibrillators (AICDs), rotationary coronary angioplasty retablators, and amplatzer septal occluder. The inclusion of hyperbaric oxygen equipment on the list of expensive and dangerous equipment will be drafted in the future. Medical associations and medical centers will be asked to specify conditions for the procurement, and appropriate rules for the

use of this equipment.

Medical waste can be classified into general and hazardous wastes, and hazardous waste produced by medical care institutions is further divided into three categories, infectious, chemical, and radioactive. The waste produced by medical care institutions must be disposed of properly to avoid contaminating the environment. Survey statistics show that on the average, each hospital bed produces 3.1 kilograms of waste and 0.8 metric tons of wastewater per day, of which 15% consists of hazardous infectious waste.

Because of serious insufficiency of medical incinerators in Taiwan in earlier days, in 1989 the Department began planning, by medical care region and with the help of regional medical coordination committees, the establishment of a medical waste treatment system aiming at achieving economic efficiencies through centralized treatment. The number of existing incinerators and their designed treatment capacity of more than 176 tons daily are enough to dispose of the current 45-ton daily production of infectious waste. To solve the problem of medical waste, the Department has strengthened the appropriate classification and reduction of medical waste with the goal of achieving waste reduction from the basic level by educating hospitals and clinics. In response to the impending implementation on January 1, 2004, of the Standards for Dioxin Control and Emissions for Small and Medium-sized Waste Incinerators, and for maintaining the normal operation of existing medical waste incineration facilities, the Department began to make functional assessment and to solicit improvement suggestions on the treatment of dioxin by small and medium-sized incinerators in 2002 in order to guide hospitals and the medical waste joint-treatment systems to conform to environmental protection regulations.

3. Quality of Medical Care

Control of the quality of medical care is accomplished primarily through hospital accreditation, with effective supervision of hospitals to strengthen their management and improve the quality of their medical care services as well as the establishment of a medical care system by level to help the public seek medical care. In addition, the Department has established a Committee on Medical Care Quality to formulate national policy directions on medical-care quality, and to strengthen the implementation of some special projects on medical care quality such as hospital clinical pathway, evidence-based medicine, medical care quality circles, quality of medical records, radiology, surgery, obstetrics and gynecology, pathology, and outpatient care, learning-type organizations, medical care quality indicators, correct use of antibiotics, and research and workshops. In addition, the Department established in February 2003 a patient's safety committee to engage in studies and activities that will increase patient's safety, to conduct epidemiological surveys of patient safety, to develop guidelines for clinic safety, to establish patient safety websites, and to supervise medical care institutions for setting up safety committees. The Department has also organized more than twenty training courses for the heads of medical care institutions, doctors, nurses, pharmacists, laboratory technicians, blood transfusion technicians, and managers of medical affairs for more than 3,000 participants. A plan for medical center accreditation reform has been completed; and a Hospital Accreditation Consultation Committee has been set up to assess and review the hospital

accreditation and teaching hospital accreditation systems. By the end of 2002, a total of 533 hospitals had passed the accreditation; among them were 17 medical centers, 72 regional hospitals (including 66 teaching hospitals), 406 district hospitals (including 43 teaching hospitals), and 38 psychiatric specialty hospitals (including nine teaching hospitals). Following are some major items of work:

(1) To upgrade quality of medical care and ensure patients' safety, the Department will strengthen the functions of the committees on medical-care quality and patients' safety by recruiting professionals in relevant fields to serve as members and join in the making of national policies on medical care quality and patients' safety.

(2) To continue the supervision of all hospitals to raise their medical-care quality and improve the safety of their patients by setting the directions and policies of hospital accreditation reform. For this purpose, the Department has developed a mechanism to follow-up supervision of hospital accreditation at irregular intervals. It has also strengthened the participation in national quality conferences and exchange of experience with international accreditation organizations.

(3) To promote a patient-centered working environment, set up a standard operational process in hospitals, continue to push evidence-based teaching, and plan for the establishment of a set of clinic criteria suitable for the situation of the nation for medical workers to follow. It may also be used as reference for clinic teaching and training and as work guideline for health insurance organizations.

(4) To instill the correct idea into medical personnel with regard to medical care management, the Department will strengthen the pre-service and on-job training for medical personnel in an effort to create a medical-care environment centered on patients' safety.

(5) To develop indigenous goals for patients' safety in medical care institutions and gradually establish a non-penalty-based internal and external reporting system on inimical affairs. With this, we can, through the installation of an information system, share our experience in patients' safety and learn a lesson from the accidents.

4. Emergency Medical Services

To strengthen the national emergency medical care service system, upgrade the quality of emergency medical care services, and safeguard the life and health of patients under emergency care, the Department announced in August 1995 the Emergency Medical Care Act.

Some important measures and achievements in emergency medical care services thus far are summarized as follows:

(1) Both the National Taiwan University and National Chengkung University medical teams have been subsidized to set up disaster medical rescue teams of national standard to meet emergency medical care needs at times of disasters.

(2) Mobilization of healthcare manpower for disaster rescue and rescue of mass casualties have been strengthened. In coordination with the Disasters Rescue Act, its enforcement rules and other relevant regulations, plans for the prevention and control of disasters have been drafted. Exercises on the rescue of mass casualties have been conducted regularly. A command system for the management of medical care

for mass casualties has been set up.

(3) 200 hospitals have been designated as responsibility hospitals for emergency medical care to provide 24-hour services. Training programs have been organized for rescue and medical personnel to improve their rescue skills and to upgrade the functions of the emergency departments. A system of emergency medical care specialists has been set up. Continuing education for emergency care personnel has been strengthened. By the end of 2003, 536 emergency care specialists had been trained.

(4) A system for the reporting of emergency and critically ill patients has been set up to improve the congestion of critically ill patients at emergency departments. A system for the assessment of the quality of emergency care and care of critically ill patients has been set up. Assessment teams are set up in regions to supervise and assess the quality of emergency care and care of critically ill patients in hospitals.

(5) Regional communications and information systems for emergency care have been strengthened to include special radio communications systems, amateur radio communications systems, common communications channels for emergency care, and information management systems for emergency care to upgrade the quality of emergency medical care.

(6) Obstetrics and gynecology departments of all medical care institutions have been included in the emergency medical referral system of the perinatal period so as to enhance the standards of intensive medical care for the newborns and pregnant women of high-risk groups.

(7) Clinical counseling and testing for the control of toxic substances have been strengthened; the Taipei Veterans' General Hospital, Tzu-chi Buddhist Hospital, and Kaohsiung Medical University Hospital have been subsidized in the establishment of Toxic Substance Control Counseling and Testing Centers; and clinical toxic substance control, counseling, and testing services are provided. Subsidies were also provided for the establishment of eight toxic substance and chemical hazard emergency responsibility hospitals and 23 hospitals for medical decontamination and safekeeping of personal protection devices in order to upgrade the toxic drug and chemical disaster emergency rescue capabilities of hospitals. In addition, an antidote control center was set up and antidotes are stored in 47 hospitals.

(8) Training in CPR for the general public has been conducted and educational materials on emergency care have been produced for the education of the public.

(9) Systems against nuclear hazards have been strengthened. Thirteen hospitals have been subsidized to be responsibility hospitals for emergency care against nuclear hazards.

(10) The Ministry of Education has been assisted to produce a publication, "Principles for Handling Emergency Casualties in Schools."

(11) Efforts have been made to promote the establishment of a mass casualties monitoring network for the Taiwan area and integrate the related databases.

5. Prevention and Control of Psychiatric Diseases

Both the prevention and control of psychiatric diseases focus on the prevention and treatment, protection of the rights of patients, improvement of their welfare, promotion of the

mental health of the population, and maintain the harmony and peace of the society. The Department announced on December 7, 1990 the Mental Health Act to strengthen medical care for psychiatric patients and promote mental health of the population.

Important measures and major achievements in the prevention and control of psychiatric diseases are summarized as follows:

(1) Strengthening of the administrative system for mental health: One special unit each has been set up at the national and county/city levels. One person has been assigned specifically for the administration of mental health programs.

(2) Fortifying the service network for psychiatric care: Since 1986, the Taiwan area has been divided, according to the geographic condition, population and resource distribution, into seven responsibility regions. A core hospital is designated for each region to support other hospitals in the region. Regional psychiatric care networks have been established. Training programs have been organized. Emergency care of psychiatric patients and follow-up management of cases have been strengthened.

(3) Improvement of psychiatric care facilities: Budgets have been compiled to subsidize public hospitals and encourage private hospitals to set up psychiatric wards. By the end of 2003, there were 218 psychiatric hospitals and clinics with a total of 20,193 beds. An additional 8,366 beds have been approved. The goal of 10 beds for every 10,000 population will soon be reached.

(4) Development of professional manpower for psychiatric care: Through salary increments for psychiatrists, assignment of medical students trained on government scholarship to work on psychiatric care, encouragement of medical students to specialize in psychiatric care, continuing education for psychiatric care personnel, offering of opportunities for advanced training locally or overseas for psychiatric care personnel, and training of primary-care workers in psychiatric care, both the quantity and quality of psychiatric care manpower have been enhanced significantly.

(5) Promotion of mental health: To meet the public's demand for mental health services, the Department worked out a Clinical Psychologist's Act, which passed the Legislative Yuan on October 31, 2001, and went into effect via a presidential decree on November 21 of the same year. Under the Act, counties and cities are subsidized to set up year by year community mental health centers to provide counseling and services in mental health, and to promote education of mental health. The emergency care stage of the mental health reconstruction project for victims of the September 21, 1999 earthquake was completed on June 30, 2000. In the stages of long-term reconstruction, 2000 to 2004, a mental health service center is set up each in the Taichung and Nantou areas for mental health counseling, education, suicide prevention, drug-abuse prevention, and follow-up of cases of trauma syndromes.

(6) Prevention of suicides: On March 5, 2001, the Department invited the Ministry of the Interior, Ministry of Education, Council of Labor Affairs, and Government Information Office to organize a Suicide Prevention Group, calling on the participating agencies to prevent suicides within their powers and responsibilities. The Department instructed health bureaus of the various counties and

cities to establish a suicide case reporting network and provide follow-up service including referring cases to other agencies. It has also mapped out a plan for establishing a national-level anti-suicide center.

(7) Subsidies for mandatory hospital care of patients: By regulations of the Mental Health Act, the Department designated 86 psychiatric care institutions in 2003 for the mandatory hospital care of seriously ill psychiatric patients. Medical costs of the mandatory hospital care are subsidized.

(8) Education and publicity: To prevent suicides, the Department has prepared a number of educational materials. These include a Drunk-prevention Handbook, a Self-help Handbook for Victims of Sexual Assaults, three short films on the prevention of suicides, and a DIY pressure-relief CD. Besides, the Department has subsidized city/county health bureaus, Friend of Recovery Association, ROC Psychological Association, John Tung's Foundation, the ROC Chapter of International Lifeline, and the ROC Autism Association, to conduct psychological and mental health publicity activities.

(9) Prevention of domestic violence and sexual abuse: Seminars were held and training of professionals was carried out; a reporting and coordination system was established; medical care services for victims as well as treatment of abusers were strengthened; and an indigenous treatment model was developed and its effectiveness assessed.

6. Long-term Care

The Department has taken the following measures for long-term care:

(1) Implement a "single-window service" system and establish by city and county governments demonstration centers for the management of long-term care. In addition, a case management system was set up to carry out such functions as integration of resources, assessment of case needs, referral services, and the display and rental of auxiliary aids. By the end of 2003, 25 counties and cities had set up the center.

(2) Subsidize, through the Medical Care Development Fund, the interest payment of nursing homes for the expansion of buildings, and assist public hospitals to use the idle beds for setting up nursing homes. By the end of 2003, 243 nursing homes had been in operation with a total of 12,438 beds, an average of 61.2 beds per 10,000 elderly.

(3) Encourage health stations of mountain areas and offshore islands to provide home nursing care service; assist hospitals, public and private alike, and nursing homes, to provide same service. By the end of 2003, 392 home care centers had been established.

(4) Initiate respite care throughout the nation since 1999. The health authority subsidizes each case NT$1,000 a day for a maximum period of seven days. This measure benefited 2,133 households in 2003.

(5) Strengthen the development of manpower for long-term care by providing training for physicians, nurses, occupational therapists, patient-service workers, and other personnel.

(6) Raise the quality of long-term care by mobilizing city/county health bureaus to survey nursing homes. A total of 221 nursing homes, 58 home care centers, and 16 teaching nursing homes were surveyed; and, 111 hospitals were assisted in providing pre-discharge services to patients.

(7) Implement a pilot plan for long-term care at Sanhsia and Yingge of Taipei County and at Chiayi City in cooperation with the Executive Yuan's social welfare promotion task force. The plan was designed to assess, introduce, integrate and develop resources to meet the needs of the elderly in the community.

7. Health and Medical Care in Mountain Areas and on Offshore Islands

The insufficiency of medical care resources in mountain areas and on offshore islands affects the convenience in life and the access to medical care services. To narrow the medical care discrepancy between the city and the countryside, the Department has striven to improve the health stations, provide a safe medical care environment, and raise the skills of medical personnel in rural and mountain townships and on offshore islands. The Department has implemented a Plan for Community Health Building in Aborigine Tribes and Offshore Islands and other measures in an effort to raise the medical care standard and create healthy communities.

The current key measures and achievements of this effort are summarized below:

■ Development of Medical Manpower

(1) The Department launched a "Plan for Cultivating Native Medical Personnel" in 1969 in an effort to train aborigine and offshore medical workers with government scholarship and assign them to serve at their hometowns. The plan was consolidated for implementation on Matsu and Kinmen as well in 2002. By end, 2003, 282 physicians had been trained with public fund. Of them, 84 have completed the stint of their service and 85 are still working at their posts.

(2) Assignment is made for young men who are serving substitute military service to aborigine townships or offshore islands if they possess medical skills in order to beef up the medical manpower and raise the medical care standard in these places. Between 2000 and 2003, 375 had been assigned. Graduates of medical schools will join their rank in 2004.

(3) The Department has formulated a Plan for Encouraging Physicians to Work in Mountain Areas and on Offshore Islands; and subsidized medical societies and institutions to offer courses of continuing education in order to increase the number and to raise the standard of medical personnel for work in mountainous areas and on offshore islands.

■ Strengthening of Medical Care Resources and Facilities

(1) In fiscal 2004, five aborigine and six offshore health stations/rooms were subsidized to expand their buildings and purchase new equipment.

(2) Resources of the local authorities and hospitals are integrated and the strength of the private sector is enlisted through the implementation of the Integrated Delivery System (IDS) to ensure "medical care in every township and medical support for every village."

(3) On the offshore islands, medical care is supported by military hospitals as well as by public and private hospitals. Besides, the Bureau of National Health Insurance has launched an IDS plan to support specialty medical care, medical care at fixed points and on holidays, mobile out-patient service, and commissioning of medical care services. County hospitals are being helped

for affiliation to other organizations. All these measures are intended to integrate medical care resources and improve the medical care of the locality.

Protection of Aborigines and Offshore Islanders' Rights to Medical Care Service

(1) The DOH has coordinated with the Council of Indigenous Peoples to subsidize insurance premium payments to reduce aborigines' burden and popularize NHI services.

(2) Health education is being carried out in earnest for aborigines in order to ensure their health.

(3) Health building centers are being set up in aborigine communities. So far, there are 58, scattered in seven tribes and on offshore islands. In fiscal 2004, the Department will strengthen the training of volunteers and subsidize schools to open training classes for healthcare volunteers in order to increase their medical knowledge and skills required for continuing health improvement in aborigine tribes and on offshore islands.

(4) Strengthening the transport system for emergency medical care. To serve the offshore islanders, an air medical care system has been established to transport by helicopter patients and the injured for prompt medical care services, and travel subsidies are offered to serious patients who seek to move from an offshore island to Taiwan proper for medical care.

(5) From fiscal 2003 through 2005, a three-stage screening service is offered to aborigines over age 30. Specialty physicians are entrusted to do the job. Items of screening include hypertension, high cholesterol, and high blood sugar for adults and the elderly, breast cancer, liver cancer, colon cancer, oral cavity disorder, cervical cancer, prostate cancer, uric acid, and osteoporosis. Case files are established for management and follow-up.

(6) Specialists are recruited to survey the medical needs, disease patterns, and medical behavior of aborigines and offshore islanders.

Tele-Medical Care

(1) Establishment of a tele-medical consultation system: This is intended to provide medical care services to aborigines by medical centers through medical consultations and teaching. So far, 25 units are put on line. They are the National Taiwan University Hospital connected to health stations of Wulai of Taipei County, and Jenai of Nantou County; Taipei's Veterans General Hospital connected with Kinmen County Hospital, Ilan County Health Bureau, and the health stations of the Orchid Island and Green Island of Taitung County, Hoping township of Taichung County, and Hsinyi of Nantou County; National Chengkung University Hospital with the DOH Penghu Hospital and Ali Health Station of Chiayi County; the Tri-Service General Hospital with the Lienchiang Hospital; Tzu Chi Hospital with the health stations of Hsiulin in Hualien County and Haituan of Taitung County.

(2) Promoting the tele-medical consultation system: This is implemented according to the needs of a locality, intended to provide training to physicians, medical personnel, and medical administrators and raise the quality of medical care at the grass-roots level.

V · Control of Communicable Diseases

V. Control of Communicable Diseases

1. Disease Surveillance and Epidemiological Investigations

(1) The purposes of disease surveillance and epidemiological investigations are to timely detect epidemics, to establish a long-term trend of disease prevalence, and to promptly conduct epidemiological investigations of any outbreaks or abnormal occurrences of diseases to understand the causes of such outbreaks or abnormal occurrences for reference in the formulation of policies concerning disease control. The distribution of notifiable diseases in 2003 in the Taiwan area is shown in Table 5-1.

(2) Diversified disease surveillance systems have been established, and quick online reporting is carried out via different frameworks of surveillance system so as to rapidly detect and analyze disease surveillance data.

(3) The Department has offered 18 courses of the Field Epidemiology Training Program (FETP) and 16 of them have been concluded. In addition, it has conducted nine middle-level FETP courses in various cities and counties and 35 investigations on the outbreaks of herd infections of unknown diseases (see Table 5-2).

(4) Surveillance and control of emerging and re-emerging communicable diseases has been continued. The Department has contracted laboratories to monitor specific diseases. A total of 938 cases were reported and 28 of them have been confirmed.

(5) An integrated national disease control information network has been completed as follows:

The disease control information network includes surveillance of nosocomial infection, surveillance of new infectious disease syndromes, epidemiological geography, epidemic e-bulletin board, tuberculosis case management and public reporting, doctor reporting, student absentee reporting, and sentinel physicians' reporting. This was done in coordination with the efforts to establish databanks for communicable diseases, genes, nosocomial infection, sentinel physicians, blood bank, tuberculosis and so on and the GIS collection of communicable disease data and real-time disease monitoring and control.

2. Emerging Communicable Diseases

■ Prevention and Control of SARS

In 2003, the SARS (severe acute respiratory syndrome) epidemic caused heavy losses to medical care and the economy of the Taiwan area. Fortunately, thanks to the joint effort of the government and the people, the WHO finally removed Taiwan from its travel advisory and case concentration lists on June 17 and July 5, 2003, respectively.

(1) Major control measures are as follows:

a. Nosocomial infection control: the Department invited specialists to formulate procedures for the monitoring of nosocomial infection, and formed task forces in different regions to thoroughly monitor the infections in regional and above hospitals.

b. Laboratory diagnosis and pathogenic assessment: The DOH Center for Disease Control went all out to develop new laboratory technology in an effort to shorten the period of confirmation for quick diagnosis. At the same time, the Department strengthened cooperation

Table 5-1 Cases of Communicable Diseases, Taiwan Area, 2003

Category		Disease	Cases Reported	Cases Confirmed
I		*Cholera	0	0
		*Plague	0	0
		*Yellow fever	0	0
		*Rabies	1	1
		Ebola hemorrhagic fever	0	0
		SARS*Notes 3	3024	1
II	Group A	Typhus fever	0	0
		*Diphtheria	0	0
		Meningococcal meningitis	38	25
		Typhoid	104	34
		Paratyphoid	59	14
		*Anthrax	0	0
	Group B	*Poliomyelitis	0	0
		Acute flaccid paralysis	71	63
		Bacillary dysentery	338	237
		Amebic dysentery	304	121
		Open pulmonary tuberculosis	8986	7272
III	Group A	Dengue fever	1575	141
		*Dengue hemorrhagic fever/dengue shock syndrome	2	2
		*Malaria	32	32
		Measles	60	6
		Acute viral hepatitis A	161	158
		EHEC (Enterohemorrhagic E coli)	11	0
		Enterovirus complicated severe case	139	67
	Group B	Tuberculosis (except open pulmonary tuberculosis)	13376	8326
		Japanese encephalitis	308	25
		*Leprosy	3	3
		Rubella	53	3
		*Congenital rubella syndrome	0	0
		Pertussis	190	25
		Scarlet fever	1159	635
		Tetanus	13	0
		Scrub typhus	1732	255
		Acute viral hepatitis B	326	317
		Acute vital hepatitis C	165	165
		Acute viral hepatitis D	11	11
		Acute viral hepatitis E	10	9
		Acute viral unspecified hepatitis	39	0
		Legionnella	1737	91
		Invasive hemophilus influenza type b	66	22
		*Syphilis	3854	3854
		*Gonorrhea	1604	1604
		Mumps	673	-
		Chickenpox	12247	-
		Serious influenza	51	15
IV and others		*AIDS	161	161
		*HIV infection	759	759
		Other emerging communicable diseases	-	-

Notes: 1. Data include all cases by year of onset analyzed by the Communicable Disease Reporting and Management System on January 8, 2004.
2. *Only confirmed cases are included in statistics.
3. SARS cases in the first half-year were classified only by either probable cases or suspected cases; confirmed cases were included only in the second half-year. Of the 3,024 reported cases for the year, one was a confirmed case, 664 were probable cases, and 1,295 suspected cases.
4. Influenza includes only cases with severe complications.

Table 5-2 Surveys of Outbreaks and Herd Infections of Unknown Causes, 2003

Disease	No. of Incidents
SARS	19
Fever cases	2
Pneumonia	1
Pulmonary tuberculosis	12
Bacillary dysentery	1
Total	35

with the US CDC, Japan's National Infectious Disease Institute, and the WHO laboratory to introduce the latest testing methods and test reagent to confirm the result of testing at the first instant of time.

c. Prevention and control of influenza: the DOH Center for Disease Control imported 1,900,000 doses of influenza vaccine for immunization of the elderly above 65 years of age, employees of long-term care institutions, and staff members of hospitals and clinics.

d. Border control: In view of the frequent traffic between the two sides of the Taiwan Strait, border control was tightened to prevent the import of cases. All incoming passengers were required to take temperature measurement and fill out a SARS control form upon arrival. The Department also helped suspected SARS patients receive medical treatment.

e. Medical care by level: the Department vigorously set up a medical care network for treating infectious diseases, and organized an "Allocation Center for Hospital Beds and Referrals of Infection Patients," and, through its information network, activated in four stages the related hospitals to take infection patients.

f. Temperature-taking at international airports and seaports: In the period between March 1 and December 25, 2003, the DOH Center for Disease Control measured body temperatures for 10,808,957 passengers and reported 26 cases (14 suspected cases, 5 probable cases, 5 rejected cases, and 2 cases cancelled reporting). In addition, it screened out 15 dengue fever cases, 35 bacillary dysentery cases, and one tuberculosis case (the actual number of imported cases in the same period was, 17 dengue fever cases, 36 bacillary dysentery cases, and one tuberculosis case). All cases were referred to health organizations for management to prevent the entry and spread of communicable diseases.

g. Contract with hospital: To prevent the import of SARS, the DOH Center for Disease Control has contracted hospitals for moving into airport to handle passengers running temperature during O- and A-level mobilization.

h. Mobilization for epidemic control: on December 18, 2003, the Department started up the B-level epidemic control mechanism. To prevent outgoing passengers from spreading the disease, the Department immediately sent doctors to support the airport authorities

to handle passengers running temperatures. If a passenger had temperature and if the doctor could not rule out SARS in the case, he or she would not be allowed to leave the country. Individuals under self-health management were also prevented from leaving the country during the period of the management.

i. Increase of airport's quarantine equipment: To increase temperature-detecting equipment of the airports, the DOH Center for Disease Control purchased 23 sets of ultra-red temperature detector for installation at the CKS, Kaohsiung, Hualien, and Taichung Airports, and at the Keelung, Kinmen, and Matsu harbors for measuring body temperatures of passengers and to enhance quarantine efficiency.

j. Equipment for moving SARS patients: To meet the need for moving SARS suspects and patients, the Department bought 34 mobile negative-pressure cubes for installation on the offshore islands of Kinmen, Matsu, Penghu, the Green Island, and Orchid Island in January 2004, and in 22 infectious disease control hospitals.

k. Disinfection:

(a) Helping Taipei City Government map out the disinfection plan for the Heping Hospital after it was evacuated following a SARS outbreak;

(b) Helping Penghu County Government map out the disinfection plan for the Penghu Hospital;

(c) Setting principles for disinfecting the houses of SARS patients, patients quarantined at home, and means of transportation for reference by disinfection workers.

l. Self-health management and house quarantine:

(a) During the reign of SARS between March and July, 2003, the Department imposed a large-scale house quarantine on passengers who had had close contact with SARS patients, and on travelers from an area with SARS outbreaks at the heavy expense of manpower and materials incurring heavy costs on society and drastic impact on the economy. Taking this into consideration, the Department developed a set of procedures on self-health management and house quarantine in anticipation of a SARS comeback in the winter. It was developed on the basis of Taiwan's own experience and the WHO's know-how, and the principle of "no temperature, no quarantine."

(b) Those who had close contract with a SARS patient or came from a SARS-raging area were subject to self-health management for 10 days. Each morning and evening, they were required to measure body temperature. If a person who had close contact with a SARS patient developed fever but was diagnosed by a doctor as having no need for hospitalization, he or she would be quarantined at home for three days. During the period, they were not allowed to go out. During the period of self-health management and quarantine, a person was not allowed to go abroad.

(c) When SARS infection occurred in the laboratory of the National Defense Medical Center in mid-December 2003, a total of 34 persons who had contact with the infection were placed under self-health management,

including four dependents of the patient, five members of the same group, and a driver, 14 co-passengers on the aircraft, and 10 medical personnel associated with the care of the patient. During the period of management, their temperatures were normal. By December 25, the self-management was lifted for them all.

The SARS outbreak showed that as competition between men and microbes has never ceased, infectious diseases tend to emerge one after another. In the face of the onslaught of emerging communicable diseases, the Department has drawn up a plan for restructuring the disease control system in keeping with the Executive Yuan's Plan for Post-SARS Reconstruction in Taiwan so as to build a perfect defense against epidemics. Experiencing the trauma, people have become more aware of the importance of good personal hygiene (like measuring temperature every day).

3. Prevention and Control of Major Communicable Diseases

■ Respiratory Track Communicable Diseases

(1) Prevention and Control of Tuberculosis

Tuberculosis was the 12th leading cause of death in 2002; 22,366 cases were reported in 2003, and 17,976 cases were listed for management at the end of 2003. Following are some important control measures:

a. Establishment of a patient diagnosis and care network: Certification was completed for 606 tuberculosis doctors, and 496 others were trained in four courses on tuberculosis diagnosis and treatment.

b. Establishment of a tuberculosis laboratory network: Ten certified laboratories were contracted for sputum microbacterium examination for 23 counties and cities through the rapid delivery and reporting system, and the testing rate has been raised to 93%. Revision of the "Tuberculosis Laboratory Testing Manual" was completed this year.

c. Improvement of the public health system for tuberculosis: (1) BCG vaccination was strengthened, raising the rate of immunization for infants under one year of age to 97.37%; (2) 252,911 screenings were carried out for high-risk groups in areas with a high rate of incidence in order to detect patients; (3) online reporting for hospitals and clinics was continued, the reporting time was shortened to two days, and the number of hits reached 126,764 times throughout the year; (4) implementation of the DOTS plan was expanded to enhance the results of treatment management with a rate for positive sputum tests reaching 86%; (5) subsidies were provided for the treatment of 284 patients; (6) 1,760,522 copies of educational materials, compiled on the theme of tuberculosis control, were distributed to disease control units, hospitals and senior and above high schools; and (7) eight nursing courses were held for a total of 1,182 trainees.

(2) Meningococcal meningitis

A total of 38 cases of meningococcal meningitis were reported in 2003, of which 25 cases were confirmed, resulting in four deaths or a fatality rate of 16%. Compared with the previous year, both the reported number of cases and the fatality rate had declined. The major serotype involved in the confirmed cases was B, which accounted for more than half of the total, and most of the cases occurred in the January-April period. The monthly details are shown in Table 5-3.

Since both the number of cases of

Table 5-3 Distribution of Deaths of Meningococcal Meningitis by Month, Taiwan Area, 2003

Month	No. of Cases				By Serotype					
	No. of Reported Cases	No. of Confirmed Cases	No. of Deaths	Fatality Rate (%)	A	B	C	W135	Y	Uncertain
January	3	3	1	33.33	0	2	0	1	0	0
February	2	1	0	0.00	0	1	0	0	2	0
March	4	4	0	0.00	0	3	0	0	1	0
April	5	3	0	0.00	0	0	0	0	0	2
May	2	1	0	0.00	0	1	0	0	0	0
June	2	1	0	0.00	0	1	0	0	0	0
July	2	2	0	0.00	0	2	0	0	0	0
August	5	3	0	0.00	0	3	0	0	0	0
September	4	2	0	0.00	0	2	0	0	0	1
October	2	1	0	0.00	0	1	0	0	0	0
November	3	3	2	66.67	0	1	0	1	0	1
December	4	1	1	100	0	0	0	0	0	1
Total	38	25	4	16.00	0	17	0	2	4	5

meningococcal meningitis and the fatality rate tend to rise in recent years over those of the past 20 years, the Center for Disease Control has reinforced the quality and effectiveness of the control measures, which proceed in the following four directions: (1) standardization of the control measures; (2) health education; (3) holding of academic symposiums; and (4) engagement in indigenous studies. The Department has carried out a three-year epidemiological study of the risk factors of meningococcal meningitis. The 2001 and 2002 surveys on individual cases were completed and the preliminary statistic work is going on, scheduled for completion in 2004.

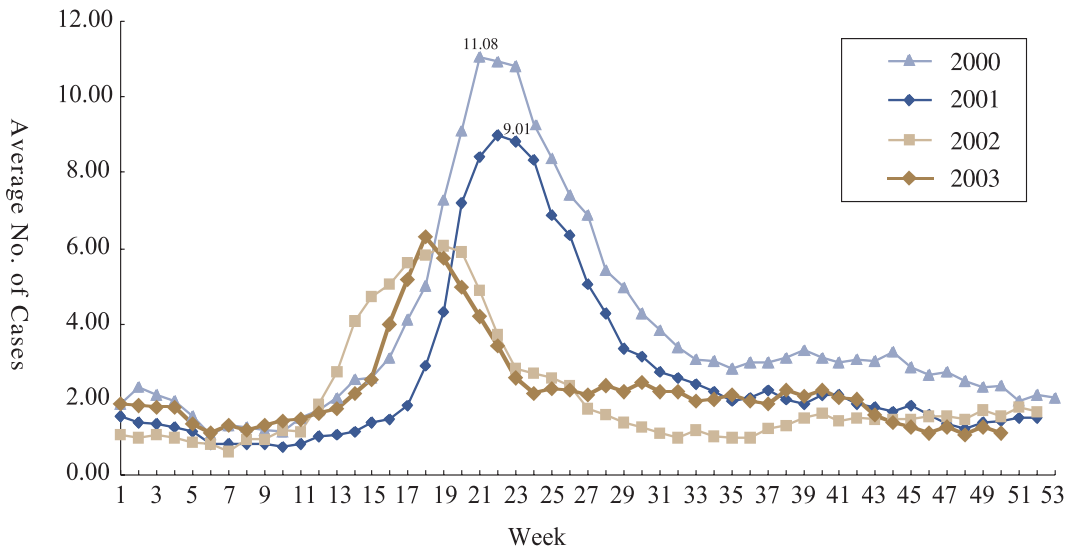
Gastrointestinal Communicable Diseases

(1) Enteroviruses

a. Surveillance systems are used to monitor enterovirus infections. These systems include the monitoring of severe complications from enterovirus infections in the communicable disease reporting and management system, the monitoring of the hand-foot-mouth disease and herpangina in the sentinel physicians' monitoring system, and the enterovirus hospital monitoring system to strictly monitor the status of enterovirus infection. For reporting by sentinel physicians of enterovirus cases by year, see Figure 5-1.

b. Handbooks for controlling enteroviruses have been compiled or revised. These include the revised version of the "Enterovirus Control Handbook," "Plan for Controlling Enteroviruses," "Enterovirus Control Handbook for Nurseries, Kindergartens, and Primary Schools," "Key Points for Clinic Handling of Serious Complications Caused by Enterovirus." The Department has conducted, in conjunction with the Chang Gung Children's Hospital, workshops on "Enterovirus-71 in Taiwan: Present and Future", and is planning to hold seven sessions of the course on

Figure 5-1 Cases of Enterovirous Infection Reported by Sentinel Physician by Week



"Clinical Diagnosis and Treatment for Serious Enterovirus-induced Complications."

c. A variety of health education and publicity were carried out prior to the beginning of the enterovirus season. Educational banners were hung in schools and other public places. Posters and leaflets were placed at MRT stations. To prevent enterovirus, the Department cooperated with business firms to conduct hand-washing mobile activities at schools.

d. Medical care counseling teams for patients with severe complications were organized in northern, central, southern and eastern parts of Taiwan, and the principles on the care of severe complications of enterovirus infections were established for observation by frontline doctors to reduce the death rate of enterovirus infection.

(2) Prevention and Control of Amebic Dysentery

Monitoring of amebic dysentery was continued. To prevent outbreaks of the disease, examinations of alien laborers, inmates of reform institutions, and inhabitants of nursing homes were strengthened.

(3) Hepatitis A

Hepatitis A vaccination was given to children above two years of age and primary school pupils in 39 remote aborigine townships of 12 counties and to pre-school toddlers in nine neighboring townships. The incidence of the disease in aborigine townships plunged from 108.59 cases for every 100,000 population in 1995 to no confirmed cases in 2003, proving the effectiveness of the control program (see Figure 5-2).

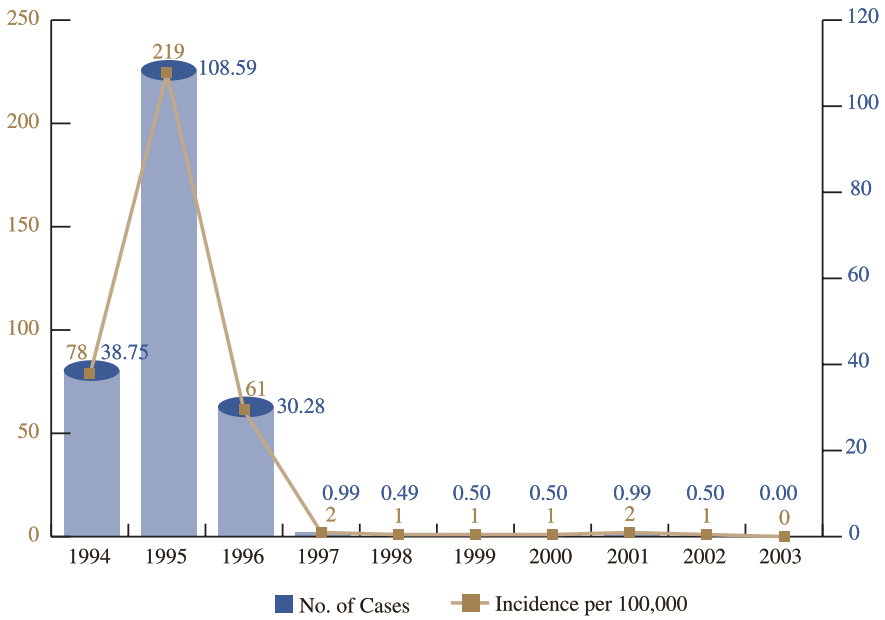
It was afraid that the start of mini-link between the two sides of the Strait of people and cargo would introduce Hepatitis A and pose a threat to children. Therefore, the Department began to vaccinate children between two and 12 years of age in Kinmen and Lienchiang (Matsu). Immunization for children above age two in these areas was listed as standard prevention measures and given free of charge.

Vector-borne Communicable Diseases

(1) Dengue Fever

Dengue fever prevailed in southern Taiwan

Figure 5-2 Incidence of Acute Viral Hepatitis C in Mountain Areas (1994 to 2002)



in 2001, but in 2003, there were only 56 confirmed imported cases and 86 confirmed indigenous cases. Of them, 51 broke out before March 6 and were considered continuation of the previous year's outbreaks. After March 6, there were a total of 35 indigenous cases, breaking out in Kaohsiung City (32 cases), Kaohsiung County (2 cases) and Yunlin County (1 case).

To control dengue fever, the Department has since worked in accordance with the "Four-year Plan for Eliminating the Breeding Places of Vector Mosquitoes." The following major measures have been taken:

a. Primary prevention (controlling vector mosquitoes by removing their breeding sources) :

(a) Distributing educational materials to various media for use.

(b) Establishing a mobilization mechanism: This included the revision and distribution of dengue-control handbooks, conducting field trips and educational training, and increasing the knowledge and skills of the control personnel. To curb the previous wave of prevalence, the "Plan for Dengue Fever Control by All People" was pushed in a large scale in March. Activities included stepped-up publicity and cleaning of vacant and outdoor places where mosquitoes would breed.

(c) Entrusting academic institutes to engage in related studies, including "a study of factors affecting the public participation in eliminating breeding sources of vector mosquitoes', and "a sero-epidemiological study for monitoring in the Kaohsiung-Pingtung district."

(d) Setting up a mechanism for monitoring the breeding sources of vector-mosquitoes and larva, and commissioning academic institutes to monitor their resistance to insecticides.

b. Secondary prevention (establishing an effective monitoring mechanism) :

To strengthen monitoring on passengers

from Southeast Asia, body temperatures were screened at airport beginning on July 17.

c. Tertiary prevention :

(a) Compiling a manual on "diagnosis and treatment of kidney-failure patients infected with dengue fever".

(b) Commissioning academic institutions to study risk factors associated with deaths from dengue hemorrhagic fever.

(c) Holding a regional workshop on clinical diagnosis and treatment for dengue fever and dengue hemorrhagic fever.

The symposium was held in Kaohsiung City in November 2003 with the participation of 25 experts from foreign countries, representatives of the APEC members, and 200 local experts and dengue control workers. They made a deep-going discussion on community participation, emergency mobilization, pathological diagnosis, control strategies, and regional cooperation for dengue fever control. The symposium reached a consensus that cooperation should be established in virus monitoring and molecular epidemiology, epidemiological surveillance and information exchange, management and care of patients, and vector surveillance and control.

(2) Prevention and Control of Malaria

To maintain the achievements of malaria eradication, malaria surveillance was continued and the control work was intensified against imported cases in order to avoid outbreaks of the disease. Health education was also strengthened and travelers going abroad were reminded to avoid being bitten by mosquitoes.

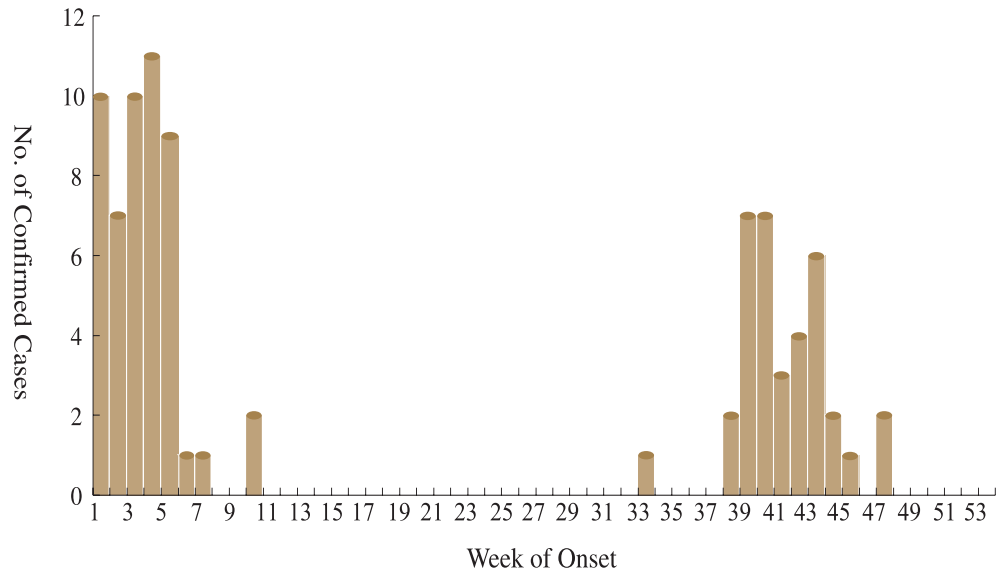
Two imported cases were reported in Taitung County in September 2003. In addition to the control effort made by the local health authority, the DOH Center for Disease Control sent a specialist to make investigations on vector-mosquitoes. The epidemic was curbed and no second wave of occurrence was reported. In October, the Department held a malaria control specialist conference to formulate the standard operational procedures on preventing imported infections from becoming an indigenous epidemic.

(3) Prevention and Control of Typhus Fever

Taiwan has not reported a single confirmed case of typhus fever since the island's restoration to China in 1945; all cases tested positive for typhus fever have been proved to be local typhus fever. To prevent outbreaks, surveillance has been stepped up and health education videos have been produced to familiarize the public with the disease.

(4) Prevention and Control of Scrub Typhus

Figure 5-3 Distribution by Onset of Confirmed Indigenous Dengue Fever Cases, 2003



The Department has continued the effort to control and prevent scrub typhus. In the most infected mountain areas and on offshore islands such as Kinmen, Taitung, Hualien, Nantou, and Penghu, related studies have been conducted.

(5) Japanese Encephalitis

Japanese encephalitis continues to be an indigenous disease of Taiwan prevailing between May and October with the peak falling in June and July. There are 300 to 400 reported cases a year but only 10 to 30 are confirmed. In 2003, there were 308 reported cases and 25 were confirmed. In terms of the age of patients, the maximum age was 71 and the youngest was two, with an average of 34.16. More cases were reported in the 20-40 age groups. Occurrence of the confirmed cases concentrated in the period from May to July. Of the 25 confirmed cases, two patients died. One died of respiratory failure complicated with septicemia and meningitis, and diabetes complicated with Japanese encephalitis. After-effects were detected in nine cases, accounting for 36%. These included abnormal extension of limb muscles in two cases, loss of sense in one case, headache and dizziness in two cases, degeneration of memory in two other cases, feeling of fatigue in still another two cases. The breeding of vector mosquitoes was mostly related to living environment. Of the patients, seven lived close to pig-raising households; ten lived close to paddy fields; six lived near pigeon scoops; and five lived in a place not far from a poultry farm. Six other patients, however, lived in a place with neither pig-raising households nor pigeon raising households nor paddy fields around.

■ Control and Prevention of Sexually-Transmitted Diseases and Sanitary Management of Business Establishments

(1) STD Prevention and Control

To understand the epidemiology of STDs in the country, the Department launched a "Plan for the Monitoring and Reporting of STDs by Sentinel STD Doctors and HIV Examination for STD Patients." It was carried out in cooperation with gynecologists and obstetricians,

dermatologists, family doctors, urologists, and doctors of infectious diseases of counties and cities. A total of 179 hospitals and clinics with 240 doctors participated in the plan. The targets for monitoring were STD out-patients. It was hoped that through implementation of this plan, the HIV reporting and specimen delivery system could be firmly established. To raise the standard of STD treatment, the Department also compiled an STD diagnosis and treatment handbook and held seminars.

(2) Business Sanitation

The style of social life in Taiwan has changed rapidly as incomes have risen in recent years. In 2003, there were a total of 24,058 sanitary business establishments, including 3,095 hotels, 18,103 barber shops and beauty salons, 337 bath houses, 1,489 entertainment joints, 758 swimming pools, 160 cinemas, and 116 massage parlors. These are administered by local governments in accordance with their business sanitation guidelines or the administrative autonomy statute. A total of 52,862 inspections of these business establishments have been carried out this year; 4,276 were ordered for improvement, and 694 workshops were organized.

■ Blood-transmitted Diseases

(1) Prevention and Control of AIDS

The first case of HIV (a foreigner) was detected in 1984. By the end of 2003, 5,650 HIV carriers (including 429 foreigners) had been detected. Of the domestic HIV carriers, AIDS broke out in 1,596, and 911 patients had died.

To cope with the increase of HIV carriers and strengthen the prevention and control of AIDS, the Department, with the approval of the Executive Yuan, began to enforce the "AIDS Prevention and Control Plan" in 1994. It is now at the beginning of the third five-year plan. This plan calls for strengthening medical care services, expanding the control network, perfecting the disease monitoring system, raising the level of laboratory testing, ensuring blood-transfusion safety, stepping up health education and publicity, fortifying STD control, cultivating professionals, and promoting the development of science and technology.

In December 2001, the Executive Yuan established an AIDS Control Promotion Committee, chaired by Vice Premier, to combine the strength of 12 government agencies and the private sector in the fight against the disease. Since then, the Committee has met regularly and held cross-group meetings in an effort to jointly push the control plan through a cross-ministerial mechanism. It is hoped that, by starting up the government machine, the number of infected people can be reduced and the task of AIDS control can be carried out thoroughly.

The Department has designated 27 hospitals to take care of AIDS patients and provide free cocktail medication therapy. To strengthen the screening for high-risk and specific groups, the Department has entrusted eight major hospitals, including the Taipei Veterans General Hospital, to provide free, anonymous screening service. So far, 2,944 have received the service.

The Taipei AIDS Education Foundation was designated as a half-way house for AIDS patients, which provides them with hospice care as well as daily-life care. It also provides a breathing space for the dependents and a place of temporary settlement to patients discharged from hospitals. The Foundation has 11 beds and has received more than 124 visits.

In coordination with the UN's call for "Eliminating Stigma and Discrimination: Live and Let Live", and the concept of "Knowing AIDS, Caring for AIDS", the Department has carried out a series of activities together with

private groups and local health bureaus, appealing to the public to participate in the crusade of AIDS prevention.

(2) Hepatitis B

On October 1, 2003, the Department officially launched the "Pilot Project for the Cure of Chronic Hepatitis B and Hepatitis C under the NHI Program", involving a budget of NT$1.2 billion for medicine subsidies. It is expected that about 16,000 hepatitis B patients and 4,500 hepatitis C patients will be subsidized. By the end of December 2003, 3,042 and 1,539 patients in the respective categories had received treatment.

Prenatal hepatitis B examination for pregnant women and immunization of the newborns against hepatitis B were continued, and make-up immunizations were provided for pre-school children and new primary school pupils. The rates of second dose hepatitis B immunization for infants born in the first six months of 2000 and 2001 were 96.9% and 96.6%, respectively, and the rate of the third dose immunization for those born in 2000 was 96.5%.

To strengthen the quality control of hepatitis laboratory testing, hepatitis B quality validation testing was carried out for hospitals designated for the health examination of alien workers, and also for laboratories of county and city health bureaus. The accuracy of testing for hepatitis B surface antigens and e-antigens by health bureaus reached 100%, and the accuracy rate for hepatitis B surface antigen testing by alien worker hospitals was also 100%.

(3) Hepatitis C

To familiarize the public with hepatitis C, the Department and county and city health bureaus have provided education on hepatitis prevention and control for barber shop and beauty salon workers and printed graphic and beautiful leaflets and posters for distribution in communities and hospitals as part of the publicity and education effort.

Leprosy

Three cases of leprosy were detected in 2003, bringing the total number of cases in Taiwan at the end of 2003 to 57. The reduction in domestic cases makes prevention of imported cases all the more important. To prevent the importation of the disease, leprosy examination has been listed as an item in the regulations governing the employment of foreigners. Once leprosy is found, the patient will be deported immediately.

Black Foot Disease

Black foot disease is an endemic disease of the southwestern coastal areas of Taiwan. Statistics compiled from reports indicated that the accumulated number of cases at the end of 2003 stood at 2,820, of which the majority was reported in four rural and urban townships: Budai and Yichu in Chiayi County, and Hsuehchia and Beimen in Tainan County. In fiscal 2003, 40 patients were hospitalized and five new cases were reported.

4. Prevention and Control of Imported Communicable Disease

(1) Quarantine

To prevent the entry of international quarantine diseases into Taiwan, quarantine is carried out for vessels, aircraft, crew and passengers, and fishery products. Immunization is carried out against major quarantine diseases: cholera, yellow fever, meningococcal meningitis, and adult-type tetanus and reduced diphtheria toxoid. In addition, a joint supervisory team for the prevention of dengue fever in harbor areas has been organized together with harbor and airport authorities, harbor and airport police, and customs to carry out regular inspections on the eradication of breeding sources and the control of vectors.

For statistics on quarantine work in regard to inbound vessels and aircraft, and imported

fishery products, see Tables 5-4 and 5-5.

(2) Management of Alien Laborers

Health examinations for alien laborers are carried out actively, prior to arrival in Taiwan, within three days of arrival, and then every six months. Physical examinations include mental state, chest X-ray, AIDS, syphilis serological test, hepatitis surface antigen test, intestinal parasite examination, pregnancy test, urine test for amphetamines and other drugs, and leprosy test. The surface antigen test for hepatitis B is not required in the six-month examinations, and beginning in November 2002, pregnancy test is also removed from the six-month examinations. Those who fail any item in the examination are refused entry; those who fail an examination after entering Taiwan, with the exception of those found to have intestinal parasites (other than *Entamoeba histolytica*) are deported unless they pass a re-examination within 30 days. In

Table 5-4 Quarantine at International Ports, 2003

Quarantine Authority	No. of Inbound Ships	No. of Ship Passengers	No. of Passenger Flights*	No. of Air Passengers*	No. of Cargo Flights*	Tons of Air Cargo*
1st Branch Bureau (Keelung Harbor)	8,270	107,279				
1st Branch Bureau (Suao Harbor)	611	0				
1st Branch Bureau (Shuitou Harbor of Kinmen)	999	77,874				
1st Branch Bureau (Fuwuo Harbor of Matsu)	275	3,617				
2nd Branch Bureau (CKS Airport)			45,350	7,518,465	11,827	3,680,689
3rd Branch Bureau (Taichung Harbor)	7,659	75				
4th Branch Bureau (Kaohsiung Harbor)	16,869	125,987				
5th Branch Bureau (Kaohsiung International Airport)			9,098	1,071,407	523	173,612
6th Branch Bureau (Hualien Harbor)	2,877	10,997				
Total	37,560	325,829	54,448	8,589,872	12,350	3,854,301

*January to November 2003

Table 5-5 Quarantine of Imported Fishery Products, 2003

Quarantine Authority	No. of Shipments	Weight (tons)	Vibrio cholerae Detected	
			Non-toxic (Shipments)	Toxic (Shipments)
1st Branch Bureau (Keelung Harbor)	1,9263	8,868	0	0
2nd Branch Bureau (CKS Airport)	24,964	26,077	0	0
3rd Branch Bureau (Taichung Harbor)	46	906	0	0
4th Branch Bureau (Kaohsiung Harbor)	3,226	150,919	0	0
5th Branch Bureau (Kaohsiung International Airport)	2,804	1,751	0	0
6th Branch Bureau (Hualien Harbor)	0	0	0	0
Total	32,966	218,521	0	0

addition, the alien laborer health management information system has been improved to strengthen the accuracy of data and gain a better grasp of the examination results. Statistics show that the highest rate of examination failure among alien laborers is parasites. Further, the Regulations Governing the Designation of Hospitals for the Examination of Alien Laborers in Taiwan (draft) and the Regulations Governing Physical Examination of Alien Laborers (draft) were formulated in coordination with the revision of the Employment Service Act.

(3) Control of Travel-related Communicable Diseases

When passengers feel unwell upon entry, such as running a temperature or diarrhea, they may voluntarily fill out a Symptom Statement Form, so that communicable diseases can be detected earlier for immediate medical care. In response to SARS epidemic, all inbound passengers were required to fill out a SARB Survey Form, starting on March 28, 2003 (later, the form was changed and renamed SARS and Other Communicable Diseases Survey Form) in

Table 5-6 Routine Immunization Schedule

Age of Immunization	Type of Vaccine	No. of Dose
Within 24 hours of delivery	Hepatitis B immunoglobulin	Single dose
After 24 hours following delivery	BCG	1st dose
Three to five days after delivery	Hepatitis B vaccine	1st dose
One month	Hepatitis B vaccine	2nd dose
Two months	Combined diphtheria, pertussis, tetanus vaccine	1st dose
	Oral polio vaccine	1st dose
Four months	Combined DPT vaccine	2nd dose
	Oral polio vaccine	2nd dose
Six months	Hepatitis B vaccine	3rd dose
	Combined DOT vaccine	3rd dose
	Oral polio vaccine	3rd dose
Nine months	Measles vaccine	Single dose
15 months	Combined measles, mumps, rubella vaccine	Single dose
	Japanese encephalitis vaccine(March-May)	1st dose
	Japanese encephalitis vaccine (March-May)	2nd dose after two weeks
18 months	Combined DPT vaccine	Booster
	Oral polio vaccine	Booster
Two years and three months	Japanese encephalitis vaccine(March-May)	3rd dose
First year of primary school	Combined tetanus and reduced diphtheria toxoid	Booster
	Oral polio vaccine	Booster
	Japanese encephalitis (March-May)	Booster
	BCG scar examination (those with no scars and tested negative will be vaccinated.)	

place of the original Symptom Statement Form. To instill the concept of prevention against communicable diseases, the DOH Center for Disease Control published a Health Advisory for Travelers Going Abroad and a Traveler's Health Passport for distribution at the airport in an effort to educate the passengers. The Center also opened a zone in its website for the public to check information about communicable diseases.

5. Immunization

(1) Monitoring of Vaccine-Preventable Communicable Diseases

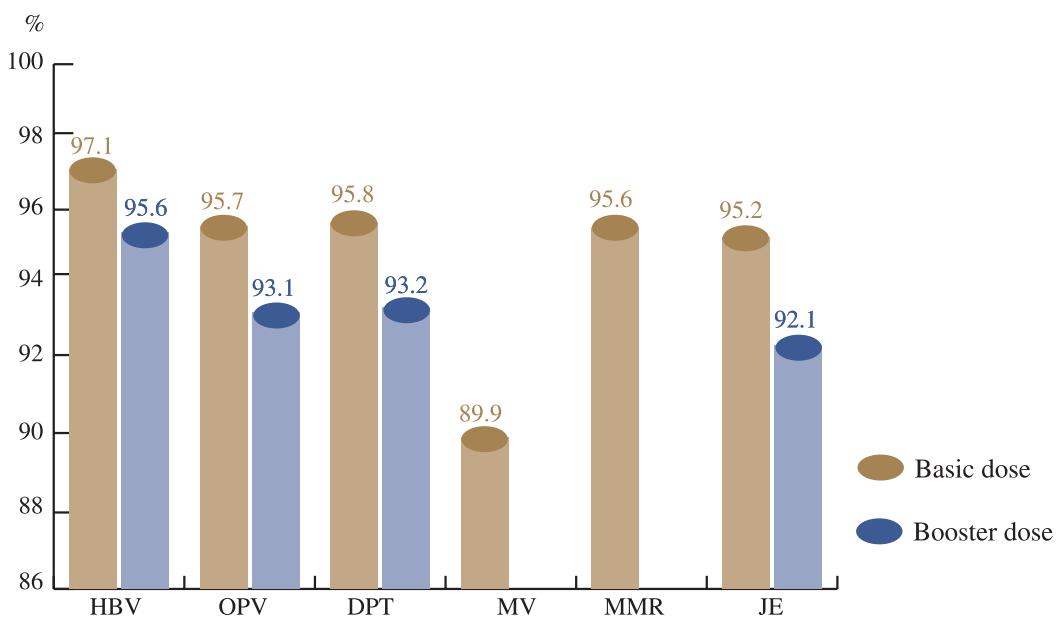
A total of 14,828 suspected cases were reported by the end of December 2003, including 53 cases of rubella (three confirmed), 59 cases of measles (three confirmed), and 71 cases of acute flaccid paralysis (63 confirmed). There were no confirmed cases of congenital rubella syndrome and neonatal tetanus, and appropriate preventive measures have been adopted. A national immunization information system (NIIS) was established, as was a hepatitis B databank, to facilitate speedy access and related analyses.

(2) Status of Immunization

Regular immunizations currently provided by the government for infants, free of charge, are shown in Table 5-6. The Department is seeking budget to include chickenpox as of January 1, 2004, for babies 12 months old or older born after January 1, 2003. The completion rates for all immunizations are shown in Figures 5-4 and 5-5.

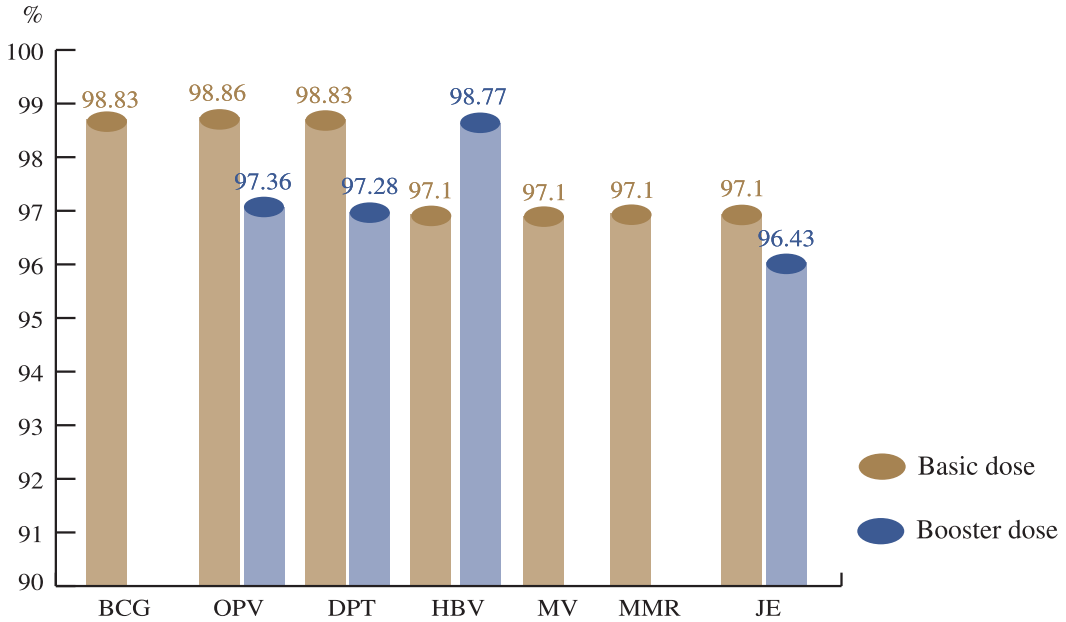
Because of the SARS rampage between March and June in 2003, many panicked parents postponed immunizations for their babies. The immunization rates reported by large hospitals in the north plunged sharply, by 60-80%, and apparent drop also appeared in ordinary hospitals and clinics. To increase the immunization rates, the Department launched a universal screening for those who should have been immunized. For babies whose

Figure 5-4 Immunization Coverage Rates of Infants and Young Children



Source: Data from health station information systems as of September 2001.

Figure 5-5 Immunization Coverage Rates of Primary School Children upon Enrollment



Source: Immunization records of primary school children upon enrollment.

immunizations are not completed in time, their parents will be urged to complete them as soon as possible. March to May is the peak months for the immunization of Japanese meningitis, babies that missed out on the opportunity are urged to make up the immunization in time. The immunization period was extended to September in an effort to raise the immunization rate.

According to reports from health stations, the completion rate for the second dose of immunization against Japanese meningitis had reached 91% by September and that for the third dose was 87%. Compared with the statistics compiled by the end of June (77% for the second dose and 74% for the third dose), the progress was obvious. The tracking and urging are still continuing.

The impact of SARS and flu apparently affected the demand for immunizations. Considering the rage of flu and the possible comeback of SARS and their impact on the fight against communicable diseases, the Department extended its flu immunization plan. It increased the purchase of flu vaccines for immunizing senior citizens over the age of 65 to as much as 80% of the targets. And additional vaccine was procured for supply to hospitals and clinics for immunizing their medical personnel. By January 2, 2004, the immunization rate for senior citizens rose from 60.3% in 2002 to 69.2%, while the rate of hospital and clinic workers reached as high as 91.3%. The year-by-year immunization rates of senior citizens are shown in Figure 5-6, and the composition of the flu vaccines used from 1997 up to 2002 are shown in Figure 5-7.

6. Laboratory Testing and Research

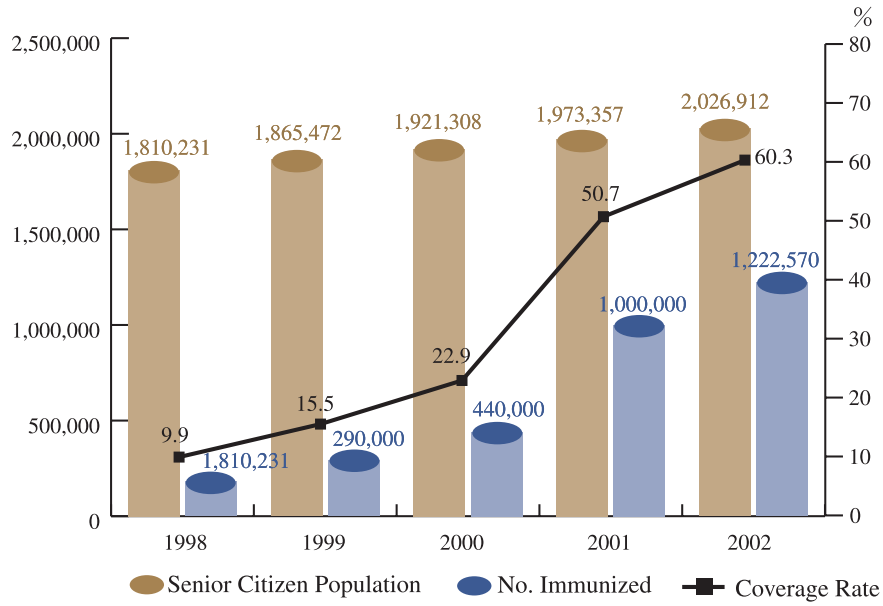
(1) Routine testing

a. A total of 160,553 testing for notifiable diseases were carried out.

b. During the rage of SARS, a total of more than 5,000 specimens and antigens, and 3,117 serological tests were completed.

c. A total of 4,464 specimens were tested

Figure 5-6 Rates of Immunization Against Influenza for the Elderly 65 Years and Above by Year



Notes: 1. No. of immunization in 1999 includes immunizations provided to the elderly in the earthquake disaster areas.
2. Statistics for immunizations in 2002 are as of December 2002.

Table 5-7 Antigens of Vaccines Used, 1998-2002

1998-1999	A/Sydney/5/97 (H3-N2-like A/Beijing/262/95 (H1N1)-like B/Beijing/184/93-like
1998-2000	A/Sydney/597 (H3N2)-like A/Beijing/262/95 (H1N1)-like B/Shangdong/7/97-like
2000-2001	A/Moscow/10/99 (H3N2-like A/New Caledonia/20/99 (HN1-like B/Sichuan/379/99-like
2002-2003	A/Moscow/10/99 (H3N2)-like A/New Caledonia/20/99 H1N1-like B/Hong Kong/330/2001-like virus

under the 2003 Screening Projects for People Running Temperatures.

d. A total of 747 tests were made on pneumonia of unknown causes (including contracted laboratories).

(2) The Department actively participated in external disease-control testing-quality monitoring activity of the WHO laboratory in Melbourne, Australia, the U.S. Centers for Disease

Control and Prevention, and the American Pathology Association. In addition to exhibiting the capability of laboratory testing, the Department also established a system of laboratory-testing quality management for disease prevention, including a disease-control testing-quality manual, quality-control procedures, and operational procedures for disease-control testing standards, manual on the collection of specimens for disease control, as well as a manual on the autopsy of deaths from communicable diseases or unknown causes, a disease prevention capability testing plan, and the establishment of other laboratory-related internal quality documents.

(3) In 2003, the Department completed 20 research projects by itself and commissioned 130 others.

(4) The Department formulated a four-year mid-term Plan for the Establishment of a Gene Databank for Indigenous Pathogenic Agents. By 2003, it had completed the "epidemiological gene databank for enterovirus", the "epidemiological gene databank for flu virus", and the "epidemiological gene databank for dengue fever" for monitoring the infection rate of enterovirus in Taiwan and analyzing molecular epidemiology of dengue fever. In 2004, rotavirus and HIV will be targeted in the establishment of epidemiological gene databanks. Once these gene databanks are in place, the Department, by using the information about epidemics and analyzing the evolution of the pathogens, can provide timely warnings and refer to them when making a health policy. Also, by implementing this plan, pathogenic strains can be screened and kept for research institutes to study the cause of their communicability for the development of therapy and medicines, and for the benefit of the country's bio-technological industry.

7. Development and Production of Serological Vaccines

(1) Manufacturing, Testing, and Development of Biological Products

a. Completing the manufacturing of vaccines, including 582,300 doses of freeze-dried BCG, 1,237,480 doses of absorbed tetanus and diphtheria toxiod for adult (Td), 52,716 doses of absorbed diphtheria and tetanus (DT), 863,600 doses of alum-precipitated tetanus toxiod, 1,550 injection doses of trimeresurus stejnegen vaccine, 2,904 injection doses of cottonmouth vaccine, 2,904 injection of doses of cotton mouth and cobra vaccine, 7,89 doses of 20-milimeter thinner, and 337 doses of 10-milimeter thinner

b. Completing the bottling for 31,213 vials of BCG in two batches

c. Completing the testing for 38 batches of biomedical products, 11 batches of 11 batches of raw materials, 20 batches of materials

d. The Plan on Clinic Responses of Human Body to Different Degrees of Vaccine Dilutions proved that the smallpox vaccine frozen for 20 years continue to keep its activity and safety. A clinical experiment has also proved that by using the bifurcate needle, the current amount of 700,000 doses of smallpox vaccine can boost the security reserves to 2,800,000 doses.

e. The second-stage cGMP effectiveness-verification testing was completed and approved.

f. Completing the Plan of BCG Evaluation as the basis for administering refrigerated vaccines by various counties and cities, thereby raising the quality and effectiveness of immunizations.

g. Formulating the procedure for distributing the plasma taken from a recovered SARS patient, which has passed the examination and been approved, and completing the separation and purchase of plasma taken from recovered SARS patients. The Department has signed a contract with the China Blood Foundation and by now has collected 36 bags of blood, of which 31 can meet the conditions.

h. Prescribing the principle on the taking of specimens from suspected SARS patients. Of the 677 probable cases, 543 have been screened for tracking and the actual rate of collection has reached 100%.

i. Conducting application and examination for antivenin of daborla ruseilli siamensis. A batch of serological doses has been manufactured and effectiveness-confirmation is being conducted. Reports on the effectiveness and on safety are being prepared.

(2) Plan for the self-manufacturing of vaccines for human use

a. Erection of a plant

The Corporate National Health Research Institutes won. On October 17, 2003, the Hsinchu Science-based Industrial Park authority approved the establishment of a pilot plant there to manufacture biological products. Related contracts have been signed.

b. Development of biological products

(a) Production for enterovirus 71 vaccine: Construction for the master cell vero bank, cell work bank and virus toxin bank has been completed and passed the preliminary test on virus contamination. Also completed is the development of VP1 protein antigen for enterovirus products. Testing is being conducted on its effectiveness for application to the chain reaction of enzyme immunity.

(b) In the clinical testing on the antivenin of dabola tusselli siamensis, there are eight new cases of snake biting this year. All of them have been cured. Up to now, the total clinical cases have come to 26.

(c) With the use of defoxified cobra venom immunized duck IgY cobra antigen is produced, So far, the lab-class extraction and purification technology has been developed, which has shown remarkable effectiveness in preliminary tests.

(d) Completing items in the testing of master vero cell bank for cell-culture driven Japanese encephalitis vaccine.

c. Technology transer authorization for biological products

(a) First-stage personnel training has been completed for BCG, Td and DT vaccines.

(b) As for the development of enterovius 71 vaccine, the National Heath Research Institutes completed the signing of contracts with the Kuo Kuang Corporation on December 12, 2003.

Ⅵ · Health Promotion and Protection

VI. Health Promotion and Protection

With the aging of population and the change of people's health problems in the nation, preventive medical care has become all the more important. The aim of prevention is, on one hand, to maintain health for all by preventing diseases and, on the other hand, to reduce hazards and damages by establishing various detection and screening systems to enable the early discovery and early treatment of diseases. The ultimate goal is to improve the health and the quality of life for the people. Following are the healthcare services provided in 2003:

1. Health Promotion for Women and Children and Genetic Health

(1) Genetic Health

Statistics show that congenital deformities are the second leading cause of infant deaths. Taiwan began to implement the Genetic Health Act and vigorously push various measures in 1985. These included the installation of genetic health service networks; provision of various services for the people, such as pre-marital and genetic health examination, prenatal genetic diagnosis, screening for the newborns against congenital metabolic disorders, and genetic health counseling; surveillance on the quality of laboratory testing for genetic health; and the establishment of seven genetic health centers in north, south, central and east Taiwan.

(2) Family Planning

With the decline of the population growth rate in recent years, the average number of births per woman has come down to less than two. In 1990, the government launched a "New Family Planning Program", replacing the policy of relieving population pressure with a policy of reasonable population growth. It has continued to provide services for fertility regulation and increased its services for specific groups like the disabled, adolescents, and sterile couples. In addition, it has pushed the enactment of the Assisted Reproduction Act, and supervised the application of assisted reproduction technology.

(3) Healthcare for Foreign-born Wives and their Children

To strengthen the healthcare of wives of foreign and mainland China origins, the Department has formulated a Plan for the Health Management of Wives of Foreign and Mainland China Origins" to include them in the National Health Insurance, to provide them with information in family planning, genetic health, and pre- and postnatal care, and disease prevention, to provide them with subsidies for prenatal genetic diagnosis, contraception, and sterilization, and development screening for their children. In addition, the Department has also developed a "Reproductive Health Manual for Alien Spouses", and a "Simplified Manual for Alien Spouses Living in Taiwan", in Vietnamese, Thai, Indonesian, and English for use by healthcare workers as well as alien spouses.

(4) Health Promotion for Pregnant Women, Infants and Young Children

To promote the health of pregnant women, infants, and young children, the NHI provides ten free prenatal examinations for pregnant women, and six free health examinations for children under the age of four. The usage rates for these two services are 96.63% for women, and 72% for children. In addition, the Department has promoted an obstacle-free

nursery environment for breast-feeding mothers. Measures include encouraging firms in the private sector to set up a breast-feeding (milk-collection) room, promoting accreditation on hospitals' friendliness to mothers and babies, developing community breast-feeding promotion volunteers, and establishing supporting organizations. As to the healthcare for pre-school children, kindergartens are encouraged to give physical examinations to children between three and five years of age to detect their abnormal growth early for early referral and care.

(5) Prevention and Control of Rare Diseases

To prevent the occurrence of rare diseases, to strengthen medical and related care for patients of rare diseases, to encourage the supply, manufacturing, and research and development of medicines and foods for rare diseases, the Department formulated a "Rare Disease Prevention and Orphan Drug Act" in 2000, and promulgated the "Physically and Mentally Disabled Protection Act" in 2001. In addition, the Department has also implemented a system of medical information databank and related regulations. It has also established a medicine logistics center for rare diseases, conducted examination service under international medical cooperation, set up a small group to audit the subsidies for rare-disease patients, and opened a consultation window for rare diseases. By the end of 2003, the Department announced 87 rare diseases and established a databank. It has received 1,229 reported cases, announced 93 items in 114 categories of medicines suitable for use by patients of rare diseases and 71 medicines for rare diseases, and released 14 permit licenses for rare-disease medicines.

2. Healthcare for Children and Adolescents

As children are the future masters of the nation, the Department has left no stone unturned in taking care of their health. It has enlisted the efforts of social administration, education, and civic bodies for screening the health of children under the age of six. When abnormality or retarding development is found, the child is referred to a medical care institution for cure or correction. The Department promotes four types of safe communities and inspects the safety of the sports facilities in nurseries, kindergartens, and primary schools to prevent and reduce incidence and deaths of injuries and accidents.

To promote oral health, an "Oral Health Act" was enacted in April 2003. Under this law, the Department promoted a plan of rinsing mouths with fluoridated water to prevent dental caries. A total of 1.92 million children from 2,600 schools have benefited from the project. Besides, the Department has launched a plan for screening strabismus and amblyopia with participation by 20 county and city health bureaus. Six vision health promotion centers were established to provide medical care, training, and counseling. To protect the hearing of preschool children, the Department screened 66,470 children and referred abnormal cases to hospitals and clinics for correction.

For adolescents, the Department and education authorities have promoted sex education and strengthened sex-related information and guidance through health bureaus, health stations, civic bodies, and community organizations. It has supported the establishment of 54 clinics and six adolescent healthcare centers to offer outpatient services, including hospital referral and medical counseling. Besides, the function of adolescent

website has been strengthened by opening a "love dialogue" page to provide adolescents with correct sex and healthcare knowledge.

3, Health Promotion for Adults and the Elderly

The major diseases for adults are diabetes, cardiovascular diseases, stroke, asthma, and kidney diseases. These are among the ten leading causes of death, hence are the priorities of the current healthcare efforts. Health promotion for menopause women has become a worldwide topic and a major concern of the country, so it has also been included in the priority healthcare program. The major efforts include completing surveys on the prevalence of high blood pressure, high cholesterol, and high blood sugar; compiling health education materials for use by mass media for pubic education; implementing on a trial basis integrated preventive healthcare services in Keelung and 15 other cities and counties; preparing guidelines for integrated community screenings; establishing a shared-care system for diabetics in 25 cities and counties with participation of 328 rural and urban townships and an 89% coverage; assisting 112 hospitals and clinics to establish 215 diabetics groups; entrusting the National Taiwan University and three other hospitals to carry out a pilot stroke-prevention plan; helping 50 hospitals and clinics to provide and promote counseling services for asthma patients; designing the procedures and teaching aids for health education to kidney out-patients; setting up four kidney-care organizations; supporting 10 hospitals and communities to organize menopause women's organizations and a pilot plan for training volunteers; and installing a hotline (0800-005107) as a counseling channel for menopause women.

4. National Nutrition

(1) National Nutrition Surveys and Formulation of National Nutrition Standards

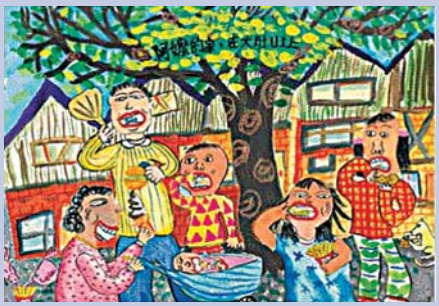
The Department commissioned the Academia Sinica to carry out a five-year (1977-2002) "Nutrition and Health Survey in Taiwan (NAHSIT). Questionnaire interviewing targeting the elderly 65 and above and school children 6-12 concerning their dietary habits and physical examination has been completed. Results of the survey have been compared with findings of the previous survey of population 13-64 years to identify relevant issues of nutrition, and nutrition and diseases, in order to formulate a nutrition-improvement plan and nutrition policies.

The Department has invited scholars and experts to revise the nutrition standards and nutrition intake, taking reference of the changes of national nutrition and the renewal of the nutrition standards of advanced nations. At the same time, it has revised and published the sixth edition of the "Dietary Reference Intake" as the basis for determining whether the nutrition intake of the people is adequate and as reference in the design of menus. The amount of nutrition intake can also be used by the people eating complementary food and in correcting the "more nutritious the better" belief of the people.

(2) Labeling Nutrition on Food Packages

In recent years, all advanced nations have labeled the packages of food sold on market. With the increase of nutrition knowledge and the rise of health awareness among consumers, the Department has also established a nutrition labeling system for packaged food on market for buyers' reference.

In 1991, the Department entrusted the



Food Industry Research and Development Institute to carry out a six-year study to analyze the ingredients of foods in the Taiwan area and established a databank of nutritional ingredients of various food items in preparation for the labeling of packaged food. In 1995, effort was made to collect the regulations of advanced nations governing the labeling of packaged food for Taiwan's reference. In 2000, the Department entrusted the Food Industry Research and Development Institute again to study the nutrition values for labeling and guide the food industry to enforce the labeling program. In keeping with the principle of letting the food industry spontaneously label their products and enforcing the labeling system gradually, the Department announced the Nutrition Labeling Rules for Packaged Foods Sold on Market. Since January 1, 2002, all foods that are claimed to be nutritious have been required to be labeled. In January 2003, soft beverages and dairy products were included in commodities required of labeling. In January, 2004, fat and ice products were included as nutrition-labeling products. The Department will educate and encourage bakery, grain, cannery, and confectionary industries to establish the nutrition values for labeling on their products.

(3) Management of Infant Formula

To ensure the health of infants, infant formulas and formula-assisted foods for larger infants are subject to registration and market approval. They can be sold only after being approved by the Department. The Department has compiled a list of registered special dietary foods for publication on its website for reference and enquiry. In coordination with the breast-feeding policy and the WHO's provisions for the marketing of substitutes of mother's milk, the Department has banned advertisement and marketing of infant formulas and formula-assisted foods for larger infants.

(4) Health Education Activities

An outdoor campaign on "Healthy Food for Good Health" was launched in Taipei, Taichung, Kaohsiung and Ilan. The campaign was reinforced with four 30-minute TV programs, web activities, movie strips, newspaper ads, radio interviews, and leaflets.

The Department has subsidized local health agencies to engage in food sanitation and national nutrition publicity to teach the people the correct knowledge of food and nutrition, such as the control of body weight, trips on fat reducing, principles on the selection of food,

healthy drinking and eating, and education on body slimming.

To promote registration of body weight by all people and to make people understand the importance of a healthy body weight, the Department launched a five-year plan titled "For good adult body, challenge 1824". The plan is to use appropriate methods of maintaining the body mass at the ideal level of 18.5-24 for the reduction of the danger of overweight-induced diseases, that is, adequate BMI for good health.

The Department also conducts, according to seasonal changes, monthly educational activities on such themes as "Staying away from diseases by reducing fat," "Weight-control classes," "Food safety in schools", and "Prevention of food poisoning." In doing so, it has listed the support of local health organizations and the media in a concerted effort to increase people's understanding of food safety and nutrition.

A food information network was established to provide real-time information to local health organizations, academic circles, food industry, and the general public and to strengthen education on food safety and nutrition.

5. Control of Tobacco Hazards

In Taiwan, there are 4.5 million smokers, accounting for 47.3% of the adult male, and 5.2% of the adult female population. About 17,500 people have died of smoking-related diseases each year and the National Health Insurance costs incurred by the treatment of smoking diseases amount to NT$20 billion. To ensure good health of the people, a Tobacco Hazards Prevention Act was enacted in 1997 and a tax under the name of Health Benefit Levy on Tobacco Products was imposed in 2002, and 10% of the revenue is used for the control and prevention of tobacco hazards. With the law in place and money in hand, the Department began to plan an all-around program for the control of tobacco hazards in an effort to reduce the percentage of smokers in the population and the hazards of second-hand smoking.

(1) Anti-smoking publicity

The Department has dissimilated the correct information on tobacco-hazard control by every means including news release, drama, advertising, and internet publicity. It kicked off a CoCo aerobic movement to encourage smokers to kick their habit, sponsored a no-smoking image contests at universities and colleges, produced and broadcast creative anti-smoking commercials, joined an international campaign on renouncing smoking, and, on the basis of 2000 theme of "Movies Yes, Smoking No" of the world no-smoking day, and engaged in anti-tobacco advertising and studies.

(2) Creation of a smoking-free environment to reduce the hazards of second-hand smoking

To ensure the people's right to refuse second-hand smoking, the Department pushed no smoking restaurants and helped them participate in accreditation and competition for rewards. Thus far, nearly 1,000 restaurants across the country have joined the rank of no-smoking restaurants. At the same time, a plan for no-smoking workplace is launched to ensure safety of staff and workers. The Department has helped firms in their formulation of no-smoking environment policies, provided them with no-smoking advice, and offered online services about the kicking of smoking habits (http://health99.doh.gov.tw/work/), with a participation of 160 businesses. To protect school children, the Department has pushed

"smoking-free schools" in conjunction with county and city education departments and health bureaus.

(3) Installation of a multi-faceted no-smoking service network to reduce the quitting rate of smoking.

One measure is the initiation of an "outpatient smoke-cessation pilot project". So far, 990 hospitals and clinics have joined in the project and, by the end of October 2003, some 23,912 smokers had accepted the service. A hotline, 0800-63-63-63, for smoke-cessation was set up on January 3, 2003 for counseling to, thus far, 9,315 persons. The six-month success rate was 31.8%. At the same time, 25 county and city hospitals conducted 238 smoke-cessation classes with 5,749 smokers participating.

(4) Revision and implementation of the Tobacco Hazards Prevention Act

To carry out the Tobacco Hazards Prevention Act, a tobacco complaint appeal and settlement center was established. The center received 425 complaints, helped the local competent authorities to enforce the Act 420,000 times, cracked down on 27,524 cases, established a tobacco-hazard penalty reporting and case-management system, set up a policy and databank center for tobacco-hazard control, compiled a tobacco-hazard law-enforcement handbook, and planned to revise the Tobacco Hazards Prevention Act in accordance with the criteria of the WHO Framework Convention on Tobacco Control (FCTC) passed in May 2003, to regulate the marketing, advertising of tobacco products, and labeling on tobacco containers. The center also conducts studies and surveys on the prevention and control of tobacco hazards.

(5) Construction of infrastructure for supporting tobacco-hazard control

Measures include tobacco-quitting education for medical workers and cultivation of tobacco-hazard control personnel, entrusting the Bureau of Drug and Food Analysis to measure the nicotine and tar contents of tobacco products, and conducting tobacco-hazard surveys and studies.

(6) Actively participating in international health activities

This involves training and education for medical and education workers engaged in the fight against tobacco hazards, learning the experience in preventing tobacco hazards among adolescents through exchange and cooperation with other countries, promoting participation in the "international adolescents anti-tobacco workshop," sending delegates to

FCTC-related WHO conferences, working for the signing of the FCTC, and revising the Tobacco Hazards Prevention Act in accordance with the spirit and content of FCTC to demonstrate the determination to prevent and control tobacco hazards.

6. Prevention and Control of Cancer

Inasmuch as the fact that cancer is one of the first of the ten leading causes of death in this country, the Department has persistently drummed on the prevention of cancer and pushed the screening for major cancers. Efforts include cervical Pap-smear tests for women over 30, a two-stage breast cancer examination for women between 50 and 69, mucous membrane examination for betel-nut chewers, and screening for colon and rectum cancer. At the same time, the Department has entrusted 17 medical care institutions to establish cancer prevention and control centers to provide complete medical care services for the control and prevention of cancer.

Since 1982, cancer has climbed to the top of the ten leading causes of death in Taiwan, and the mortality rate and incidence have continued to rise. In 1982, the standardized mortality rate was 105.8 per 100,000 population, and the incidence was 111.27. By 2002, the standardized mortality rate had reached 125.8, and the standardized incidence registered 258.14 per 100,000 population. In the past 20 years, the mortality rates for different cancers, except for stomach cancer, were all on the increase with oral cavity cancer rising three-fold. For women, the cases of cervical cancer declined remarkably, but cases of breast cancer soared alarmingly. Of all cancer incidences, oral cavity cancer registered the highest growth for men, and liver cancer for women.

To reduce the threat of cancer, the Department has pushed the following related cancer control plans:

a. With the enactment of the Cancer Prevention Act, the Department has mapped out a five-year plan to sketch out the vision of cancer control, install cancer-control networks, provide comprehensive cancer-control services including screening, treatment and care to free the people from the threat of cancer.

b. As youth is an important period in the formation of behavior, the Department organized in this year publicity in 90 schools located in districts with a high percentage of betel-nut chewing people. It is hoped that through the publicity, students can understand the hazards of chewing betel nut and resist the temptation. After publicity, more than 90% of the students expressed that they would not chew betel nut and would persuade people around them to give up the habit.

c. Cervical cancer, breast cancer, and oral cavity cancer have registered high incidence and mortality rates among people in this country, but they are also the cancer that can be detected early through screening for timely treatment. Therefore, the Department has pushed screening service. By the end of 2003, as many as 54% of women over 30 years of age had undergone cervical Pap-smear tests and 15% of women between 50 and 69 had received multiple-factor breast-cancer assessment; of them, 53,000 had received mammography. Besides, 12% of smokers and betel-nut chewers had received mucous membrane examinations. Although the incidence and mortality rates of cervical cancer have begun to decline, it is still necessary to push the rate of screening to

higher than 80% before attaining the western level of achievement.

d. To ensure that hospitals can provide high-quality and safe medical care to cancer patients, the Department helped 17 hospitals set up cancer control centers in 2001, moving the hospitals toward the provision of patient-centered service, in the hope that cancer patients can receive proper care.

e. To alleviate the pains of terminal cancer patients and enable them to face death solemnly and peacefully, the Department has promoted education on palliative care and helped increase palliative-care facilities. The home-care facilities and hospitals for cancer patients have increased from 20 and 43 to 25 and 49, respectively, marking a 20% growth.

7. Community Health

■ Reconstruction and Expansion of Health Stations and Information Systems

In 2003, subsidies were made to 19 health stations for reconstruction and expansion of buildings and space planning with a view to provide the public with a more friendly and humane community health services. To strengthen the work efficiency of health stations, health and medical care services are integrated, and community health information is collected and established. In 2003, the health station information system, Windows version, was set up in 372 health stations.

■ Community Health Building

In 2002, the Healthy Community Plan was included in the Challenge 2008: National Development Plan, as a sub-project under Item 10, Building of New Communities, to actively promote community health building in counties/cities and townships. Major activities are as follows:

1) Establishing self community health building mechanisms: By the end of 2003, 302 community health building centers had been subsidized, 22 in the September 21 earthquake disaster areas, 46 on offshore islands, and 23 schools to launch health promotion school projects. Institutions have been entrusted to conduct relevant studies, to collect and establish indigenous community health building data, including monitoring and assessment of the public participation in community health building, and modes of promoting community health building.

2) Developing community health building promotion workers: the Pingtung Technology University has been asked to conduct symposiums and workshops for community health building workers and volunteers; the Fujen Catholic University has been requested to develop operational procedures and manuals for the training of volunteers.

3) Marketing of health and information dissemination: educational programs are organized in various ways, including the use of mass media such as radio and television in the forms of key talks, conferences, and dramas. By evaluation, it was found that the knowledge of the public on community health building had improved from 12% to 41%. A website on community health building has been set up covering the 302 community health building centers for exchange and experience-sharing, and to provide the public with relevant information.

4) Establishing a technical supervision and support system: teams of "technical supervision for healthy environment and space building" have been organized to work jointly with county/city health bureaus at the grass-roots level; the National Yangming University has been entrusted to

study health building modes of community colors by way of dictating history.

5) Promoting the building of healthy environment and space: The public are encouraged to participate, learn, and detect their own environment and health problems, to join in the planning, to build together healthy environment and space, to practice healthy behaviors; plans for the promotion of healthy environment and space have been publicly solicited, and 31 projects have been initiated.

Occupational Health

Six regional occupational health centers have been set up in combination with private-sector resources; counties and cities have been supervised to set up health demonstration worksites; in 2003, 25 worksites were subsidized to execute the "health at worksite promotion project" to attain the visions of healthy and safe worksites and to realize the goals of occupational health. Counseling on occupational injuries and illnesses has been made more available, and a reporting system for occupational injuries and accidents has been set up to understand the status of occupational incidents. Training in occupational health promotion and control of occupational diseases has also been organized.

Ⅶ · Pharmaceutical Affairs and Food Sanitation

VII. Phamaceutical Affairs and Food Sanifation

1. Drug Safety

To ensure the safe use of drugs by the public, the Department has set up strict pharmaceutical inspection and drug management systems, and enforced such measures as Chinese labeling and sale on the original bottles for pharmaceutical products in order to assure the quality of drugs used by the public. In addition, the Department has moved to establish a comprehensive environment for pharmaceutical use by organizing drug safety lectures at community colleges throughout the country beginning in January 2003. Scholars, experts, and pharmacists of community pharmacies are invited to give lectures in order to provide the public with a channel for absorbing drug-use know-how. In 2003, 51 lectures were given to 1,983 people.

In the management of pharmacies, at the end of December 2003, Taiwan had a total of 7,148 pharmacies, 43,451 drug dealers, and 674 manufacturers, for a total of 51,273 businesses related to pharmaceuticals. To strengthen management, the Department has charged local health bureaus with the responsibilities for carrying out inspections of pharmaceutical firms on unscheduled basis; health bureaus also organize meetings frequently with pharmaceutical firms in order to exchange ideas with them, learn about their problems, and provide for proper solutions. There is also a national conference on pharmaceutical affairs once a year to strengthen liaison among health agencies.

The separation of drug dispensing from medical practice is an established government policy, but this policy has been implemented gradually in view of the long-term combination of medical practice and drug dispensing in Taiwan as well the accustomed practices of the people seeking medical care. A total of 23 counties and cities had implemented the separation of drug dispensing and medical practice by the end of 2002. On August 30, 2002, the Department announced a new system of separating drug dispensing from medical practice, which was implemented on January 1, 2003. Except Taipei County, all the other 22 counties and cities in the Taiwan area have implemented the new "1.8 km" system of separating drug dispensing from medical practice.

To stimulate the development of new pharmaceutical and related production technologies and thus elevate the level of the domestic pharmaceutical manufacturing industries, the Department promulgated a set of Incentive Measures for the Development of Pharmaceutical Technology. Sixteen applications were found consistent with the conditions for incentives: eight in the area of drugs, three in the area of medical devices, and five in the area of manufacturing technology. The amount of the rewards totaled NT$4.8 million.

The safe use of drugs and cosmetics by the people calls for the monitoring and control of advertising aired by underground radio stations in violation of the regulations. The monitoring is done by the Government Information Office, whereas the Ministry of Communications and Transportation is in charge of recording such advertising for referral in writing to the Department. In 2003, the Department received a total of 93 cases of referral, which were put on active file and whose progress was followed-up. Of these 93 cases, 35 have been assigned for processing and the accumulated fines have amounted to NT$1.159 million. The Department is also in charge of the execution of

the "Plan for Monitoring Regulation-Violating Advertising on Drugs, Cosmetics, and Food". Between July and December, 2003, the Department monitored commercials and program-type commercials on television, radio stations (15), and Internet. Of the 6,955 cases monitored, 1,777 were accused and referred to local health bureaus for action.

2. Registration and Market Approval of Drugs and Cosmetics

Drugs and medical devices requiring registration and market approval under the Pharmaceutical Affairs Act must apply for registration and market approval. They can be manufactured, imported or marketed only after a permit license is obtained.

General cosmetics may be sold without informing a regulating agency for record. The dealers, however, are required to label their products according to the Cosmetics Sanitation Management Act. For medicated cosmetics, applications for inspection and registration are required, however, before they can be manufactured, imported, or marketed.

Pharmaceutical industries have been ballooning in recent years. To handle the rapid increase of workload, a Center of Drug Evaluation (CDE) was established on July 13, 1998, patterned on the drug review procedures of Japan, the US, and other developed countries. The Center, under contract with the Department, is responsible for reviewing the new drugs and the new technologies of clinical trials in order to raise both the quality and the efficiency of drug review and to coordinate with the need of drug manufacturers. By the end of 2003, 391 protocols for clinical trials (135 new applications and 256 re-applications) and 121 applications for registration and market approval (66 new applications and 55 re-applications) were received. By the end of 2003, the clinical protocols for 620 applications (including new applications and re-applications) were completed and 130 permit licenses for new drugs were issued.

The goals of the review and management of biological products are to assure their safety, efficacy, and quality; promote the development of technology; and protect the interests of patients. Standards for the Review of Biological Products and other related laws and regulations have been formulated, and beginning in 2001, standards to govern registration and market approval have been announced for five types of pharmaceutical products: blood plasma materials used in manufacturing, blood plasma products for human use, biological diagnostic reagents for external use, genetically engineered pharmaceuticals, allergenic drugs, and vaccines. The book, Review Criteria for Registration and Market Approval of Pharmaceuticals: Registration and Market Approval of Biological Products, was published in April 2002, as part of the continued effort for the establishment of a management system for biological products. Applications and approvals of new biological products are increasing year by year; the efficiency of review is being heightened, and the processing time is cut short.

To carry out the Executive Yuan's policy on promoting biological technologies and to respond to world trends of the management for external reagents, the Department promulgated, on December 20, 2002, the revised version of provisions for the classification of medical devices and the management method, by including reagents in the scope of management. On February 7, 2003, it announced to manage reagents for external diagnostic uses as medical devices rather than as pharmaceuticals. In coordination with this change, the Department announced, on July 31, 2003, the Key Points for Inspection and Registration of Reagents for

External Diagnosis. On December 26, the Department announced the Guide to the Criteria for the Manufacturing of External Diagnostic Reagents to complete the establishment of the management system for reagents used for external diagnosis.

The Department completed the new edition of the computerized license and management system for drugs and medicated cosmetics. To reduce the size of the system and make it more suitable for retrieval and for online operation, the Department completed a new version of the pharmaceutical affairs management system, which can be used for building more complete data on the cases of inspection for drugs and medicated cosmetics, thereby is helpful to checking, analysis, and compilation of statistics. The system also allows the download of various application forms and provides various kinds of information for the convenience of the applicants.

3. Safety Monitoring of Medicines and Clinical Trials

To timely detect before market approval any adverse reactions of new drugs that could not be discovered in clinical trials, the Department established a safety monitoring system for new drugs in January 1983. Regulations were amended and announced on July 7, 1993 (the so-called 7-7 announcement), requiring that applications for the registration and market approval of new drugs be accompanied with protocols and reports of domestic clinical trials. The further amended announcement on December 12, 2000 (the so-called double-12 announcement) stipulates that domestic clinical trials be phased, by international specifications, in "bridging studies". The current period for the monitoring of new drugs is seven years. During the period, beginning on the day the permit license for the new drug is issued, dealers are required to submit to the Department every six months any new international and domestic information on the adverse reactions of the drug in question. The Department will assess the information thus submitted. If necessary, changes will be made on the drug instructions to safeguard the safety of users.

The Executive Yuan's Promotion Plan for the Strengthening of Biotechnology Industries designates the establishment of complete biopharmaceutical facilities as an important measure in its implementation. Part of this measure calls for the strengthening of the clinical trial system and operational mechanism for new drugs so as to advance research and development in pharmaceutical products by Taiwan's pharmaceutical industries, and the establishment of Taiwan as an "Asia-Pacific Clinical Trial Center." In line with the government policy, in 1993, the Department began actively promoting clinical trials and various related measures. Good Clinical Practices (GCP) standards were announced in 1996, which were revised in September 2002. In 1998, Good Laboratory Practices (GLP) standards were announced, which were revised in June 2000. The Department issued the country's first guaranty on the responsibility for clinical trials in 2000, and in May that year sponsored the "2001 APEC International Symposium" to discuss with experts from around the world the effects of ethnic factors on the safety and efficacy of drugs. With the integration and consolidation of world standards on the screening of new drugs, the Department hosted the " 2003 APEC International Symposium" to exchange views with other nations on the harmonization of statutes and the alignment of the drug trial and monitoring systems.

Clinical trials are an important link in the development of new medicines, and to give the people of Taiwan access to more advanced pharmaceutical products as quickly as possible, the Department began to implement the Strengthening of the Clinical Trial System and Operational Mechanism for New Drugs as a five-year mid-term plan in the second half of 1999. Besides subsidizing the establishment of clinical trial beds and related laboratories for new drugs, the Department also assures the safety and effectiveness of new-drug use and upgrades the capability and quality of Taiwan's new drugs clinical trials through the integration of resources and the adoption of Good Clinical Practices. The Department negotiates with medical centers and seeks budgets in accordance with clinical trial regulations, and to date, has subsidized four medical centers, the National Taiwan University Hospital, Tri-Service General Hospital, National Cheng Kung University Hospital, and the Taipei Veteran's General Hospital, in the establishment of early-stage clinical trial wards and related pharmacokinetics laboratories. The Department also develops manpower training methods and carries out training so as to establish comprehensive clinical trial and approval systems for new drugs to provide a basic environment for the development of new drugs in Taiwan and achieve the goal of developing the island into a center of biopharmaceutical industry for the Asia-Pacific region.

4. Reporting System for Adverse Drug Reactions and Relief for Drug Hazards

To timely detect any adverse reactions to new drugs that were not detected at the time of clinical testing, the Department has strengthened education of domestic medical professions and the general public in automatically reporting any adverse reactions. In addition, four national reporting centers for adverse drug reactions were set up in the northern, central, southern and eastern Taiwan in August 1998 to collect information and adverse reactions to drugs domestically, and to refer the results of assessments by clinical professionals to the Department for necessary action. Reports on the adverse reactions to drugs on market by the end of 2003 totaled 6,410 and reports on adverse reactions to drugs undergoing clinical trials numbered 5,623, which have been put on file for assessment.

To ensure the safe use of drugs by the

public, the Department began the planning and implementation of a five-year mid-term plan in 1999 for the establishment of a national drug identification system which is divided into three parts, the establishment of drug identification codes for domestic drug manufacturers and dealers, establishment of a databank of instructions on drug use, compilation of a manual for the identification of drugs by their appearance, and establishment of an online enquiry system. Up to now, three volumes of the manual for the identification of drugs by their appearance are issued. Users of these volumes can check the English name and ingredients of each drug (totaling more than 3,800 items) by their external appearances (marks, words, figures, and shapes), and identify them on the basis of their color pictures. The multiple systems make the identification easy. At the same time, the Department assisted drug dealers and manufacturers in establishing more than 340 identification systems. By 2003, 5,664 drug instructions had been included into the databank of instructions. Thanks to the implementation of this plan, all drugs approved for marketing in Taiwan have their unique codes, avoiding the mistakes by medical personnel as well as the public in the use of these drugs. The contents of the manual are linked to the license databank for enquiry by professionals and the public.

To provide timely relief for victims who have suffered harm from the appropriate use of legal drugs, the Department established a drug hazard relief system in October 1998. On May 31, 2000, the President of the Republic promulgated the Relief of Drug Hazards Act. By the end of 2003, the Department had completed the reviews of 313 cases, of which, 123 cases were determined to be eligible for the drug hazards relief; the rate of compensation was 39%, and a total of NT$47.73 million was paid.

5. Supervision of Pharmaceutical Industries—Promotion of GMP Systems and International Mutual Recognition

To upgrade the quality of Taiwan's pharmaceutical products and strengthen their international competitiveness, the Department, in conjunction with the Ministry of Economic Affairs, announced Good Manufacturing Practices (GMP) Standards for Drugs on May 1, 1999. In October of the same year, the two agencies announced the operational schedule for the validation of pharmaceutical products. It is scheduled to complete the preparations by July 1, 2004, and the validation for all drugs by December 10, 2005. Besides, the Department is persistently pushing GMP for raw drugs, which will adopt the free certification method in the beginning. The Department is busy planning steps for carrying out raw drug GMP and companion measures. By the end of 2003, 164 domestic pharmaceutical plants had completed the first stage of cGMP validation. By now, 124 domestic drug manufacturers have completed the second-stage validation, four have completed the third-stage validation, and 532 drug importers have completed the first-stage cGMP validation.

To internationalize the manufacturing of drugs, the Department is vigorously promoting international mutual recognition. It filed an official application for joining the Pharmaceutical Inspection Cooperation Scheme (PIC/S) in 1998, and in 1999 and 2000, sent representatives to attend the PIC/S annual meetings as observers and to report on Taiwan's GMP inspection system. Several EU nations have expressed their support of Taiwan's inclusion in PIC/S. In May 2002, PIC/S sent an official to Taiwan for a field

inspection. Observation report together with recommendations was prepared.

The assessment of GMP for medical devices has been going on without interruption. By the end of 2002, a total of 134 domestic companies had completed registration as GMP medical device manufacturers, and 937 companies had registered as QSD importers of medical devices.

In January 1988, the Department signed an exchange of letters on medical devices with the US Food and Drug Administration and, in coordination with the Ministry of Economic Affairs, signed another exchange of letters with the EU. The aim of these efforts is to advance international harmonization and mutual recognition in the management of medical devices through the exchange of technologivcal information. DOH representatives attended the ninth annual meeting of the Global Harmonization Task Force on May 16, 2002, and held talks with EU representatives in Singapore on the exchange of documents in regard to Taiwan-Europe medical devices. In September 2002, inspection agencies commissioned by the Department (the CMS, Center for Measurement Standards, Industrial Technology Research Institute, Metal Industries Research & Development Center, and Electronics Testing Center, Taiwan) completed preliminary talks on bilateral technical cooperation and exchange with EU representative agencies in charge of medical devices (the MDC in Germany, NSAI in Ireland, G-MED in France, and TUVPS in Germany).

On October 22, 2003, the Department held a symposium on the formulation of regulations governing the reuse of single-use disposable devices. Dr. Lin Chiu-hsiung, an FDA official, was invited to explain various US provisions on the reuse of single-use device (SUD) for the knowledge of domestic medical and industrial circles. This effort was instrumental in the improvement of domestically made medical devices and the minimization of infection in hospitals.

To forge a consensus on the development of anti-SARS drugs, on October 23, 2003, the Department held a symposium on " A Discussion on US Management, Control and Diagnosis of Infectious Diseases in the Perspective of the SARS Storm". The symposium was presided over by FDA officials, Dr. Lin Chiu-hsiung and Ms. Matha T. Olone, with participation of experts from the government, business circles, academics and research institutions. The FDA officials, introduced the FDA's key management measures for devices used for controlling infectious diseases. The meeting was an attempt to pool wisdoms for the development of biological technologies and industry.

6. Food Safety

(1) Amendment and Announcement of Laws and Regulations

To strengthen the current food sanitation management, observe international practices, reinforce self-control by industries, and boost their responsibility for their products, the Food Sanitation Control Act and its Enforcement Rules were amended and promulgated in 2000 and 2001, respectively. The Food Sanitation Control Act was partially amended again and promulgated on January 30, 2002, and the Enforcement Rules were also partially amended and promulgated on June 30, 2002, to conform to the implementation of the Administrative Procedures Act. Permissible safe amounts of 75 kinds of agricultural chemical residues were established in 2002, and the scope of use, amount, and specifications were set for 56 kinds of food additives.

Food sanitation laws and regulations have

been translated into English and posted on the DOH website for retrieval at home and abroad, thereby achieving the goal of transparency of administrative measures and fulfilling Taiwan's obligations under the WTO agreement on food safety inspection and quarantine measures for plant and animal products.

(2) Promotion of International Affairs

Taiwan became a member of the WTO on January 1, 2002. To cope with the impact of on domestic food sanitation management as a result of market opening, as well as strengthening the international competitiveness of the island's food industry, it is necessary to carry out a timely readjustment of the management framework and measures so as to conform to world trends, respond to new tides in food trade, and link with the international community in the common effort to build a safe eating environment.

In 2003, the Department sent officials to Geneva to attend the WTO committee meetings on the inspection of food safety and quarantine measures for animals and plants. On the occasions, the DOH officials held informal bilateral consultative meetings with other WTO members to know the latest development of food trade and safety and to present Taiwan's position. The Department has also actively participated in APEC's Standard and Conformance meetings related to food sanitation and safety and the coordination on mutual recognition. The Department also attended symposiums and training courses of the WTO, APEC, and WHO. On these occasions, they exchanged experience with other participants as well as presenting Taiwan's system of sanitation management. In June 2003, the Department sent delegates to the US to attend the consultative conference of the 12th US-Taiwan technical group on the inspection and quarantine of farm produce. At the meeting, participants discussed and exchanged views on the technology for examining chemical residue on vegetables and gene engineering for food. This meeting has increased the cooperation and mutual understanding between the two countries.

(3) Food Imports

Imported foods are inspected to protect the health of the people. The Department, with reference to the WTO agreements and the implementation methods of advanced nations, has announced a set of Regulations Governing the Inspection of Imported Foods. Random batch inspection, document review or validation registration are adopted for foods and importers that have had little poor record on sanitation and safety and with a low rate of violation, so as to accelerate customs clearance and inspection efficiency. For foods and importers that have had relatively high poor records on sanitation and safety and a relatively high rate of violation, each shipment is inspected and approved in order to strengthen enforcement. For imports of fresh foods such as vegetables, and fishery products that cannot wait for the results of inspection, where there is no record of violation, the imports are first released and then inspected, followed with checks of the distribution of unqualified products. For products of special need, monitoring inspection is used in the hope of protecting the health of the people while promoting the flow of international trade at the same time.

To differentiate food products from CO1 and CO2 codes as designated by the Bureau of Standards, Metrology and Inspection of the Ministry of Economic Affairs for general imported products, the Department has announced the codes FO1 and FO2 for imported food products so that applications for the import of such products can be submitted to the Bureau of Standards, Metrology and Inspection in accordance with the stipulations of the Regulations Governing the Inspection of

Imported Food Products promulgated by the Department. The Department has also announced that fresh and frozen fishery products and other raw material-type food products that the Ministry of Economic Affairs has not yet placed among the items subject to import inspection, will be added to the list of items for inspection. Further, the Department has ruled that to whatever CCC code they may belong, imported food products should be subject to import inspection so as to make the inspection of imported food products more complete.

(4) Control of Food Poisoning Incidents

The Taiwan area recorded 246 food poisoning incidents in 2003, inflicting 5,234 people. Compared with 2002, when 262 cases of food poisoning were reported and 5,566 people inflicted, the number of cases decreased by 16 (6%) and the number of inflicted people decreased by 332 (6%). The majority of the 2003 cases occurring were caused by bacteria, primarily by *Vibrio parahaemolyticus*. A food poisoning reporting system is used to control the occurrence of food poisoning and gain a firm grasp of follow-up handling.

(5) General Survey on Food Contaminants and National Diet

The Department began to implement the plan for the General Survey on Food Contaminants and National Diet in 2002. It is hoped that through the implementation of this plan, a national management system of food safety and risk assessment could be established. The plan calls for the establishment of the background information of food contaminants, long-term surveillance on the contaminants or toxic matters taken in with the foods, and an assessment of the risks. Information will be used for establishing a system of food safety assessment and system of health risk management.

At present, efforts are being directed at the establishment of risk assessment on farm insecticides, heavy metals, alfa-toxin, dioxin, environmental contaminants, and natural toxins. It is expected that this work will be completed in 2005. In the future, the assessment on background values and risks will be made for food additives, antibiotics, and animal drugs.

7. Registration and Pre-Marketing Approval

The management of food safety is not done primarily by pre-marketing approval and licensing. However, a system of pre-marketing approval management is necessary for foods of relatively high safety concern.

(1) Imported Foods in Tablet and Capsule Forms and Food Additives

According to Article 14 of the Food Sanitation Control Act, the following products may not be manufactured, processed, prepared, repackaged, imported, or exported without being inspected, registered, and licensed: food additives for single food items, and imported foods in tablet and capsule forms. Foods in tablet and capsule forms are similar to drugs in appearance; to make the products easy to recognize and choose by consumers, and to avoid their being wrongly purchased and used as medicines, the dealers are requested to provide health-food certification, ingredient information, report of laboratory test, label, and other related documents for review when the products are being registered and approved. Permit licenses will be issued only after approval. To conform to international practice, review and assessment of food additives that require pre-marketing approval are adopted; those of little safety concern, however, are exempt from pre-marketing review.

(2) Health Foods

In accordance with the provisions of the Health Food Control Act, health foods may not be manufactured or imported, or labeled or advertised as health foods, or emphasized as

having health-promoting functions, unless they have been inspected, registered, and approved. Health foods must conform to health safety and their health-promotion properties must undergo scientific assessment. They can be certified as health foods only after they are theoretically proven as being not harmful and having a clear and stable health-promoting function.

(3) Genetically Modified Food Products

On February 22, 2001, the Department announced the regulations governing the inspection, registration, and labeling of genetically modified soybeans and corn and immediately implemented a system of voluntary labeling for these products. Since the end of 2003, a compulsory labeling system for these products has been established for implementation in three stages depending on the extent of processing. By the end of 2003, 11 applications for permit licenses for genetically modified soybeans and corn had been approved.

(4) Management of Special Dietary Foods

Labeling, promotion, and advertising for food products shall not be dishonest or exaggerated to mislead consumers to believe their medical efficacy. They must conform to the provisions of the Food Sanitation Control Act to enable consumers to make the correct choice. Besides, the Department constantly collects information on the new standards of other countries and regularly announces the items to be included in the labels of special dietary foods for strengthening the foundation of management.

8. Management of Food Manufacturers

(1) Promotion of the Self-Control System for Food Sanitation

A Good Hygienic Practice Code was announced on September 7, 2000, in accordance with the amended Food Sanitation Control Act, in order to institute self-control for food sanitation in the food industries with the aim of upgrading the professional know-how of managers in health organizations, guiding food dealers in establishing self-control systems, and enhancing self-control capabilities and attaining the goal of controlling food production at the source of production. To encourage food dealers to establish self-control systems, the Department provided assistance in the promotion of non-compulsory GMP and CAS certification systems in the food industry, so that the self-control capability of food processing businesses could be brought about indirectly through the market mechanism.

(2) Implementation of a Food Safety Control System

To conform to international management trends in food sanitation, the Department has implemented a Food Safety Control System aiming at helping manufacturers establish the needed concept of food safety control through training and guidance. In December 2003, the Department announced the implementation of a safety-control system for fishery products.

(3) Sanitary Control of Food Service Establishments

a. A licensing system for cooks in eight types of food service establishments was instituted in September 2001. By the end of 2003, a total of 19,794 cooks had acquired the license. These cooks are required to undergo eight hours of sanitation lectures per year in order to upgrade their professional food sanitation know-how.

b. "Health Diet" promotions were held in counties and cities and included in cook education. All domestic suppliers of boxed meals are expected to have the capability of producing healthy boxed meals by the end of 2004, and all large restaurants are expected to be able to provide healthy dishes to the public by

the end of 2006.

c. A pilot certification system for food safety was implemented, and 235 establishments have already been certified. The Department hopes, through this pioneer effort, to establish the concept of food safety management at an early date.

9. Laboratory Testing of Drugs, Foods, and Cosmetics

Drug, food, and cosmetic testing covers drugs, biological products, medical devices, foods, food additives, food utensils, containers, packaging, food detergents, and medicated cosmetics. The Bureau of Food and Drug Analysis is responsible for the nationwide testing, with the Bureau being responsible for handling all drug and some food tests, and the laboratories of city and county health bureaus responsible for local food inspection and testing.

(1) Routine Testing

The DOH Bureau of Food and Drug Analysis carries out tests for registration and market approval, sealing, random and routine tests, commissioned services, and other types of test in line with the Department's administrative policies and other relevant regulations. The Bureau also carries out tests and confirmation work for food poisoning and other incidents, such as tests for the wood alcohol content of moonshine spirits.

In 2003, the Bureau completed the following tests: 1,306 for registration and market approval, 349 for sealing, 3,268 for supporting health bureaus, 792 for consumer service, and 1,138 for food poisoning incidents. Besides, it has helped other organizations complete 597 tests and took 73 commissioned cases of test.

(2) Major Surveys and Research Activities

Over the years, the Bureau of Food and Drug Analysis has carried out systematic random testing of drugs, foods, and cosmetics sold on market so as to analyze and assess their quality, sanitation, and safety problems, and discover and resolve problems at an early date. Comparative testing and analysis for consumer products on market have been carried out since 1996, and the results have been announced to strengthen the social responsibility of manufacturers regarding the sanitation and safety of their products and to protect the interests of consumers. Drugs from the mainland China are also tested, and the findings are announced and compiled into a series of "Knowing Mainland Drugs" manuals to caution the public against misusing these drugs.

In 2003, the survey and inspection of related products on market were completed, including 17 items on chemical residues on supermarket-packaged vegetables and fruits and 3,659 specimens. Ten inspection findings on drugs, cosmetics, and foods on public market were announced, not only through press releases to the media but also on the Bureau's website (www.nlfd.gov.tw).

The testing resources of the private sector were brought under the management in order to establish a quality-management mechanism and strengthen the random check system for products on market. The Bureau is planning the implementation of the "Drug Quality Monitoring Plan" and, in this end, has completed the formulation of the standard operational procedures to certify laboratories entrusted for testing.

(3) Promotion of Good Laboratory Practice

The Bureau of Food and Drug Analysis is vigorously implementing the Good Laboratory Practice (GLP) system in order to upgrade the quality of testing. The quality manual and system documents were announced in July 2001, along with the guidelines on safety, sanitation, and environmental protection. CNLA laboratory certification was passed in May 2002. In line

with government policy on accession to the World Trade Organization, guidance has been given to local health bureaus in the establishment of the GLP system. By the end of 2003, 18 health bureaus had passed CNLA certification, and four were under assessment.

(4) Testing of Genetically Modified Foods

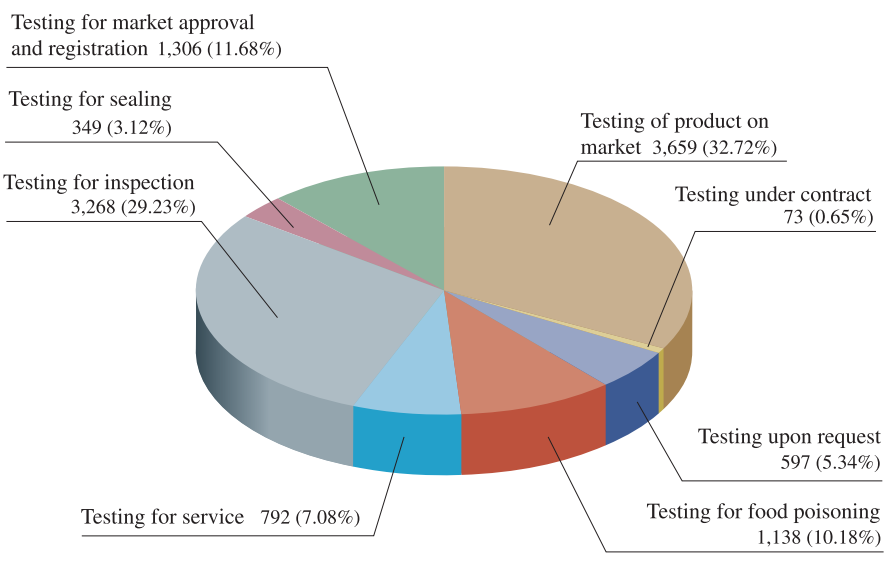
The Bureau of Food and Drug Analysis is devoted to the development of testing methods for genetically modified foods and has begun to make market surveys for these foods. By 2003, it had established qualitative analysis for 16 items, including genetically modified soybeans, corn, papayas, tomatoes, and potatoes, and quantitative analysis for nine items. At the same time, it had built a framework for 13 plasmid references for soybeans, corn and potatoes. In coordination with the testing on genetically modified food produce and the implementation of the labeling system, the Bureau conducted 408 labeling surveys and experiments on soybeans, corn, papayas, and tomatoes in 2003. Local health bureaus are informed to take action against any violations in their areas.

(5) Science and Technology Development

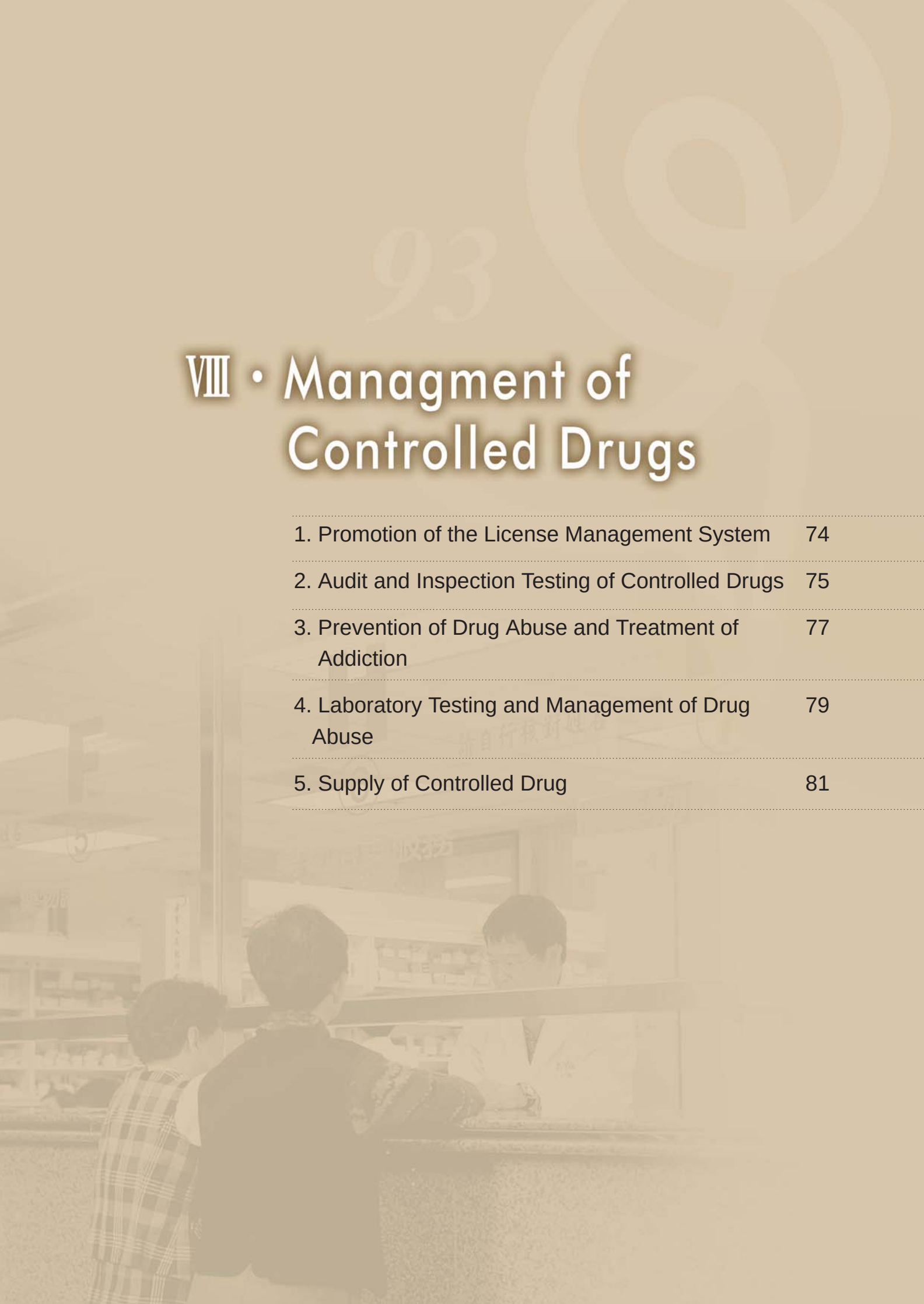
Development of new testing methods and the enhancement of testing research standards are among the goals of the Bureau of Food and Drug Analysis. In 2003, it produced 86 papers on testing methods, 19 on the standards of biological preparation criteria, 25 on the standards of medical devices, 26 on testing methods of foods, and 75 scientific and technological research projects. A number of the studies were intimately related to the health of Taiwan's people. These include.

1. Investigation of skin minimal erythema dose in Taiwanese.
2. Preparation of national reference serum panel for hepatitis diagnostic kit.
3. Study on the establishment of reference and standard for quality control of Chinese medicine raw materials.
4. Identification of easily confused and misused Chinese medicine raw materials.
5. Investigation of background levels of dioxins in Taiwan's food products.
6. Investigation ofdioxin contents in human blood in Taiwan.
7. Study on the detection method of genetically modified papaya, potato and maize.

Figure 7-1 Types of Laboratory Testing and Number of Cases, 2003



Ⅷ · Managment of Controlled Drugs



VIII. Management of Controlled Drugs

1. Promotion of the License Management System

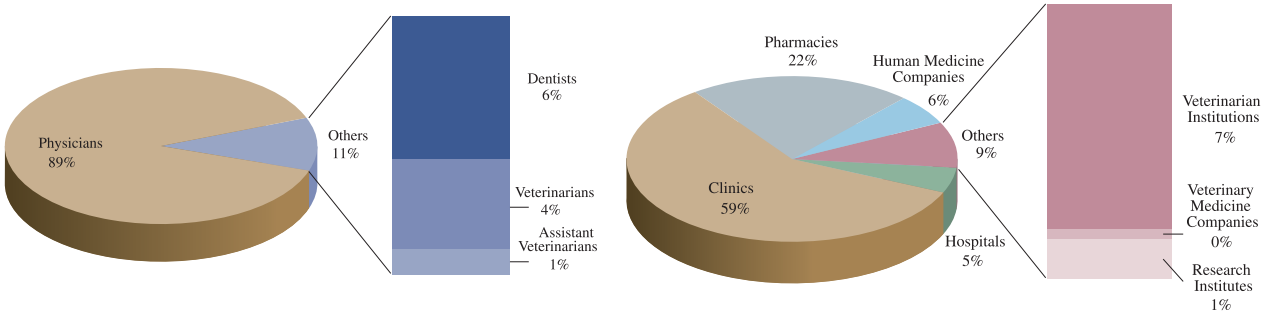
To regulate the flow and use of controlled drugs from being abused, a “ license management system” has been adopted in accordance with the Controlled Drugs Act. Registration certificates are issued to related dealers and industries and licenses are issued to physicians, dentists, and veterinarians and assistant veterinarians. Exports, imports, and manufacturing of controlled drugs are subject to case-by-case approval. The licensed personnel are required to keep a book in their office to show the inbound and outbound dealings of controlled drugs and file a report in a fixed period. The Department has established a Controlled Drugs Review Committee to increase or reduce the categories and items of controlled drugs for approval by the Executive Yuan as required for the control.

(1) Formulation of Accompanying Regulations for the Management of Controlled Drugs

a. In 2003, the Department added Article 41-1 and amended Articles 3 and 25 of the Controlled Drugs Act in response to the Executive Yuan's implementation of the Administrative Procedure Act. These efforts were intended to upgrade the status of some provisions to the level of law so that they can serve as legal basis in the classification and Chinese labeling for controlled drugs and the collection of licensing fees.

b. Article 22-1 was added to the Enforcement Rules of the Controlled Drugs Act to force the buyers of controlled drugs to register their names and other detailed information in the book of registration, which is to be kept for five years as required in Article 30, to facilitate check on the distribution of controlled drugs. In addition, Articles 3, 4, 6, 11, 12, 27 and 37 were amended to clearly provide for the documents and fees required in application for a drug-

Figure 8-1 Current Status of Registration Licenses and Prescription Licenses Issued for Controlled Drugs



Prescription Licenses Issued

Registration Licenses Issued

use license and for the issuance, re-issuance, change, and renewal of registration certificates. Some of the articles were amended for conforming to the terms used in the Executive Yuan's Administrative Procedures.

c. Domestically manufactured drugs containing Dihydrocodeine were originally listed as level-2 controlled drugs. To meet the requirement of control, controlled drugs are divided into four levels. Some hitherto controlled drugs are exempt from control.

d. Compound tablets or capsules that contain Chlordiazepoxide or Phenobarbital not used as sleeping pills or tranquilizers are not subject to the control of the Controlled Drugs Act.

(2) Acceptance of Applications for Licenses

In 2003, the Department issued 1,066 and revoked 983 registration certificates; issued 1,614 and revoked 22 permit licenses for the use of controlled drugs; issued 682 agreements on manufacturing, 561 import agreements, and 203 export agreements; issued 61 documents of drug import and export; and approved 257 cases on the use of controlled drugs by educational and research institutions.

By the end of 2003, 11,659 companies and organizations had acquired the certificates of controlled-drug registrations, comprising 567 hospitals, 6,820 clinics, 2,589 pharmacies, 153 western medicine manufacturers, 492 western medicine dealers, 822 veterinarian medical care institutions, 31 animal husbandry businesses, 19 manufacturers of medicines for animal use, 13 dealers of animal medicines, and 153 educational and research institutions. A total of 31,332 certificates on the use of controlled drugs have been issued to related personnel, 28,039 to physicians, 2,000 to dentists, 1,112 to veterinarians, and 181 to assistant veterinarians. The distribution of registration certificates for dealing with controlled drugs and the licenses for using controlled drugs are shown in Figure 8-1.

(3) Education in Controlled Drug Laws

a. In 2003, the Department offered 63 training courses to 2,880 pharmacists, 672 assistant pharmacists, 788 physicians, 158 assistant veterinarians, and 1,248 administrative personnel, and compiled 3,000 copies of teaching materials for them.

b. The Department also conducted three workshops for veterinary organizations, animal husbandry organizations, manufacturers and dealers of medicines for animal use to familiarize them with the statutes and regulations governing controlled drugs.

2. Auditing and Inspection Testing of Controlled Drugs

(1) Reporting on the Flow of Controlled Drugs

a. On January 2, 2003, the Department announced the "Procedures on the Reporting of Controlled Drugs through Electronic Media." The channel was made to open to dealers and organizations for reporting in February and July of 2004, respectively. Some 71.1% of the dealers and 13.3% of the organizations made reporting through electronic media.

b. In June 2003, the Department sent letters to all organizations that had registration certificates for controlled

drugs, asking them to file their reports on the balance of level-1 through level-3 controlled drugs for the first half of the year. In December of the year, the Department notified these organizations to file their reports on the balances of levels-1 through 3 controlled drugs for the second half of the year and their balance reports on level-4 controlled drugs for the whole year of 2003. In the letters, the Department explained in detail the procedure of filing reports through electronic media.

c. The Department accepted 21,408 annual and semi-annual reports filed by organizations and 7,037 filed by dealers. All reports filed in writing were checked and keyed in the computerized file. Those who failed to make the report were listed as the targets for strengthened check.

(2) Management of Inspection and Review of Cases of Controlled Drugs

a. The Department drew up the 2003 Management Plan for Controlled Drugs and sent it to local health bureaus for implementation and, on the basis of actual need, formulated the following plans: the "plan for on-site inspection of raw materials (including those for the manufacturing of level-4 controlled drugs) imported, manufactured, or sold by dealers", "inspection plan for the balance of controlled drugs not reported by registered dealer", "work plan for strengthening the inspection of controlled drugs during summer vacation", "inspection plan for the licensed organizations that did not file the annual report and the second semi-annual report", and "plan for strengthening the inspection of level-3 controlled drugs Tramadol and Ketamine".

b. The Department carried out in 2003, in conjunction with local health bureaus, inspections for 2,229 companies and discovered 233 (10.45%) cases of violation. It also supervised health bureaus to conduct routine inspections of 10,709 companies and discovered 37 (0.35%) cases of violation. Of these 37 cases, three were involved in counterfeit drugs, one was suspected of using the controlled drugs for illegal purposes, and three were found keeping the raw materials for level-4 drugs for suspicious purposes. All these cases were referred to the Bureau of Investigation for action.

c. The Department discovered 107 companies running illegal advertisement to sell controlled drugs on the Internet and referred the cases to the Bureau of Criminal Police of the National Police Administration for investigation and action.

d. The Department convened four times the Review Committee on Medical Use of Controlled Drugs, which reviewed 56 cases on the long-term use of anesthetics for non-cancer purposes, and 16 cases involving the justifiability in the use of controlled drugs. Those who had unrightfully used controlled drugs were punished in accordance with the decisions of the review committee.

(3) Training in the Inspection of Controlled Drugs

a. To make the training more effective and to strengthen the management of

controlled drugs, personnel training is divided into new-recruits training and higher-level training. A total of 120 received the higher-level training, which emphasized case studies. Seventy-five took part in the new-recruits training, which dwelt on the laws and regulations and inspection practice.

b. A joint workshop was held this year on pharmaceutical affairs, controlled drugs, and Chinese herbal medicines. The topic of discussion on controlled drugs was "Strengthening the control of controlled drugs by using the information system for controlled drugs". The topic was amply discussed for accelerating the computerization of information on controlled drugs.

3. Prevention of Drug Abuse and Treatment of Addiction

Drug abuse causes immense damage to the country, society, and family. In view of this, the Ministry of Justice, Ministry of Education, and the Department were designated in 1994 to take the lead in three areas of drug control, "cracking down on drugs," "refusal of drugs", and "drug cessation", so as to fulfill the policy goal of "cutting off the supply and reducing the demand", to reduce hazards of drugs on the population.

(1) Drug Abuse Monitoring and Reporting

The Department has set up a reporting channel in collaboration with the medical care institutions designated for the treatment of drug addition and private anti-drug groups. A Drug Abuse Reporting and Information System has also been established and the Internet reporting of drug abuse cases has been implemented to provide timely and effective services as well as grasping the drug circulation trends. Besides, the Department has added an enquiry function to its online system for enabling health bureaus to share the resources.

The Information Reporting System on the Abuse of Controlled Drugs showed that, between January and November in 2003, there were 7,256 cases of drug abuse in psychiatric hospitals in the Taiwan area (increasing 366 cases over the previous year). The most abused drugs were heroin (88.1%), Methamphetamine (18.5%), Benzodiazepines (5.5%), MDMA (1.9%), and glue (1.7%). Compared with the previous year, the abuses of methamphetamine, MDMA, and glue had decreased, whereas the abuses of heroin and Benzodiazepines had increased slightly. At present, heroin is still the most abused drug and that there is a tendency of continuing increase.

(2) Education on the Prevention of Drug Abuse

a. Production of Educational Materials for Distribution to Related Groups

In this end, the Department has published a booklet, "2003 Drug Abuse"; produced two video CDs, "War against Poisonous Drugs", and "Guide to the Prevention of Drug Abuse"; designed a poster, "Protect Yourself"; put out colored cards on commonly abused drugs, and the seventh edition of "Anti-drug star cards", and so on. There are 56 kinds of educational materials, including cup cushions, posters, movie strips, anti-drug cartoons, short comics, video CDs and tapes. Altogether, the Department distributed 507,777 leaflets, 12,553 posters, 101,314 sets of bookmarks, and 155,470 copies of booklets this year.

b. Strengthening of Publicity in the Media to Expand the Publicity Sphere

Efforts included projection of an anti-drug

strip, "The Heroic Chapter" in 748 movie theaters; production of two publicity short films, "The Dark Chapter" and "Poison-water Chapter" for public-service broadcast by terrestrial TV stations, and six tapes for airing by radio stations. It also publicized anti-drug materials through online media, like ET today.com, and by installing a specific website called "Achu's Fight against Drugs". In addition, the Department also published the seventh edition of the Anti-drug Star bookmarks and actively developed distribution places, including KTV shops, Taipei's MRT stations, international airports, domestic airports, railway stations, rest and recreation stations along the freeway, and the Kuokuang Bus terminals. The anti-drug strip was sent to the Watson's for showing at its 228 chain stores. The Bureau of Controlled Drugs has started an anti-drug electronic paper on December 15, 2003, for anti-drug publicity to the general public through the rapid and deep penetration of electronic media.

c. Training of Anti-drug Workers

In coordination with the Ministry of Education's anti-drug courses offered at teachers' colleges, the Department conducted 27 anti-drug classes at 10 schools for 4,246 students. The Department also held four sessions of "2003 Anti-drug Workshops for Pharmacists" for 412 pharmacists in communities, medical care institutions, and prisons, and established "drug-abuse counseling stations" to push anti-drug publicity to all walks of life. Still, the Department provided the related government agencies, medical care institutions, and civic bodies with 96 lectures, trained 50 school dropouts and 52 youngsters to help out the anti-drug counseling.

d. Encouraging Civic Organizations and Schools to Conduct Anti-drug Publicity

In 2003, the Department subsidized 31 private bodies to conduct 1,000 various anti-drug activities such as workshops, mobile performances, training of volunteers, competitions, designing of educational materials, and guidance to high-risk groups. These activities produced 56 anti-drug educational materials.

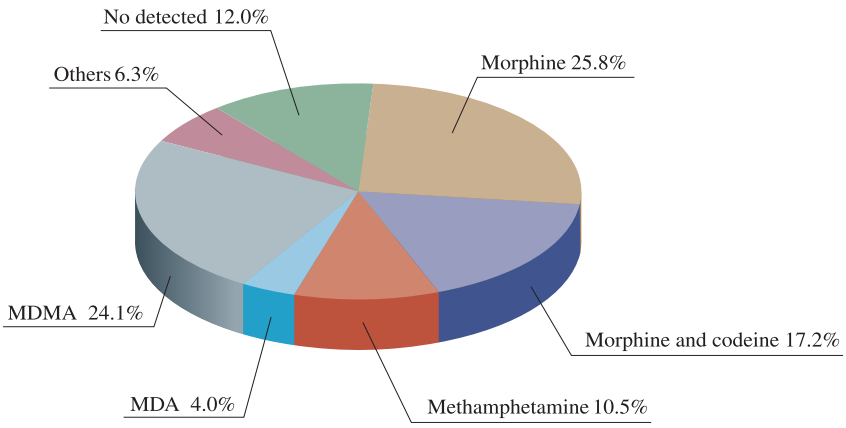
4. Addiction Treatment and Toxicity Assessment

(1) Addiction Treatment

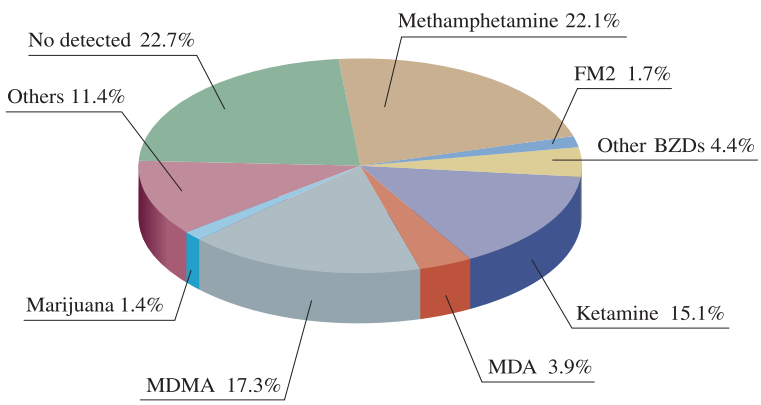
In accordance with the Drug Hazards Prevention Act, on May 14, 1999, the Ministry of Justice signed a contract with the DOH Tsaotung Psychiatric Hospital for drug treatment at hospitals and clinics, and for the provision of 50 beds for recovering addicts that were under observation. The Department has also coordinated with 36 medical care institutions for continued support for the drug treatment work of the Ministry of Justice's addiction treatment centers. In 2003, the Department announced the designation of 132 medical care institutions for the treatment of drug addiction. These institutions provide outpatient and (81 of them) hospital care for addicts who seek help. Training for drug treatment professionals is offered at five subsidized hospitals in the core psychiatric care network, and subsidies are also provided for foundations to hold seminars for guidance of addicts, their families, and volunteer groups. In 2003, a mental rehabilitation plan for young addicts was carried out, and subsidies have been given to the health bureau of Taitung County and to charity foundations for them to accept young addicts for individual and reinforcement education.

(2) Toxicity Assessment of Abused Drugs

Figure 8-2. Laboratory Testing of Urine and Non-Urine Specimens for Drug Abuse, 2003



Testing of Urine Specimens



Testing of Non-Urine Specimens

Information on the cellular toxicity, genetic toxicology, and cell apoptosis of controlled drugs and abused drugs is collected from the literature, categorized, and filed. In 2003, the Department completed the study of cellular toxicity resulted from combined use of alcohol and abused drugs common in Taiwan. It will continue to explore methods of toxicity examination.

5. Laboratory Testing and Management of Drug Abuse

(1) Laboratory Testing of Drug Abuse

In coordination with the anti-drug policy, the Bureau of Controlled Drugs carries out testing and re-testing of drug abuse and urine specimens on commission by judicial, prosecutorial, and health agencies. It also engages in the development of drug-abuse

testing methods and through the testing of drug-abuse cases of all kinds, monitors emerging abused drugs in order to grasp new trends in drug abuse.

A total of 2,130 specimens were tested in 2003; of which, 899 were urine specimens, and 1,231 non-urine specimens. The results of the tests are shown in Figure 8-2. The greatest amount of detection from the testing of urine specimens was of morphine, accounting for 25.8% (in 232 specimens), followed by MDMA (24.1%), and morphine and codeine (17.2%).

The largest number of detections in non-urine specimen testing was conducted for methamphetamine, with 22.1% (272 cases), followed by MDMA (213 cases, 17.3%), and Ketamine (186 cases, 15.1%).

A science-technology project for the establishment of Ketamine testing method as well as a research project on immunological methods of urine screening for amphetamine and opium was completed. Also completed was the comparative study of the gas chromatography/mass spectrometry method. A paper on the assessment of the toxicity laboratory method of testing MDMA and related drugs was published in an international medical journal. In 2003, a paper on the analysis of MDMA reagents was read at a medical society.

(2) Management of Urine Testing for Drug Abuse

To coordinate with the needs of prosecutorial, police, and judicial authorities as well as other designated persons for the screening of urine for drugs, the Department announced regulations for the accreditation and management of laboratories for this purpose in 1995. In 2003, the Department announced the "Regulations Governing the Accreditation and Management of Medical Care Institutions for Drug-Abuse Urine Testing", the "Installation Standards for Drug-Abuse Urine-Testing Laboratories of Government Agencies", and "Rules for Drug-Abuse Urine Testing". Accreditation began in 1998, and a total of 13 urine-testing laboratories have passed the accreditation so far. The Bureau of Controlled Drugs administers these laboratories with the aim of providing fast and accurate test results. Most of the local health bureaus have established the staff and equipment for supporting the police and prosecutorial authorities to conduct urine testing.

a. Certification of Laboratory Testing Institutions

All the 13 certified laboratories are allowed to carry out preliminary screening and confirmation testing using the gas chromatography/mass spectrometry method for amphetamines, methamphetamines, morphine, and codeine. So far, ten institutions have acquired the accreditation for testing MDMA, MDA and marijuana. The quality of their testing has been confirmed through quarterly performance testing and semi-annual on-site inspections. In 2003, about 160,000 urine specimens, sent in by the police, judicial, and designated persons and agencies, were tested. In the future, other items of urine testing for drug abuse will be added if needed.

b. Local Health Bureaus

To meet the needs of local prosecutorial and police authorities for the screening of urine specimens for drugs, the Department has subsidized local health bureaus for training in immunological and thin-layer chromatography urine analysis. The negative or positive results of such tests are reported and used as the basis for follow-up. In 2003, the police and

prosecutorial authorities in Taipei, Ilan, Kinmen counties, and Taichung City entrusted the DOH accredited organizations to screen urine specimens for drugs. The health bureaus of the other 21 counties and cities jointly helped the local police and prosecutorial authorities test about 35,000 specimens.

c. Hospitals for the Health Examination Alien Laborers

Designated hospitals for the health examinations of alien laborers may, following documentary review and passage of verification testing and on-site inspection, carry out preliminary screening of urine for amphetamines, methamphetamines, and morphine at the time when health examinations are conducted. Specimens tested positive are sent to certified testing institutions for confirmation by gas chromatography/mass spectrometry. In 2003, 69 hospitals performing health examinations for alien laborers conducted preliminary screening of approximately half a million specimens collected from alien laborers.

6. Supply of Levels-1 and 2 Controlled Drugs

(1) Manufacturing, Import, and Development of Levels-1 and 2 Controlled Drugs

Levels-1 and 2 controlled drugs are needed in medical care and scientific research. They are put under strict control. To grasp their flow and avoid abuse or diversion to other purposes, the Department, in compliance with the provisions of the Controlled Drugs Act, designated the Pharmaceutical Plant of the Bureau of Controlled Drugs as the sole legally designated plant in Taiwan for the supply of levels-1 and 2 controlled drugs. To ensure the quality, all its products are produced in accordance with the Good Manufacturing Practices (GMP). The cGMP validation is strictly enforced. Up to now, the plant has satisfactorily completed the second-stage validation and the validation procedures are applied to all crucial processes, including the methods of cleaning and analysis. The Plant is now vigorously pushing the third-stage work of computerized validation to ensure safety and stability of its products for the benefit of the

Table 8-1. Manufacturing and Sales of Major Levels 1 and 2 Controlled Drugs, 2003

Drugs	Unit	Quantity Manufactured	Quantity Sold
Pethidine hydrochloride injection 50mg/ml	Ampoule	1,759,800	1,689,940
Codeine phosphate injection 15mg/ml	Ampoule	138,810	126,220
Morphine hydrochloride injection 10mg/ml	Ampoule	1,116,274	979,640
Morphine hydrochloride injection 20mg/ml	Ampoule	352,450	299,390
Pethidine hydrochloride tablet 50mg/tablet	Tablet	192,637	209,700
Codeine phosphate tablet 15mg/tablet	Tablet	1,161,349	1,046,800
Codeine phosphate tablet 30mg/tablet	Tablet	2,903,353	2,569,400
Morphine hydrochloride tablet 10mg/tablet	Tablet	2,272,382	2,470,800
Morphine hydrochloride	gm	47,039	3,630
Opium tincture	ml	6,831,900	6,178,300

health of the people. The Plant flexibly adjusts its production and import plans to attain the balance of supply and demand.

The levels-1 and 2 controlled drugs supplied by the Plant in 2003 included pethidine hydrochloride injection doses, 24 items of raw materials for making levels-1 and 2 controlled drugs, and four standard references for research purposes. The Plant made 47 imports, including 36 imports of levels-1 and 2 controlled drug preparations and raw materials and 11 imports of standard references for research purposes. The Plant's major products in 2003 are shown in Table 8-1.

In recent years, the demand for Fentanyl has been rising incessantly for its easy use and long efficacy. As the import price of the product is high, the Plant, after making careful assessment and obtaining the R&D budget, began to develop the drug in 2003 in cooperation with the academics for domestic production at a lower cost. This will benefit the consumers financially.

(2) Business-Way Production and Marketing and Computerized Management

a. The Bureau has opened a website, http://www.nbcd.gov.tw, for consumers to place mail orders, enquire about the delivery, and view the package of levels-1 and 2 products.

b. A Marketing Management Information System has been established to enhance the efficiency of operation and management.

c. To enhance service quality and administrative efficiency, the Bureau launched the Plan for Shortening Mail Order Delivery Time in 2002. In 2003, it received 1,614 mail orders, with the average delivery time shortened from seven days to 3.8 days.

Ⅸ · Development of Chinese Medicine and Pharmacy

IX. Development of Chinese Medicine and Pharmacy

Article 17 of the Organization Act of the Department of Health, revised and promulgated on July 29, 1987, states: "The Department shall establish a Committee on Chinese Medicine and Pharmacy to handle administrative affairs as well as research and development of Chinese medicine and pharmacy; its organization shall be separately decided by law." In compliance to these provisions, the Department drafted an organization law for the DOH Committee on Chinese Medicine and Pharmacy. The draft law was sent by the Executive Yuan to the Legislative Yuan on November 21, 1987, for deliberation, and was passed on December 15, 1994, and promulgated by the President of the Republic on December 30 that year. The Committee on Chinese Medicine and Pharmacy was officially established on November 1, 1995.

1. Administration of Chinese Medicine

a. Manpower Development

The training of doctors of Chinese medicine is divided into a seven-year undergraduate program (extended to eight years in 1996) and a five-year post-baccalaureate program. In addition, medical doctors who acquire the 45 required credits in Chinese medicine could also take a Chinese medicine doctor examination. By the end of 2001, a total of 339 students had received the required credits, and 76 of them had passed the examination. To promote domestic residents who have knowledge of Chinese medicine and pharmacy, the Ministry of Examination holds qualifying examinations and special examinations. By the end of 2002, 19,142 persons had passed the qualifying examination for Chinese medicine doctors, and 3,214 had passed the special examinations for Chinese medicine doctors. To promote normal development of Chinese medicine and to raise the ratio of doctors of Chinese medicine trained through regular education, the qualifying examination for doctors of Chinese medicine will be discontinued in 2008, and the special examination in 2011.

b. Development of Medical Care Institutions

Measures include;

(1) Initiating the "Pilot Plan of Clinical Teaching for Doctors of Chinese Medicine"

Seven clinical teaching centers have been established to provide clinical training and

Table 9-1 Development of Chinese Medicine Manpower

Dept. Name	School Name	Length of Program (years)	Years of Operation	No. of New Students Annually	No. of Graduates (accumulated)	No. Students Passing Qualifying Exam
Chinese Medicine	China Medical U.	7	1966~1995	120	2,799	2,341
		8	1996~today	120	0	0
Chinese Medicine	Chang Gung U.	8	1998~today	50	0	0
Post-Baccalaureate Chinese Medicine	China Medical U.	5	1984~today	100	1,052	816

teaching environments for Chinese medicine interns, resident doctors, pharmacists, and nurses.

(2) Promoting an "Inspection Plan for Chinese Medicine Hospitals and Chinese Medicine Departments in Hospitals"

The inspection procedures, inspection criteria, and assessment tables have been completed. A total of 23 hospitals were interviewed in an effort to strengthen the management of Chinese medicine hospitals to ensure good quality of Chinese medicine services.

(3) Improving Medical Care Services by Integrating Chinese and Western Medicines and Evaluating the Clinical Efficacy of Chinese Medicine

This is intended to upgrade the quality of the care of Chinese medicine, encourage the opening of Chinese medicine departments in teaching hospitals, and incorporate the Chinese medicine branch as a permanent part of the hospitals' organizational plans. Of the 119 hospitals accredited by the Department in conjunction with the Ministry of Education in 2002, 56 have established departments of Chinese medicine, eight medical centers, 33 regional teaching hospitals, and 15 district teaching hospitals.

(4) Supervising the Association of Chinese Medicine Doctors to Implement the Global Budget System Under the National Health Insurance along with Its Quality Assurance Program

Management and regional educational seminars have been held to promote the reasonable control of medical care costs, boost the professional autonomy of Chinese medicine, assure the quality of Chinese medicine care, and guarantee the sustainable operation of the National Health Insurance.

c. Administration

Efforts include:

(1) Carrying on Chinese medicine doctors' continuing education, holding academic symposiums on integration of Chinese and western medicines and on the passing-on of experiences in order to raise the professional quality of Chinese medicine practitioners, participating in organizing basic medical and clinical training courses offered by the Examination Yuan to persons passing the special examinations and qualifying examinations for Chinese medicine doctors

in order to improve their quality and skills.

(2) Providing the people with a safe medical environment by supervising county and city health bureaus to crack down on illegal advertising and unlicensed doctors; implementing the "Plan for Monitoring Medical, Medicinal, and Cosmetic Advertising by All the People", and the "Special Plan for Videotaping Illegal Commercials", to rectify the advertising on Chinese medicine and Chinese medical therapy. In addition, the Department has compiled the "Collection of Laws and Regulations Concerning the Management of Chinese Medicine", "A Glance at the Management of Chinese Medicine Administration", and the "Collection of the Physician's Act and Related Laws and Regulations", to publicize government policies.

(3) By the end of 2003, there were 4,532 practitioners of Chinese medicine and 2,265 Chinese medicine hospitals and clinics (see Table 9-2).

2. Administration of Chinese Pharmacy

As people have historical affection for Chinese medicines and Chinese medicines have played a part in nationalism, it is a burning task to establish an environment that can ensure the health of the people and free them from fear in the use of Chinese medicines as they have wished and hoped. At present, the whole world is craving for herbal medicines. At the same time, Taiwan is undergoing drastic economic transformation. While the environments in other fields are pending to be established, to boost the country's international competitiveness, the establishment of scientific evaluation standards and a technological platform for Chinese medicines, and thus to promote the development of Chinese medicine industries, to innovate on the technology, and to develop training of multi-faceted professionals are some of the goals in the administration of Chinese pharmacy.

(1) Improve the Quality and Safety of Chinese Medicines

The Department will continue to compile the Chinese Pharmacopoeia:Chinese Medicines and, at the same time, develop the economic value of Taiwan's unique medicinal plants. Workshops and surveys are held to rectify the habits of Chinese medicine workers to prevent wrong concoction and use of Chinese medicines. The Department has also set up standards for processing Chinese medicines to reduce their poison and increase the release of

Table 9-2 Institutions Providing Chinese Medicine Care

Area	Hospitals	Clinics Joint Clinics	Departments of Western Medicine Hospitals	Total
Taiwan Province	25	2,182	58	2,265
Taipei City	6	342	13	361
Kaohsiung City	5	202	3	210
Kinmen	0	3	0	3
Total	36	2,729	74	2,839

Notes: 1. Unit: No. of institutions
2. As of December 2003.

their active medical properties. In response to the continuing increase of packaged Chinese medicines, the Department has conducted surveys on residues of agricultural chemicals, content of heavy metals, fumigation with sulfur and the addition of antiseptics. It selected a total of 203 Chinese medicines for the draft Chinese Pharmacopoeia and subjected 20 Chinese medicine compounds to HPLC qualitative analysis to free people's fear of using bad medicines. It has also been strictly implementing the Illegal Advertising Monitoring and Recording Project to provide the people with correct information.

(2) Upgrade Professionals' Skills to Ensure the Quality and Safety

Seminars on GMP as well as on the wrong concoction and use of baseline Chinese medicines have been held to instill the concept of quality control and cross-contamination.

(3) Modernize Chinese Medicines to Enhance International Competitiveness

It is imperative to establish a technological platform, a complete set of scientific and modern evaluation standards and of statutes. So, the Department drew up a "Five-year Plan for Establishing a Safe Environment for the Use of Chinese Medicines" for the development of the Chinese medicine industry, technological innovation, and training of personnel. The major administrative efforts in this end include the unification of quality and control of the standards of medicines, the establishment of the national standard of ingredients, the installation of a national information and communications network, cleaning of advertising for the safe use of Chinese medicines, the building of a mechanism of accreditation abroad and quality control at home, the development of an Asian supply center of standard products, the creation of an advanced personnel training center, and the erection of an information network on the safe use of medicines.

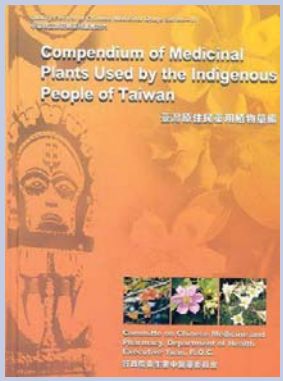
(4) Improve Clinical Trials and their Statutory Environment

a. Establishment of the Environment and Mechanism for Clinical Trials

This includes the establishment of operational standards and the companion measures. In 2001, the Department began to implement the plan for opening clinical centers for Chinese medicines in teaching hospitals by integrating resources, formulating criteria, and setting standard procedures for clinical trials. So far, the Department has subsidized the following nine hospitals to establish clinical trial centers for Chinese medicine: Tri-Service General Hospital, National Taiwan University Hospital, and Veterans General Hospital in Taipei, Chang Gung Hospital at Linkou, China Medical College Hospital, Veterans General Hospital at Taichung, Hsiu Chuan Hospital, Chi Mei Hospital, and the National Cheng Kung University Hospital. In addition, the Department has enriched the contents of the joint website of the Chinese medicine clinical centers and published the "Statutes of Taiwan's Clinical Trials on Chinese Medicines and the Environment", to introduce regulations governing the development of new Chinese medicines and the clinical centers established with the DOH subsidies. By the end of 2003, these centers assessed 11 commissioned cases and 10 cases of their own.

b. Development of Training Curricula on Clinical Trials

This is done in cooperation with academic circles and teaching hospitals for the cultivation of talented people. The aim



is to instill the right concept of clinical trials in doctors, Chinese medicine doctors, pharmacists, statisticians, and related research personnel, so as to raise the quality of these trials. The Department began to conduct the "Education and Training Program on Clinical Trials for Chinese Medicines" in 2001 for more than 1,000 people each year.

c. Formulation of Regulations Governing Clinical Trials and Clinical Trial Standards for Major Diseases

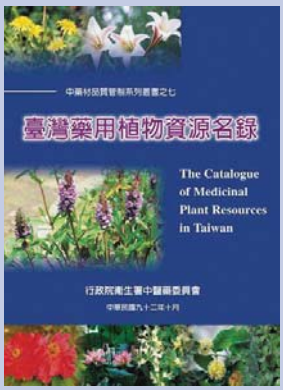
This effort is aimed at the establishment of a good clinical trial environment for Chinese medicines (including new medicines) required in the establishment of a statutory environment, formulation of the criteria on the procedures of application for clinical trials (including inspection and registration) of Chinese medicines, and the revision of clinical trial standard for Chinese medicines used for curing major diseases. It is hoped that the Chinese medicine industry will take statutory provisions into consideration at the beginning of the development of new Chinese medicines and use these provisions as the legal basis of the application for clinical trials, inspections and registration.

d. Fulfillment of the Reporting System for Adverse Reactions of Chinese Medicines

The Department will continue to implement the plan for reporting adverse reactions of Chinese medicines. It has educated the medical personnel and collected information on the assessment and analyses of individual cases. To enrich the databank and the contents of the website, the Department has regularly invited experts to meet and analyze the information gathered.

3. Research and Development of Chinese Medicine and Pharmacy

To promote modernization and scientific study of Chinese medicines, and to provide a scientific basis for Chinese medicine and pharmacy policy as well as measures for resolving major health problems related to Chinese medicine and pharmacy with the aim of upgrading the technological level of Chinese



medicine services, in 2003, the Department commissioned academic institutions to carry out 77 research and development projects involving Chinese medicine and pharmacy. The categories and numbers of these projects are shown on Table 9-3.

(1) Evaluation of the Clinical Efficacy of Chinese Medicines and Policy Analysis

To assess the clinical efficacy of Chinese medicines for specific diseases, the Department entrusts medical care institutions to conduct related research every year. The 2003 research included

Table 9-3 Resarch Projects in Chinese Medicine and Pharmacy, 2003

Category of Project	No. of Commissioned Projects
Assessment of the Effectiveness of Chinese Medicine and Pharmacy on Diseases	11
Acupuncture	3
Auxiliary Diagnostic Equipment for Chinese Medicine	6
Chinese Medicine Policy	18
Quality Control for Chinese Medicines	21
Sources of Chinese Medicines and Medicines using Protected Animals	3
Promotion of Clinical Effectiveness Assessment	1
Cross-Straits Academic Exchange in Chinese Medicine and Pharmacy	2
Genomic Studies of Chinese Medicine and Pharmacy	12
Total	77

Note: As of December 2003

some diseases common to people in Taiwan such as cancer, allergic asthma, and ectopic dermatitis. One research topic is "a study of the effectiveness and benefit in the use of Chinese medicine for radioactive and chemical treatment of head and neck cancer of a hospitalized patient". Of the Chinese medicine research, 11 are about clinical trials and three about acupuncture.

Besides, the Department has entrusted medicine care institutions to study the "criteria and policy about the quality problems of service rendered by Chinese medical doctors" in the hope of raising the quality of Chinese medicine care service through quantitative evaluation. This is required in the landmark development of the quality of Chinese medical care service and in the establishment of a surveillance system.

To assess the feasibility of pushing an accreditation policy on Chinese medical care services, the Department has outsourced the study. The Department has also entrusted medical care institutions to engage in the study of a plan on the establishment of professional systems for practitioners of Chinese medicine in internal medicine, gynecology and obstetrics, pediatrics, wound, and acupuncture fields.

(2) Studies of Diagnostic Criteria and Guidelines for Clinical Treatment

In response to the global budget system for Chinese medicine outpatients designed for enhancing the accuracy of diagnostic analysis of Chinese medicine care services, in 2003, the Department has continued 11 research projects, including "a study of the diagnostic criteria for five commonly seen diseases", and "a study of the standardization of tongue diagnosis."

(3) Research into Quality Control for Chinese Medicines

To contain the CITES impact and to sustain the use of the active medical properties of protected animals, in 2003, the Department began a substitute study of pangolin scale, a Chinese medicine. It also outsourced a study of Chinese medicinal adhesives and alcohol and the medical properties they release, a feasibility study of cGMP to strengthen the management of Chinese medicines and raise their quality. Findings of the studies will be used as references for the evaluation, establishment of standard products, examination, toxicity determination, preparation and management of Chinese medicines.

(4) Genomic Study of Chinese Medicines

In coordination with the implementation of the "Challenge 2008: National Priority Development Plan", the Department carries on a national genomic medical scientific research project. In 2003, the Department engaged, on commission, in a Chinese medicinal study of relationship between physique type, gene, and protein reaction of an allergic sinus patient for the establishment of the Chinese medicine diagnostic method.

Moreover, the Department engages, on commission, in a molecular identification study for sweet potatoes to determine the genuineness of Chinese medicines by the species to ensure user's safety. In 2003, the Department outsourced 12 genomic studies with regard to Chinese medicines.

(5) Exchange on Chinese Medicine with

Mainland China and Foreign Nations

To raise the status of Taiwan's traditional Chinese medicine in the world, in 2003, the Department held the "12th International Conference on Oriental Medicine (ICOM)". It is a WHO-recognized organization of traditional medicine, and the only international medical organization in which Taiwan has a permanent seat. A total of 102 lectures on specific topics were presented and 82 papers were posted.

On October 26, 2003, the DOH's Committee on Chinese Medicine and Pharmacy held a meeting to make public the research findings for the benefit of all people.

To strengthen cross-strait exchange on Chinese medicine, in 2003, the Department subsidized the related studies on the recognition of the mainland education of persons practicing Chinese medicine in Taiwan and another exchange project.

(6) Application of Research Findings

To make the maximum application of the findings of the Chinese medicine research, the Department has put them into book form. In 2003, it published the Collection of Taiwan Aborigine Medicinal Plants (English), a List of Taiwan's Medicinal Plant Resources, and the second edition of Taiwan's Medicinal Plants in Pictures (1).

4. Computerization of Chinese Medicine and Pharmacy

a. Establishment and Enrichment of the Chinese Medicine Information Network

To build the Chinese medicine and pharmacy website of the Committee on Chinese Medicine and Pharmacy (http://www.ccmp.gov.tw) into a professional international website, the contents of the site have been augmented and its functions expanded continuously using the newest information technology with the aim of providing the public with rapid access to accurate information on Chinese medicine and pharmacy.

By increasing interaction and friendliness, the Committee, using digital functions, intends to thoroughly computerize and internationalize the management and publicity of Chinese medicines and to enable people at home and abroad know its history, organization, functions and objectives. When the website was designed, it made the establishment of a bilingual environment as its goal. In 2003, the "English Translation of Terms of Chinese Medicine Prescriptions" was added to the website. Also in 2003, the Committee published a brief introduction in English (VCD) in support of the government effort to create a bilingual environment.

b. Establishment of an Administration Service System for Chinese Medicine

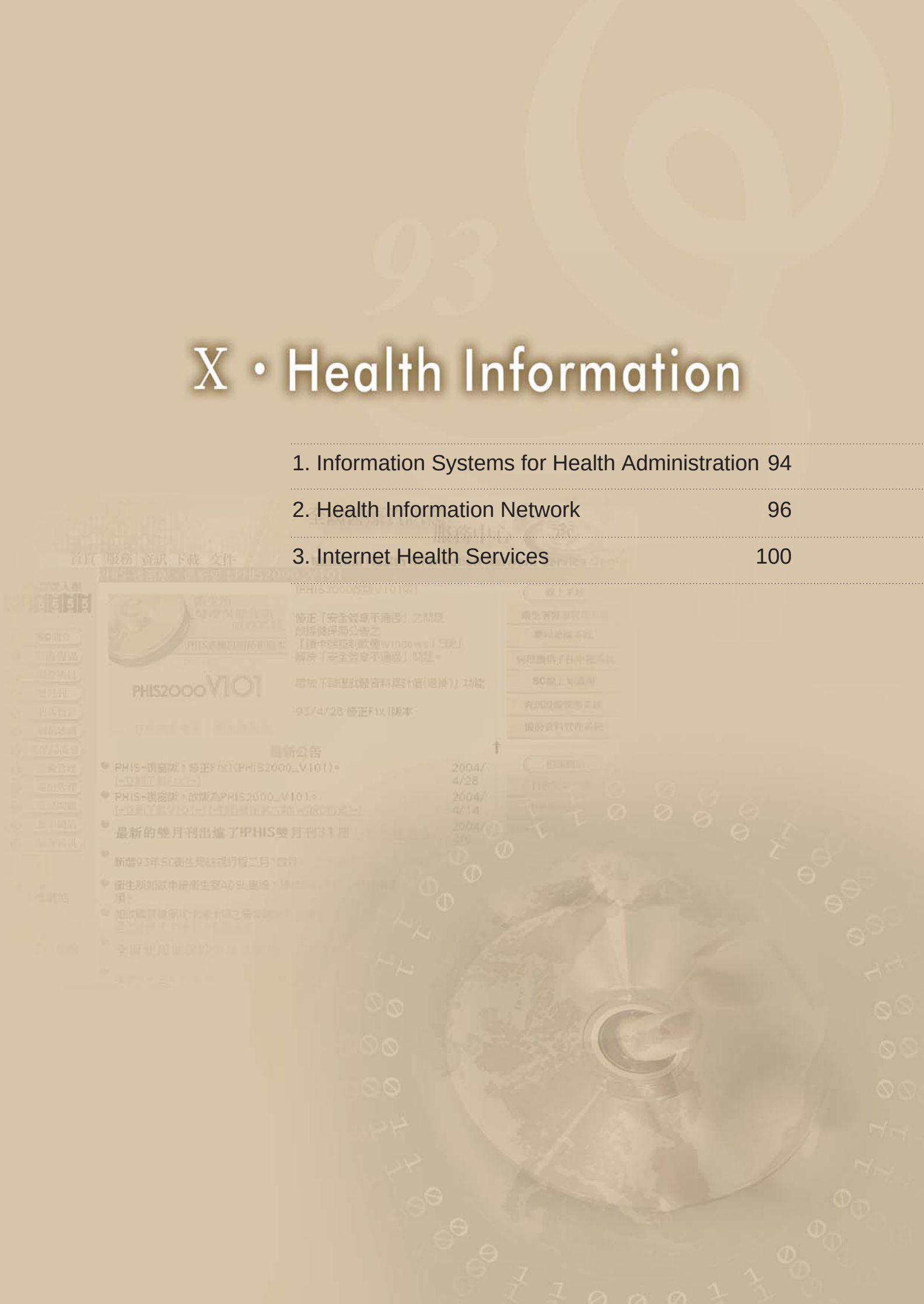
Since the Committee began to take in applications for running Chinese medicine advertising, it has adopted an innovative approach by establishing an Enquiry System on Chinese Medicine Advertisements to facilitate checking through links with the Chinese medicine and pharmacy information networks and the permit system, which has contributed to the unification and coordination in management. In 2003 the Committee developed a Chinese Medicine Violations Recording System (including products, acts, and advertising) to track the cases of violations and tighten the

management of Chinese medicine. This system can curb the circulation of illegal medicines and clean up the advertising. When it is linked to the DOH's Medical Affairs Management System and the Records of Inspection Results, it can present a compeete set of information. Besides, in response to the Executive Yuan's "E-Government Promotion Initiative" and "Challenge 2000: National Priority Development Plan", the Committee has established an Online Enquiry System for Licenses and Progress of Application Processing. All of these are concrete measures of the creation of a "single window" service.

(3) Publication of the Annual Report on Chinese Medicine and Pharmacy

The 21st issue of the annual report in three volumes has been published. They carry 43 reports on the results of research made on commission by various medical care institutions and are distributed to academic organizations of Chinese medicine for reference in order to increase the understanding and raise the standard of Chinese medicine. These reports are also posted on the website for reference of the general public.

X · Health Information



X. Health Information

The rapid development of modern information technology in recent years has led to a ubiquitous Internet environment. To provide for the fast and private transmission on a foundation unlimited by time and space, in 2003, the Department continued to build health administration systems, promote an e-DOH, and install an e-document exchange center in order to strengthen the performance of health administration. The Internet Health Service Promotion Project and Health Bureau/Station Internet Public Services Project have been planned and implemented, and have been incorporated into the Digital Taiwan Plan, part of the Executive Yuan's Challenge 2008: National Priority Development Plan, with the aim of speeding up the health and medical care information infrastructure, upgrading the functions of the National Health Information Network, and establishing an information service environment of better quality and efficiency. The localization of international medical information standards has been promoted and an electronic medical record promotion plan carried out in order to enhance the quality of medical care services and reduce the waste of medical care resources. The general and consistent application of the Internet by health bureaus and stations nationwide has been accelerated in order to provide the public with more complete health care services. A framework for a practicable Internet health service environment will be set up and the scope of its application will be continuously expanded in accordance with government policy and public need, with the ultimate goal of providing the people of Taiwan with lifetime health care.

1. Information System for Health Administration

To take advantage of the advance of Internet technology and to meet the need for coordinating with the e-government policy, the Department has gradually introduced revised versions of its health administration information systems and strengthened the inter-agency flow of information and the online submission of application so as to achieve the goals of establishing an e-government and serving the people.

a. Emergency Care Management System

To provide medical care to the injured during an emergency and to reduce casualties, the Department began to develop an Emergency Care Management System, which was revised with the use of the latest technology, and officially put online in February 2002. In 2003, an Airborne Rescue Subsystem and a Mass Casualties Reporting Subsystem were added for use by the firefighting authority, the DOH central office, emergency hospitals, county and city health bureaus, county and city fire brigades, and county and city emergency rescue command centers, totaling 419 organizations. These users, by linking with the system, can immediately ask for ambulances, enquire about the emergency hospitals, and know the resources available for emergency rescue. The emergency rescue centers in various regions can also get the fastest and most accurate information. This system can also produce various statistical analyses to facilitate the reporting and treatment and help the competent agencies to grasp the nationwide demand and supply of medical care resources so that they

can adjust the workloads of the emergency hospitals.

b. Information System on the Appraisal of Medical Disputes

Development of the WEB version was completed and the system was put online in January 2002, containing primarily information related to the patients, medical personnel, and medical care institutions involved in disputes, and the disposition of those disputes, as well as all kinds of statistics and conditions for effective management when a malpractice really takes place. This information is available to the public to provide a better understanding of the related cases.

c. Information System for the Management of Pharmaceutical Permits Licenses

The main functions of the system are the registration and market approval; extension, alteration, and cancellation of applications for drug permit licenses; and the administration of drug manufacturers and dealers. An appropriate-size version of the system was put online at the end of December 2001. New functions were added to the system in 2003 to meet the needs of the Information System on Food Sanitation, which was developed to meet the need of the Bureau of Pharmaceutical Affairs and protect the safety of the public in drug use.

d. Information System on Food Sanitation

(1) Information System for the Management of Registration and Market Approval of Food: This system was developed and completed in July 2001. Its major functions include the registration and market approval and the extension, alteration, and information on food additives and food permit applications. It also provides for data exchange to coordinate with the automation of customs clearance, and data are automatically put online for retrieval by the public. The system was revised in 2003 to strengthen the management of food sanitation.

(2) Food Poisoning Information System: The primary purpose of this system is to allow local health bureaus to register cases of food poisoning online and to make related statistics accessible to the public online. The development was completed in January 2001, and revised according to proposals made by local health bureaus. In 2003, off-line PDA operation was experimented.

(3) Food Sanitation Management Information System: The system allows county and city health bureaus to carry out food sanitation management operations over the Internet, with each of the bureaus establishing their basic data, inspection records, sample tests, and disposition of violations related to food companies within the area of jurisdiction. The system also provides statistical reports of various kinds.

e. Online Public Application Service System:

In line with the e-government program, planning has been carried out to provide for online application with regard to the Department's medical administration, pharmaceutical administration, and foods, and for the downloading of various application forms. The system allows applicants to enquire about the processing progress of their cases and informs the applicants to take back the processed documents. Development of the system was completed by the end of 2003, carrying out the ideal of " filing the applications in one place and receiving services

all the way", and automatic processing of documents.

f. Document Automation:

(1) The Department's Third-Stage Automated Document Information System provides for the production of documents, document flow management, the scanning of documents for filing on optical disks, and electronic document exchange. In 2003, the Department continued to improve the various functions of the system in accordance with the Criteria on Computerized Management of Document Filing in order to make document filing faster and easier.

(2) According to the guidelines on the electronic management of files by agencies as contained in the file law, the Department carried out planning for the development of a file management information system. Document flow management and the scanning of document files onto optical disks will be integrated with the aim of achieving an electronic file management function to serve as the basis for the future opening of file application services. The system was completed in November 2003, and put online in January 2004.

(3) The installation of the DOH electronic document exchange center's hardware and software was completed in 2002, providing primarily electronic exchange for agencies in the health system. This enhances administrative efficiency and lays a foundation for the electronic and Internet government. In 2003, effort was made to promote electronic exchange of documents among DOH agencies, county and city health bureaus, and private hospitals. By the end of 2003, 154 organizations had joined the center.

(4) Sorting and Filing of Old Documents: In coordination with the implementation of the Filing Act, the Department's old documents have been sorted in keeping with the implementation of the Filing Act. While the archives are recorded, new files are created. By the end of 2003, it had sorted about 450,000 documents or roughly 45% of the total dated between 1945 and 1992.

g. Promotion of a Paper-free Office

(1) E-document system: In line with the implementation of the paper-free operations, 17 forms for internal use have been made electronic and their flow automated so as to reduce the use of paper and upgrade administrative efficiency. In 2003, the application of some of the electronic forms was extended to the Department's subordinate agencies according to their nature.

(2)Personnel Affairs Management Information System: This system is used to record the clock-in and clock-out data, the approval of leave, and so on.

(3) Health Statutes Retrieving System: The Department completed the system (including the statute enquiry and reporting functions) by the end of 2003. It is intended to manage effectively its statutes and link with the national statute reporting system for dissemination of the latest statutes and statutory information.

2. Health Information Network

a. National Medical Care Information Network Infrastructure

To provide for exchange and sharing of information, the construction of regional information centers in Taipei, Taichung, and

Kaohsiung, and the development of a Global System Service Platform were completed in 1995, providing medical care institutions with medical and health information services. In response to the advance of Internet technology, in 2001, the three centers were merged, under the principle of no change in service targets and content, into a single service center (called SC, for short); this not only greatly reduces operating expenditures, but also enhances the efficiency and quality of information services.

The construction of the service center provides a complete Internet framework for the national health information network, serving as a hub for the exchange of information. The current trunk lines used by various medical and health care institutions are 155MB STM1 optical fiber broadband circuits, and the medical care information network linked to the Internet uses a 45MB T3 optical fiber broadband circuit. Health bureaus were linked to the medical care information via T1, whereas the circuits linking the various health stations were upgraded to the 512KB/512KB class, providing medical and health care institutions with a high-speed transmission and data exchange channel.

An exchange environment was established for the National Health Information Network and National Health Insurance network to allow users of the National Health Information Network to connect to the NHI network, and vice versa. This avoids the repetition in the installation of health information network. In October 2003, the Department renewed the equipment for the National Health Information Network to provide the organizations linked to it with better and faster services.

To tighten the security of the National Health Information Network and the transmission of information, the Department installed an anti-virus system to monitor virus around the clock. To prevent hacking, equipment was installed at the terminals of the network in 2003 to monitor and remove hacking activities all the time to protect the Department's network and the National Health Information Network from hackers' harassment and attack.

To facilitate the communication and interaction among the organizations linked to the National Health Information Network and to provide video images for those who cannot participate in a major or emergency conference, in 2003, the Department installed a video conference system for the various county and city health bureaus, its hospitals and its SARS Special Hospitals to save the conferees' travel time and enhance operational efficiency.

With the completion of the network, health bureaus and stations and administrative health organizations can use a special line or

ADSL to connect with SC to transmit data, whereas the various hospitals and clinics can also do it through their direct connection with SC or through relay. SC's services include the transmission of applications for reimbursement of NHI expenses, transmission of documents, enquiry about medical care affairs, information consultation, and information, training and extension.

At present, the systems of the National Health Information Network include medical care management, emergency care management, pharmaceutical management, food sanitation management, food poisoning management, cervical smear management, health personnel databank, online NHI expense claims, reporting and management of communicable diseases, and vaccination information. All these systems are presented in page form, are user friendly, and are with a human face. There is also a public website to let users ask about the progress of a service and allow effective management of the application systems and the maintenance of the quality of the communications lines and equipment of the various organizations linked to the network. The goal is to provide a high quality, highly stable dada processing center and transmission channel.

b. Promotion of Electronic Medical Records

To maintain the security of medical records and the privacy of patients, the Department has convened numerous conferences on guidelines for the implementation of electronic medical records by medical care institutions. These conferences have focused on the setting of standards for electronic signatures, the prevention of tempering, the addition or deletion of records, the handling of computer crashes, remote storage of duplicate data, system renewal, medical record duplication, security inspection, and other matters. Medical care institutions have been asked to prepare personnel with appropriate training and hospitals to set up electronic medical records committees to monitor and implement the related regulations. Medical care organizations that conform to the afore-mentioned guidelines may be exempt, in whole or in part, from the production of paper medical records, thus advancing the efficiency of medical care services, enhancing the quality of medical care, and lowering their costs. In view of the formation of such fundamental conditions as changes in the medical information environment, the maturing of Internet information technology, and the implementation of the Promotion Plan for the Construction of Internet Information Services, the Department actively carries out electronic medical record application and promotion plans with the aim of integrating health and medical care information as well as establishing and implementing health policies for the physical and mental health of the people.

(1) Promotion of Electronic Medical Records to All Medical Care Institutions

To thoroughly understand the difficulties and problems encountered by hospitals and clinics as well as medical information operators throughout the country in the development of electronic records, the Department has studied and formulated countermeasures, standards, and guidelines for the future implementation of electronic medical records on the regulatory, management, technical stands, sharing, security, and social levels. In 2002, the Department completed public solicitation for the Pilot Project on the Promotion of Electronic Medical Records by Medical Care Institutions with the aim of widely soliciting the participation of

hospitals and clinics in discussions on the plan from the angle of pragmatic operations so as to help the Department delineate directions for the development of electronic records and establish related implementation rules and guidelines.

In 2003, the Department continued to push and strengthen the pilot plan and try to share the achievement and experience with more medical care institutions stage by stage for their reference when improving the performance and the e-management of medical records. In the year, Taipei's Veterans' General Hospital and the Chang Gung Memorial Hospital were selected for the program and 60 other hospitals and clinics were to be brought under the program for inter-hospital exchange of computerized data.

(2) Establishment and Extension of a Policy on the Protection of Medical Information Security and Privacy

Under the preconditions of heightening the quality of medical care services and protecting the interests of information owners as well as the security of personal health information, planning was carried out for the establishment of a regulatory system. This regulatory system will protect the privacy and safety of medical information and provide for a point of balance between the circulation of medical information and its security and privacy rights in the sharing of information. In 2002, the Department commissioned the science and technology law center of the Institute for Information Industry, through a public selection process, to carry out a study of related laws and standards of different countries and, within the time frame of 2003 to the end of 2005, to conduct an opinion survey among related sectors, develop educational materials on the promotion of information safety, set up prototype strategy, and promote coordinating implementation by health and medical care institutions, hospitals, and clinics nation-wide.

In 2003, the Department completed some projects related to other nations. These included translations of the "Law of Medical Information Security and Privacy Protection," compilation of a collection of various countries' laws for the protection of medical information and privacy, conduction of a forum on the criteria for the protection of medical information security and the privacy to make policy proposals, and preparation for the organization of a committee on the promotion of the law of medical information security and privacy protection.

(3) Establishment and Promotion of an Electronic Medical Records Retrieval Center

To provide a national medical information exchange and circulation platform, in 2003, the Department entrusted the Taipei Veterans' General Hospital to proceed with the "establishment and promotion of an electronic medical records retrieval center", calling for the hospitals and clinics to transmit the retrieval records and signature certificates to the center for custody. Afterwards, when a patient visits a doctor, the doctor can read the record of his or her past medical visits from the IC card. In 2003, the Department completed the criteria on the operation and the establishment of the environment for the center. In the future, it will increase, step by step, the rate of its usage, reduce repetitive examinations, and provide patients with continuous care.

(4) Geographic Information System for Medical Care Resources Management

To meet the administrative needs, in 2003, the Department completed the designing, under the Internet framework, of the "geographic information system for the management of medical care resources". It uses the national

geographic resources system to sort out the character of each hospital and clinic, their statistics and related information systems. This system, with the use of figures and data, can answer enquiries, make compilations and revisions, produce charts, print reports, prepare statistics and do other things. Through unitary management and shared use, users of the system can quickly grasp the distribution and use of medical resources for policy-making reference.

In October 2003, a system was established to store statistical analyses and trend prognosis for reference in the formulation of medical care policy. The system can provide policy-makers with timely and accurate information and can also make various charts and tables for release by concerned organizations to meet the public's need for medical information.

3. Internet Health Services

The Internet Health Services Network can only be operated in coordination with the legalization of electronic medical records, formulation of electronic medical information standards, the exchange of medical record data, the transmission of medical images, online claims for insurance payments, distant medical care, electronic certification of medical care, the protection of privacy and other peripheral developments.

a. Establishment and Operation of the Medical Certificate Management System

To promote the application of electronic medical information and strengthen the security of medical information, the Department has set up a Medical Certificate Management Center to provide electronic medical certificate service, with the use of electronic signature on the medical certificate c-card to provide a safe and reliable environment for the implementation of electronic transaction against falsehood, post-transmission denial, copying and other illegal acts.

On June 6, 2003, the Ministry of Economic Affairs approved the Operational Standards of the Medical Certificate Management Center. On June 13, the Medical Certificate Center became officially operational. By the end of 2003, it had produced and issued 45,000 c-cards. It is planning application to the promotion of electronic medical records, newborn baby reporting, and document exchange between the Department and various hospitals and clinics.

b. Promotion of Medical Information Standards

The Department is actively carrying out the standardization of medical information so as to promote the general application of electronic medical information and carry through with the exchange and flow of medical information among hospitals. On May 24, 2000, Taiwan joined the international Health Level Seven (HL7) association as its 11th member country, and the HL7 Taiwan Association was established on June 22, 2001. To meet the need of localizing HL7 and DICOM (Digital Images and Communication Medicine) 3.0 institutions in keeping with the criteria for carrying out medical information exchange as well as stimulating the exchange and integration of medical information in Taiwan, the Department completed the following tasks in 2003:

(1) Establishing the Taiwan DICOM Association in March 2003;
(2) Assisting in the opening of the Second Asia-Pacific Health Information HL7 International Standard Symposium and the spring meeting of international DICOM;
(3) Setting up a DICOM website (www.dicom.org.tw) to increase understanding of DICOM among

the people of Taiwan and accelerate the standardization of medical information;

(4) Installing the NHI-LOINC (Logical Observation Identifiers Names and Codes) databank, completing the division of NHI testing items into eight categories (about 500 items), and developing web-based NHI-LOINC;

(5) Completing the proofreading of the HL7v2.4 Chinese edition of the Medical and Health Care Information, which is localized to facilitate promotion and extension;

(6) Carrying out the draft criteria for dentists reporting on the use of radioactive rays in keeping with DICOM standards;

(7) Compiling DICOM teaching materials and HL7 publicity manual.

c. Databank of Information on Drug Interaction

When two or more drugs are used, they may demonstrate their effectiveness separately or through interaction. If one drug boosts the effectiveness of another drug, there is an overdose problem. Conversely, if two drugs offset each other's effectiveness, there is an under-dose problem. This kind of mistakes can be reduced by computerized screening. To increase safety in the use of drugs, ensure proper prescription, and reduce the NHI costs of drug repetition, the Department has established drug codes, ingredients, and drug names for cross checking by hospitals, clinics and pharmacies, which may consult the system or download the information.

The databank on drug interactions and the application system were completed in 2003, mainly based on Drug Interaction Facts published by Facts & Comparison. It is complemented by the "Interactions of Clinical Drugs" compiled by Dr. Li Hsi-yu of the DOH Putzi Hospital. This system has been introduced to hospitals, clinics and pharmacies. In the first stage, effort will be directed at national medical centers, the DOH hospitals, BNHI and its branch offices, and 10 pharmacies.

d. Establishment of a Long-term Care Information Network

Currently, the country's resources for long-term care are divided between the social affairs branch and the public health branch of the government. To cope with the arrival of the aging society, the Executive Yuan's Plan for Establishing a Long-Term Care System, the need of tracking individual cases in care management, and the world tendency of providing on-the-spot care, application of hi-tech to health information network is an urgent necessity. An integration and exchange of information between the two branches will facilitate home-care personnel to maintain positive communication with relevant people. This will provide them with more complete information on individual cases and, thus, raise the quality of medical care.

In 2003, the Department openly solicited professional organizations to develop the framework, blueprint, and standards for the long-term care information system and do the promotion, publicity and installation work. In 2004, it will continue to develop the home-care information management system, community individual care information system, care resources reporting system, and care personnel databank system, and do the follow-up work of the installation and integration of information databanks.

e. Evaluation and Award for Health Information Websites

To ensure people's access to websites giving correct information, the Department carried out the first website evaluation and awarding in 2002. In 2003, it continued the

activity in the hope that this would help improve the contents of the services of these information websites.

f. Online Services Offered by Health Bureaus and Stations

Because of shortage of information budget and manpower in health bureaus and stations, the degrees of their computerization are disparate, making information operation almost impossible. Therefore, they hope the central government to plan a nationwide heath network to integrate their service information systems and raise the technological level of their health care services for the people.

In 2002 and 2003, the major work was to install a unitary health service portal to enable the people to make online applications and seek online health information, and to unitarily develop a health bureau and station service system for the enhancement of administrative efficiency and healthcare quality. To assist health bureaus and stations to process documents timely and efficiently, the Department has completed the integration of health bureaus' and health stations' document management systems. In 2003, it installed an e-bulletin for health bureaus and stations to further strengthen the vertical transmission of messages among the health bureaus and stations.

The Department will continue the development in the period between 2003 and 2006, in keeping with the demand, of an information system for the similar operations of the health bureaus and stations. This will prompt the health bureaus and stations to bring into alignment of their information and uses, and hence help them attain their goal of serving the people.

g. A Website with WHO as the Theme

In response to the plan of bilingual website made by the Executive Yuan's Research, Development and Evaluation Commission, the Department completed in 2003 the development and installation of a WHO-theme website, which carries the documents and the records of activities of public sector and private sector alike related to the country's accession to the World Health Organization, including media reports, government agencies' statements, NGO's support of the accession and other historic information. These materials are systematically gathered and sorted for dissemination through link with Internet to make people at home and abroad understand the country's effort to join WHO. This website will contribute to the health of the people and disease control of this country and serve as a window to publicize to the world Taiwan's aid to international rescue. Besides, it can link up the government's and the private sector's websites into a mighty force backing Taiwan's participation in the WHO.

h. The Chinese-English Website

To publicize its operations, in 2003, the Department revised and boosted its website by reviewing the out-dated information and maintaining its normal operations. To cope with the SARS epidemic, the Department established a bilingual SARS special page during the rampancy of the disease, which became the most important source of information for people at home and abroad seeking to know the country's measures taken in the combat against SARS. In an effort to increase the interaction with the people, the Department adds a questionnaire to its Chinese-language website to canvass articles from the people as advice for the improvement of the Chinese-English website in 2004, and the enhancement of the quality and image of its services.

XI · Health Planning and Research

XI. Health Planning and Research

Good planning is essential to success. A well-planned program will assure its smooth execution and effective utilization of resources. Health programs are highly professional and concern the welfare of the population. Health policies, therefore, should be carefully formulated, and each of the tasks is thoroughly planned and dutifully executed under close supervision and strict evaluation to attain the expected goals. Health planning calls for adopting new concepts, overcoming obstacles of the existing regulations and systems, and focusing on emerging as well as the current need.

1. Program Planning and Evaluation

a. Monitoring of Major Health Programs and Plans

(1) Plans Monitored by the Executive Yuan: They are made according to the operational guidelines for organizations of the Executive Yuan, and there were four of these in 2003: Plan for Health Promotion Education, Promotion of Online Health Service Plan, Health Bureau/Health Station Online Public Service Plan, and Plan for Healthy Life in Communities.

(2) Plans Monitored by the Department: These were 10 of them: the Fourth-stage Plan for Medical Care Network (Healthcare Plan for the New Millennium), the five-year plan for the building construction of the National Health Research Institutes, NHI IC Card Implementation Plan, National Plan for Strengthened Communicable Disease Control, Mid-term Food Safety Control Plan for Manufacturers, Mid-term Plan for Ensuring Food Safety from Production to Consumption, Third-term Plan for Promoting New Family Planning Program in the Taiwan Area, Promotion Plan for International Mutual Recognition of GMP Pharmaceutical Factories and for Implementation of the GMP System for Drugs, Plan for Establishing the National Identification System for Drugs, and Plan for Establishing Clinical Trial System and Operational Mechanism.

(3) Self-monitored Plans: There were four; namely, the Second Five-year Pan for Tuberculosis Control; Third Five-year Plan for Eradicating Congenital Rubella Syndrome, Measles, Poliomyelitis, and Neonatal Tetanus; Third Five-year AIDS Control Plan; and Plan for the Self-Manufacturing of Vaccines for Human Use.

(4) September 21 Earthquake Reconstruction Plan: There were 14 items related to medical care and public health, all of which were followed up closely to keep them on schedule.

b. Follow-up of Special Projects

Instructions of the Executive Yuan, directions issued by the premier on tours of local areas, resolutions of the Legislative Yuan, instructions issued by members of the Control Yuan, and resolutions of the Executive Yuan meetings are listed for follow-up to see to it that they are carried out on schedule.

c. Evaluation of State Enterprises

Since the performance of state enterprises has an influence on the nation and its people, the annual evaluation of those enterprises helps in the investigation of the enterprises' operating performance. The self-evaluation and preliminary evaluation of the Bureau of

National Health Insurance (BNHI) are carried out by document review and on-site inspection in accordance with the stipulations of the Council for Research, Evaluation and Development.

d. Exchange with the mainland China on Health Matters

As a result of SARS rampancy in 2003, the number of mainland health visitors has reduced apparently. There were a total of 175 cases of applications for 1,345 person/trips, of which 1,208 were approved. But the actual visits came to only 724.

e. Improvement of Service Quality

To carry out the Plan for Improving the Quality of Services Across-the-board, the Department has instructed its hospitals and subordinate agencies to provide better services. In 2003, it recommended the Center for Disease Control and the DOH Taichung Hospital to participate in the competition for the Executive Yuan's Award for Best General Service and recommended the National Health Research Institutes and the DOH Nantou Hospital to vie for the Individual Service Award.

2. Volunteer Services

a. Volunteer Groups and Services

The number of volunteer health workers under the Department is now about 38,305, serving in 615 units. In terms of service, they can be divided into four groups: agencies belonging to the central government such as the BNHI and the Center for Disease Control; local health bureaus and stations; private hospitals and clinics; and civic groups. The services they give include acting as guides, services at information counters, and counseling and related work. In hospitals, they also serve in outpatient clinics, emergency rooms, and wards. In health bureaus, they handle long-term care and home care, food sanitation, health education, mental health services, and prevention of communicable diseases such as dengue fever, pulmonary tuberculosis, and AIDS.

b. Promotion of Volunteer Services

(1) Printing and distributing record books:

The Department has printed 80,000 record books, of which 77,000 have been sent to local regulatory organizations for custody and distribution. Besides, 1,130 copies have been sent to the Department's subordinate organizations. So far, all county and city health bureaus have carried out the distribution work, sending out 14,227 copies altogether.

(2) Volunteer service workshops:

The Department held at Lugang on January 13-14, 2003, a workshop and a coordination meeting for health volunteers, participated by 40 groups and 110 people from the DOH organizations, and county and city health bureaus.

(3) Formulation of regulations for volunteer service incentives:

The Department formulated on December 11, 2001, Regulations Governing Awards and Punishment for Volunteer Workers and, on September 22, 2003, held the second awarding ceremony for outstanding volunteer workers, and

the first one for outstanding volunteer groups. A total of 471 volunteers and 41 groups recommended by county and city health bureaus were awarded after two preliminary screenings and one review. Of them, 27 were awarded with gold medals, 24 with silvery medals, and 23 with bronze medals, and 4 were cited, totaling 78, whereas 3 volunteer groups were awarded.

(4) Education and training

The Department launches the "2003 health volunteer education and training program," which had been conducted, on the Department's commission, by 21 county and city health bureaus. The program is based on volunteer service and intended to increase volunteer workers' knowledge and skills. Altogether, 6,468 man-times had participated in the basic training, 7,353 in special training, and 3,094 man-times in other training, totaling 16,914 man-times.

(5) Provision of insurance for volunteer workers serving in DOH organizations

Beginning on February 1, 2002, insurance is provided for volunteers serving with the Department and its subordinate agencies, local health bureaus, and agencies and groups helping to carry out the business of health care on commission from health agencies. Approximately 12,000 persons were insured. The term of insurance was from January 1 to December 31, 2003.

(6) Preparation for a health volunteer workers' information network

The network is to be used as a channel for recruiting volunteer workers and increasing their communication.

3. Funds for Science and Technology Development

In 2003, the Department invested NT$2.8318 billion in science and technology development, consisting NT$397.2 million for national research projects, marking an increase of 50.3% over the 2002 amount of NT$264.2 million, and 64.8% increase over the 2001 amount of NT$240.9 million. The investment in non-national projects was NT$2.4346 billion, showing an increase of 1.9% over the 2002 amount of NT$2.387 billion, and 13.7% over the 2001 amount of NT$2.141 billion (see Figure 11-1).

In terms of fields of projects (not including national research projects), the 2003 spending was NT$1.5549 billion on health and medical care, NT$349.9 million on drug science and technology, NT$432.0 million on biological science and technology, NT$58.1 million on food science and technology, and NT$39.5 million on common areas of science and technology.

4. Focuses of Science and Technology Research

In the field of medical-care and health

a. Development of Science and Technology Research on Health of the People

(1) Monitoring of the population and the health status of the people;

(2) Establishment of surveillance systems for the control o tobacco hazards, and control of cancers such as oral cavity cancer, cervical cancer, and breast cancer;

(3) Development of maternal and child health and genetic health systems;

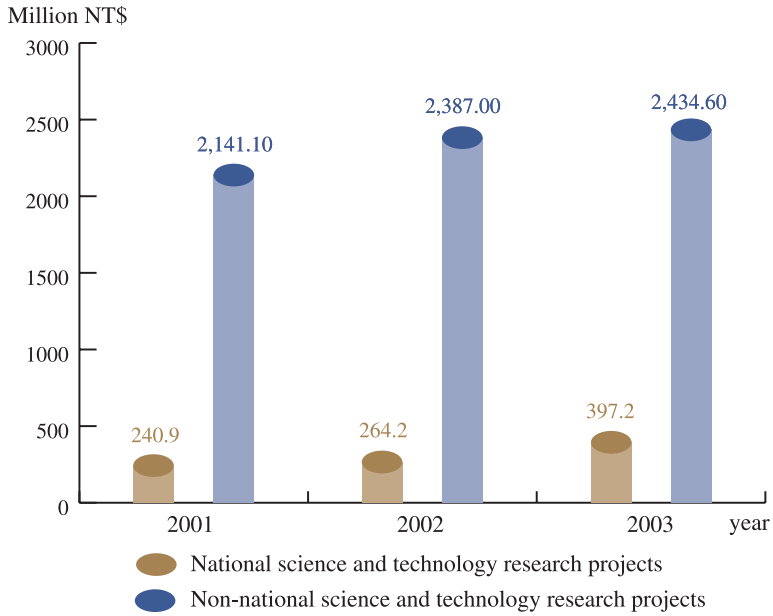
(4) Development of a modernized promotion system for health education, and studies on health promotion in communities.

b. Development of Science and Technology Research on Communicable Diseases

(1) Research related to the establishment of a databank of pathogens and genetic materials of indigenous communicable diseases;

(2) Development of molecular biology testing methods, surveillance networks, and related epidemiological surveys;

Figure 11-1 Budget for Science and Technology Research in Health



(3) Research on hepatitis, AIDS, tuberculosis, dengue fever, and enterovirus infection;
(4) Strengthening of the monitoring and laboratory testing of emerging communicable diseases common to animals and men;
(5) Strengthening of studies related to diseases imported from the mainland China or brought in by alien laborers;
(6) Studies related to ways to improve the laboratory testing standards of domestic medical care institutions;
(7) Studies related to the development of vaccines and their cost-benefit assessment;
(8) Research on nosocomial infection and drug resistance of antibiotics;
(9) Studies related to the behavioral and educational interventions in disease control.

c. Development of Medical Care Science and Technology

(1) Studies of management of medical affairs, and laws and regulations on medical affairs;
(2) Studies related to medical care quality, and distribution of medical care resources and manpower;
(3) Studies related to emergency care services;
(4) Studies related to psychiatric care and mental health services;
(5) Studies related to long-term care, care and rehabilitation of the disabled, and children of retarded development;
(6) Studies related to medical care for people of mountain areas and offshore islands;
(7) Studies related to drug addictions and cessation.

d. Development and Establishment of a Medical and Health Care Database

■ In the field of pharmaceuticals

(1) Perfection of the management of the development and market approval mechanism for new drugs (devices)-planning and establishment of a management system for emerging biological products;
(2) Plans for the science and technology development of pharmaceuticals:
(a) Studies related to pharmaceutical

industries, management of pharmaceutical affairs, statutes, systems, and research;

(b) Studies and establishment of a system for the quality management of medical devices and cosmetics;

(c) Studies of the impact on pharmaceutical and biotechnology industries of accession to the WTO by both sides of the Taiwan Strait.

(3) Modernization and internationalization of Chinese medicine and pharmacy

(a) Studies related to upgrading the efficacy and the quality of Chinese medicine and pharmacy;

(b) Perfection of the inspection statutes and clinical trial environment for the review of Chinese medicines.

(4) Studies related to the laboratory testing technology and epidemiological surveys and toxicity assessment of abused drugs.

(5) Studies of the laboratory testing technology for drugs and cosmetics

(6) Establishment of an environment-development of biotechnology manufacturing industries and alignment with statutes.

(7) Perfection of the clinical trials and operational mechanism, and promotion of GCP, GLP and related laboratory standards.

In the field of food

(1) Studies of food sanitation, quality, safety, statutes, and management policy;

(2) Studies of food sanitation and quality assessment;

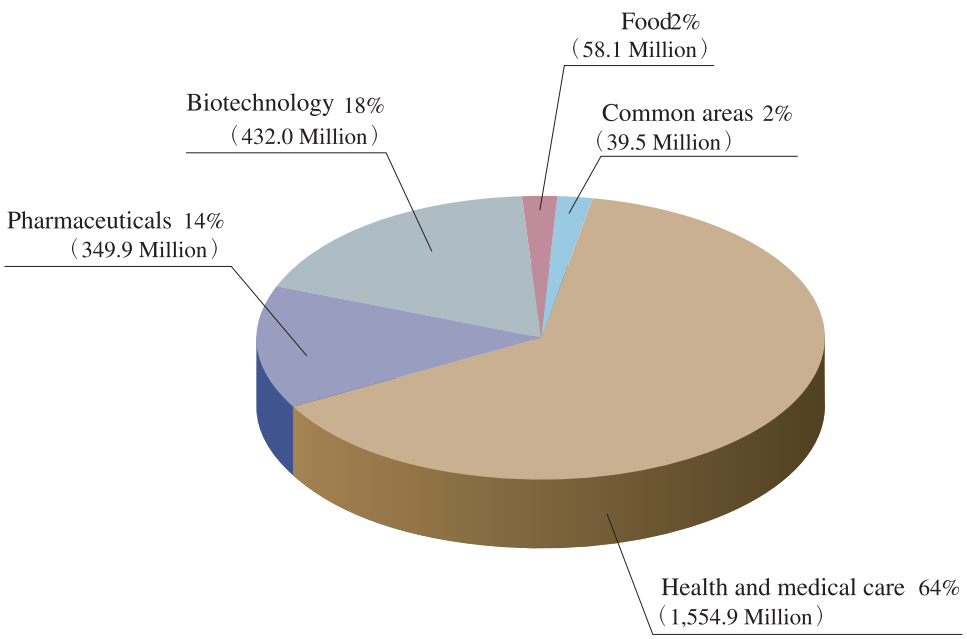
(3) Studies on hazards to food safety induced by microbes and chemicals;

(4) Studies on the impact of food processing, packaging, transportation technologies on food safety and nutrition;

(5) Studies related to the safety and nutrition of emerging foods;

(6) Establishment of a world-standard management and laboratory testing methods for genetically modified foods;

Figure 11-2 Allocation of Funds for Science and Technology Research in Health, 2003



(7) Studies on relationship between nutrition, diet and diseases;
(8) Studies of the nutrition needs of different age groups;
(9) Studies of people's knowledge and utilization of food and nutrition labeling of packed food;
(10) Research and development of healthy foods (a cross-ministerial project)
(11) Planning and promotion of a recognition system for contracted testing for food;
(12) Manpower development in food science and technology.

■ Science and technology research on medical care systems for disaster rescue

(1) Studies of health and medical care systems for different types of disasters;
(2) Strengthening the emergency and disaster-coping capabilities of hospitals and clinics at all levels;
(3) Building of a database on rescue manpower and rescue detachments;
(4) Grasp of disaster medicine, establishment of facilities for long-term psychiatric care, and evaluation of advanced disaster medical measures;
(5) Establishment of standard operational procedures of disaster medicine.

■ Research of genomic medicine

(1) Genomic study of lung cancer in Taiwan and its clinical application;
(2) Genomic related study of Chinese medicines;
(3) Establishment of a gene database on Taiwan's pathogens;
(4) Opening a counseling and diagnosis window for diagnosis of genetic diseases;
(5) Installation of a strict evaluation and review mechanism for genomic medicine clinical trials and assessment and review of related products.

5. Achievements in Science and Technology Research

The Department plans and pushes science and technology development for the health and welfare of the people, constructs an optimum environment for the development of medical and health industries, and enhances bio-technological competitiveness. In the strategy for science and technology development, the Department has carried out the study of the policy, integrated health databases, constructed the core research resources, created the infrastructure environment, sought international cooperation, and strengthened the training, recruitment, and employment of medical and health personnel. In the application of the research results, the Department has strengthened the planning for selected science and technology, implemented 591 plans for medical and health care, for medicines, for foods, and for bio-technology. In addition, it has worked out the foundation for enforcing medical and health policies and plans by tailoring them to the need of the society to raise their quality.

■ In the medical and health field

The Department has completed the study of integrated care for patient on respiratory devices for long time, the system for chronic patients on home care for long time, the evaluation of the system of home support for chronic psychiatric patients, the formulation of the criteria on emergency medical operations and on quality indicators of medical care services, and the first-stage national health survey and database. It has also studied the establishment of a communal network for long-term monitoring and care of diabetes, conducted surveys on juvenile behavior and long-term evaluation, and preventive medicine for the health of children.

In the field of pharmaceuticals

The Department has established the drug kinetic parameter of epilepsy patients taking phenytoin to serve as doctors' theoretic foundation for epilepsy treatment so that the patients can effectively control their disease with the safe dose of the drug, developed GEMDOCK software for the development of auxiliary medicines and the formula for calculating the energy for the docking between minute cells and protein, accurately pinpointing the active site and direction of the docking. The Department has also studied the treatment and chemicals for cancers commonly seen in the country. Through the studies, the Department has grasped the direct and indirect economic losses caused by the wrong use of drugs. By collecting and analyzing emerging drugs and the multiple uses of drugs, it has established a database to provide more scientific evidence for graded management. In addition, the Department has quantified the medical care services provided by doctors of Chinese medicine with indicators and standards, established a quantified database as clinical guidance for various disciplines of medicine, and determined the original species of Chinese medicinal herbs.

In the field of food

The Department has continued to expand the database of food ingredients, exceeding 1,000 so far, which can be used as reference for the implementation of the food labeling system. It is engaged in the second survey on the nutrition status and changes of the people of Taiwan. It studies the safety and functions of health foods and non-traditional foods, develops bio-chips for he testing of genetically modified food, establishes PCR analysis and the conditions for qualitative and quantitative analysis of genetically modified food. This method of testing will be used to effectively regulate genetically modified foods to ensure their safety and the health of consumers.

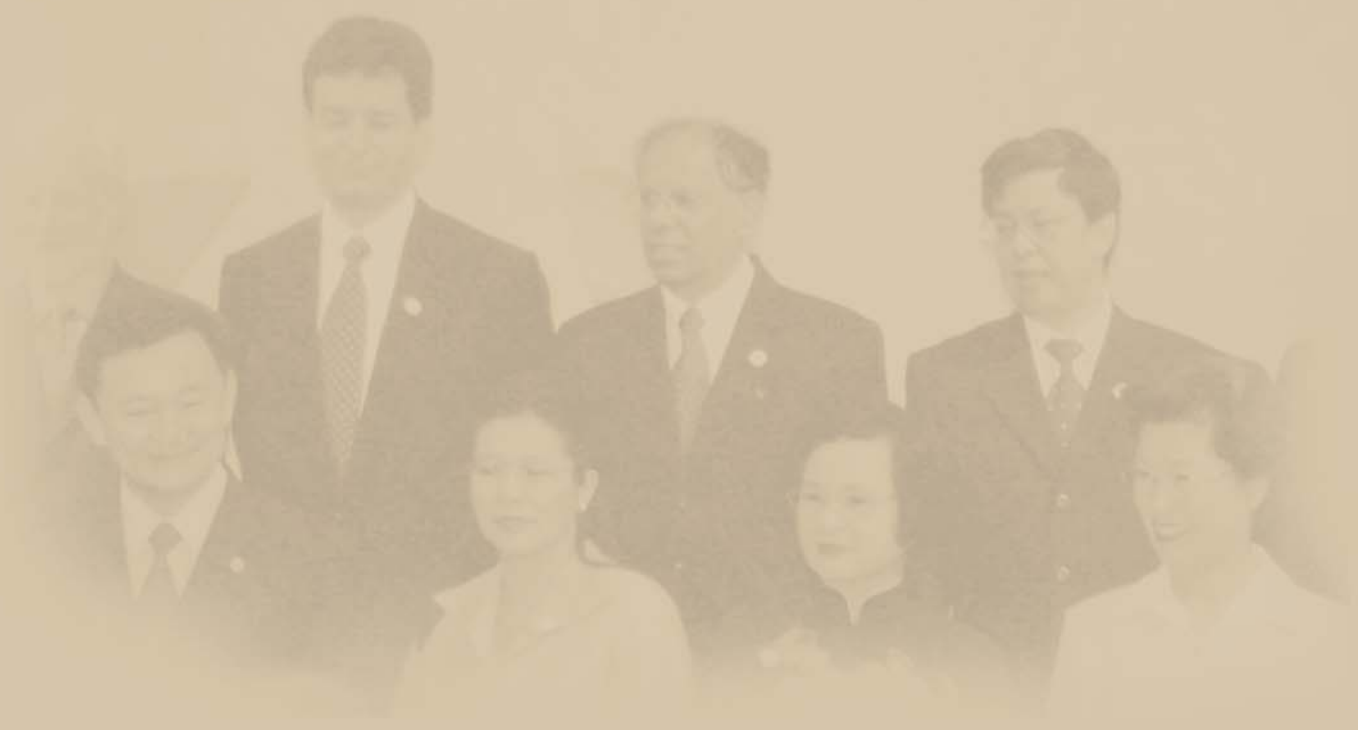
Disaster-rescue studies

The Department has now established a website for emergency care, rescue, and social welfare organizations to collect information and supply manpower during a disaster. All related people could acquire medical information or general information according to their grades. The Department has also developed a system of evaluation indicators, including those targeted at Taiwan's four most common causes of disasters, typhoons, floods, mudslides, and landslides. The system has both the disaster-specific and the generic evaluation indicators for evaluating the medical rescue capability of a community.

Medical studies of genomes

The Department has developed a system of simulated extra-body attack of living cancer and, on the basis of this patented invention, developed 23 protein enzymes that can effectively suppress the attack of pulmonary gland cancer. It has completed the genetic analysis and pathological monitoring preparations for Taiwan's endemics like entrovirus, flu virus and dengue fever virus for 2001 and 2002. It has also completed the analysis of the nucleic acid of Taiwan's drug-resistant tuberculosis bacillus and the use of AAV-angiostatin to reduce the damage to new vessels, greatly increasing the cure rate of new vessel diseases with genetic therapy.

XII · International Cooperation in Health



XII. International Cooperation in Health

Health knows no boundaries. With the rapid advance of science and technology, globalization is picking up pace, a global village is taking shape. Therefore, international cooperation and exchange in health has become more frequent and important. At the same time, people of Taiwan hope to return to the World Health Organization (WHO). This chapter reviews Taiwan's exchange with the WHO in the past year, international cooperation and exchange in health, and Taiwan's effort to return to the WHO. Taiwan is looking forward and is prepared to meeting the challenges ahead.

1. International Exchange in Health

Taiwan will strengthen its exchanges in health with other nations. Measures include increasing medical cooperation with advanced nations, assisting allies to raise their medical care and health standards, fulfilling Taiwan's responsibility as a member of the international community, winning worldwide understanding and attention, and introducing medical care technology from advanced nations.

In 2003, Taiwan continued the international exchange in health with the following activities: continuously inviting health experts and journalists to visit, Taiwan to know Taiwan's medical care standards and the state of health; joining the Sixth European Health Forum Gastein in Austria to hold bilateral talks with many countries; promoting Taiwan's successful National Health Insurance program and to establish practical health topics for cooperation and exchange; continuously posting health officials in Europe (Geneva office), the United States (in Taipei's Representative's Office), and Africa (in ROC Embassy in Malawi), to promote international health cooperation and, ultimately, enter the WHO; holding symposiums to cope with emerging diseases like SARS, dengue fever, AIDS, and to promote women's and children's health. In the meetings, Taiwan's health officials took the opportunity to engage in exchange activities with foreign health officials and experts. More importantly, at the APEC meeting of health ministers, Taiwan's health officials and experts have exchanged views of SARS control with high-ranking officials and experts of other countries and promoted the establishment of a Health Task Force (HTF). To promote cooperation and exchange in health science and technology, Taiwan has continued to send health officials and experts to participate in international non-governmental organizations (INGOs) conferences, and to pursue advanced studies at academic institutes in foreign countries. At the same time, the Department encourages Taiwan's NGOs to take part in the activities of foreign NGOs.

In a survey made by The Economist on the health situations of 27 major nations in 2000, Taiwan ranked second in the league table of the world's most healthy nations. Motivated by humanitarian concerns, Taiwan has helped and aided nations that need medical and health care. This is an effort to fulfill its international duties and to make the world community recognize and understand Taiwan in order to put its health diplomacy on a firm ground.

2. International Cooperation and Aid

The Republic of China was a founding member of the United Nations and the WHO. When Taiwan was still poor economically in

the 1960s, the WHO, UNICEF, the United States Agency of International Development (US AID), and the Rockefeller Foundation, all had helped Taiwan eradicate malaria, control tuberculosis, and promote maternal and child health, with great success. At that time, the ROC sent more than 70 experts to work as consultants in the WHO and join in international health assistance and cooperation programs. They introduced Taiwan's experiences. At that time, Taiwan began to accumulate experience in international health cooperation. Taiwan was isolated from the world's health community only after the ROC left the WHO in 1972.

There is no limitation in health matters; diseases know no boundaries. To maintain the good health of the people and to follow the world trend, Taiwan has taken a more positive position in the promotion of international health cooperation. Following are highlights of its 2003 activities: Through bilateral and multilateral talks, Taiwan had contributed to the birth of the APEC Health Task Force, putting Taiwan on the frontline of Asia and the world in the alert against emerging diseases. Taiwan has cooperated with Japan and the European Union nations in SARS-related research projects. Taiwan has sent representatives to join in ADB's regional plans, sit at the meetings of experts for the execution of the plans, cooperated with other nations in major regional health conferences and in the development of health topics, taken part in meetings on information exchange and regional technical assistance. Taiwan has engaged in multilateral meetings in the Pan American Health Organization (PAHO) and cooperated with Dominique in the development of a medical care information system. Taiwan has also helped Sao Tome and Principe in malaria control and cooperated with Vietnam in programs related to public health and medical care, including the plans on preventing vertical infection of AIDS, on tuberculosis control, on planned parenthood training, and training of

nursing personnel. The Department's Center for Disease Control signed a cooperative memorandum with the Nippon Institute of Infectious Diseases (NIID). The Department has also held the third International Public Health workshop to help friendly nations train medical and nursing personnel and to strengthen cooperation with major international NGOs, including WMA, FIPO, ICN, IPA, and WAHO.

It is the principle of Taiwan to give long-term aid to where it is needed most. In the past, Taiwan donated US$1 million to the Global Fund to Fight AIDS, Tuberculosis and Malaria in 2002; cooperated with Care France to engage in an AIDS control plan in Chad in 2001-2003; donated medicines; and bought UN medical books for diplomatic allies. This year, it carries the following medical-aid activities: buying condoms for Grenada and Belize to help them control AIDS; donating vaccine refrigeration equipment to Senegal and Gambia and helping them carry out their AIDS-control plans; responding to Vice President Lu Hsiu-lien's "Friendship Movement," donating anti-roundworm medicine to Paraguay; sending goods to Afghanistan and Iraq as emergency humanitarian aids for refugees there.

With globalization in motion, closed-door medical and public health policies cannot solve the problems of the times. To absorb the medical technologies and learn the medical policies of advanced nations, the Department has dispatched professionals to attend international conference every year. On the other hand, Taiwan's NGOs have also vigorously participated in international health cooperation activities. It is hoped that the concerted efforts of the government and the private sector will upgrade the people's health standard at an early date. Nevertheless, it is a great pity for the WHO to continue to keep Taiwan out of its doors.

3. The Pursuit of Membership in the World Health Organization

The Republic of China was a founding member of the World Health Organization. The ROC and Brazilian representatives to the San Francisco Conference of the United Nations proposed the establishment of, as soon as possible, a world health conference to form a world health organization. The World Health Organization recognized "good health" as a fundamental human right. The WHO Charter states: "The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, political belief, economic or social condition." In the past decades, the ROC government and people have never forgot to abide by the spirit of the WHO, raise the health standard of the people, and fulfill their duty of seeking cooperation in heath matters as a member of the world community.

To strive for the WHO membership, the Executive Yuan established a "WHO Task Force" on April 25, 2001, in an effort to effectively consolidate all available resources required in winning international recognition, which makes "medical care, health, and humanitarianism" as its main appeals and participation in the WHO as its ultimate goal. Beginning in 1998, when the World Health Assembly (WHA) is opened in May every year, Taiwan sends delegates to Geneva, site of the meeting. They strive for Taiwan's participation in the WHA as an observer and for support of Taiwan's accession to the WHO.

These years, besides actively participating in international affairs, building Taiwan's international image, winning wide support,

Taiwan has continuously pushed for the participation in the WHO during the WHA meeting. Its activities and achievements are as follows: holding a "health dinner' to invite NGO leaders to join in the discussion on how to openly express their support of Taiwan to become a WHA observer; commissioning the World Alliance for Health Care (WAHC) to hold a symposium in Geneva on the theme of SARS, which specifically invited the presence of the widow and elder son of Dr. Carlo Urbani, the Italian physician who was the first to warn the WHO of the emergence of SARS. Before the opening of WHA, US Health Secretary Tommy G.Thompson wrote a letter to the WHO Director General Gro Harlem Brundtland to express his concern about SARS in Taiwan and his support of the call for giving Taiwan the observer status. The world's three major medical associations, WMA, ICN, and FIP, also either issued news release or wrote letters to the WHO to air their support of Taiwan. In the WHA, the ROC's diplomatic allies, including Palau, Honduras, Nicaragua, Belize, El Salvador, Dominica, and Gambia, all spoke for Taiwan. Notably, not a single EU member opposed Taiwan's entry. The US and Japan also openly supported Taiwan. Although Taiwan was not allowed to make a report on SARS at the meeting, the Geneva office of the Ministry of Foreign Affairs immediately invited Health Minister Chen Chien-jen to speak to the world's major news agencies and journals, including BBC, Reuters, Washington Post, AP, Japan's NHK, and Canadian TV, to express Taiwan's regret of being barred from the WHA.

The SARS outbreak in 2003 has hardened Taiwan's determination to join the WHO. Right at the time of the SARS outbreaks, Minister Chen Chien-jen and other officials carried precious materials and research reports to Geneva in the hope that the WHA would take into account of world people's wellbeing to allow the WHA participants to give their ears to Minister Chen's views. Unfortunately, the world's political reality once again forced the WHA to close its doors to Taiwan. Moreover, the PRC representative made a false statement all edging that Taiwan people's wellbeing had received protection, seriously endangering Taiwan people's life and property. When the first case of SARS broke out in Taiwan, although Taiwan immediately notified the WHO as required, Taiwan was excluded from the world framework of health protection and was unable to get assistance from the WHO and its member states. This exclusion not only gravely endangered the life of the people in Taiwan but also opened a gap in the frontline of the world's combat against SARS, hence, bringing a crisis to peoples of the whole world. Taiwan would suffice to stem this gap. If the WHO had adopted this "significant other", Taiwan would have been able to effectively transmit information about the epidemic to make the epidemic more apparent, and Taiwan might also be able to contribute its experience and measures to the world to help it attain the ideal of "Health for All".

Appendixes

Table 1. Population Statistics

Year	Population	Population Composition			Dependency Ratio	Sex Ratio (per 100 females)	CBR	CDR	NIR	Life Expectancy		Population Density (persons/km2)
		Under 15	15-64	Above 65						Male	Female	
	(1000)	(%)	(%)	(%)	(%)		(0/00)	(0/00)	(0/00)	(year)	(year)	
1991	20,557	26.33	67.15	6.52	48.92	107	15.71	5.18	10.53	71.83	77.15	571
1992	20,752	25.76	67.44	6.80	48.29	107	15.54	5.33	10.21	71.79	77.22	576
1993	20,995	25.15	67.75	7.10	47.60	106	15.58	5.31	10.27	71.61	77.52	580
1994	21,178	24.41	68.21	7.38	46.60	106	15.31	5.40	9.91	71.81	77.76	585
1995	21,357	23.77	68.60	7.64	45.78	106	15.50	5.60	9.90	71.85	77.74	590
1996	21,525	23.15	68.99	7.86	44.94	106	15.18	5.71	9.47	71.89	77.77	595
1997	21,743	22.60	69.34	8.06	44.22	106	15.07	5.59	9.48	71.93	77.81	601
1998	21,929	21.96	69.79	8.26	43.30	105	12.43	5.64	6.79	72.20	77.96	606
1999	22,092	21.43	70.13	8.44	42.60	105	12.89	5.73	7.16	72.46	78.12	610
2000	22,277	21.11	70.26	8.62	42.32	105	13.76	5.68	8.08	72.67	78.44	616
2001	22,406	20.81	70.39	8.81	42.07	104	11.65	5.71	5.94	72.80	78.48	619
2002	22,521	20.42	70.56	9.02	41.72	104	11.02	5.73	5.29	73.22	78.94	622
% difference over previous year	0.52	-0.39	0.17	0.21	-0.35	-0.34	-0.63	0.02	-0.65	0.35	0.19	0.51

Note: Data for Kinmen County and Lienchiang County are included since 1994.

Source: Department of Statistics, Ministry of the Interior

Table 2. Health and Medical Expenditures

Year	Annual Economic Growth Rate	Per Capita GDP	Final Expenditure of Health Care for Private Sectors			Net Expenditures of All Governments (fiscal year)		Affiliated Organizations as % of Total Central Government Expenditures	Medical Expenditures as % of GDP (fiscal year, %)	Consumer Price Index	
				% of GDP	% of Private Consumption		Expenditures of DOH and				Medical Expenditure Index
	(%)	(US$)	NT$million	(%)	(%)	NT$million	(%)	%	%	1996 =100	
1991	7.6	8769	174982	3.64	6.64	1275613	3.62	0.44	4.67	80.34	79.01
1992	7.5	10274	206041	3.86	6.90	1561930	3.13	0.80	4.77	83.92	83.35
1993	7.0	10757	236726	4.00	7.07	1756306	* 2.23	0.81	4.88	86.39	84.54
1994	7.1	11613	264295	4.09	7.00	1826367	2.40	0.71	4.93	89.93	86.11
1995	6.4	12488	315464	4.50	7.65	1910066	2.05	0.70	5.27	93.23	87.48
1996	6.1	13073	357290	4.65	7.87	1843786	2.11	0.63	5.29	96.10	88.96
1997	6.7	13449	397863	4.78	8.06	1878764	2.06	0.61	5.27	96.96	91.06
1998	4.6	12268	439489	4.92	8.24	1992593	1.24	0.52	5.33	98.60	91.91
1999	5.4	13114	482153	5.19	8.55	2050004	1.27	0.51	5.46	98.77	95.11
2000	5.9	13985	510128	5.28	8.53	3140936	1.28	0.53	5.44	100.01	98.68
2001	(2.2)	12621	537893	5.66	8.90	2271299	1.20	0.52	5.91	100.00	100.00
2002	3.5	12588	565486	5.80	9.20	2139013	1.30	0.51	5.99	99.80	101.29
% difference over previous year	5.7	-0.26	5.13	0.14	0.30	-5.82	0.10	-0.01	0.09	-0.20	1.29

Notes: 1. Economic growth rate is measured by real GDP.

2. Public medical care operational funds are not included since 1993.

Source: Directorate-General of Budgeting, Accounting and Statistics, June 2001; Annual Financial Report, Ministry of Finance

Table 3. Medical Manpower and Facilities

Year	Medical Care Institutions	Hospitals	Western Medicine			Chinese Medicine			Clinics			
				Public	Private		Public	Private		Western Medicine	Chinese Medicine	Dentistry
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1991	13661	821	729	93	636	92	1	91	12840	7538	1689	3613
1992	14468	822	725	93	632	97	1	96	13646	7948	1756	3942
1993	15062	810	709	93	616	101	1	100	14252	8204	1803	4245
1994	15752	828	719	97	622	109	1	108	14924	8511	1876	4537
1995	16109	787	688	94	594	99	1	98	15322	8683	1933	4706
1996	16645	773	684	94	590	89	1	88	15872	9009	1987	4876
1997	17398	750	667	95	572	83	2	81	16648	9347	2165	5136
1998	17731	719	647	95	552	72	2	70	17012	9473	2259	5280
1999	17770	700	634	96	538	66	2	64	17070	9378	2317	5375
2000	18082	669	617	94	523	52	2	50	17413	9402	2461	5550
2001	18265	637	593	92	501	44	2	42	17628	9425	2544	5659
2002	18228	610	574	91	483	36	2	34	17618	9287	2601	5730
% difference over previous year	-0.20	-4.24	-3.20	-1.09	-3.59	-18.18	0.00	-19.05	-0.06	-1.46	2.24	1.25

Source: Office of Statistics, Department of Health

Table 3. Medical Manpower and Facilities (continued)

Year	Hospitals by Accreditation									
	Medical Centers		Regional Hospitals		District Hospitals		District Teaching Hospitals		Psychiatric Hospitals	
	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds
1991	13	15451	44	18041	494	38024	46	9661	27	9954
1992	13	16302	44	18371	510	35399	46	9982	29	11418
1993	14	17822	46	19857	495	39263	54	12213	29	7987
1994	13	16590	45	21662	509	41775	57	13165	29	7793
1995	14	19375	44	22342	505	44750	63	15860	30	8365
1996	14	19919	45	24099	479	44369	68	18463	28	8126
1997	16	22151	51	28282	468	42834	69	17514	26	8348
1999	17	23405	51	28974	469	44621	67	18143	27	8395
2000	18	24555	51	27883	426	42327	66	18446	32	8709
2001	23	27473	63	33820	387	36080	49	13277	32	9399
2002	24	28389	66	35381	401	36104	47	13168	35	9703
2003	23	29398	71	40761	385	35860	41	11468	36	9450
% difference over previous year	-4.17	3.55	7.58	15.21	-3.99	-0.68	-12.77	-12.91	2.86	-2.61

Notes: 1. Medical Centers include provisional medical centers.

2. Regional hospitals include provisional regional hospitals.

3. Psychiatric hospitals include psychiatric teaching hospitals.

4. Specialty teaching hospitals include special function teaching hospitals and psychiatric teaching hospitals.

Table 3. Medical Manpower and Facilities (continued)

Year	Health Stations					No. of Beds	No. of Beds in Hospitals			No. of Observation Beds in Clinics	Per 10,000			
		Taiwan Province	Taipei City	Kaohsiung City	Kinmen-Matsu			Public	Public		Hospital Beds	General Beds	Acute Beds	Special Beds
	No.	No.	No.	No.	No.	Beds.	Beds.	Beds.	Beds.	Beds.	Beds.	Beds.	Beds.	Beds.
1991	369	338	12	11	8	92785	96632	37536	49096	6153	42	36	28	6
1992	369	338	12	11	8	96084	89981	38304	51677	6103	43	37	28	6
1993	369	338	12	11	8	100570	92011	37366	54645	8559	44	37	28	7
1994	369	338	12	11	8	103733	94270	37586	56684	9463	45	37	29	7
1995	369	338	12	11	8	112379	101430	39922	61508	10949	48	39	30	8
1996	369	338	12	11	8	114923	104111	40125	63986	10812	48	39	31	9
1997	369	338	12	11	8	121483	108536	41421	67115	12947	50	40	32	10
1998	369	338	12	11	8	124564	111941	42838	69103	12623	50	41	33	10
1999	369	338	12	11	8	122937	110660	39440	71220	12277	50	40	33	10
2000	369	338	12	11	8	126476	114179	40129	74050	12297	51	40	33	11
2001	371	340	12	11	8	133398	119847	41904	77943	13551	53	40	33	13
2002	371	340	12	11	8	133398	119847	41904	77943	13551	53	40	33	13
% difference over previous year	0.00	0.00	0.00	0.00	0.00	4.48	4.54	5.63	3.97	3.95	3.92	2.56	0.00	8.33

Source: Office of Statistics, Department of Health

Table 3. Medical Manpower and Facilities (continued)

Year	No.of Medical Care Personnel	Physicians	Chinese Medicine Doctors	Population served per Physician (including Chinese Medicine Doctors)	Dentists	Population served per Dentists	Pharmaceutical Personnel	Population served per Pharmaceutical Personnel	Nursing Personnel	Population served per Nursing Personnel	Medical Technologists (including Assistants)	Medical Radiological Technologists (including Technicians)
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1991	96921	21115	2514	870	5983	3436	18570	1107	43405	474	3700	1500
1992	102977	22365	2616	833	6448	3218	18499	1125	47301	440	3936	1700
1993	109538	23491	2701	802	6540	3210	19374	1084	51308	409	4329	1671
1994	114076	24455	2833	776	6973	3037	18762	1129	54639	388	4593	1699
1995	118242	24465	3030	777	7026	3040	19224	1111	57585	371	4722	1793
1996	123829	24790	2992	775	7254	2967	19667	1094	62268	346	5034	1453
1997	137829	25730	3299	749	7573	2871	21246	1023	70447	309	5389	2266
1998	144070	27168	3461	716	7900	2776	22761	963	71919	305	5583	2485
1999	152385	28216	3546	696	8240	2681	23937	923	76252	290	6015	2500
2000	159212	29585	3733	669	8597	2591	24404	913	79734	279	6230	2761
2001	165855	30562	3979	649	8944	2505	24891	900	83281	269	6542	3152
2002	175444	31532	4101	632	9206	2446	25355	888	90058	250	6725	3410
% difference over previous year	5.78	3.17	3.07	-2.62	2.93	-2.36	1.86	-1.33	8.14	-7.06	2.80	8.19

Source: Office of Statistics, Department of Health

Table 4. Pharmaceutical Affairs

Year	No. of Pharmaceutical Firms	Pharmacies	Owned and Operated by Pharmacists	Owned and Operated by Assistant Pharmacists	Western Medicines	Chinese Medicines	Medical Devices	Western Medicines	Chinese Medicines	Medical Devices	GMP Factories	Western Medicines	Western-Chinese Medicines	Chinese Medicines
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1991	31155	...	...	...	13737	6878	8547	266	267	141	239	193	29	17
1992	31982	...	...	...	13826	6785	9413	261	259	147	233	185	31	17
1993	32101	229	153	76	13373	8866	8983	249	256	145	229	181	31	17
1994	33585	1956	894	1062	11693	9321	9955	251	252	157	227	179	31	17
1995	34846	4862	2386	2476	9074	9631	10609	253	249	168	225	177	31	17
1996	37176	6438	3243	3195	7563	9585	12948	242	238	162	232	→→ 207 ←←		25
1997	38583	6707	3443	3264	7020	9123	15098	243	218	174	228	161	39	28
1998	39027	6434	3436	2998	6466	9217	16262	243	217	188	231	162	39	30
1999	40322	6349	3422	2927	6457	9229	17627	244	208	208	236	165	38	33
2000	43641	6397	3491	2906	6359	11161	19016	243	207	258	233	162	36	35
2001	47130	6440	3600	2840	6524	12864	20560	257	202	283	233	159	35	39
2002	49752	*6990	3983	3007	6526	13202	22268	244	200	322	232	156	32	44
% difference over previous year	5.56	8.54	10.64	5.88	0.03	2.63	8.31	-5.06	-0.99	13.78	-0.43	-1.89	-8.57	12.82

Notes : 1. Data for Kinmen County and Lienchiang County are included since 1994.
2. * No. of pharmacies includes 2,011 pharmacies also dealing with prescription and sale of Chinese medicines.
3. Before 1993, the number of pharmaceutical firms includes western medicine dealers and stores selling over-the-counter drugs.

Source: Office of Statistics, Department of Health

Table 5. Food Sanitation

Year	Laboratory Testing for Food Sanitation	Disqualified	Inspections for Food Sanitation Establishments	To be Improved		Fined		Suspended		GMP Factories	No. of Cases	No. of Deaths
	No.	%	No.	No.	%	No.	%	No.	%	No.	No.	No.
1991	53546	14.36	295169	35827	12.14	567	0.19	3	0.00	93	2378	-
1992	45941	10.59	294105	28429	9.67	602	0.20	1	0.00	88	3084	1
1993	45424	10.75	273617	27293	9.97	915	0.33	1	0.00	77	2150	1
1994	44205	7.90	257508	20335	7.90	1177	0.46	1	0.00	102	4276	-
1995	40410	10.51	237189	20390	8.60	1316	0.55	6	0.00	123	4950	-
1996	38475	10.11	210942	22229	10.54	2903	1.38	95	0.05	178	4043	-
1997	38606	10.49	197042	16582	8.42	1051	0.53	29	0.15	234	7235	1
1998	38141	8.72	179485	16821	9.37	1035	0.58	34	0.02	180	3951	-
1999	37773	8.09	181818	19020	10.46	37	0.02	10	0.01	150	3112	1
2000	67020	4.42	181865	20363	11.20	152	0.08	8	0.00	208	3759	3
2001	34907	8.56	166195	20069	12.08	104	0.06	59	0.04	178	2955	2
2002	33971	8.57	158583	15978	10.08	69	0.04	9	0.01	262	5566	1
% difference over previous year	-2.68	0.01	-4.58	-20.38	-2.00	-33.65	-0.02	-84.75	-0.03	47.19	88.36	-50.00

Source: Office of Statistics, Department of Health

Table 6. Control of Communicable Diseases

Year	Cholera		Poliomyelitis		Measles		Congenital Rubella Syndrome		Typhoid		Paratyphoid		Malaria	
	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed
1991	-	-	-	-	34	-	5	…	→→ 68 ←←				30	…
1992	-	-	-	-	303	-	13	…	→→ 89 ←←				42	…
1993	-	-	-	-	71	2	11	11	→→ 42 ←←				7	7
1994	2	2	-	-	98	33	-	-	→→ 48 ←←				35	35
1995	3	3	-	-	42	-	-	-	→→ 47 ←←				38	38
1996	-	-	-	-	47	-	-	-	→→ 68 ←←				38	38
1997	1	1	-	-	63	2	-	-	→→ 54 ←←				47	47
1998	-	-	-	-	49	9	-	-	→→ 78 ←←				49	49
1999	5	5	-	-	23	-	-	-	184	50	14	11	32	32
2000	7	7	-	-	48	5	-	-	147	42	37	3	43	43
2001	-	-	-	-	50	9	3	3	172	59	47	11	29	29
2002	2	2	-	-	79	24	-	-	135	54	64	18	28	28
% difference over previous year	-	-	-	-	58.00	166.67	-	-	-21.51	-8.47	36.17	63.64	-3.45	-3.45

Table 6. Control of Communicable Diseases (continued)

Year	Dengue Fever		Dengue Hemorrhagic Fever		Japanese Encephalitis		Dysentery		Rubella		Pulmonary Tuberculosis		HIV Infections		AIDS	
	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed	Reported	Confirmed		Aliens		Aliens
1991	804	175	…	…	257	35	107	107	1,791	…	7,107	…	92	5	18	2
1992	239	23	…	…	207	10	116	116	10,612	…	11,765	…	134	15	22	-
1993	165	13	…	…	180	11	588	588	1,409	60	10,441	…	137	8	35	-
1994	1,034	244	…	…	214	13	220	220	195	6	10,327	…	178	36	65	-
1995	1,803	364	5	5	284	27	573	573	122	2	10,815	…	231	35	99	1
1996	1,078	53	3	3	332	21	263	263	152	3	12,547	…	278	34	158	4
1997	767	75	1	1	335	6	426	426	110	4	16,827	…	352	32	134	1
1998	1,416	334	14	14	426	22	446	446	64	5	15,566	…	403	43	151	3
1999	1,115	68	1	1	414	24	394	265	31	2	14,730	12,344	532	28	175	2
2000	857	139	1	1	387	13	791	644	93	29	15,233	12,917	560	29	160	3
2001	1,117	270	11	11	400	33	2,021	1,632	84	17	18,889	13,566	681	-	151	-
2002	15,218	5,387	242	242	311	19	1,007	726	78	4	21,861	14,250	830	-	178	-
% difference over previous year	1262.40	1895.19	2100.00	2100.00	-22.25	-42.42	-50.17	-55.51	-7.14	-76.47	15.73	5.04	21.88		17.88	

Notes : 1. Before 1991, pulmonary tuberculosis includes open pulmonary tuberculosis only; since 1992, other forms of tuberculosis are included.
2. Before 1998, typhoid and paratyphoid are classified under one; they are all confirmed cases.

Source: Center for Disease Control, Department of Health

Table 7. Health Promotion and Protection

Year	Use of Child Preventive Healthcare	Use of Adult Preventive Healthcare		Screening for Cervical Cancer	General Fertility of Reproductive Women	Fertility of Women under 20	No. of Births
		40-64	65 and above				
	%	%	%	%	‰	‰	births
1991	-	-	-	-	58	16.9	321276
1992	-	-	-	-	57	17.0	320963
1993	-	-	-	-	57	17.0	325613
1994	-	-	-	-	55	17.0	322938
1995	-	-	-	-	55	17.0	329581
1996	-	-	-	-	54	17.0	325545
1997	-	-	-	-	53	15.4	326002
1998	-	-	-	-	43	13.8	271450
1999	55.75	11.17	30.64	31.04	45	12.9	283661
2000	65.67	12.01	33.56	34.72	48	14.0	305312
2001	74.16	13.40	37.59	32.73	41	13.0	260354
2002	77.88	13.81	41.22	31.91	39	13.0	247530
	3.72	0.41	3.63	-0.82	-4.88	0.00	-4.93

Sources: Bureau of National Health Insurance

Table 8. Health and Social Insurance

Year	No. of Persons under Social Insurance		No. of Outpatient Visits per 100 Insured Persons			No. of Inpatients per 100 Insured Persons			Average Costs per Outpatient Visit			Average Costs per Inpatient Care			Average Days of Hospital Stay		
		as % of Total Population	Government Employee's Insurance	Laborer's Insurance	Farmer's Insurance	Government Employee's Insurance	Laborer's Insurance	Farmer's Insurance	Government Employee's Insurance	Laborer's Insurance	Farmer's Insurance	Government Employee's Insurance	Laborer's Insurance	Farmer's Insurance	Government Employee's Insurance	Laborer's Insurance	Farmer's Insurance
	(1,000 persons)	%	National Health Insurance			National Health Insurance			National Health Insurance			National Health Insurance			National Health Insurance		
1991	10170	49.35	1211.74	854.02	1050.73	16.41	8.48	16.22	511	304	278	28752	23097	24168	9.91	10.95	11.86
1992	11252	54.08	1042.28	1523.33	2277.51	11.96	9.59	21.93	510	377	349	31990	24373	26305	9.97	10.74	11.76
1993	11756	55.99	1300.29	1340.01	2106.49	13.30	9.41	20.49	514	375	349	31915	24983	27062	9.28	10.47	11.58
1994	12172	57.48	1492.17	1468.63	2511.16	13.50	9.77	21.12	524	412	397	34377	26170	28613	9.59	10.44	11.64
*1995	19124	89.54	1056.23			10.15			529			29458			9.26		
1996	20040	93.10	1360.89			11.72			549			31901			9.04		
1997	20492	94.25	1432.88			11.60			557			32768			9.21		
1998	20757	94.66	1499.66			11.83			588			34851			8.78		
1999	21090	96.06	1527.85			12.28			614			36098			8.68		
2000	21401	96.16	1472.20			12.57			631			36478			8.73		
2001	21654	96.64	1449.86			13.00			659			37169			8.83		
2002	21869	97.67	1451.80			13.47			707			39160			9.04		
% difference over previous year	0.99	1.03	0.13			3.62			7.28			5.36			2.38		

Note: *Data are for the National Health Insurance since 1995.
Sources: Central Trust Bureau, Bureau of Labor Affairs, Bureau of National Health Insurance.

Table 9. Causes of Death

Year	ICD No. Mortality List		08-14			29			250.251.27.28*			181			E47-E53		
	All Causes		Malignant Neoplasms			Cerebrovascular Diseases			Accidents and Adverse Effects			Heart Diseases			Diabetes Mellitus		
	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000
1991	104461	510.69	1	19630	95.97	2	14137	69.11	4	12026	58.79	5	4210	20.58	3	13636	66.66
1992	108810	526.81	1	20959	101.47	2	14325	69.35	4	12993	62.91	5	4887	23.66	3	13152	63.68
1993	109269	524.12	1	22319	107.05	2	13680	65.62	4	12506	59.99	5	5367	25.74	3	13270	63.65
1994	112238	532.27	1	23318	110.58	2	13658	64.77	4	12005	56.93	5	6094	28.90	3	13219	62.69
1995	117954	554.62	1	25841	121.50	2	14132	66.45	4	11256	52.93	5	7225	33.97	3	12983	61.05
1996	120605	562.49	1	27961	130.41	2	13944	65.03	4	11273	52.58	5	7525	35.10	3	12422	57.93
1997	119385	551.84	1	29011	134.10	2	12885	59.56	4	10754	49.71	5	7500	34.67	3	11297	52.22
1998	121946	558.47	1	29260	134.00	2	12705	58.18	3	11030	50.51	5	7532	34.49	4	10973	50.25
1999	124991	567.87	1	29784	135.32	3	12631	57.39	4	11299	51.33	5	9023	40.99	2	12960	58.88
2000	124481	561.12	1	31554	142.23	2	13332	60.10	3	10552	47.56	5	9450	42.60	4	10515	47.40
2001	126667	566.97	1	32993	147.68	2	13141	58.82	3	11003	49.25	5	9113	40.79	4	9513	42.58
2002	126936	565.08	1	34342	152.88	2	12009	53.46	3	11441	50.93	4	8818	39.26	5	8489	37.79
% difference over previous year	0.21	-1.89		4.09	5.20		-8.61	-5.36		3.98	1.68		-3.24	-1.53		-10.76	-4.79

Table 9. Causes of Death (continued)

Year	347			321			350			E54			26			Infant Mortality Rate	Maternal Mortality Rate
	Chronic Liver Diseases and Cirrhosis			Pneumonia			Nephritis, Nephrotic Syndrome and Nephrosis			Suicide and Self Inflicted Injury			Hypertensive Diseases				
	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000	Order	No. of Deaths	Mortality per 100,000		
1991	6	3601	17.60	7	2644	12.93	8	2527	12.35	12	1465	7.16	9	2492	12.18	5.05	7.78
1992	6	3748	18.15	8	2907	14.07	7	2935	14.21	13	1381	6.69	9	2300	11.14	5.18	6.85
1993	6	3755	18.01	8	2815	13.50	7	2859	13.71	13	1301	6.24	9	2285	10.96	4.80	8.92
1994	6	4163	19.74	8	2890	13.71	7	3211	15.23	13	1451	6.88	9	2191	10.39	5.07	8.05
1995	6	4456	20.95	8	3070	14.44	7	3519	16.55	11	1618	7.61	9	2616	12.30	6.43	7.59
1996	6	4610	21.50	8	3200	14.92	7	3547	16.54	11	1847	8.61	9	2656	12.39	6.66	7.68
1997	6	4767	22.03	7	3619	16.73	8	3504	16.20	10	2172	10.04	9	2611	12.07	6.35	9.20
1998	6	4940	22.62	7	4447	20.37	8	3435	15.73	10	2177	9.97	9	2273	10.41	6.57	8.84
1999	6	5180	23.53	7	4006	18.20	8	3474	15.78	9	2281	10.36	10	1856	8.43	6.07	8.46
2000	6	5174	23.32	8	3302	14.88	7	3872	17.45	9	2471	11.14	11	1602	7.22	5.86	7.86
2001	6	5239	23.45	8	3746	16.77	7	4056	18.15	9	2781	12.45	10	1766	7.90	5.99	6.91
2002	6	4795	21.35	7	4530	20.17	8	4168	18.55	9	3053	13.59	10	1947	8.67	5.35	7.68
% difference over previous year	-8.47	-2.10		20.93	3.40		2.76	0.40		9.78	1.14		10.25	0.77	-0.64	0.77	

Notes : 1. Infant Mortality Rate = (No. of deaths of registered infants in a year/total number of births for the year) x 1,000

2. Maternal Mortality Rate = (No. of deaths of pregnant women due to birth deliveries in a year/total number of births for the year) x 100,000

3. 28* includes all diseases under codes 420-429 of the ICD No. Detailed List.

Source: Office of Statistics, Department of Health

Table 10. International Comparison

Year	Life Expectancy												Crude Birth Rate					
	ROC		Japan		USA		Germany		UK		South Korea		ROC	Japan	USA	Germany	UK	South Korea
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female						
	year	year	year	year	year	year	year	year	year	year	year	year	0/00	0/00	0/00	0/00	0/00	0/00
1991	71.8	77.2	76.1	82.1	72.0	78.9	72.2*	78.7*	73.2	78.8	66.9	75.0	15.7	9.9	16.3	11.0	13.7	15.0
1992	71.8	77.2	76.1	82.2	72.3	79.1	72.6	79.1	73.4	78.9	66.9	75.0	15.5	9.8	15.9	11.0	13.5	16.0
1993	71.6	77.5	76.3	82.5	72.2	78.8	72.7	79.2	73.7	79.1	68.0	75.0	15.6	9.6	15.5	10.0	13.1	16.0
1994	71.8	77.8	76.6	83.0	72.4	79.0	73.0	79.5	73.9	79.2	67.0	75.0	15.3	10.0	15.2	10.0	12.9	16.0
1995	71.9	77.7	76.4	82.9	72.5	78.9	73.3	79.8	74.1	79.4	67.0	75.0	15.5	9.6	14.8	9.6	12.5	16.0
1996	71.9	77.8	77.0	83.6	73.1	79.1	73.6	79.9	74.3	79.5	68.0	76.0	15.2	9.7	14.7	9.7	12.5	15.0
1997	71.9	77.8	77.2	83.8	73.6	79.4	73.6	80.0	74.6	79.6	69.0	77.0	15.1	9.5	14.5	10.7	12.3	15.0
1998	72.2	78.0	77.2	84.0	73.8	79.5	74.0	80.3	74.8	79.8	70.0	77.0	12.4	9.6	14.6	10.2	12.1	16.0
1999	72.5	78.1	77.1	84.0	73.9	79.4	74.4	80.6	(p)75.1	(p)80.0	70.0	77.0	12.9	9.4	14.5	9.9	11.8	13.2
2000	72.7	78.4	77.7	84.6	(p)74.1	(p)79.5	--	--	--	--	71.0	78.0	13.8	9.5	14.7	--	11.4	13.4
2001	72.9	78.8	77.9	84.7	74.3	79.5	75.1	81.1	75.1	79.9	71.2	78.7	11.7	9.3	14.1	--	(p)11.2	11.6
2002	73.2	78.9	--	--	--	--	--	--	--	--	--	--	11.0	--	--	--	--	--
% difference over previous year	0.35	0.19	--	--	--	--	--	--	--	--	--	--	-0.7	--	--	--	--	--

Source: World Population, Council of Economic Planning and Development

Table 10. International Comparison (continued)

Year	Infant Mortality Rate						No. of Physicians per 10,000						No. of Hospital Beds per 10,000					
	ROC	Japan	USA	Germany	UK	South Korea	ROC	Japan	USA	Germany	UK	South Korea	ROC	Japan	USA	Germany	UK	South Korea
	0/00	0/00	0/00	0/00	0/00	0/00	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1991	5.1	4.4	8.9	6.9	7.4	10.0	12	--	--	32	--	11	45	--	--	--	--	33
1992	5.2	4.5	8.5	6.2	6.6	--	12	17	25	31	15	10	46	162	46	99	54	35
1993	4.8	4.3	8.4	5.8	6.3	9.9	13	17	25	32	15	10	48	162	45	97	51	37
1994	5.1	4.2	8.0	5.6	6.2	--	13	18	26	33	16	11	49	162	43	97	49	41
1995	6.4	4.3	7.6	5.3	6.2	--	13	18	26	34	16	11	53	162	41	97	47	44
1996	6.7	3.8	7.3	5.0	6.1	7.7	13	18	26	34	17	12	53	162	40	96	45	46
1997	6.4	3.7	7.2	4.8	5.9	--	13	--	27	34	--	12	56	164	--	94	--	48
1998	6.6	3.6	7.2	4.7	5.7	--	14	19	27	--	--	--	57	--	--	93	--	--
1999	6.1	3.4	7.1	4.5	5.8	6.2	14	--	28		18	13	56	164	36	--	41	55
2000	5.7	3.2	6.9	4.4	5.6	--	15	19	--	36	18	13	57	165	36	91	41	61
2001	6.0	3.1	(p)7.0	4.5	5.5	--	15	--	--	--	--	--	57	--	--	--	--	--
2002	5.4	--	--	--	--	--	16	--	--	--	--	--	59	--	--	--	--	--
% difference over previous year	-0.6	--	--	--	--	--	6.7	--	--	--	--	--	3.5	--	--	--	--	--

Notes : (p) is estimate

* Data for Germany include both East and West Germany since 1991.

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