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Taiwan Public Health Report

Department of Health R.O.C (Taiwan)

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Message from the Minister of Health

The Department of Health's scope of responsibility includes public health, health promotion, epidemic prevention and monitoring, food safety, drug management, medical care, national health insurance, care for disadvantaged groups, international medical affairs and development of health technology. Each of these areas is important for our population's well-being, and all health policies must meet the people's expectations.

By increasing quality, raising efficiency, distributing resources fairly and caring for the vulnerable, our Department seeks to promote and protect health. We publish a public health report every year to promote better understanding of the efforts of Taiwan's health agencies.

The Get Moving Taiwan weight management program was started in 2011 to increase public participation and make people's lives healthier at different stages of life, such as pregnant women and recent mothers, babies, children, adolescents and the middle-aged. We offer health promotion policies and prevent disease by calling on the public to eat wisely, be happy and check body weight daily. By year's end, 724,544 people had participated in the program and totally 1,104 tons of body weight had been reduced.

Even before WHO declared the H1N1 epidemic's post-pandemic period, the Department of Health published "The First Battle of the Century" recording Taiwan's experiences with H1N1 for reference. To meet demand for flu prevention during seasonal peaks, starting on December 1, 2011, the conditions for using free flu vaccine were relaxed and distribution points were increased.

Food safety risk management policy was highlighted by the discovery in the spring of 2011 that many products were contaminated with plasticizers. On June 22, 2011, the Department

of Health amended the Food Hygiene Management Law to increase punishments for violations, and it continues to carry out food safety evaluations to protect the public.

National Health Insurance offers our citizens excellent health care, and the health insurance system has become a pillar of Taiwan's social welfare system. Because of widespread acclaim for the scheme in international media, many countries send missions to learn from Taiwan's experiences. To allow the system to be sustainably managed, the amended National Health Insurance Act was announced in January 2011. These amendments improve the health insurance system's fairness, efficiency and quality.

By the end of 2011 nearly eleven percent of Taiwan's people were over 65 years old. As the population ages and disease types change, need for long-term care is increasing. To develop a long-term care system, we have sought a legal basis for service provision, formulated the Long-term Care Service Law, surveyed needs to estimate resources required, and established a national long-term care database. In response to changes in the population structure, the Department of Health and the Government Organization Reengineering Plan are integrating health and social welfare resources to provide service-oriented holistic care.

Along with trade and tourism increasing, there is a global trend for internationalized health affairs and medical services. The Department of Health has taken great efforts for achieving outernational health cooperation for a long time, and since 2009 Taiwan has been an observer at the World Health Assembly, affirming our nation's role in global health policy and raising Taiwan's profile. The Department has also taken part in international cooperation, provided health assistance and internationalized medical services development, seeking to contribute to the world and consolidate Taiwan's position.

Looking back over the last year, the Department of Health has been through a lot and has continued to receive criticism and advice from all quarters. We are aware of the need to constantly self-examine and improve to move with the times. Readers can examine our various operations and decide whether the reforms we are implementing will lead to a new health policy era in Taiwan.

Minister of Health

CONTENT

1 Health Policies

Health Policies

The Department of Health, the Executive Yuan (hereafter referred to as the DOH) is responsible for medical care, disease prevention, health promotion, drug and food administration, management of bio-tech R&D and the food industry, national health insurance and international medical affairs, all closely connected to people's lives. With limited resources, providing the people with all-round health care to ensure national health is the most pressing task at present.

Health is the ideal and objective of all. The DOH has directed its mission to promote and protect public health and welfare and endeavours to fulfil its vision of "quality, efficiency, balanced resources, and care for the disadvantaged." The DOH's mid-term administrative projects for 2010-2013, as well as the specific administrative goals for 2010 and 2011 have been set; by "encouraging participation by all people, fulfilling lifestyle wellness", "implementing healthcare and disease prevention mechanisms to guard against the threat of illness", "refining the health care systems and safeguarding the rights of the disadvantaged to medical care", "strengthening food and drug regulations to protect the public health", "developing healthcare technology", "raising administrative efficiency", "improving the financial health of the national healthcare system" and "creating a high-quality institutional culture of learning so as to develop human resources" and other strategies, the DOH is actively promoting health and medical services.

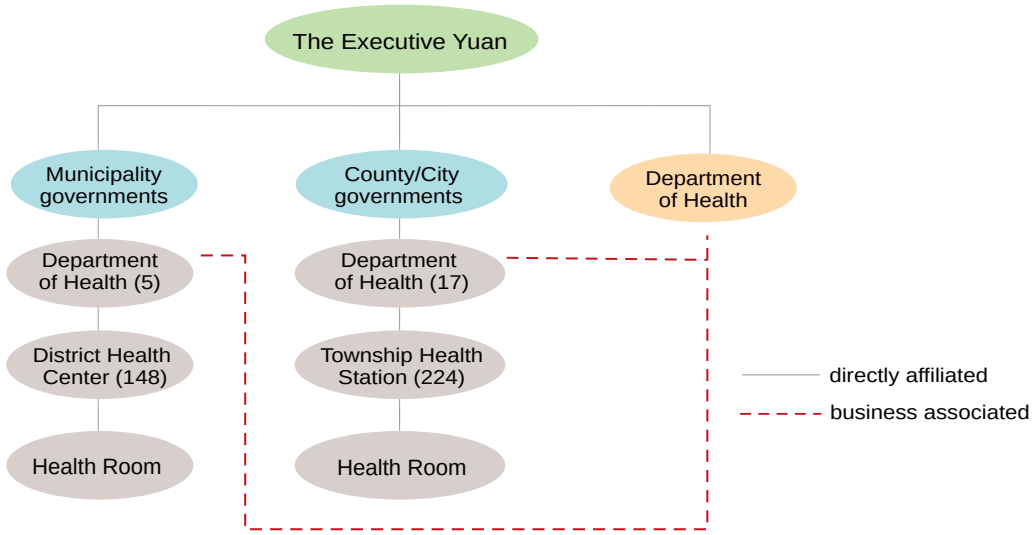
Chapter 1, Administrative goals, and highlights in 2011-2012

In accordance with the Executive Yuan's 2011 policy directions, in coordination with the medium term policy plan and approved budget, and on the basis of the current social situation and future requirements, the 2011 policy plan has been set; its objectives and key points are:

1. Strengthen public participation, realize healthy living: Build a health supportive environment, nurture healthy lifestyles for all; strengthen preventive health services, strengthen the prevention of the main chronic diseases, expand cancer screening, build a senior-friendly environment; build a tobacco hazard prevention supportive environment; build a health information monitoring mechanism, monitor the health situation of the people.
2. Implement health promotion and disease prevention preparation to eliminate the threat of disease: strengthen the infectious disease control and management system, implement disease control and reporting, carry out the 10-year plan for 50% TB reduction, HIV/AIDS prevention plan and other infectious disease prevention plans; actively promote the National Vaccine Fund and carry out preventive immunization against various diseases, actively expand disease prevention work by international cooperation and exchange.
3. Improve the healthcare system, protect the right to medical care of the disadvantaged groups: Build a complete medical health system, promote the rational allocation of medical resources, build a National Emergency Medical Service and Critical Care Network and a Community Healthcare Network; promote whole person care, build a patient-centered safe medical treatment environment; raise the quality of mental health care and promote smart medical services; give priority care to the medically disadvantaged, strengthen the health care of the mentally and physically impaired, build a complete long-term care service system.

4. Strengthen food and drug management, protect the health of the people: strengthen food, drug and cosmetics management and risk assessment, build a complete drug and food import management system, increase the safety of Chinese medical materials, implement controlled drug management and guidance, strengthen the inter-departmental coordination and cooperation mechanism; establish a complete laboratory monitoring network, increase assay capability to meet the demands of large-scale emergency testing.
5. Development of healthcare technology: the DOH carried out research on health technology, public health and safety, and strengthened research with regards to the impacts of social, economic, and environmental factors on public health, enhancing emergency-response mechanisms and the emergency-response capabilities of government and the public; helped develop the domestic biotechnology industry; promoted health technology services, raising the level of application of the results of R&D, protecting the health and well-being of the people.
6. Raise administrative efficiency: The DOH reformed drug and clinical experiment evaluation mechanism and reviewed existing management laws and regulations, building strict and highly efficient drug evaluation mechanisms and processes, set a drug evaluation model and food safety risk assessment and management principles in line with international norms; raised the efficiency and quality of food and drug safety evaluation; strengthened the professional training of evaluation personnel; and integrated the functions of the Department's hospitals to improve the efficiency of service.
7. Improve the financing of the National Health Insurance Scheme, and reduce the deficit: the DOH, in coordination with reforms that ushered in the second generation of the National Health Insurance, established

Figure 1-1 Organization of Health Administration



complementary measures and promoted payment system reform; openness of National Health Insurance treatment information and treatment quality information was promoted to increase treatment quality and the benefit of payments, reduce waste and help the disadvantaged groups overcome obstacles to receiving treatment, ensuring medical treatment equality.

8. Create a high-quality institutional culture of learning so as to develop human resources: Health professional training was strengthened to raise the level of professional, management and international view core capabilities and promote international health exchange and cooperation; performance management and human resources management strategies were used to nurture personnel's professional knowledge and competitiveness and build excellent work teams.

Chapter 2, Health Organization

Organization of health administration came originally in three levels, central, provincial, and county/city. After the promulgation of the Local System Act in 1999, the health organization was reorganized into two levels, the central, and the municipality and county/city (Figure 1-1).

The Department of Health of the Executive Yuan at the central level is the highest health authority in Taiwan, responsible for the health administration of the country, and also providing technical assistance to, supervising and coordinating local health agencies. Health administration at the local level includes health departments and bureaus, established by municipalities or county/city governments. After the creation of the five special municipalities on December 25, 2010, the number of these local departments or bureaus was reduced from 25 to 22.

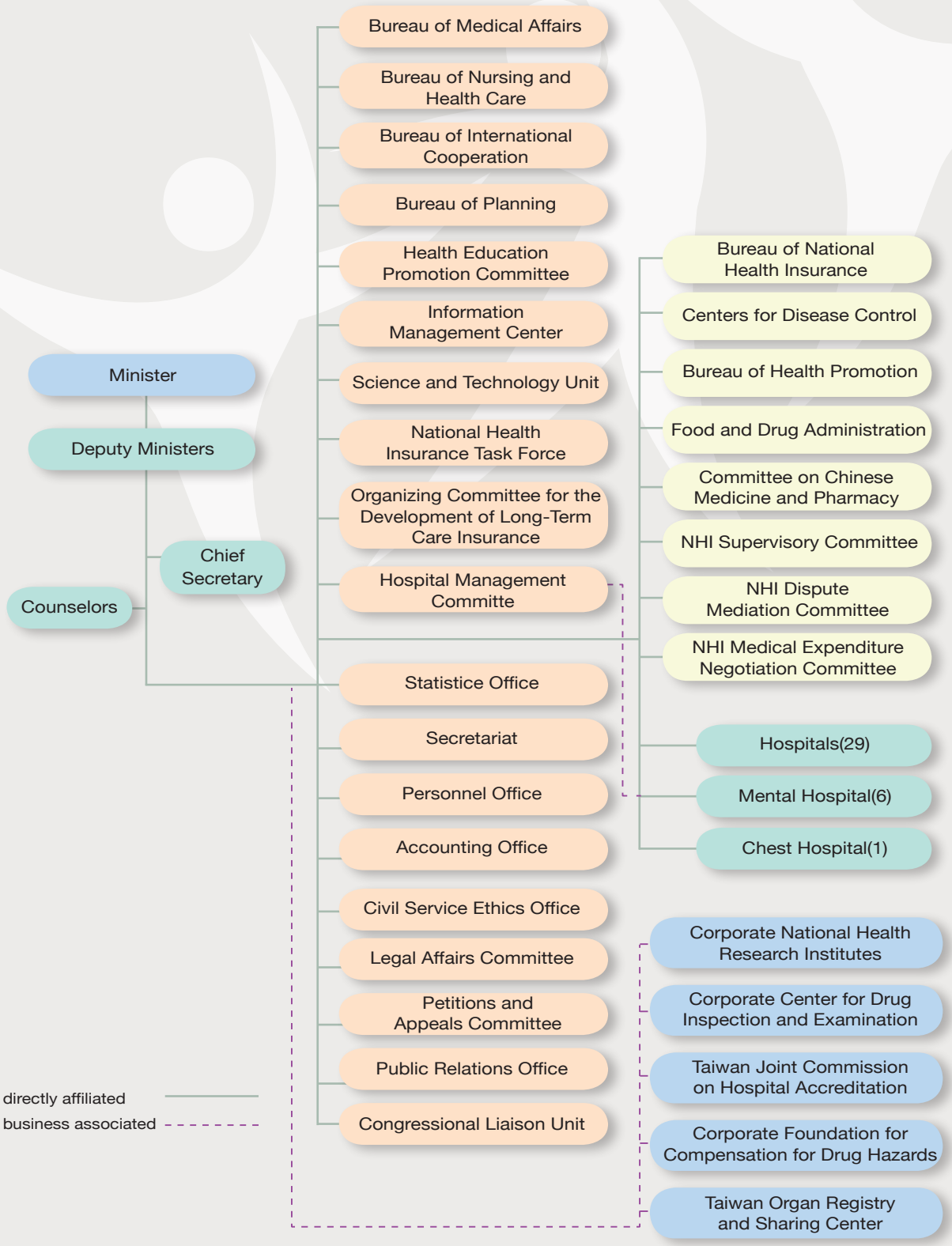
Section 1, The National Health Administration

The Department of Health consists of four bureaus: the Bureau of Medical Affairs, the Bureau of Nursing and Health Care, the Bureau of International Cooperation, and the Bureau of Planning, plus several mission-driven agencies, such as the Health Education Promotion Committee, the Information Management Center, the Science and Technology Unit, the National Health Insurance Task Force, the Long-Term-Care Insurance Preparatory Task Force, and the Hospital Management Committee and Legal Affairs Committee. The affiliated organizations under the Department include the Bureau of National Health Insurance, Center for Disease Control, Bureau of Health Promotion, Food and Drug Administration, Committee on Chinese Medicine and Pharmacy, NHI Supervisory Committee, NHI Dispute Mediation Committee, NHI Medical Expenditure Negotiation Committee, 20 DOH hospitals (including six mental hospitals and one chest hospital). In addition, the DOH also financially supported the establishment of units such as the Corporate National Health Research Institutes, Corporate Center, for Drug Inspection and Examination, Taiwan Joint Commission on Hospital Accreditation, Corporate Foundation for Compensation for Drug Hazards, and the Taiwan Organ Registry and Sharing Center (Figure 1-2).

Section 2, Ministry of Health and Welfare

In the face of globalization, every country is striving to raise its national competitiveness through organizational re-engineering to improve government efficiency while upholding the principles of "lean, flexible and efficient"

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



government administration.

Facing the impact of an aging society, low birth rate, and increased immigration, Taiwan's population structure is changing and it has to quickly integrate its medical-care and social-welfare services and other work related to the following: long-term care, senior-citizen medical care and welfare, child welfare, women's rights, and social insurance and assistance. The government needs to distribute its resources more efficiently and engage in well-considered policymaking so as to prepare for the future.

In order to integrate health and welfare resources, a new Ministry of Health and Welfare will be created by merging the existing Department of Health and the Ministry of the Interior's Department of Social Affairs, Children's Bureau, National Pension Supervisory Commission, and Domestic Violence and Sexual Assault Prevention Committee. The new ministry will be charged with planning and assessing public policies connected to public health, medical care, and social welfare services and programs, with the overarching aim of constructing a comprehensive public-health and social-welfare system oriented toward holistic care.

Chapter 3, Central Government Health Budget

In 2012, the total health budget was NT$80.8 billion, accounting for 4.2% of the total central government budget of NT$1,938.8 billion. See Figure 1-3.

In the health budget for 2012, NT$ 57.52 billion has been set aside for social insurance expenditure, 71.2% of the total health budget; NT$19.15 billion has been set aside for medical healthcare expenditure, 23.7% of the total health budget; 4.04 billion has been set aside for science expenditure, 5.0% of the total health budget;77.9 million has been set aside for education expenditure, 0.1% of the total health budget; and NT$1 million set aside for social relief, or 0.001% of the total health budget, as shown in Fig.1-4.

The 2012 health budget of NT$80.8 billion shows an increase of NT$11.79 billion or 17.1% on the budget for 2011 of 69.01 billion (final figure of NT$68.02 billion); the budget increase and decrease items are shown in table 1-1 and 1-2:

Chapter 4, Performance Evaluation

The promotion of health and medical care requires the concerted cooperation of the central and the local governments to effectively enforce the relevant policies, and thus to protect the health of the people. The overall evaluation of the Department over the achievements of local health departments/ bureaus aims primarily at evaluating the annual performances of local health organizations with a view to help them improve quality of services to the public.

In response to the restructuring of the DOH, beginning in 2010 the original evaluation items were merged and streamlined from nine categories (medical administration, long-term care, pharmaceutical administration, controlled substances, food, laboratory testing, diseases control, healthcare and health education) into six (medical administration, long-term care, food and drugs, disease control, healthcare, and health education). Supervising agencies of the local health centers are put in charge of handling follow-up incentive arrangments after evaluation, in hopes of inspiring administrative efficiency and service quality.

Figure 1-3 DOH Budget as Percentage of Total Central Government Budget, 2003-2012

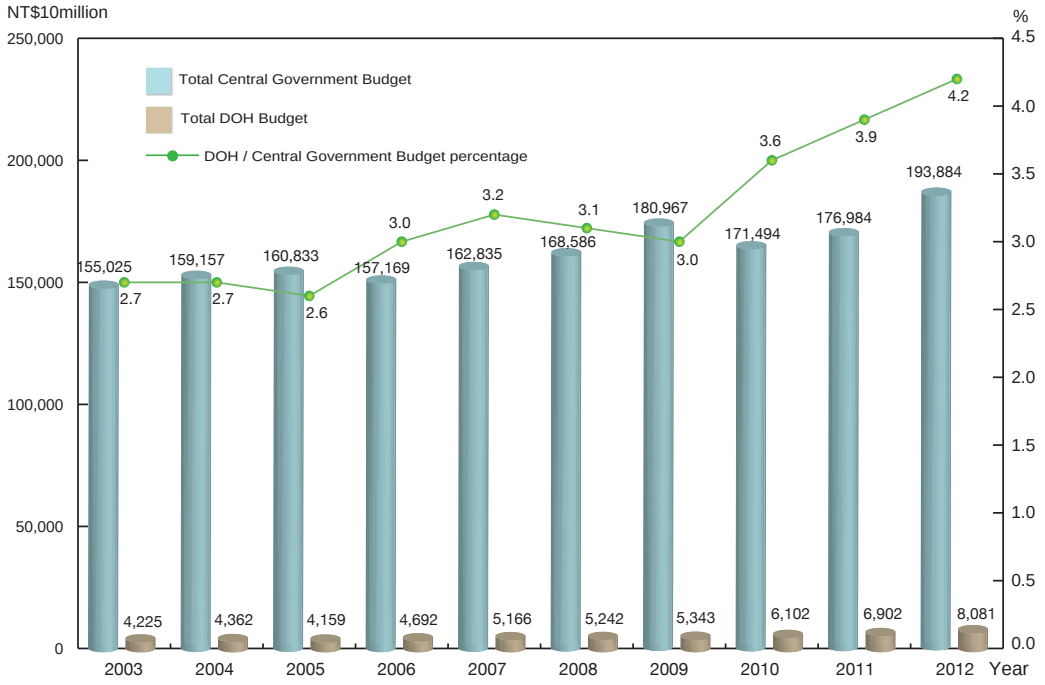


Figure 1- 4 2012 Central Government Budget Distribution Map

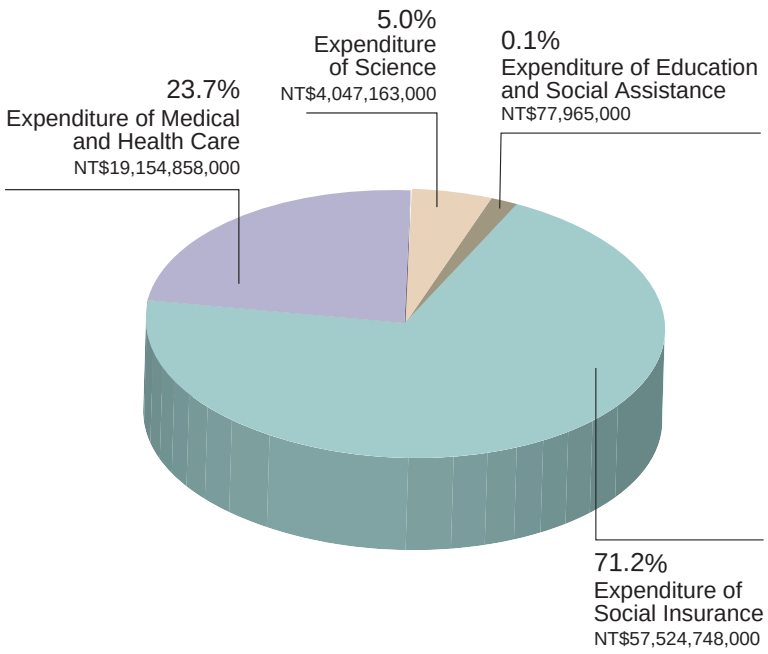


Table 1-1 Health Budget Increase Items in 2012

No.	Item	Budget
1	The statutory lower limit of national health insurance fees the government should pay and appropriation of accumulated financial deficit	NT$12,000,000,000
2	Special case subsidy for health insurance payments owed by people whose households are not registered in municipalities directly under the central government	NT$3,470,839,000
3	Insurance fee subsidies for fishermen, irrigation associations and other groups	NT$1,601,066,000
4	Funds for carrying out of food inspection registration management, drug and cosmetics evaluation, visiting overseas drugs factories for GMP checks and border food inspection.	NT$179,677,000
5	Biomedical Management Center Health building construction funds	NT$88,990,000
6	Hsinchu Biomedical Science Park Hospital establishment plan funds	NT$45,000,000
	Total	NT$17,385,572,000

Table 1-2 Health Budget decrease Items in 2012

No.	Item	Budget
1	Subsidy for national health insurance fees for people under a certain income	NT$3,405,035,000
2	Funds for carrying out the New Generation Health Navigation Project and Clinical Medical Workforce training plan.	NT$321,345,000
3	DOH hospital personnel subsidies and other funds	NT$319,386,000
4	Funds for Kinmen Medical Building construction	NT$289,100,000
5	Research funds for the National Health Research Institutes	NT$176,129,000
6	Funds for carrying out the National Health Informatics Project	NT$154,255,000
7	Funds for carrying our disease control operations	NT$422,766,000
8	Funds for preventive health operations	NT$138,040,000
9	Funds for health insurance work and operations	NT$108,856,000
10	Funds for establishing a product channel management fast check system and imported food border inspection operations	NT$185,283,000
	Total	NT$5,520,195,000

2 Health Indicators

Health Indicators

Along with increase in national incomes, improvment in living environment and national nutrition, advancement in health and medical sciences, upgrading in health standards, and increase in accessibility to medical care due to the implementation of the National Health Insurance, the average life expectancy of the people has prolonged.

Chapter 1, The Population

At the end of 2011, the total registered population in Taiwan was 23.22 million. 11.65 million were males and 11.58 million were females; giving a sex ratio [male population/ female population x100] of 101. The annual growth rate of population was 0.27 ‰.

At the end of 2011, the population density in Taiwan was 642 persons per square kilometer of land area. By county and city, Taipei City had the highest density, Hualien and Taitung counties had the lowest density .

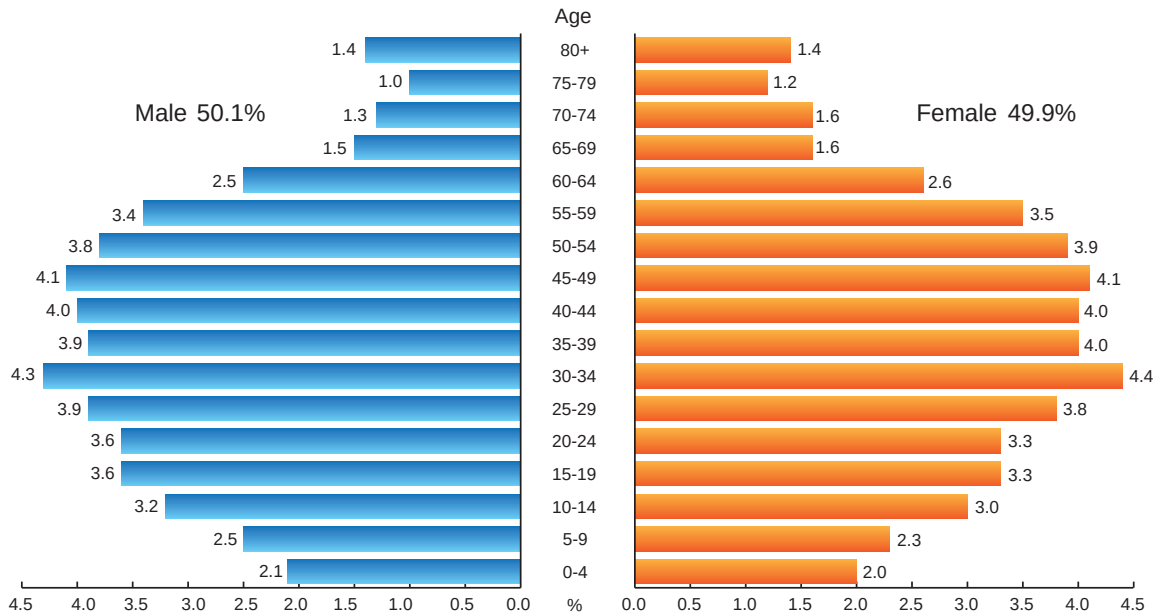
Section 1, Age Structure

The population of Taiwan reached 20 million at the end of 1989. Upon the impact of the declining birth rate year by year, the age structure of the population at the end of 2011 was already a shrinking pyramid of low birth rate and low death rate. See figure 2-1.

By age structure of population, the aged population above 65 years as a proportion of the total population reached 7% in 1993, making Taiwan an aged society. The proportion of the 0-14 young age group declined from 20.8% in 2001 to 15.1% in 2011. In the same period, the proportion of the 65 years and above elderly population increased from 8.8% to 10.9%. The aging of population is becoming more obvious. (see figure 2-2 and table 2-1)

The dependency ratio [(0-14 population + 65 above population)/15-64 population x 100] declined from 42.1% in 2001 to 35.1% in 2011, due primarily to the rapid decline of the child

Figure 2-1 The 2011 Population Pyramid



dependency ratio [0-14 population/15~64 population x100] and the steady increase of the aged dependency ratio [65 above population / 15-64 population x 100].

Section 2, Birth and Death

Fertility in Taiwan has declined year by year. Crude Birth Rate (total number of live births in the year / mid-year population x 1,000) declined from 11.7 ‰ in 2001 to 8.5 ‰ in 2011, a historically low point. Crude Death Rate [total number of deaths in the year / mid-year population x 1,000] increased slightly from 5.7 ‰ in 2001 to 6.6 ‰ in 2011, resulting in the decline of the natural increase rate of population [crude birth rate - crude death rate] to 1.9 ‰ in 2011. See Figure 2-3.

Section 3, Life Expectancy

Life expectancy at birth for both sexes in the last ten years increased from 76.7 years in 2001 to 79.2 years in 2011, an increase of 2.5 years. For males in the same period, the life expectancy at birth increased from 74.1 years to 76.0 years, an increase of 1.9 years. For females, it increased from 79.9 years to 82.7 years, an increase of 2.8 years. The increase in the life expectancy at birth for females was higher than that of the males (See Figure2-4).

Chapter 2, Vital Indicators

1. Ten Leading Causes of Death

In 1952, the leading causes of death were acute and communicable diseases; nowadays, the leading causes of mortality are

Figure 2-2 Shifts and Trends in Taiwan's Age Structure and Child / Elderly Support over the Years

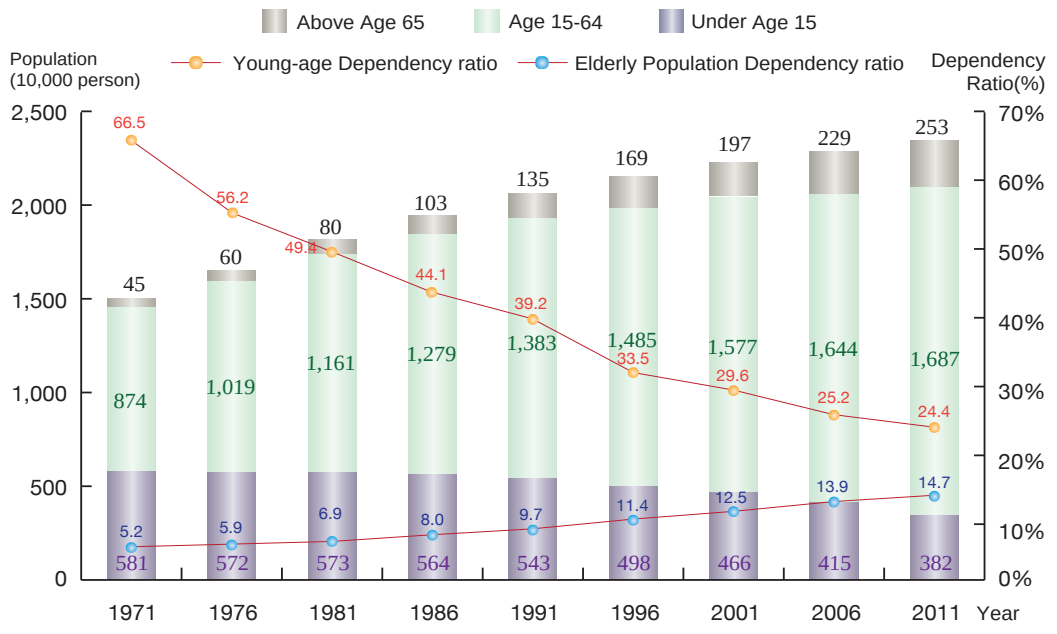


Table 2-1 Age Structure and Child / Edlerly and Aged Dependency Percentage Breakdown over the Years

Year	Total population	Population structure			Dependency Ratio	
		Under 15	Between 15~64	Above 65	Young-age Population Dependency Ratio	Elderly Population Dependency Ratio
	Per 1,000 people	%	%	%	%	%
1981	18,194	31.63	63.96	4.41	49.45	6.90
1991	20,606	26.34	67.13	6.53	39.23	9.73
2001	22,406	20.81	70.39	8.81	29.56	12.51
2011	23,225	15.08	74.04	10.89	21.37	14.70

chronic diseases, such as malignant neoplasms and cardiovascular illnesses, and accidents.

In 2011, the total number of deaths was 152,030 persons, giving a crude death rate of 655.5 per 100,000 population, and was an increase of 4.8 % over the previous year. If adjustment is made by the 2000 world standard population age structure, the standardized death rate of 2011 was 462.4 per 100,000, a decrease of 1.5 % over the previous year.

In 2011, the causes of death were coded according to The International Statistical

Figure 2-3 Crude birth rate, crude death rate, and nature increase rate of population by year

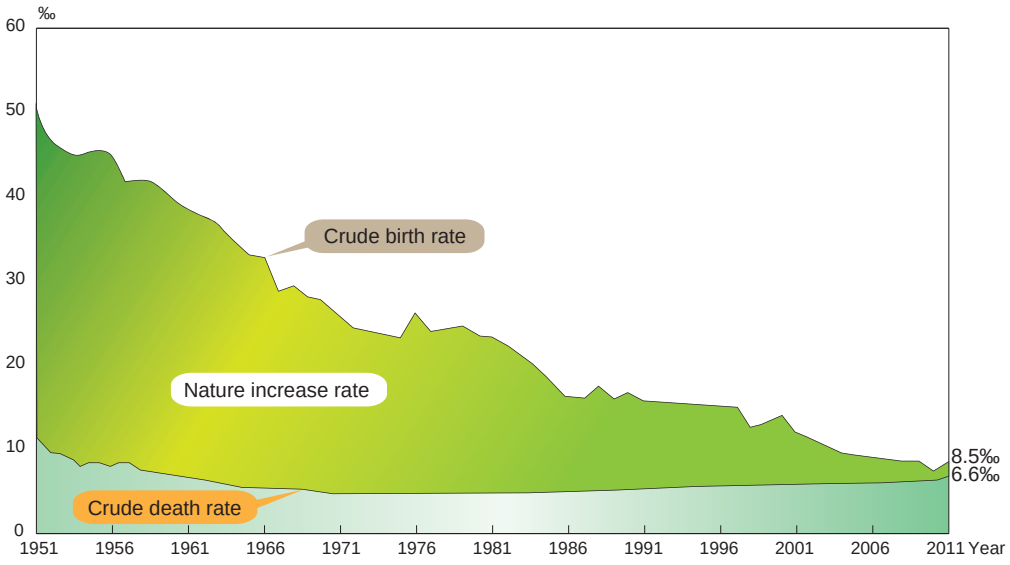
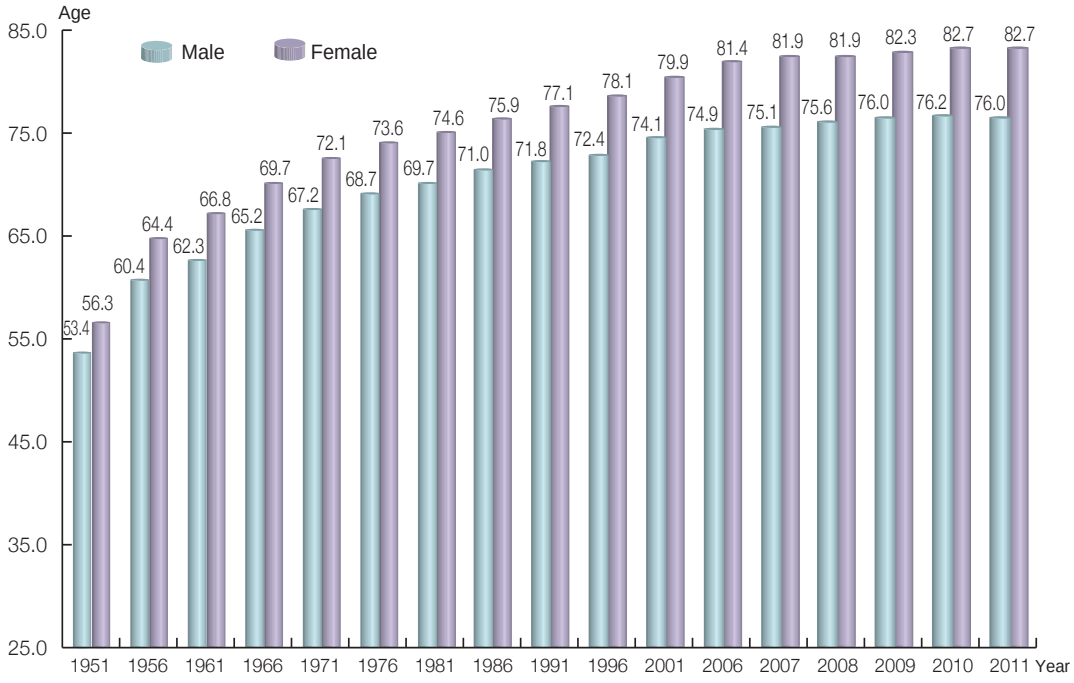


Figure 2-4 Life Expectancy at Birth



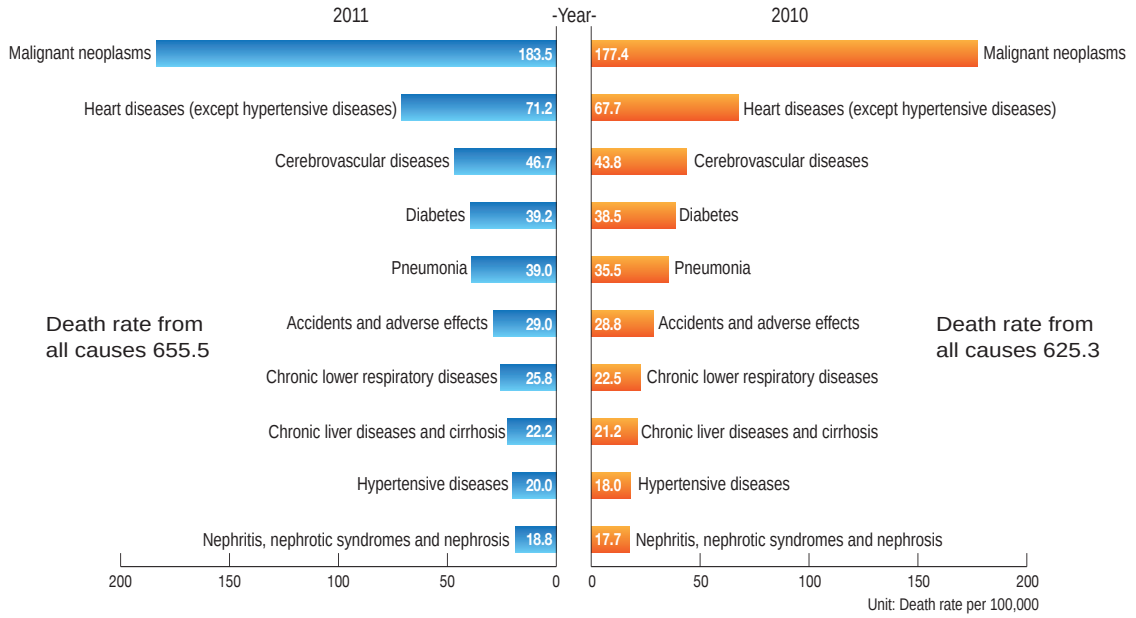
Classification of Diseases and Related Health Problems 10th Revision (ICD-10). The ten leading causes of death were malignant neoplasms, heart diseases, cerebrovascular diseases, diabetes, pneumonia, accidents and adverse effects, chronic lower respiratory diseases, chronic liver diseases and cirrhosis, hypertensive diseases, and nephritis, nephrotic syndromes and nephrosis. In comparison with the previous year, diabetes and pneumonia swapped places while suicide went out of the top 10 for the first time since 2010, dropping to 12th. See Fig. 2-5.

2. Ten Leading Causes of Cancer Death

In 2011, the number of cancer deaths was 42,559. The crude death rate was 183.5 per population of 100,000, registering an increase of 3.5% compared to the previous year. If adjusted on the basis of the 2000 standard world population age structure, the standardized mortality rate was 132.2 – a slight increase of 0.5% compared to the previous year, indicating that changes in cancer mortality in Taiwan has also been affected by an aging population.

The ten leading causes of cancer death in 2011 were: Cancers of trachea, bronchus and lung, Cancers of liver and intrahepatic bile ducts, Cancers of colon, rectum and anus, Cancer of breast(Female), Cancer of oral cavity, Cancer of stomach, Cancer of prostate, Cancer of pancreas, Cancer of oesophagus, Cancers of cervix uteri and uterus, part unspecified. Compared to the previous year the 8th, cancer of pancreas, and 9th, cancer of oesophagus, swapped places, otherwise, the list remained the same. See Figure 2-6.

Figure 2-5 Changes in the Ten Leading Causes of Death



3. Neonatal, Infant and Maternal Mortality Rates

With the advancement in public health, both infant [deaths of infants under one year of age/ number of live births of the year x 1,000] and neonatal [deaths of infants under four weeks of age/number of live births of the year x 1,000] mortality rates have with the slight exceptional increase due to the practice of the new birth reporting system in 1995, generally declined. In 2011, neonatal mortality rate had declined to 2.7 ‰; this was about 44 % of the mortality rate in 1971. In the same period, infant mortality rate dropped from 15.5 ‰ to 4.2 ‰. Furthermore, the maternal mortality rate had declined from 39.7 per 100,000 live births in 1971 to 5.0 in 2011; see Figure 2-7.

Chapter 3, National Health Expenditure

From the establishment of the National Health Insurance Scheme in 1995 national health expenditure as a proportion of GDP rose from 4.9% in 1994 to 5.3% in 1995, and to 6.6 %. In the last ten some years, the average national health expenditure per capita increased year by year from NT$ 10,765 in 1991 to NT$ 38,510 in 2010, an increase of 6.0% annually (Figure 2-8).

Chapter 4, International Comparisons

1. Comparisons in the Rate of Natural Increase (RNI)

As indicated by the 2010 Population Reference Bureau, the global population in 2010 totaled 6.892 billion. The world's population is

Figure 2-6 Changes in Ten Leading Causes of Death by Cancer

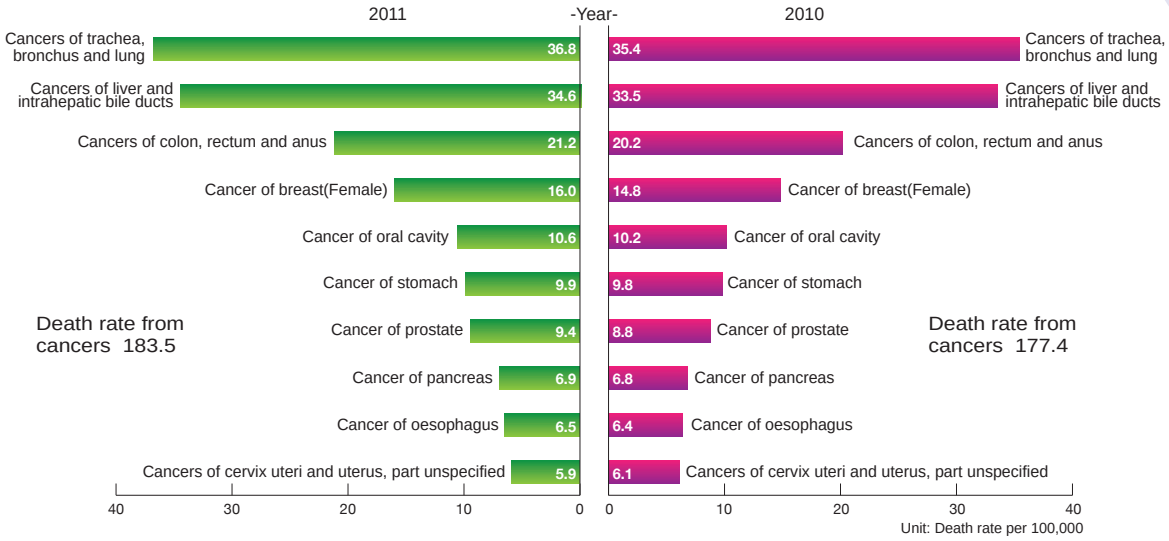
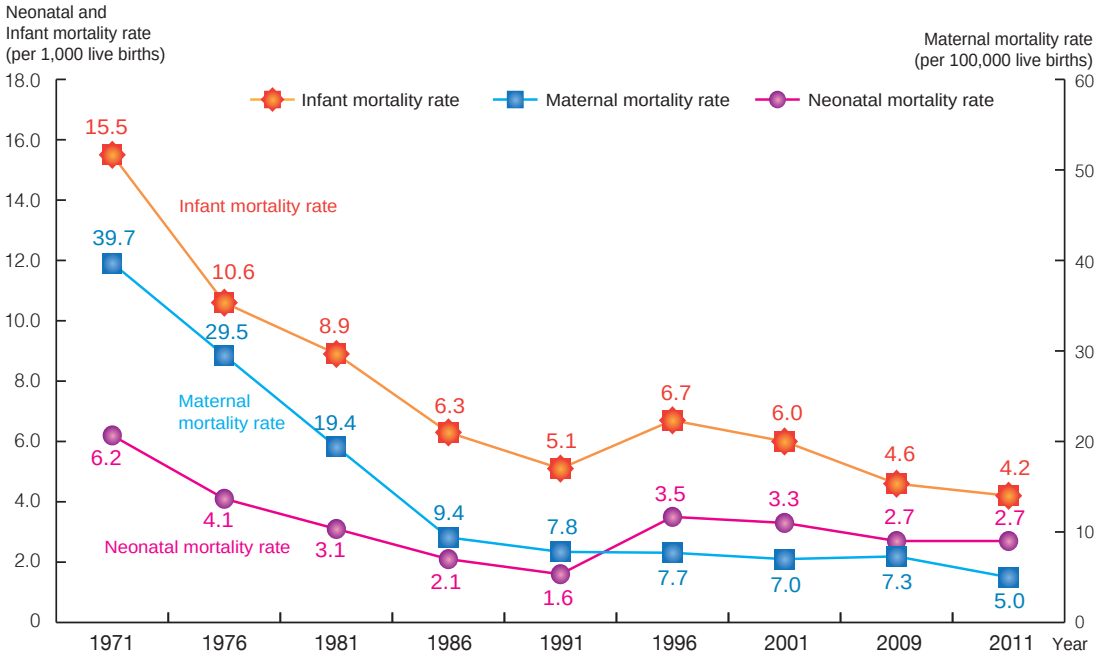


Figure 2-7 Neonatal, Infant and Maternal Mortality Rates



currently projected to reach around 9.485 billion by 2050, a 36% in population growth rate. Though the rate of demographic transition in general is on the rise, populations in certain countries have registered negative growth, with continuously declining demographic transition rates; See Table 2-2.

The global total fertility rate in 2010 (the average number of children that would be born to a woman over her lifetime) was 2.4. Fertility rates in Asian countries listed below are less than half of that, indicating that Asia has become a low-fertility rate region. Worldwide birth rate now stands at 20‰, and death rate, 8‰. Fertility rate in Germany dropped lower than mortality rate in that year. In general, demographic structures in developed countries around the world are trending towards low fertility rate and low death rate. See Table 2-2.

2. Life Expectancy Comparisons

In 2009, average life expectancy for males at birth in major countries was over 75 of age: males in Japan, Australia had the longest life expectancy, at 80; life expectancy for males in Taiwan in 2009 was at 76, equaling Japanese male's average expectancy in the 1990's. In terms of variations in life expectancy between 1960 and 2009, over the last 50 years the life expectancy of males in Taiwan has increased by 14 years, second only to Japan.

Figure 2-8 NHE/GDP Ratio and NHE per Capita by Year

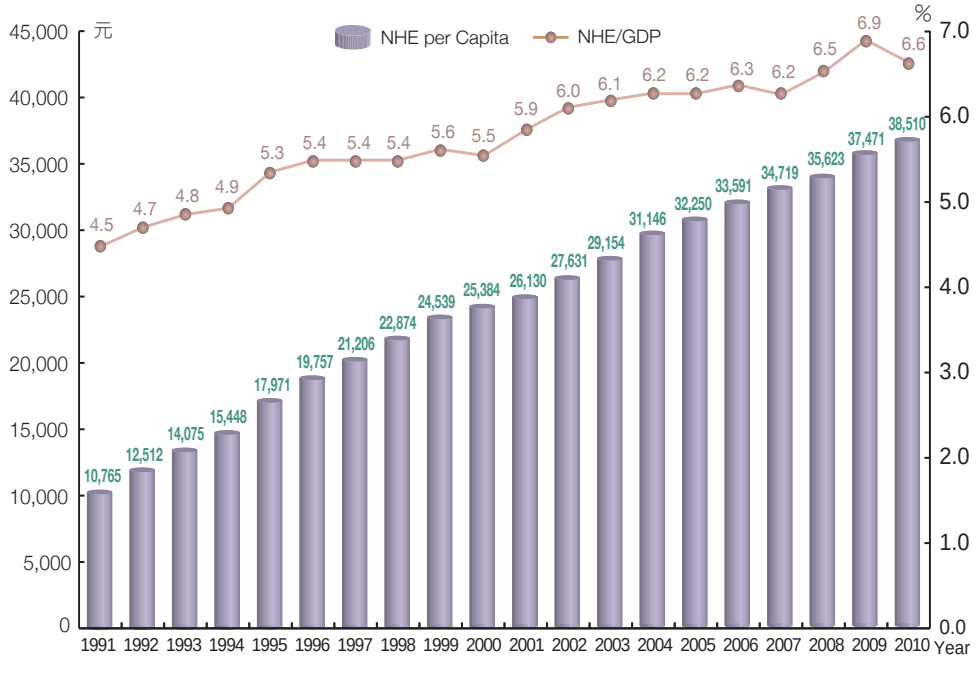


Table 2-2 Population Structures in Major Countries

	Midyear population (million)	Projected population (million)		2010-2050 Population Growth/ decline %	Total fertility rate	Birth rate ‰	Death rate ‰	RNI %
	2010	2025	2050					
Worldwide	7057.1	8082.0	9624.0	1.4	2.4	20	8	1.2
Taiwan	23.3	23.5	20.8	0.9	1.1	9	7	0.2
Singapore	5.3	5.8	6.1	1.2	1.2	10	4	0.5
Japan	127.6	119.8	95.5	0.7	1.4	9	10	-0.2
Korea	48.9	50.9	47.2	1.0	1.2	10	5	0.4
Canada	34.9	39.9	48.6	1.4	1.7	11	7	0.4
America	313.9	351.4	422.6	1.3	1.9	13	8	0.5
UK	62.2	70.5	79.6	1.3	2.0	13	9	0.4
France	63.6	67.4	72.4	1.1	2.0	13	9	0.4
Germany	81.8	79.2	71.5	0.9	1.4	8	10	-0.2

Source: 2010 World Population Data Sheet, Population Reference Bureau

In 2009, life expectancy for females at birth was well over age of 80: females in Japan had the highest life expectancy, at 86; French females came in second, at 85, and Australian females ranked third, at 84. Life expectancy for females in Taiwan in 2009 was at 83, equaling Japanese female's average expectancy in the 1990's. In terms of variations in life expectancy between 1960 and 2009, over the last 50 years the life expectancy of women in Taiwan has increased by 17 years, ahead of not just Japan but also all other major countries. (see Table 2-3).

3. Comparisons of National Health Expenditure between Different Countries

In Taiwan, National Health Expenditure (NHE) per capita in 2009 was recorded at US$1,133-much lower than the median NHE of US$3,490. Taiwan ranked 29th among OECD countries. Only Estonia, Hungary, Poland, Chile, Mexico and Turkey had lower per capita expenditure. GDP per capita in Taiwan was US$16,353 – lower than the median GDP of US$35,814, and ranked 28th among OECD member countries – higher than Slovak Republic, Estonia, Hungary, Poland, Turkey, Chile and Mexico. Overall, higher GDP per capita is always accompanied by higher NHE per capita. In 2009, NHE in Taiwan accounted for 6.9% of the GDP – it was 2.6 percent lower than the OECD median. Compared with other OECD member countries, Taiwan's NHE/GDP percentage was relatively low (see Table 2-4).

Table 2-3 Life Expectancy at Birth in Major Countries

	Male							Female						
	1960's	1970's	1980's	1990's	2000's	2005's	2009's	1960's	1970's	1980's	1990's	2000's	2005's	2009's
Taiwan	62	67	70	71	74	75	76	66	72	75	77	80	81	82
UK	68	69	70	73	76	77	78	74	75	76	79	80	81	82
US	67	67	70	72	74	75	76	73	75	77	79	80	80	81
France	67	68	70	73	75	77	78	74	76	78	81	83	84	85
Germany	67	67	70	72	75	76	78	72	74	76	78	81	82	83
Canada	68	67	72	74	77	...	79	74	76	79	81	82	83	83
Norway	71	71	72	73	76	78	79	76	77	79	80	81	83	83
Netherlands	72	71	73	74	76	77	78	75	77	79	81	81	82	83
Australia	68	67	71	74	77	79	80	74	74	78	80	82	83	84
New Zealand	69	68	70	72	76	78	79	74	75	76	78	81	82	83
Japan	65	69	73	76	78	79	80	70	75	79	82	85	86	86

Source: 1960-2005 population information was taken from 2008 OECD Health Data; 2009 information was taken from WHOSIS 2011.

Table 2-4 Comparisons of NHE per capita v.s. GDP per capita between Taiwan and OECD Member Countries, 2009

Unit: US$

Ranking	Nation—ranked by NHE per capita	NHE / GDP (%)	NHE per capita	GDP per capita
median		9.5	3,490	35,814
1	United States	17.4	7,960	45,797
2	Norway	9.6	7,516	78,409
3	Switzerland	11.4	7,160	63,525
4	Denmark	11.5	6,408	55,970
5	Luxembourg	7.8	6,196	107,174
6	Netherlands	12.0	5,953	48,398
7	Austria	11.0	5,177	45,568
8	France	11.8	4,987	41,159
9	Belgium	10.9	4,881	43,640
10	Ireland	9.5	4,877	49,738
11	Germany	11.6	4,855	40,659
12	Canada	11.4	4,748	40,041
13	Sweden	10.0	4,320	43,395
14	Australia	8.7	4,246	48,893
15	Finland	9.2	4,194	44,545
16	United Kindom	9.8	3,732	35,666
17	Iceland	9.7	3,658	37,883
18	Italy	9.5	3,490	35,814
19	Japan	8.5	3,252	38,272
20	Spain	9.5	3118	31,877
21	New Zealand	10.3	2,798	27,187
22	Greece	9.6	2,794	27,767
23	Portugal	10.1	2,325	23,713
24	Slovenia	9.3	2,319	24,333
25	Israel	7.9	2,072	26,103
26	Slovak Republic	9.1	1,515	16,165
27	Czech Republic	8.2	1,492	18,129
28	Korea	6.9	1,184	17,110
29	Taiwan	6.9	1,133	16,353
30	Estonia	7.0	1,035	14,374
31	Hungary	7.4	957	12,847
32	Poland	7.4	837	11,287
33	Chile	8.4	798	9,502
34	Turkey	6.1	620	10,197
35	Mexico	6.4	525	8,180

Source: 1. OECD Health Data 2012
2. Office of Statistics, Department of Health

3 Promoting Public Health and Well-being

Promoting Public Health and Well-being

In order to achieve "Health for All" as advocated by the World Health Organization (WHO), the DOH actively drew up policies to promote the health of pregnant women, infants and toddlers, children, teenagers, middle-aged and senior citizens, and women in general. In addition, facing the challenges brought on by a number of unhealthy lifestyle habits, bearing in mind the current state of society and likely future trends and based on human rights and gender equality, the DOH, as part of its ongoing efforts to improve the people's health, community health, society's health and global health, also planned and revised its policy goals and strategies based on research and empirical data gleaned from its health surveillance surveys and studies.

Chapter 1, Healthy Childbirth and Growth

Section 1, Ensuring the Health of Pregnant Women and Women in Labor

1. Prenatal examinations

1) Pregnant women are offered ten prenatal care inspections at designated hospitals under the National Health Insurance coverage. In 2010, the average use rate was nearly 90.94%, with 98.29% of expectant mothers taking advantage of them at least once; 92.76% of expectant mothers took advantage of them at least four times.

2) In 2010, the DOH started to subsidize pregnant women from low-income households for *Group B Streptococcus* screening. Starting in 2011, the recipients of the subsidies were expanded to include pregnant women from medium- and low-income households, as well as pregnant women in aborigine areas. The DOH provides a subsidy of NT$400 for each screening.

2. Special health issues

1) Since the promulgation of the Genetic Health Act on July 9, 1984, the DOH has been actively promoting such services as prenatal diagnosis of genetic diseases, newborn screenings, and genetic counseling. The fees of testings are reduced, exempted or subsidized. Once an abnormality is detected, health education and prenatal care are made available.

2) The gender ratio of babies delivered by all hospitals is monitored and, together with county/city health bureaus, related guidance has been provided and inspections carried out and illegal gender selection advertisements cleaned up, an inter bureau work team established and related laws and regulation revised. The result of efforts was that, in 2011, the gender ratio was down to 1.079, the lowest for 16 years (since 1996).

Section 2, Health Promotion for Infants, Toddlers, and Children

1. The DOH introduces newborn screening program for screening genetic metabolic disorders.The screening rate in 2011 was over 99%. 11 disorders are checked for, including: glucose- 6-phosphate dehydrogenate deficiency (G6PD), etc. For those newborns with abnormal results, follow-ups, referrals, diagnosis confirmations and appropriate treatments will be given.
2. Developmental screening, preventive health care programs for children and Joint Development Assessment are available:

1) The DOH subsidizes medical care institutions in providing preventive healthcare services for children under seven for early detection and intervention. The DOH pushed the "New Preventive Healthcare Program for Children" to strengthen developmental screening and provide diverse services, and referral and diagnosis confirmation reporting functions.

2) Aiming to provide timely team assessments and interventions on behalf of children for whom there are concerns about possible developmental delay, the DOH has established one to four early developmental assessment centers in each county and city throughout Taiwan. Currently there are a total of 45 such centers.

3. Breastfeeding in public Act was promulgated on November 24, 2010. A total of 158 hospitals and clinics were certified in 2011 under the "Baby-Friendly Hospital Initiative (BFHI) Accreditation Program". The rate of mothers who were exclusively breastfeeding at one month after delivery from 54.3% in 2008 to 61.8% in 2011.

Section 3. Health Care for Adolescents

1. The DOH has established a website to provide sex education and information on contraception and also provides the Secret Garden online video counseling service providing adolescents with accessible and private counseling.
2. Going into communities and schools, providing sexual health counseling to adolescents. Also, blogs and telephone were used as counseling platforms, guiding adolescents with needs to individual counseling or to hospital to receive the necessary treatment.
3. The DOH has established programs for adolescent-friendly outpatient medical services in 31 hospitals and clinics, so as to provide teens with preventive care and reproductive health services.

Section 4, Vision, hearing and oral cavity health

1. The DOH carries out preschool vision screenings for strabismus, amblyopia, and myopia for four- and five-year-old preschoolers. In 2011 the "Eye doctors go to nurseries to carry out myopia prevention work" program, providing accessible care.
2. The DOH conducted preschool hearing screenings in communities and nursery schools. The program had a coverage rate of 91.38% in 2011.
3. Since 2010, the DOH has provided a subsidy of NT$500 for each hearing screening of an infant less than three months of age from a low-income household. Also the "New born baby hearing screening medical institution certification principles" were announced on November 22, 2011.
4. Fluoride applications, oral inspection and oral health education services are provided to children under 5 twice a year. In 2011, in combination with 25 hospitals and early treatment institutions, oral examinations for children with delayed development were developed, and the children and carers taught how to brush correctly and about oral health Dental sealant were filled for first and second grade children of schools in aboriginal areas and for first graders from low-income families in non aboriginal areas.

Chapter 2, Healthy living

Section 1, A Tobacco-Free Lifestyle

1. Implementation of the New Regulations in the Tobacco Hazards Prevention Act

It is three years since the new regulations of the Tobacco Hazards Prevention Act were promulgated. There has been a slight fall in the percentage of over 18 years old who smoke (to 19.1% from 21.9% in 2008), with the number of smokers falling by 420,000 in the last three years. The second hand smoke exposure rate in statutory no smoking areas continued to fall in 2011, with a protection rate of 91.8%.

2. Educational Campaigns and Supporting Tobacco-Free Environment

1) To rise the insight of smoking risk from adolescent girls by "Quit smoking soon, no regrets" 30-second commercial film to encourage fathers to quit smoking earlier and sharing the experiences from people who have quit smoking, anti-smoking creativity competition for young people and an online video competition.

2) Veteran celebrities Yu Feng, Zhuo Sheng-li and Sun Yue share their own painful experiences and called on smokers to quit earlier to reduce the risk of cancer.

3) Smoke-free campus, workplace, military, community, etc. continue to be implemented and in 101 community units were given subsidies to implement smoke-free community; 53 hospitals have received international certification as "smoke-free hospitals", with 32 hospitals awarded the gold award in 2011.

4) To carry out smoking prevention work at schools below high school level the "Campus anti-smoking education seed teacher training plan" was implemented.

Tobacco harm prevention in 2011

3. Diverse quit smoking services

1) There were already 1,957 medical institutions in 2011 contracted to provide Outpatient Smoking Cessation Services. The medical institutions were spread out for a coverage of 99% townships, villages and cities; which smokers who want to quit smoking can receive clinical consultation and medicines (such as nicotine patches and gum), with subsidies provided for both the visitation and medicine, the success rate within six months is 23.4%.

2) By helping smokers develop a personal cessation plan via toll-free smoking cessation helpline, the cessation rate is over 30%. The "quit smoking handbook" has also been distribute through department of health in each city/country to deliver quit smoking information to the general public.

3) To develop the Joint Care and Treatment Network, 26,114 quit smoking specialists in pharmacies, schools, workplaces and hospitals were trained in 2011. Also, by in cooperation with the department of health and pharmacists associations in each city/county, 1,000 community pharmacies joined to provide free quit smoking consultation service.

4) In 2011 the "Tobacco Control Implementation Plan of Correctional Facilities" was jointly implemented with the Ministry of Justice, and helped 9,706 inmates quit smoking.

Section 2, Betel nut harm prevention

The result that the percentage of males under 18 chewing betel nut was reduced from 17.2% in 2007 to 11.3% in 2011. The work focuses are outlined below:

1. Starting in 2004 guidance has been strengthened at schools below high school level in areas with high occurrence of oral cancer to help them become betel nut free campuses, taking the skills needed to quit betel nut chewing into schools.
2. From 2007 subsidies have been provided to community health building units to carry out betel nut harm prevention work. Helping the public quit chewing betel nuts as well as providing free oral mucosa screening for chewers of betel notion 2011 the betel nut harm prevention plans carried out by 86 health building units in 15 cities and counties were subsidized.
3. In 2011, 172 workplaces that had a high rate of betel nut chewing were assisted to create betel nut-free environments through bureaus of health and NGOs and established 291 quit betel nut classes at 227 hospitals implementing the 2011 Hospital Cancer Treatment Quality Increase Plan. From 2005 the implementation of the Tobacco and Betel Nut Harm Prevention Plan by the military, intending to create a betel nut free supportive environment.

Section 3, Safe Living

1. To build a safe home environment, home safety reviews and improvements were carried out through city/county health bureau personnel.
2. The DOH carried out the "Intervention program on injury prevention promoted by Pediatrician", that developed an injury risk checklist for infants and toddlers who are four years of age or under, and health-education leaflet.
3. Implement the "Using National Health Insurance and household registration database to establish an injury surveillance system and estimate the medical cost of injury among children and adolescents" program, an enquiry systems on unintentional injury mortality rate, incidence rate, medical costs and other statistics in Taiwan.
4. The MOI promulgated the Protection of Children and Youths Welfare and Rights Act on November 30, 2011 and the DOH revised related laws and regulations in line with these revisions and also implemented child and adolescent safety protection and injury prevention measures.
5. The DOH continues to promote its program which aims at creating safe communities and schools. Meanwhile, it continues to help local communities and schools to be certified for the International Safe Communities and International Safe Schools programs of the WHO Collaborating Centre on Community Safety Promotion.

Chapter 3, Healthy Aging

Section 1, Health Policies for the Middle-Aged and Senior Citizens

1. A free adult preventive health examination is provided every three years for people aged 40-64 and annually for people over 65. New blood pressure, blood sugar and blood cholesterol abnormality rate discovered through this service was 20.8%, 8.1% and 12.0% in 2010.
2. The "Age-friendly cities" plan expanded to 20 counties and cities in 2012. It is expected that by 2013 all cities and counties in Taiwan will be age-friendly.
3. The DOH hosted the International Conference on Age-Friendly Health Care. Many overseas and local experts and scholars, including those from the UK, Singapore and Japan, were invited to share their experiences.
4. The Health Promotion Project for the Elderly (2009-2012) began in 2009. The percentage of community care spots involved nationally increased greatly from 26% in 2010 to 83.9% in 2011.
5. A national fun health competition for the elderly was held, teams of elderly representing townships were encouraged to participate. At the end of 2011, 929 teams had been formed.

Section 2, Chronic Diseases Control

1. Metabolic Syndromes

A variety of channels are used to carry out metabolic syndrome prevention education work with the result that the general recognition rate for the waist warning value In 2011 the contents of the adult health examination, adding BMI, waist and HDL Cholesterol measurement.

2. Diabetes Prevention

In 2011, 174 hospitals and clinics and 483 diabetes support groups participated in a DOH-sponsored program to promote diabetes health. The DOH also strived to promote a shared-care network for diabetics in each county and city and a certification system for diabetes health professionals.

3. Cardiovascular Diseases Prevention

1) The DOH joined forces with local health agencies to promote prevention of the 3-highs (hypertension, hyperglycemia and hyperlipidemia). To make blood-pressure measurement more accessible, the DOH set up community locations of various types that offered these services.

2) From 2002 the DOH has encouraged cities and counties to integrate health resources and to combine adult preventive healthcare and cancer screening and other items.

4. Chronic Kidney Diseases Prevention

In 2011, the DOH recognized 126 hospitals and clinics for their work in promoting kidney health. Also, 80,000 copies of a kidney disease management handbook were printed and provided to sufferers to increase their self-care knowledge.

5. Menopausal Health

The DOH established a toll-free hotline (0800-00-5107) staffed with trained counselors to provide counseling services, and offered valuable menopause-related healthcare information through a variety of media channels.

Section 3, Cancer Prevention and Control

Base on the Cancer Prevention Act that went into effect in 2003, the DOH periodically convenes meetings of the Central Cancer Prevention and Control Conference and the

Cancer Prevention and Control Policy Committee. To help lower cancer mortality rates by expanding cancer screening services, the DOH carried out its Five-Year National Cancer Control Program from 2005 and 2009 and launched the Second Phase Cancer Control Program Cancer Screening (2010-2013) in 2010.

1. Cancer Incidence

According to Cancer Registry in 2009 Cancer Registry, crude incidence rates of cancer for men and women were 421 and 332 per 100,000 persons, respectively. If adjusted by the 2000 WHO world population structure, standardized incidence rates for men and women were 336 and 253 per 100,000 persons. The top ten cancers for men and women are listed in Tables 3-1 and 3-2.

2. Cancer Screening

1) The DOH's preventive health services offer one free Pap smear test per year to women aged 30 and older, biennial mammography screening for women aged 45 to 69 (as well as to women aged 40 and 44 with relatives within second degree of kinship who have/ have had breast cancer), one oral cancer screening every two years to people aged 30 and older who chew betel nut or smoke, and one iFOBT test every two years to people aged 50 and 69.

2) From 2010 to 2011, a total of 8,832 thousand people underwent screening for cancers. 62% of 30-69 year old women have had a Pap-smear test within the last three years, and 29.3% received mammography screening, 33.9% had colorectal cancer screenings and 40% had oral cancer screenings within the last two years.

3) The DOH's national program for cancer screening and quality promotion subsides 228 hospitals as "cancer lifesavers."

3. Promoting Cancer Treatment and Care Quality

1) In 2008, the DOH started to implement the accreditation of hospitals that register 500 or more newly diagnosis cases of cancer every year. The DOH commissioned the National Health Research Institutes underwent revisions and were adopted in the trial evaluation of eight hospitals in 2010 and formally adopted in 2011, so as to construct a cancer-prevention network and deliver seamless cancer care.

2) In 2010, the DOH extended subsides to NGOs and hospitals establish one-stop center for cancer service. With resource inside and outside the hospital fully intergraded to provide cancer patients and their families.

3) The DOH encourages hospice shared care for cancer patients, hospice shared care services were available at 69 hospitals at the end of 2011. Also, death records and National Health Insurance database were used to analyze the hospice shared care used in the last year of life for cancer patients. The use rate has risen from 7.4% in 2000 to 42%.

Chapter 4, Healthy Environment

Section 1, Healthy Cities

1. The DOH has set up a task force of professionals to offer assistance, while encouraging local administrations to initiate a regional Healthy City campaign.
2. In order to promote exchange of information among cities, DOH held the Healthy City and Age-friendly City Seminar in 2011, attended by

Table 3-1 Incidence of Ten Leading Cancer for Male, 2009 (excluding carcinoma in situ)

Site	No. of Cases	Crude Incidence rate (per 100,000)
Liver and intrahepatic bile ducts	7,747	53.6
Colorectal	7,151	48.7
Lungs, bronchus and trachea	6,737	45.1
Oral cavity, oropharynx and hypopharynx	5,927	40.8
Prostate	4,013	26.9
Stomach	2,404	15.9
Esophagus	1,898	13.0
Skin	1,589	10.7
Bladder	1,419	9.4
Non-Hodgkin's Lymphoma, NHL	1,205	8.5
Others	8,932	-
Total	49,022	336.3

Table 3-2 Incidence of Ten Leading Cancer for Female, 2009 (excluding carcinoma in situ)

Site	No. of Cases	Crude Incidence rate (per 100,000)
Breast	8,926	59.9
Colorectual	5,337	34.5
Lungs, bronchus and trachea	3,906	25.2
Liver and intrahepatic bile ducts	3,333	21.7
Cervix	1,846	13.2
Thyroid	1,797	11.9
Body of uterus	1,496	9.9
Stomach	1,444	9.2
Skin	1,339	8.4
Ovary	1,113	7.7
Others	7,630	-
Total	38,167	253.5

Dr. Ruth Finkelstein of the New York Academy of Medicine and Prof. Takiko Okamoto of Meiji Gakuin University, who shared their experience of promoting age-friendly cities; the 3rd Taiwan Healthy City Awards Ceremony was also held during the conference.

3. At the end of 2011, seven counties and cities and eleven regions in Taiwan had joined the Alliance for Healthy Cities (AFHC) as NGOs.

Section 2, Healthy Communities

1. In 2011, under its Building Healthy Communities program, the DOH subsidized 16 local health agencies to work with communities (107 in all) in their jurisdictions to advocate the following: screening for four major cancers, health promotion for the elderly, tobacco control in adolescents, betel nut control (including quit smoking efforts), safety promotion, and healthy weight loss.
2. In October the book "100 Stories of Love" was published, showing achievements in promoting healthy hospital, campus, community, workplace and cities, and telling the stories of people who have advocated healthy life styles for years.
3. In 2011, the DOH subsidized 13 local health agencies to carry out the Community LOHAS Project "have more exercise and a healthier diet."

Section 3, Health Promoting Schools

1. Starting from 2002, Department of Health worked with Ministry of Education to integrate cross-departmental resources and launched the Health Promoting Schools program. In 2008, the Health Promoting School Promotion Center was established to integrate resources and establish a single counseling mechanism for the health promoting schools. In 2011, all elementary and junior schools and over 70% of high schools in Taiwan participated in the program.
2. In 2011, using the "WHO's Health Promoting School: A Framework for Action as reference, the international accreditation standards for health promoting school was set; trial evaluations were carried out in 25 schools and health issue intervention studies were conducted in 52 schools. The 2011 Conference on Health Promoting Schools in Taiwan was organized to demonstrate the achievements of health promoting schools in Taiwan. Experts from Hong Kong, the US, Scotland and Australia gave speeches to share their international experiences.

Section 4, Healthy Workplaces

1. Since 2003, the DOH has worked with teams of experts to provide health promotion and tobacco-control counseling services and training, as well as to establish workplace service networks.
2. In 2007, the DOH launched "Self-Accreditation of Healthy Workplaces" program, taking "WHO model of Healthy Workplace Continual Improvement Process" as reference and set assessment items to encourage the establishment of health promoting policies and a supportive environment in the workplace. Between 2007 and 2011, a total of 7,411 workplaces gained certification under the DOH's Self-Accreditation of Healthy Workplaces program.

Section 5, Health Promoting Hospitals

1. **Actively participating in the WHO International Network of Health Promoting Hospitals and Health Services**
   1) By the end of 2011, 76 hospitals in Taiwan had been granted WHO certification, making the network of WHO-certified

hospitals in Taiwan the fastest growing such network in the world. Furthermore, Taiwan's member hospitals have been actively publishing papers for the network's annual conference: The number of papers published by Taiwan's member hospitals ranked first in 2010 and 2011.

2) Dr. Shu-Ti Chiou, Director General of Bureau of Health Promotion (BHP), DOH, was invited to take part in the 14th Health Promoting Hospital Conference in December 2011, organized by the Trento Area Health Promoting Hospital Network in Italy. Dr. Chiou shared promotion strategies and best practice examples on health promoting hospitals in Taiwan.

3) BHP organized the WHO-HPH Autumn School (WHO-HPH Recognition Project-Advanced Course) in cooperation with the WHO's International HPH Network Secretariat, providing instructions to 15 hospitals that are participating in the international advanced recognition program.

2. Promoting Low Carbon Footprints for hospitals

1) In support of the international efforts in promoting low carbon initiatives in hospitals, the BHP held the Symposium on HPH and Environment during the 19th International Health Promoting Hospital Conference in June 2011 in Turku, Finland, and also held the 3rd Meeting of the Task Force on HPH and Environment.

2) The First Global Climate and Health Summit was organized jointly by Health Care Without Harm (HCWH) and other international organizations in Durban, South Africa, in December 2011. BHP's Director General Dr. Shu-Ti Chiou attended as the Vice Chair of the International Health Promoting Hospitals Network and Director General of BHP. She gave a presentation on Taiwan's efforts with regards to the Task Force on HPH and Environment, and outlined the carbon reduction results of hospitals in Taiwan.

3) A press conference was called by the HCWH during the UNFCCC 17th Conference of Parties (COP17), to which Dr. Shu-Ti Chiou, Director General of BHP, was invited; she jointly reported during the press conference with the Director of the WHO Public Health and Environment Division, Dr. Maria Neira, and Mr. Joshua Karliner, International Team Coordinator of HCWH, as well as representatives from two other organizations.

4) The Environmental Quality Protection Foundation (commissioned by the BHP) held the "Climate Change and Public Health: Healthy Climate, Healthy People, Healthy Economy" satellite meeting together with HCWH and other international health organizations on December 8, 2011, during UNFCCC Conference of Parties 17. Dr. Shu-Ti Chiou, Director General of BHP, attended the meeting and spoke about Taiwan's success with regards to creating environmentally friendly hospitals.

Section 6, Obesity Prevention

The DOH launched the "Healthy Centenary, Healthy Taiwan" healthy weight management campaign in 2011 with the aim to attract 600,000 citizens from 22 counties/cities and reduce a total of 600 metric tons excessive weight. The core strategies for promoting healthy weight are as follow:

1. Implement the Public Breast Feeding Act, build

Obesity prevention

healthy cities and communities, as well as health-promoting hospitals, workplaces and schools.

2. Set up a website and toll-free help line and internet telephone to provide advices on healthy diet, regular excise and healthy weight management; establish a healthy diet system and diverse sporting environments; assist hospitals and clinics to reorient from diagnoses and treatment to health promotion by establishing a reminding system that informs patients and the public on health promotion such as preventive health services and healthy-weight management.
3. Promote healthy weight loss through various media outlets; encourage people to register together in groups from communities, schools, workplaces and hospitals; devise educational materials and operational manuals; set up a website and service hotline to improve the healthy weight management literacy of the general population.

Chapter 5, Health dissemination and health monitoring

Section 1, Integrating health education resources

Help the public to understand the DOH's health education policies, carry out health education to strengthen the public's health awareness and achieve the objective of health promotion.

1. Set the axis of health education, integrate mental health promotion, safe drug use, healthy eating and other issues and promote by using an integrated marketing method, strengthening the level of understanding of these issues and their level of acceptance, increasing people's health self-management ability.
2. Integrating the DOH's health education resources, establishing health education channels, with respect to the DOH's and its related subsidiaries' health education work, through diverse resources, continuous promotion and complete packaging, raising the public's understanding of health issues; and also, using an identification system, linking policy and overall image. For emergency issues there are also instant response and carination channels that ease the public's concerns.
3. Health education weekly bulletin, food information-e newsletter, National Health Insurance E-newsletter, and the food and drug safety weekly are all included in the "Health E-newsletter".

Section 2, Raising health education personnel work knowledge and skill

Since 2008 an annual health education exchange symposium has been held annually .

In 2011 the symposium had four sessions with two themes, "principal advocacy" and "skill improvement". The main points of the "principal advocacy were "eat without worry, use safely", "cherish healthcare resources, support national health insurance scheme reform".

Section 3, Health monitoring

Series of surveys that target on population of different life-course are conducted regularly, step by step construction of the non-communicable disease surveillance system. Surveillance data are collected, analyzed and disseminated.

1. A system-based national health surveillance system has been developed; the surveys conducted from 2006 to 2011 and to be conducted 2012-2015 are listed in Table 3-3.
2. Developed diverse survey result announcement mechanisms for use in policy setting, performance assessment and health education, established diverse survey result announcement channels.
3. The online health indicators data query system "Health Indicator 123" (website http://olap.bhp.doh.gov.tw) was enhanced to provide fast and user friendly query services for various national survey and birth reporting database releasing 484 health indicators. In 2011 a diverse indicator category query route was added, also providing personalized website service and other functions.

Table 3-3 Major DOH health survey series 2006-2015

Survey	● (cross-sectional survey) ➡ (longitudinal survey)									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
【Community-based face to face interview survey】										
National Health Interview Survey				●				●		
Taiwan Longitudinal Study on Aging		➡				➡				➡
Taiwan Fertility and Family Survey			●				●			
Taiwan Birth Cohort Study	➡	➡	➡		➡	➡	➡	➡		
【School-based self-administered questionnaire survey】										
Global Youth Tobacco Survey of Junior High School Students	●		●		●	●	●	●	●	●
Global Youth Tobacco Survey of Senior High School Students		●		●		●	●	●	●	●
Taiwan Youth Health Survey of Junior High School Students	●		●		●		●		●	
Taiwan Youth Health Survey of Senior High School Students		●		●		●		●		●
【Telephone Interview Surveys】										
Adult Smoking Behavior Survey	●	●	●	●	●	●	●	●	●	●
Behavioral Risk Factor Surveillance System		●	●	●	●	●	●	●	●	●
Surveys on Healthcare issues	●	●	●	●	●	●	●	●	●	●

4 Communicable Disease Control

Communicable Disease Control

Continued efforts in epidemic surveillance and investigation, preparedness for disease prevention, immunization, research and development have effectively brought communicable diseases under control, yet more should be done to expedite the amendment of laws and regulations to be in line with global trends as well as to establish a disease control command system. It is hoped that early detection and prevention of communicable diseases could be accomplished through a comprehensive disease control system.

Chapter 1, Communicable Disease Control Act and Legal Framework

In order to arrest the occurrence, and to stop the spread of communicable diseases, the Communicable Disease Control Act and related regulations were formulated to specify the obligations and rights of the people for the prevention and control of communicable diseases. The Act and regulations also provide a legal basis for public health personnel to administer disease control activities.

Table 4-1 ROC Centenary Revised Legal Orders Issued

Name of legal order	Issue date of revision	Objective of revision
Amended portion of "Regulations Governing Management of the Health Examination of Employed Aliens"	January 25, 2011	To comply with the practical requirements of the health examination of employed aliens.
Amended portion of "Implementation Regulations Governing Materials for Communicable Disease Control and Establishment of Resources"	June 27, 2011	To implement management of the materials for communicable disease control, establish a safety reserve control mechanism, and promote the flow of stocks.
Amended Article 2 and Article 4 of "Regulations Governing Collection of Quarantine Fees at Ports"	August 12, 2011	Based on the principle of the user fee, determines who pays the quarantine fee and sets baseline fees for rabies vaccines, immunoglobulin, and amebic dysentery medications.
Amended "The Categories of Communicable Diseases and Preventive Measures for Category IV and Category V Communicable Diseases"	September 16, 2011	To comply with influenza prevention needs, and to make disease nomenclature consistent with epidemic monitoring objectives.
Amended Article 2 of "Regulations Governing Immunization Operation, Examination of Children's Immunization Record, and Catch-up Immunization"	December 6, 2011	To specify the scope of nursing personnel of health institutions implementing immunization work.

Section 1, Laws and Regulations of Communicable Disease Control

The Communicable Disease Control Act and the HIV Infection Control and Patient Rights Protection Act are two crucial acts governing the implementation of communicable disease prevention and control strategies in Taiwan. To enhance the prevention and control efforts, revisions were made to five related legal orders in 2011. See Table 4-1.

Section 2, Frameworks of Communicable Disease Control

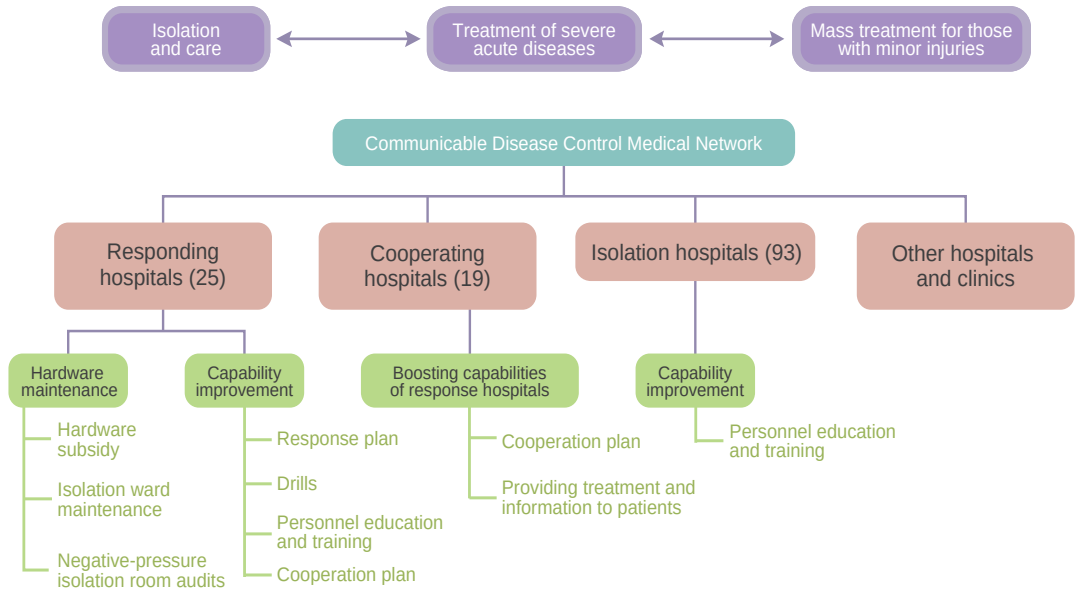
1. Prevention Network

Communicable disease prevention should be done through the efforts of central and local government. The Centers for Disease Control of the Department of Health (Taiwan CDC) is the highest authority in Taiwan to be responsible for the formulation of communicable disease control strategies and plans, and also for the supervision, direction and evaluation of communicable disease control efforts executed by local health bureaus. County/city health bureaus formulate their own action plans in accordance with that established by the central government, and execute various campaigns accordingly.

2. Testing Network

Research and Diagnostic Center of Taiwan CDC is responsible for the laboratory diagnostic and research of various communicable diseases. To meet the demands of the laboratory diagnostic of various communicable diseases, 12 virus laboratories and 9 *tuberculosis bacilli* laboratories have been contracted and 245 testing services for communicable diseases have been approved.

Figure 4-1 Communicable Disease Control Medical Network



A National Plan for the Quality Management of the Collection and Transportation of Specimens of Communicable Diseases has also been formulated to assure the quality, timing and safety of specimens submitted by local health agencies for laboratory testing.

3. Command System

When SARS epidemic devastated Taiwan in 2003, experiencing the lack of a disease-oriented disaster control center for coordination between the central and local governments, the National Health Command Center (NHCC) was then established in 2005. NHCC was aimed to consolidate relevant information supplied by ministries and departments concerned, local governments and related organizations, and then transfer it into real-time information needed by decision makers. Along with the implementation of the International Health Regulations 2005 (IHR 2005), the National Focal Point has been set up to facilitate rapid notification and response concerning major epidemics and public health emergencies.

Section 3, Communicable Disease Control Medical Network

To improve the emerging communicable disease response capability, the Infectious Disease Control Medical Network was set up in 2003. It was later renamed the Communicable Disease Control Medical Network.

In 2008, the Regulations Governing Operation of the Communicable Disease Control Medical Network was announced and it is divided into 6 sub-networks; 137 hospitals with designated isolation wards. (Figure 4-1) To optimize the preparedness of emergency response hospitals for disease outbreaks, each hospital has prepared emergency response plans.

Section 4, Disease Surveillance and Investigation

For notifiable diseases in Taiwan in 2011 (as shown in Appendix 2), the surveillance infrastructures included:

1. Multiple Communicable Diseases Surveillance Systems

Set up monitoring systems for schools and populous institutions. Use data from emergency service, National Health Insurance and death certifications to complement the limitations in passive surveillance systems.

1) School-based surveillance system: Diseases monitored through this system include influenza-like illness, hand-foot-mouth diseases or herpangina, acute diarrhea, and acute hemorrhagic conjunctivitis.

2) Surveillance system for populous institutions: Diseases monitored through this system include respiratory and gastrointestinal tract infections, and other outbreaks. Data is collected and analyzed weekly.

3) Real-time Outbreak and Disease Surveillance (RODS): Over 170 national hospitals update and transmit data regarding emergency consultations and diagnostic codes daily, allowing timely analysis and detection of disease or symptom clusters.

4) Syndromic surveillance through National Health Insurance data: Using the Bureau

of National Health Insurance's daily updated IC card database, frequencies and proportions of outpatient, inpatient and emergency room visits for specified disease ICD-9-CM codes are calculated since April 2009.

5) Monitoring of pneumonia and influenza deaths: Data is captured daily from the Office of Statistics National Death Certification System and analyzed for reports in which their cause of death are attributable to pneumonia or influenza, in order to monitor pneumonia and influenza mortality trends.

2. Integration of Surveillance Systems

1) Work to integrate various reporting systems is continued in order to achieve the goal of creating a single entry for reporting.

2) An integrated national disease control information network was set up to collect communicable disease information.

3. Investigation of Epidemics

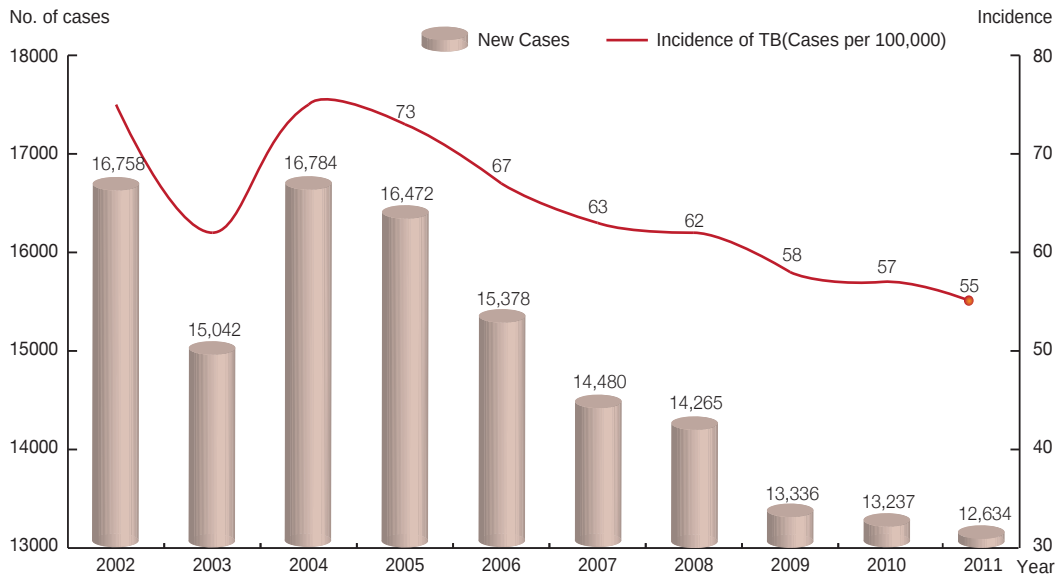
The Field Epidemiology Training Program (FETP) continues to provide professional training in field epidemiology.

Chapter 2, Control of Major Communicable/Emerging Communicable Diseases

Section 1, Tuberculosis Prevention

In 2011, confirmed tuberculosis cases totaled 12,634, showing a downward trend in the annual number of TB cases in Taiwan. In

Figure 4-2 Reported TB cases, 2002-2011



line with the WHO's "The Global Plan to Stop TB 2006-2015", Taiwan's "Mobilization Plan to Halve Tuberculosis Incidence in Ten Years" has also been implemented. It is anticipated that by 2015 the rate of incidence will be halved (See Figure 4-2). Achievements of TB control in 2011 are as follows:

1. The Directly Observed Treatment Short Course (DOTS) strategy has been launched since 2006, effectively lower treatment failure and relapse rates, preventing occurrence of multidrug resistant tuberculosis. Among all bacteriologically positive TB patients in Taiwan, 90% of them participated in DOTS.
2. "Taiwan MDR-TB Consortium" was launched for MDR-TB in 2007. Through collaboration with the designated and qualified hospitals, the program provides high quality medical care and DOTS-plus service to multi-drug resistant patients, improving the treatment success rate of MDR-TB cases.
3. Contact investigation has been strengthened and results in blocking transmission effectively.
4. "Latent TB Infection Treatment Program" and the corresponding "Directly Observed Preventive Therapy (DOPT)" have been endorsed. The target population was contacts of highly transmitted index TB cases, especially contacts under 13 years old. The program has effectively reduced the chance of subsequent development of TB of those infectious individuals.
5. In order to detect TB cases early, TB screening via mobile chest X-ray vans was performed. In 2011, the detection rate (112 per 100,000)has increased by 20% compared with last year (93 per 100,000).
6. Subsidization of inpatient treatment and living expenses for chronic infectious tuberculosis patients was endorsed to encourage the patients to stay in the hospital and to prevent the further transmission in the communities.

Section 2, Communicable Diseases of the Enteric Tract

1. Enterovirus

In 2011, 59 cases of severe enterovirus infection were confirmed, with 4 deaths. Prevention strategies for 2011-2012 include the following:

1) Commissioning local public health agencies to develop an "Enterovirus Prevention Enhancement Program" and to train local staff, promote community health education.

2) Operating a medical network for severe cases of enterovirus infection, and to facilitate direct "horizontal" contact between responsible hospitals, accelerate patient transfers. Arranging for physician education and training for responsible hospitals and regional hospitals.

3) To address an increase case number of enterovirus infectious with severe complication in the latter half of 2011, numerous press releases were issued with warnings and appeals to heads of parents, and public education efforts were redoubled. Simultaneously, health inspectors continued to focus on educational and child care institutions, as well as public places. In November a meeting of enterovirus experts was called,

Ministry of Education, Interior Ministry, Bureau of Medical Affairs as well as local health departments invited together, for discussing prevention strategies and measures for disease control. From December, a task force for enterovirus prevention and control was set up that held a meeting weekly.

4) Preliminary development of the Enterovirus 71 Rapid Screening Kit was completed and the technology has transferred to a biotechnology firm for mass production. To reduce the spread of enterovirus 71, and to further avoid sequelae and death, enterovirus 71 vaccine research is being vigorously pursued.

2. Hepatitis A

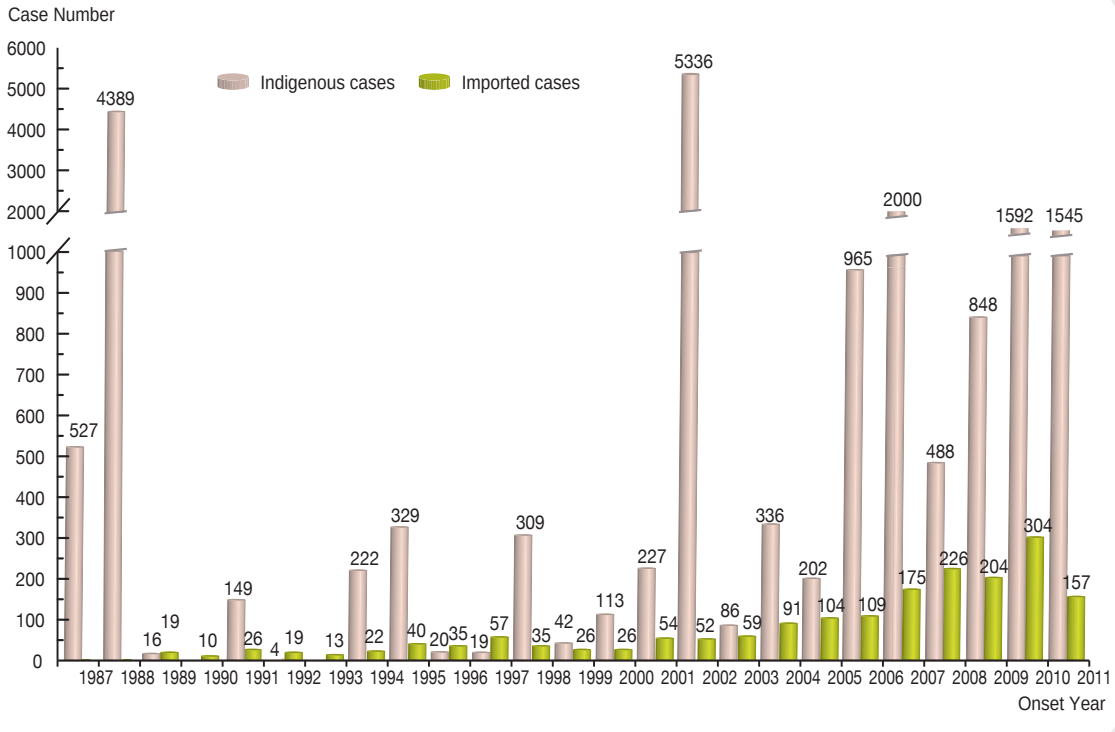
Since June 1995, the DOH has continued to provide hepatitis A immunization for preschool children in 30 aboriginal regions and nine villages in lowland areas adjacent to aboriginal regions. The hepatitis A incidence in the aboriginal areas has dropped from 90.7 per 100,000 in 1995 (183 confirmed cases) to 0.49 (1 confirmed case) in 2011.

Section 3, Vector-borne Communicable Diseases

1. Dengue Fever

1,702 dengue fever cases were confirmed in 2011, including 157 imported cases and 1,545 indigenous cases, which includes 20

Figure 4-3 Annual incidence of Dengue Fever. 1987-2011



cases of dengue hemorrhagic fever and 5 deaths. The annual confirmed cases of dengue fever over the recent decades are shown in Figure 4-3.

Strategies of prevention and control of dengue fever in 2011 as follow:

1) Implemented the main control strategies in container management and elimination of mosquito breeding sites to reduce community breeding sites.
2) In order to avoid drug resistance mosquitoes and ensure the effectiveness of emergency pesticide spraying during epidemic. The principle of reducing pesticide spraying should be applied in accordance with the professional assessment and local conditions.
3) Taiwan CDC not only established a mobilization mechanism specifically for dengue control and prevention, but also convened conferences, inspections and other activities in cooperate with relevant government agencies.
4) Strengthen the public health education among the general population, revised guidelines on prevention and control of dengue fever.
5) Strengthened disease surveillance and implemented fever screening and dengue fever rapid tests for incoming travelers at international airports.

2. Japanese Encephalitis

Japanese encephalitis is prevalent from May to October every year, and the epidemic peaks are from June to July. A total of 22 cases of Japanese encephalitis were confirmed in 2011.

3. Malaria

Malaria has been eradicated in Taiwan for 47 years. To maintain Taiwan's malaria-free status and safeguard people's health, Taiwan CDC continues to implement malaria surveillance to prevent infections caused by imported cases. A total of 17 cases of malaria were confirmed in 2011, all of which were imported.

Section 4, Blood and Body Fluid-Transmitted Communicable Diseases

1. AIDS

1) By the end of 2011, the cumulative number of HIV-reported cases stood at 22,020 in Taiwan. Of those infected, 8,413 had developed full-blown AIDS and with 3,360 death. Moreover, there were 1,967 new HIV-reported cases in 2011.
2) Implemented “Harm Reduction Program”. At the end of 2011, there were 102 medical institutions providing methadone maintenance treatment. The used needle return rate has reached 90%.
3) At the end of 2011, 45 designated hospitals offered free AIDS medical care for the HIV-infected. In addition, 32 institutions offered free anonymous counseling and testing for HIV and other sexually transmitted diseases.
4) For the prevention of mother-to-child transmission of HIV (PMTCT), the DOH has begun a prenatal HIV screening program offering free HIV counseling and testing services for all expectant mothers when they come in for antenatal care since 2005.
5) Prevention strategies for men who have sex with men (MSM)

a. Three gay community health centers have been established for providing a wide variety of gender-friendly health services.
b. The DOH has conducted several web-based health promotion interventions among men who have sex with men, such as web-based opinion leader project, websites monitoring, and health education service.
c. Working together with NGOs to provide HIV counseling and testing services in several venues, such as saunas and pubs.
d. Advancing the campaign of gender-friendly, healthy and safe logo in saunas, and installing condom vending machines in gay venues.
e. A free hotline, 0800-010-569, was set up to provide immediate and accurate HIV related information.

2. Sexually Transmitted Diseases (STD)

Effort is continued in conducting health education of the public on the prevention and control of sexually transmitted diseases and in providing laboratory testing services of HIV for patients with sexually transmitted diseases. In collaboration with private institutions, friendly clinics for STD were set up. Supervision and treatment of contacts are strengthened for more effective prevention.

3. Hepatitis B and C

1) Screening of pregnant women for hepatitis B during prenatal care visits and immunization of the newborns against hepatitis B are conducted. The carrier rate of children at age six has declined from 10.5% before implementing the immunization program to only 0.8%. The DOH has also been providing hepatitis-B booster shots to preschool children and first-graders.
2) On October 1, 2003, a "National Health Insurance Chronic Hepatitis B and C Treatment Plan" was initiated to treat already-infected subjects. By the end of 2011, the number of registered Hepatitis B subjects was 76,909, while registered Hepatitis C subjects was 46,480.

Section 5, Prevention and Control of Emerging Communicable Diseases

The DOH has commissioned research institutions to proceed with epidemiological studies of known animal hosts of zoonotic pathogens and to establish a set of testing methods since 2005. In 2011 it conducted an "Investigation of Significant Rodent-Borne

Infectious Diseases in Taiwan's Five Major Metropolitan Regions: Hemorrhagic fever with Renal Syndrome, leptospirosis, and endemic typhus fever".

Section 6, Prevention and Control of Imported Communicable Diseases

1. Quarantine

Necessary quarantine measures are conducted with regards to ships, aircraft, crew members and passengers. The DOH teamed up with port agencies to establish an international port sanitary group to ensure sanitation and safety at arrival/departure gates at international ports to prevent importation or exportation of communicable diseases. In addition, to comply with IHR (2005), the core capacities of designated ports of entry, that is Taoyuan International Airport and Kaohsiung Harbor was assessed.

2. Communicable Disease Control in Travel

1) Thermal imagers are used at international ports and airports to screen arriving travelers. Those suspected of infections are asked to fill out the "Communicable Disease Survey Form" so as to facilitate diagnosis and implementation of possible follow-up disease prevention measures. In addition, light boxes, wall stickers, and display stands are set up to disseminate their messages. Furthermore, health education promotional materials and videos were produced.

2) In January of 2008, the "Training Center for Travel Medicine" was established, and it is responsible for providing travel medicine outpatient services, etc. The results in 2011included:

A. Received more than 4,406 patient visits for medical services, as well as 4,222 phone calls and 14,685 website visits. It hosted three group health training sessions.

B. Travel-medicine training sessions: Relevant training and seminars have been organized for medical personnel and travel-industry workers.

C. Publication of relevant materials: "Individualized travel healthcare" etc. were published.

Chapter 3, Emergency Preparedness and Infection Control

Section 1, Pandemic influenza Preparedness and Response

1. Since 2005, the DOH organized the pandemic influenza preparedness operations pursuant to the National Influenza Pandemic Preparedness Plan (hereinafter referred to as the Preparedness Plan) and Phase II Plan. The Phase II Plan continued upholding the "Four Major Strategies" and "Five Lines of Defense" to outline the preparedness operations.
2. The Influenza Pandemic Strategic Plan and the Influenza Prevention and Control Guidelines were established to formulate the preparation and management of stockpile, medical intervention (including the program of influenza vaccine and influenza antivirals), consolidation of healthcare resources, etc.
3. Publishing the "First Pandemic of the 21st Century-Taiwan's Response to the H1N1 Influenza". It was a record of the response to influenza A (H1N1) 2009 pandemic of CDC

in the 303 days during the response period.

4. Surveillance and Response of Avian Influenza

1) Attended the "Avian influenza Prevention and Control Liaison Meetings of Executive Yuan" regularly held by the Council of Agriculture and communicated the control measures with the related departments. Maintained monitoring of international H5N1 influenza epidemic news updates through the IHR Focal Point, and periodically announced lasted domestic and foreign epidemic news. Furthermore, the single unit with Council of Agriculture was established.

2) For incoming passengers from specific countries/areas, intensified fever screening is required and the passengers' travel itineraries and disease exposure contacts are inquired for related quarantine measures. Enhance the self-protection measures of the quarantine inspection personnel. Moreover, provide multilingual instructional materials about the avian influenza in Chinese, Thai, Indonesian and Vietnamese.

3) The DOH launched a voluntary vaccination program that makes effective use of the domestic stockpile of H5N1 vaccine for influenza policy-makers and experts, medical personnel, and frequent travelers to nations at high risk for A/H5N1 etc. From August to November of 2011.

Section 2, Seasonal influenza monitoring and control

1. The term "Severe Complicated Influenza Case" was changed to "Complicated Influenza" on September 16, 2011. The epidemiological situation, viral distribution, and seriousness of the disease were better understood through a multiple monitoring system.
2. On October 1, 2011 the seasonal flu vaccination program was launched, with the goal of raising the coverage rate among high-risk groups.
3. From December 1st of 2011 to March 31 of 2012, the DOH expanded the target population for the government-funded influenza antiviral drug use.The DOH also notified all local health authorities to increase the number of contracted hospitals and clinics.
4. Promote vaccinations, diligent hand-washing and proper coughing etiquette

campaigns through various channels. For example: holding weekly press conferences, etc.

Section 3, Defense against bioterrorism incidents

The Ministry of Health and the Ministry of Defense signed an agreement on May 25, 2011, "Executive Yuan Department of Health and Ministry of Defense Agreement on Cooperation National Infection Disease control". Both sides will collaborate in response to significant epidemics and bioterrorist attacks, conjunctive conduct scientific seminars, and establish educational and training initiatives as well as address various disease control issues.

To enhance national bioterrorism preparedness, continue holding the national training and drill sessions known as the Biohazard Response and Verification Expert, or BRAVE.

Section 4, Materials Management for Disease Control Protective Equipment

1. Stockpiles of personal protective equipment (PPE) for 30 days have been established and maintained by the central and local governments as well as medical institutions. The DOH has also signed several contracts such as inventory replacement contract, vendor-managed inventory contract, as well as joint procurement contract of PPE, to fulfill all kinds of logistics needs. Furthermore, by linking those inventory data through the Management Information System (MIS), the DOH is able to track national inventory quantity of disease-prevention materials in real time.
2. The DOH has entrusted its central warehouses to the professional logistics firm, which provide well inventory rotation. As a result, the DOH is able to ensure that all supplies can be promptly distributed to front-line disease-control staff and health-care worker.
3. The DOH has launched the Medical Masks Joint Procurement and Logistics Program, establishing a central, local government and hospital joint procurement mechanism, promoting the circulation of the central face mask stock and inventory maintenance.

Section 5, Nosocomial Infection Control

1. Taiwan Joint Commission on Hospital Accreditation and Quality of Care was commissioned to conduct on-the-spot inspection of infection control in 490 hospitals, in accordance with the 2011 Plan for Inspection and Enhancement of Hospital Infection Control.
2. The DOH has continued to encourage hospitals to voluntarily participate in the Taiwan Nosocomial Infections Surveillance System (TNIS), in which 445 hospitals in Taiwan have participated currently.
3. In response to the drug-resistant bacteria infection in hospitals, implement relevant disease control measures, and "Preventive Measures in Hospitals for Addressing Multi-Resistant Infectious Bacteria" for the general use of hospitals was revised accordingly.

   In response to the WHO SAVE LIVES: For "Clean Your Hands global campaign", the DOH has implemented as following:

   1) Certification of hospitals adopting proper

hand hygiene protocols.

2) Establishment of Excellence Center for Hand Hygiene : The DOH commissioned the National Taiwan University Hospital, the Tri-Service General Hospital and Kaohsiung Veterans General Hospital adopt the implementation of the WHO multi-model strategy to increase hand hygiene awareness in their hospitals, as well as to establish domestic implementation guide.

4. "Guidelines for Implementing Infectious Disease Control in Populous Institutions" and "Healthcare Personnel Vaccination Recommendations" were revised to provide a reference for compliance issues.

Section 6, Research and Laboratory Testing

1. The DOH initiated the "The development and application of surveillance techniques for emerging and re-emerging pathogens" project to strengthen the surveillance of unknown/emerging pathogenic agents. Sapovirus, saffold virus, HPeV, Aichi virus, astrovirus, salivirus, tt virus, hepatitis G virus, HCoV-HKU1, HCoV-NL63, HCoV-OC43, HCoV-229E, and human bocavirus, human metapneumovirus have been detected in the surveillance system.
2. Continue the operation of "PulseNet Taiwan" –a molecular subtyping network for surveillance of foodborne diseases, to detect cluster of infection caused by foodborne pathogens to halt the spread of epidemics. It also serves as a platform for information exchange and collaboration with the members of PulseNet International.
3. Continue collaboration with the National Institute of Infectious Diseases (NIID) of Japan, projects to address tuberculosis, leprosy, amebic dysentery, brucellosis, leptospirosis, diarrhea pathogens, and mosquito-borne diseases. Collaborate with the US CDC and Prevention on preserving effective treatment for multidrug-resistant tuberculosis. Collaborate with the Japan Research Institute of Tuberculosis on genomics of Beijing genotypes of Mycobacterium tuberculosis. The Taiwan CDC also participated in the WHO and US CDC-sponsored global rotavirus vaccine plan, and is a member of the Asian Rotavirus Surveillance Network (ARSN).
4. Taiwan Pathogenic Microorganism Genome Database (TPMGD): The TPMGD contains genotyping and epidemiological data of some 20 different pathogens. It is available to all interested parties who can file requests for enterovirus or influenza virus sequences and related epidemiological information.
5. Continue promoting an approval system for domestic testing organizations on clinical diagnosis of infectious diseases.

Section 7, Management of Laboratory Bio-safety

1. A legal basis for the management of infectious biological materials and laboratory biosafety has been established. By 2011, a total of 515 agencies or institutions had established bio-safety committees (or designated personnel), In Taiwan, nineteen Bio-safety Level 3 (BSL-3) labs and one BSL-4 lab have been approved by DOH (two of which are temporarily suspended).

Table 4-2 Immunization Schedule

Age	Vaccine
Within 24 hours after birth	● HBIG, 1 dose[1] ● Hep B, 1st dose
After 24 hours after birth	● BCG, 1 dose 1 Month
1 Month	● Hep B, 2nd dose
2 Month	● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 1st dose[3]
4 Months	● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 2nd dose
6 Months	● Hep B, 3rd dose ● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 3rd dose.
12 Months	● MMR, 1st dose ● VAR, 1 dose
15 Months	● JE, 1st and 2nd doses (spaced 2 weeks apart)[4]
18 Months	● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 4th dose
27 Months	● JE, 3rd dose
Between 5 years and first grade of elementary school 4	● Tdap-IPV, 1 dose[3] ● MMR, 2nd dose ● JE, 4th dose

Notes: 1. If mothers are highly contagious hepatitis B carriers (HBeAg positive), their babies should be given one dose of hepatitis B immunoglobulin(HBIG) immediately after birth and not later than 24 hours.
2. The first dose of Japanese encephalitis vaccine in is given 15 months after birth; the second dose is given two weeks later, and the third dose a year later.
3. From 2011, Tdap-IPV is given to first graders of elementary school.
4. From April 2012, Tdap-IPV and MMR are recommended to be given between 5 years and first grade of elementary school.

Additionally, in 2011, biosafety inspection of the 44 domestic laboratories which storing or using BSL 3 biological materials was completed.

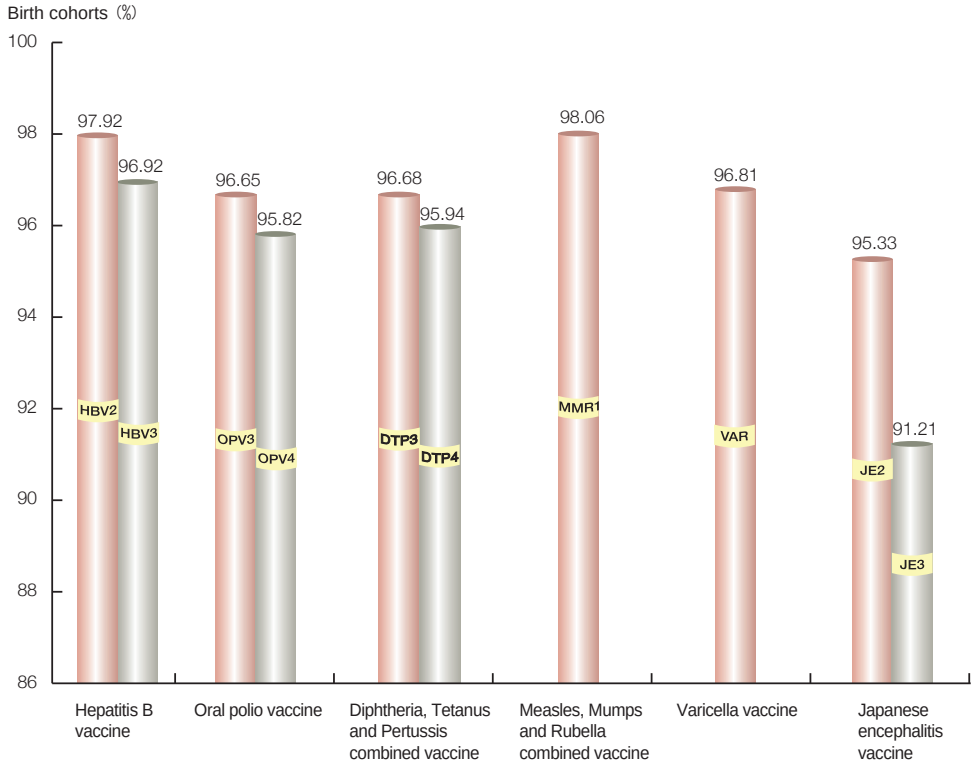
2. Publishing "Handbook of Guidelines for the Transportation of Infectious Materials" (2011-2012 edition), and a global information network was set up in the Health Department's Disease Control Center.

Chapter 4, Vaccinnation

Section 1, Current Status of Immunization and Trend

Currently, the government provides infants with free vaccinations under the schedule displayed in Table 4-2. The DOH also offers

Figure 4-4 Immunization Coverage Rates for Children, 2011



Note: Birth cohort: HBV2,HBV3,OPV3,DTP3:Jan. 1 2010 to Dec. 31, 2010; DTP4、OPV4、MMR1、JE2 are Jan. 1 2009 to Dec.31 2009; JE3 is Jan.1 2008 to Dec. 31 2008;VAR is July 1 2009 to June 30, 2010.
Data Source: National Immunization Information System (data calculated in January 2011).

hepatitis A vaccinations and booster shots in aboriginal regions and other high-risk areas. The DOH provides convenient immunization services through local public health stations and contracted hospitals and clinics. National immunization coverage rates are detailed in Figure 4-4. The DOH has also continued to inspect the vaccination records of students entering elementary schools. Among those students, 99.85% had vaccination record cards. For those with incomplete immunization, arrangements are made for them to complete the immunization series.

In 2010, a national vaccine fund was launched based on Article 27 of the Communicable Disease Control Act. The fund looks for multiple sources of funding, lists budget items independently and is used exclusively for the procurement of vaccines and implementation of immunization work. In

July 2009, the DOH began to promote the vaccination of pneumococcal conjugate vaccines (PCV) for high-risk children under five years of age. In January 2010, the DOH expanded the PCV vaccination to children under five years of age from low-income households and children born after 2010 living in aboriginal areas or on offshore islands. Since March of 2010, the DOH has been promoting a five-in-one vaccination for diphtheria, tetanus, pertussis, haemophilus b, and polio (DTaP-Hib-IPV), offering this high-quality combination vaccine to reduce adverse reactions and the total number of shots gave to children. From 2011, Tdap-IPV is given to first graders of elementary school to replace the originally used Tdap and OPV. Further, in January 2012, the DOH expanded the PCV vaccination targets to children under 5 years of age from medium-to-low income household.

In 2011, the seasonal flu vaccination program began on October 1.The main vaccination targets included: people aged 65 and over; people who live in nursing homes or other chronic care facilities, etc. The plan was intended to protect the health of high-risk groups and reduce care payments.

An application and review system for the relief fund of victims of immunization was set up by the government to offer adequate relief.

Section 2. Development and Manufacturing of Serum Vaccines

1. Production of Biological Products

1) Antivenin serum is manufactured by using horse serum.

2) A supply of vaccines, toxoids, and antivenins, totaling 2,680,000 shots were manufactured.

3) Animals for experiment such as mice, guinea pigs, rabbits, poisonous snakes and ferrets are supplied and raised.

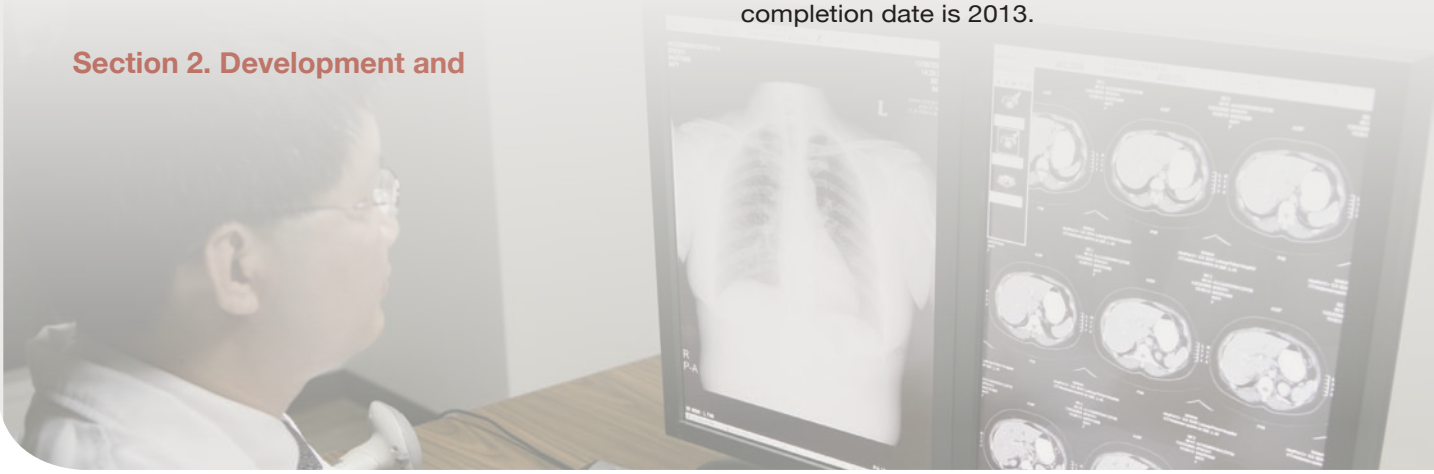
2. Development of Biological Products

1) Established a bank of 38 strains of enterovirus 71, and manufactured 5 lots of enterovirus 71, C4 genogroup, of the prototype vaccine.

2) Developed anti-venom serum antibodies- plan for assessing quality and stability of snake venom materials from non-captive snakes.

3) Determined the optimal tetanus vaccination schedule while maintaining the health of the horse, and the quality and safety of the snake antivenin products.

4) The Taiwan Centers for Disease Control implemented its plan to build horse stables for use in producing horse serum. This is the first such facility in Taiwan being constructed according to current Good Manufacturing Practices (cGMP) for pharmaceutical production. The projected completion date is 2013.



5 Management of Food and Drugs

Management of Food and Drugs

In 2010, the Department of Health formed the Taiwan Food and Drug Administration (TFDA) so as to help protect consumer health. In 2011, the major focuses of the TFDA include perfect TFDA-regulated products regulatory standards and registration, risk assessment and national reference laboratories, monitoring safety and quality at the manufacturing site, post-market surveillance, consumer education and risk communication, dealing with incidents involving plasticizers added to emulsifiers, and issuing the "Countermeasures for foods contaminated with plasticizer"

Chapter 1, Regulatory standards and product registration

Section 1, Perfect regulatory standards

1. Food safety regulations

1) To strength management of food additives, articles 31 and 34 of the Act Government Food Sanitation have been revised to have heavier penalties for violators, and went into effect on June 22, 2011.

2) Based on the needs of agricultural crop health and pest control as well as food processing needs, in 2011, 667 items in allowance of agricultural chemical residues were revised. 18 items in standards for specification scope, application and limitation of food additives were revised.

3) The "Countermeasures for foods contaminated with plasticizer" was issued on May 28, 2011. An immediate recall went into effect for five types of food products determined by the Food and Drug Administration to be contaminated by plasticizer contaminated emulsifiers, namely sports drinks, juices, teas, syrups and jams, and tablets and powders. Products using emulsifiers shall have safety certifications before the deadline of May 31, 2011, otherwise product sales are prohibited, and violators will be severely punished according to law. The industry notice became inapplicable on August 1, 2011 when contamination was brought under control and there were no new contamination cases.

4) On November 6, 2011, inspection registration was required by TFDA for vacuum-packed instant soybean food products.

2. Regulation of pharmaceutical affairs

1) On December 7, 2011, clauses 19 through 34 of the Pharmaceutical Affairs Law were revised. Pharmacies may now sell certain classes of medical devices without the need to apply for a permit.

2) Controlled drugs are divided into four schedules, and the Executive Yuan on January 14, 2011 classified 5-MeO-DIPT and Thiamylal as a Schedule 4 controlled substances. On October 20, 2011, the authority constituents found in "K2(Spice)", namely the active ingredients in cannabis (JWH-018、JWH-073、JWH-250、HU-210、CP47,497), as well as chloroamphetamines, were placed in Schedule 3 controlled drugs.

3) On January 26, 2011, the partially amended Statute for Controlled Drugs Management, amendments to the

Controlled Drugs Act was partially amended. The amendments authorize the administrative agencies may determine and announce, such as revise the negative qualifications for controlled drug managers, the management of controlled drug registration licenses, etc.

4) On November, 22, 2011 Rules for the issuing of controlled drug use licenses and registration certificate issuing and management were implemented, clearly stipulating controlled drug use license and registration certificate related management matters.

5) Supervision was enhanced over safety restrictions on concentrated preparations of traditional Chinese medicinal products. On August 29, 2011, revisions were announced to the "Restrictions on Concentrated Preparations of Chinese Medicinal Products Containing Unusual Substances". This went into effect on December 1, 2011 and would have until July 1, 2012 to comply with the standard. Among the 200 concentrated preparations for which norms are applicable, 100 of them have not yet met the criteria, and have until July 1, 2013.

Section 2, Registration for food and drug

1. On November 6, 2011, registration for vacuum-packed instant soybean food products was enforced. Food products without registrations filed with and licenses procured from the Department of Health shall not be manufactured, processed, prepared, repacked or sold.
2. Starting January 1, 2011, products made in Taiwan with any vitamin added must be registered for inspection if its daily intake is greater than 150% of the "Dietary Reference Intakes", and less than the "Scope, application and Limitation of Food Additives" for foods in capsule and tablet form.
3. The "Health Food Control Act" stipulates that any health food that does not have prior approval to register for inspection may not be manufactured or imported. Such products may also not be indicated or advertised as being a health food, nor emphasize that it has health benefits.
4. Registration of drugs: Drug efficacy and safety are the major issues for drug registration. During the licensing process of a new drug, the pharmacological/toxicological and pharmacokinetic properties (PK/PD/BA/BE) of the drug, and its performance on patients or healthy individuals in well-designed clinical trials are the major points considered by the reviewers. As for generic drugs, a bioequivalence (BE) study is required to replace the non-clinical and clinical tests.
5. Registration of medical devices and cosmeceuticals Medical devices are categorized into three classes according to risk level.
6. Reform of pharmaceutical product review mechanisms: The integrated medicinal products review office (iMPRO) is formed by integrating the review board and administrative manpower in Taiwan Food and Drug Administration and Center for Drug Evaluation, and works closely with related advisory committees, which have

been built up with acknowledgeable experiences for years. The purpose of the reformation is to enhance the review quality, transparency and to shorten the review time during license application. All of this has assisted the long term development of biotechnology industry.

Chapter 2, Risk Assessment and National Reference Laboratories

Section 1, Risk assessment

1. In 2011 this department established the "Food Safety Risk Assessment Advisory Council", engaging academic experts to collaborate in establishing risk assessment technology risk analysis working principles were adopted, risk assessment priorities were established, food consumption database set-up planning and training programs for risk assessment started.
2. Held a "Food Safety Risk Assessment Planning Workshop" and an "Introduction to Food Safety Risk Assessment Training Class".
3. Promoted projects of food safety risk assessment
   1) From 2010 to 2011, undertook a Total Diet Study (TDS), and established a "Risk Assessment Model for Food Additives".
   2) Continued assessment of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) migration from food containers using migration test methods, with reference to the latest international developments in risk assessment and detection methods.
   3) Collected and compiled information of risk monitoring and early warning models of different countries, established in our country a monitoring and early warning model for marine toxins.

Section 2, Testing and research for foods, drugs and cosmetics

1. Product testing:

1) Administrative test:
The Department performs administrative testing to support regulatory registration of products such as medical devices, health food, foods for special dietary uses and food additives, and others which require permit by law. Import and domestic biologics were applied to TFDA lot-release testing and sealing lot-by-lot. NRL also provides technological support in need when unexpected incidences occur.

2) Supervisory test:
The Department supports local health authorities where they are unable to conduct testing for themselves. The test subjects usually include samples turned in to local health department by consumer complaints; food poisoning samples collected from the local health bureaus-but not from special municipalities under Executive Yuan.

3) Assistance test:
The Department carries out many testing jobs upon request to assisting other law enforcement agencies such as judiciary, military, police departments. There are also fee-for-service contract testing commissioned by government bodies, public enterprises and organizations, public interest groups and foundations.

2. Development and promotion of official and reference analytical methods

1) The Department sets up regulatory standards for medical devices and biologics, and promulgates standard analytical methods for the use of food laboratories in the country. In 2011, NRL published “Minimum Requirements for Biological Products I”.

2) In 2011, the department held a number of training workshops to facilitate capacity building on various fields, such as authentic raw materials of traditional Chinese medicinal preparations (TCMP) and dietary supplements with synthetic chemical medicines...etc.

3) In 2011 the department annual investigation of quality of consumer products on the market included the following: testing for fungal toxins in food, testing for pesticide residues in food and in marketed raw materials of TCMP; monitoring the quality of surgical masks on the market, monitoring the safety quality of cosmetic products: foot mask, heavy metals content of lead, arsenic, and cadmium in cosmetics, monitoring for residues of 1,4-Dioxane in cleansing products, etc.

4) In 2011, completed standardization of sennoside A, and began to prepare the canadates of Japanese encephalitis virus vaccine standard and enterovirus 71 serological standard.

Chapter 3, Management of TFDA-regulated products sourcing

Section 1, Management of food product sourcing

1. The Hazard Analysis and Critical Control Points, or HACCP. By the end of 2011, the following items have been stressed:

1) Seafood: from 2005 to 2011, inspections for compliance with HACCP were undertaken for food products deriving from aquatic sources.

2) Meat: Since August 15, 2009, meat processing plants have all implemented HACCP.

3) Dairy: Since July 1, 2011, HACCP has been implemented for various dairy processors.

4) Food Service: Since August 2009, the HACCP system has been promoted.

2. Promote a processed food tracking system:

By the end of 2011, this has been done for 64 products and 14 kinds of production modules. Consumers can go online to track products themselves (http://tfts.firdi.org.tw), and look up the sources of ingredients of products in question, test results for it, etc.

3. Food import management

1) Starting from 2011, the department has managed the inspection of food imports itself, a total of 420,602 reported applications for import, of which 29,801 were tested.

2) The nuclear accident in Japan temporarily suspended handling of inspection applications for food imports from the five prefectures of Fukushima, Ibaraki, Tochigi, Gunma and Chiba. With the collaboration of the Atomic Energy Commission, radiation checks were intensified from March 20, 2011, checking lot by lot food

products in the following eight categories including fresh, refrigerated / frozen fruits and vegetables, fresh, refrigerated / frozen aquatic products, dairy products, baby food, mineral water and other drinking water, and seaweed.

3) Daily monitoring of the network of global food information by specialists. From 2010 to the end of 2011, 214 international food alerts were issued, among which there were 12 import records, and once all had been confirmed, all items of the same lot were removed from the shelves and recalled. Different lot numbers, however, were tested, found to be in compliance, and permitted to be sold.

4) Controls on beef imports were subject to the "Three Controls, Five Checkpoints" policy. In 2011, the Committee participated in on-site inspections of meat production facilities in the US. The objective was to confirm that beef originating in the US and imported to Taiwan conforms to health and safety regulations.

Section 2, Management of pharmaceutical manufacturing precursors

1. The DOH has continued to promote the implementation of the PIC/S (Pharmaceutical Inspection Convention and Pharmaceutical Inspection Cooperation Scheme) Guide to Good Manufacturing Practices (GMP) for Medicinal Products.
2. Pushing for membership in the PIC/S: In December 2011, the second stage of qualification evaluation for membership took place, and the PIC/S delegation will visit Taiwan in June 2012 to carry out inspection.
3. The DOH has continued to promote GMP assessments of manufacturers of medical devices.
4. Starting in 2008, GMP rules were voluntarily implemented in the cosmetics industry, and were jointly inspected by the Department of Health and the Industrial Development Bureau of the Ministry of Economic Affairs. By the end of 2011, 47 manufacturers applied for GMP certification. Among those, 23 have received that certification.
5. Enhance quality management of active pharmaceutical ingredients. Establish a Drug master file (DMF) system for active pharmaceutical ingredients.
6. Domestic pharmaceutical plants have implemented good manufacturing practices (GMP). By the end of 2011, 116 plants had GMPs in place.

Chapter 4, Product chain monitoringg

Section 1, Food product distribution management

1. The DOH works with local health authorities to implement food post-market surveillance programs every year. Outcomes for 2011 are presented in Table 5-1:
2. In 2011 the "Product Access Management Rapid Inquiry System" was established. It allows front-line inspectors to gather the latest inspection reports for imported food products, as well as food product safety management information.
3. From June 2010 to the end of 2011, according to the Executive Yuan, inspections of key agricultural products turned up imports of irregular commodities;

a total of 214 inspections were done with 5,383 instances of irregularity.

4. Beef labeling inspection: County and city health departments pursue five major strategies: have food and beverage industry operators post the places of origin of the beef on their menus; require sellers of food, beverages and other commodities to display the origin of their beef; have a special "beef area" set up in markets; undertake sourcing management; actively carry out inspections and announce information.
5. Special inspections of food products carried out jointly by a combination of agencies include investigation of commerce on busy streets during the New Year; quality monitoring and label checks of ritual food items; inspection of wholesale chrysanthemums and day-lilies; and joint inspection of plasticizers. In the case of violations, the DOH has informed local health agencies to take punitive and counseling measures.
6. In 2011 there were 30 inspections of factories producing health foods. There were 47 cases of monitoring of health food products.
7. For domestic producers and sellers holding permits for food additives, inspect factory operations areas and stockpile environments.

Section 2, Drug safety and quality control

1. For post-market new drugs, REMS (Risk Evaluation and Mitigation Strategies) is implemented to minimize the risk relating to medicinal products. In 2011, 40 drug safety quality controls were completed.
2. In July 2011, a system to enhance reporting of drug adverse events was established. Data for vaccines, drugs, and medical devices were organized into separate databases, and a safety alert function was created.
3. The reporting center for adverse events involving Chinese herbal medicine products received a total of 142 reports.
4. The TFDA established a health information sharing platform so that local health departments can immediately access information about defective and non-compliant products, raising the effectiveness of their inspections.
5. The department provided sealing test for batch release of biological preparations including blood products, vaccines, toxoid biopharmaceuticals, antitoxins and antiserums, and other biopharmaceuticals imported and produced domestically.
6. The TFDA collaborated with members of the Global Harmonization Task Force (GHTF) and the National Competent Authority Report exchange program (NCAR).
7. From July to November 2011, carried out joint inspections of traditional Chinese medicines and related packaging labels. The compliance rate for 622 items sampled was 99.2%.

Section 3, Cracking down on illegal food and drugs

1. Integrating interdepartmental resources to enhance interdiction of counterfeit drugs

1) In March 2010, the Executive Yuan established the program "Strengthening Eradication of Counterfeit Medicines and Illegal Broadcasting Stations", and

Table 5-1 Post-market surveillance outcomes for products in 2011

Item	Result			
	Total sampled	Qualified Number	Unqualified Number	Qualified rate (%)
Pesticide Residues in Commercial and Package Plant Agricultural Products	2,110	1,878	232	89.0
Veterinary Drug Residues in Foods	481	437	44	90.8
Heavy Metals (cadmium, mercury and lead) Content in Rice	160	160	0	100
Residual Mycotoxin Content (ochratoxin A, patulin, citrinin) in Commercial Food	364	339	25	93.1

together with the Department of Health, the Ministry of Justice, and the National Police Agency and related agencies, along with county and municipal governments, formed the "Joint Counterfeit Drug Task Force", performing inspections of inferior drugs, foods mixed with Western medicines and Chinese medicines mixed with Western drugs. Some of its outcomes are as follows:

a) Compared with before the establishment of the task force (the first quarter of 2010), from April 2010 until December 2011, there were an average of 253 investigations resulting in arrest (a 130% increase), and 171 case referrals (a fourfold increase). The number of Health Department inspections and seizures has remained consistently over 1,500. The rate of illegal drug seizures has decreased from 27.22% in May of 2010 to 2.03% in December of 2011.

b) From April, 2010 to June 30, 2011, after the task force was formed, a total of 13,562,000 illegal pills were confiscated. That increase represents a growth of 7.4 times.

c) In the confiscated illegal drugs, the detection rate for adulterated synthetic chemical medicines was 22%.

2) In 2011, there were a total of 242 cases forwarded by prosecution agencies, 19% of which containing illegal synthetic chemical medicines.

3) The rate of infractions for false advertising for drugs, cosmetics and food products was 4.95% by December 2011.

2. Continuous monitoring of the marketplace for illicit drugs, food products and cosmetics

1) In 2011, 218 lots of imported food in tablet or capsule form were tested for mixture with Western pharmaceuticals, with sample test probability of 2.79%;

there were 3 non-compliant lots.

2) Implementing the inspection plan for illicit drugs, 321 sites inspected in 2011.

3) Carried out the "Joint 2011 Special Investigation Plan for Illegal Drugs, Cosmetics and Food Products". Inspections of markets, street vendors, etc. In all, 262 sites were inspected, and 13 cases of suspected involvement in illicit activities were found.

4) Carried out sampling and inspection of traditional Chinese medicines mixed with Western drugs.

5) In 2011 there were 2,713 cases of illicit drug interdiction. Of this number, 794 were penalty infractions.

6) Outcomes of the 2011 "Illegal Advertising Monitoring Plan – Print Media Monitoring" are as follows (Table 5-2).

Section 4, Controlled drug Management

1. Management of controlled substance licenses:

relevant businesses or institutions need to apply for controlled substance licenses if they intend to import, export, manufacture, or transact controlled substances. Using the schedule 1-3 controlled substances requires a prescription license.

2. Inspection Control

1) The manufacture, import, and export of controlled drugs, and the use of controlled dugs in medical or educational research, all require approval from the authorities in charge.

2) In 2011, the DOH performed 15,247 on-site inspections.

Chapter 5, Consumer education and risk communication

Section 1, Consumer Information

1. The Food and Drug Consumer Knowledge Information Web was established on June 30, 2011 as a public information resource.
2. On July 6, 2011 "Dietary Guideline", "Daily Food Guide", and "Vegetarian Dietary Guideline" were issued to remind citizens to reasonably adhere to the 12 principles recommended.
3. Red and green lights for food consumption

   When there is an incident involving food safety, an Advisory Group of specialists will do an assessment and issue a public announcement with safety information according to a system of red, yellow or green lights. If a national incident involving food safety occurs, a news announcement or "traffic light" food alert will immediately be made to inform consumers.
4. The TFDA established the "Rapid Monitoring and Transmission Platform for Drug Safety Information". At the end of 2011, there were 287 bulletins with of domestic and international drug safety information.
5. Surveyed drug consumption habits in central Taiwan and in Penghu. Carried out training with seed instructors.

Section 2, Risk communication and health education

1. Communication of dangers involved in the food contamination incident involving plasticizer emulsifiers

   1) Websites of the DOH and the TFDA alike set specific areas to provide information

about health-risk assessments and all food recalls, as well as Q&A sections. All information is continually updated.

2) Bulletins were sent to 22 countries and regions that might have imported the contaminated products. Communications were also done to all foreign diplomatic offices or trade offices in Taiwan.

3) Press releases were issued every day to provide updates on current developments.

4) A special hotline number (with a total of 20 lines) was established to answer questions about this matter from the general public. DOH personnel staffed the hotline from 7 a.m. to 11 pm.

5) Making diverse propaganda materials and providing mass media to promote health education.

2. As a basis for public service announcements, worked with the Executive Yuan's joint plan to interdict counterfeit and poor-quality drugs, as well as the "Five No's" and the "Five Core Competences", principles of taking correct medications.

3. Handled various initiatives to provide information to schools and the community, including "Promoting Drug Safety Education in the Community. Developed and researched 34 health education curriculum models.

4. Handled the initiative "Website and digital education for correct medication administration"; used digital media and Internet communities to disseminate knowledge on this topic.

5. Organized the "Medical Device Safe Use Campaign" ceremony. Created public information brochures relating to food safety, medications and cosmetics. Created print media announcements and provided public information for download on the website of both the TFDA and the Executive Yuan.

6. Prevention of drug abuse: For the "Controlled Drug Abuse Report", the DOH continues to supervise health institutions and encourage their greater participation; to compile the "Drug Abuse Cases and Testing Statistics" and to publish the "Controlled Drugs Bulletin". In addition, a variety of propaganda and education materials are developed.

2011 anti-club drug campaign poster

Table 5-2 2011 Printed Media Monitoring

Category of offense	No.	Concluded	Pendingv	Confirmed infraction	Penalty
	No. of cases	No. of cases	No. of cases	No. of cases	NT$
Traditional Chinese medicine	2	2	0	0	0
Western armaceutical	3	2	1	0	0
Chinese medicine	1	1	0	1	50,000
Western medicine	47	11	36	7	230,000
Food	186	149	37	134	2,875,000
Cosmetics	1,724	1,134	590	1,080	20,545,000
Medical supplies	12	11	1	11	200,000
Dietary aids	3	3	0	1	50,000
Others	14	7	7	5	200,000
Total	1,992	1,320	672	1,239	24,150,000

Note: “Confirmed infraction” refers to the number of cases of administrative sanction.

6 Health Care

Health Care

The main issues that need to be addressed of health care include the provision of a holistic and adequate public health care system, implementing community health care and preventive medicine, and continuously improving the people's health and quality of life.

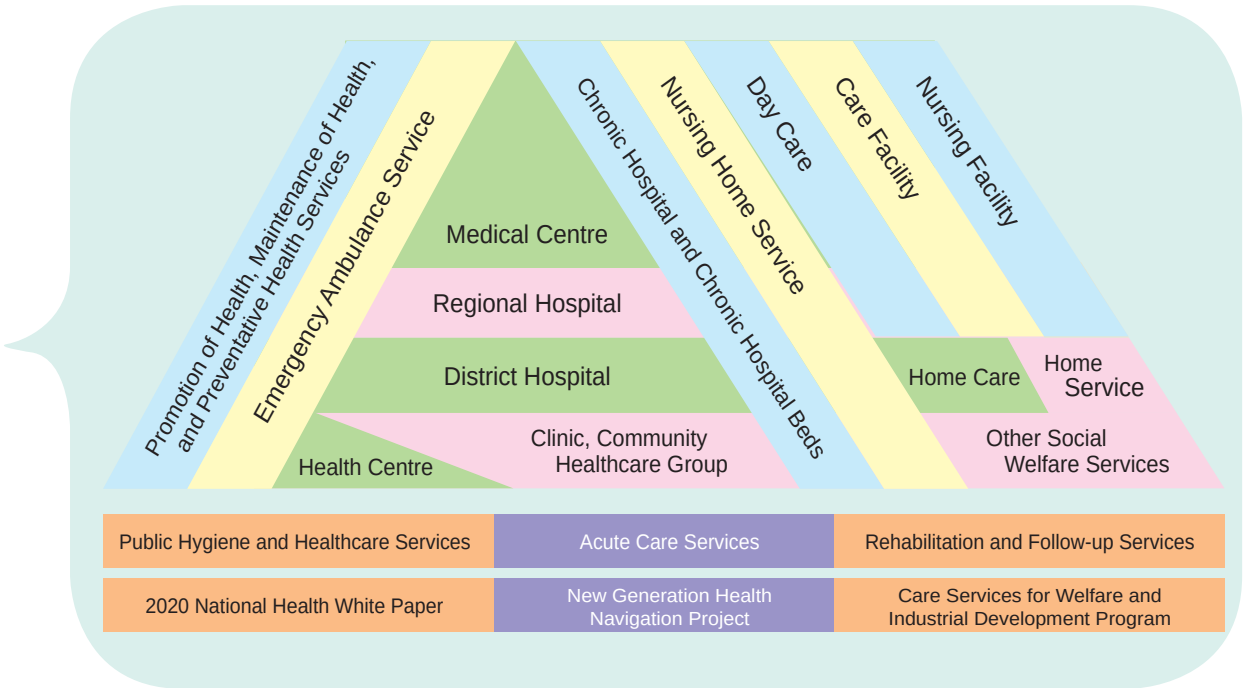
Chapter 1, Health Care Systems

In 1985, the DOH implemented a health care network project that divided the country into 17 medical care regions with the aim to evenly allocate medical care manpower and facilities. The project was implemented in four phases over four periods of 20 years resulting in a steady increase in hospital bed sufficiency and improvements in the quality of medical care. In 2005 to 2008, the Department carried out the "Holistic Health Care Plan" in conjunction with a post-SARS reorganization of the medical care system. The plan emphasized patient safety, patient-centered care and the development of a community health care system. Furthermore, the DOH is implementing a "New Generation Health Navigation Project" from 2009 to 2012 to strengthen the provision of holistic health care service founded upon suitability, proximity, comprehensiveness and sustainability to help people live longer, healthier, and happier lives. The current Health Care Systems diagram, see figure 6-1.

Section 1, Medical Care Resources

1. The current status of medical institutions: There is a total of 507 hospitals, 20,628 clinics, 7,558 pharmacies, 390 general nursing homes, 28 mental nursing homes, 516 home care units, 103 post natal care units, 14 day care units, 64 midwifery practices, 455 medical laboratories. As shown in figure 6-2, the number of hospitals is decreasing on a yearly basis, whilst there has been a gradual increase in the number of clinics.

Figure6-1 The Current Health Care System



2. Current Status of Hospital Beds

1) In 2011, there were 160,472 beds in medical care institutions (including general beds and special beds). Of them, general beds accounted for 62%. In all medical care institutions, there were 99,306 general beds (including 74,082 general beds for acute care, 4,037 general beds for chronic care, 7,091 beds for acute psychiatric care, 13,748 beds for chronic psychiatric care, 48 beds for tuberculosis care, and 300 beds for Hansen's disease). On average, there were 69.09 hospital beds per 10,000 population.

2) On September,16, 2012, the DOH made amendments to the article on "the establishment or expansion of approaches to licensing for hospitals". Environmental change, the review of secondary medical regions, and the reorganization of the secondary medical regions from 63 into 50 (details of prior to and after the reorganization can be seen in table 6-1).

3. Medical region assistance and resource integration the DOH promoted the "Medical Region Counseling and Medical Resources Integration Plan" in accordance with the "New Generation Health Navigation Project" approved by the Executive Yuan on

Figure 6-2 Number of Hospitals and Clinics by Year

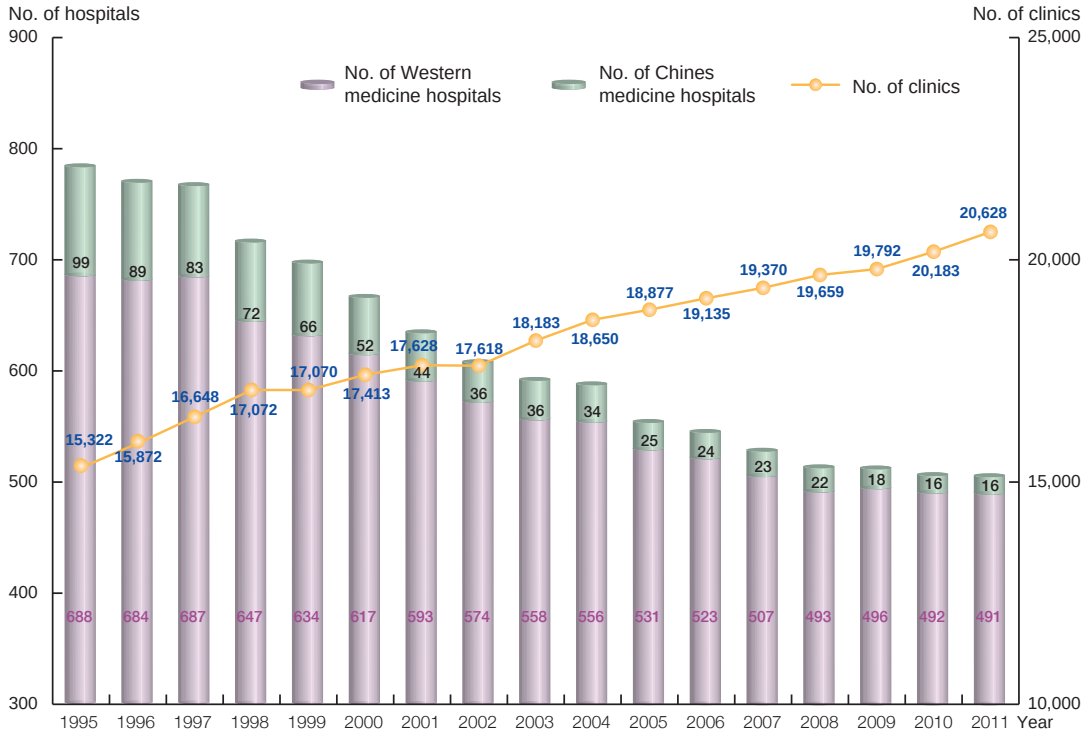


Table 6-1 Secondary Medical Care region division

Regulation after revision (50 Secondary Medical Care Regions announced in September 2011)			Regulation before revision (63 Secondary Medical Care Regions announced in 1993)		
Level 1 Medical Care Region	Level 2 Medical Care Region	Secondary Medical Care Region	Level 1 Medical Care Region	Level 2 Medical Care Region	Secondary Medical Care Region
Taipei	Taipei	North Region, Northwest Region, Central Region, West Region, South Region, East Region	Taipei	Taipei	Taipei, Danzi, Tailin, Sanying, Pingwu
	Keelung	Region free		Keelung	Region free
	Yilan	Yilan, Luodong		Yilan	Yilan, Luodong
North Region	Taoyuan	Taoyuan, Zhongli	North Region	Taoyuan	Taoyuan, Zhongli
	Hsinchu	Hsinchu, Zhubei, Zhudong		Hsinchu	Zhuxi, Zhubei, Zhudong
	Miaoli	Sea line, Miaoli, Zhonggang		Miaoli	Sealine, Miaoli, Zhonggang, Mountainline
Central Region	Taichung	Mountainline, Sealine, Tunqu	Central Region	Taichung	Fengyuan, Qinshui, Dajia, Wufeng, Taichung
	Changhua	North Changhua, South Changhua		Changhua	Changhua, Lugang, Erlin, Yuanlin, Tianzhong
	Nantou	Puli, Caotun, Nantou, Zhushan		Nantou	Puli, Caotun, Nantou, Zhushan
South Region	Yunlin	Beigang, Huwei, Douliu	South Region	Yunlin	Xiluo, Beigang, Huwei, Douliu, Taixi
	Chiayi	Chiayi, Alishan, Taibao		Chiayi	Chiayi, Chiadong, Chiabei, Chiaxi
	Tainan	Xinying, Yongkang, Tainan		Tainan	Xinying, Cengwen, Beimen, Xinfeng, Tainan, Xinbei
Kaohsiung and Pingdong	Kaohsiung	Gangshan, Kaohsiung, Qishan	Kaohsiung and Pingdong	Kaohsiung	Gangshan, Kaohsiung, Qishan, Xiaogang
	Pingdong	Pingdong, Donggang, Fangliao, Hengchun		Pingdong	Pingdong, Chaozhou, Donggang, Hengchun, Kaoshu
	Penghu	Region free		Penghu	Region free
East Region	Taidong	Taidong, Guanshan, Chenggong, Dawu	East Region	Taidong	Taidong, Guanshan, Chenggong, Dawu
	Hualian	Hualian, Fenglin, Yuli		Hualian	Hualian, Fenglin, Yuli

Note:
1. 6 Level 1 Medical Care Region, 17 Level 2 Medical Care Region and 50 Secondary Medical Care Region)
2. The population of Kinmen County and Lianchiang County are included in Taipei's Level 1 Medical Care Region but not in Level 2 Medical Care Region and Secondary Medical Care Region)

Note:
1. 6 Level 1 Medical Care Region, 17 Level 2 Medical Care Region and 63 Secondary Medical Care Region)
2. The population of Kinmen County and Lianchiang County are included in Taipei's Level 1 Medical Care Region but not in Level 2 Medical Care Region and Secondary Medical Care Region)

February 12, 2009. The plan aims to encourage medical institutions and private sector organizations to operate in line with related health care policies set forth by the DOH. It also seeks to promote the autonomous development of medical specialization in each region.

Section 2, Community Health Care System

To promote the Community Health Care System project aims to integrate acute medical care resources by region and category. Health centers in each region serve as the operation hubs to connect various relevant agencies, such as clinics, community hospitals, etc. The project integrates resources for improved division and labor and expands the participation of primary health care institutions in providing public health care services.

Chapter 2, Emergency Medical Care and Disaster Response

Section 1, Emergency Medical Care

1. The DOH has fortified the capabilities of the six Regional Emergency Operation Centers (REOC) around Taiwan, integrating emergency response measures for hazard (chemical, nuclear power plant and poison), to monitor and have immediate access to all information related to medical incidents or other regional catastrophes.
2. On July 13, 2009, the DOH promulgated the "Standards for Classification of Hospital Emergency Medical Capabilities" as authorized under Article 38 of the Emergency Medical Services Act. According to these standards, the DOH classified hospitals based on their emergency medical capabilities and designated severe level hospitals as the last line for hospital referral. To safeguard patient rights, these hospitals are not allowed to refer out patients with emergency conditions.
3. The DOH carried out improvement projects for regions lacking emergency medical resources. These projects strengthened the emergency medical services during specific period (such as evenings, holidays, and peak tourist seasons). They also provide the emergency medical needs for local residents and visitors.
4. The DOH encouraged hospitals in remote areas to establish centers for special and intensive emergency care. Major focus was placed on the establishment of centers for trauma, cardiac catheterization, stroke, perinatal conditions, emergency care, and pediatric intensive care.
5. Since 2009, the DOH began to provide "cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED)" emergency training classes.
6. The DOH, National Fire Agency under the Ministry of the Interior, Medical Bureau under the Ministry of National Defense, and county city public health bureaus formed a "No Warning Inspection Group" to conduct spot checks on ambulance equipment, ambulance management.
7. To alleviate the issue of congestion in emergency rooms, the DOH new generation health pilot project place "the annual rate of patients staying for over 24 hours in hospitals with moderate and above emergencies" on a performance indication list.

Section 2, Disaster Response

1. In response to the 0311, in Japan the DOH opened public a radiation health counseling clinic on the March 17, 2011. The purpose was to resolve the doubts for the people, and manage hospital demonstration drills for radiation patients care and the Central Disaster Prevention and Rescue Committee held five project meetings. The DOH was responsible for domestic iodine tablets, which were issued as response measures, and to strengthen the monitoring and detection of radioactive contamination food, agricultural products, and fresh seafood products imported from Japan.
2. An accident occurred at the Alishan Forest Railway on the April 27, 2011. The DOH and the Southern District Emergency Medical Response Centre assisted the Chiayi County Government to promptly implement the emergency medical services system.
3. In 2011, the DOH participated in evaluation the municipal, county (city) regional disaster prevention.
4. In 2011, the Central Emergency Operation Center was in operation seven times during which, the DOH deployed response staff, and the emergency medical management system also proved effective.

Chapter 3, Psychiatric Care, Mental Health, and Suicide Prevention

Section 1, Psychiatric Care Services

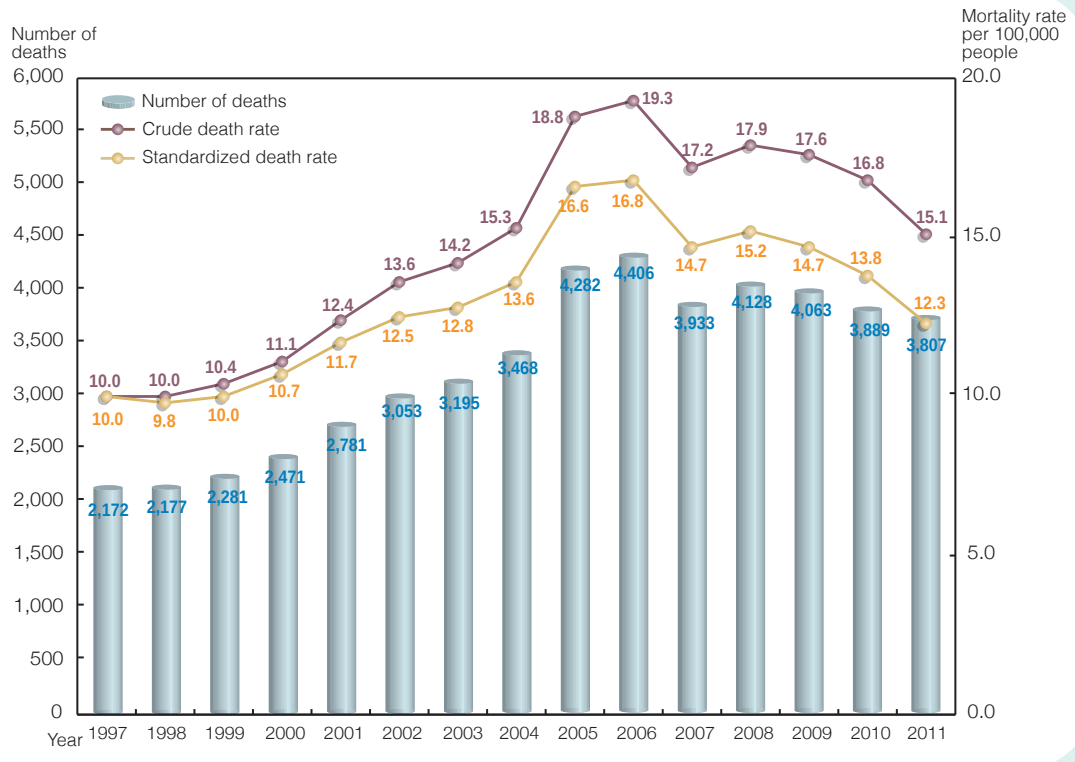
Major achievements in this area in 2011 are as follows:

1. The DOH provides subsidies to private sector organizations at various levels for substantial psychiatric rehabilitation, and psychiatric care facilities and equipment to improve the accessibility of medical care services for psychiatric patients in stable conditions.
2. The DOH has actively strengthened psychiatric rehabilitation facilities and community rehabilitation services to encourage psychiatric patients who are n stable condition to return to the society.
3. The county (city) governments will list mental patients requiring care in each community to effectively account for mental patients in each community, and provide supervision on a county level. In addition, to manage the 2011 annual “Integrated Mental Prevention and Psychological Health Plan” and the “High-Risk Group Care Visit Plan” a total of 300 health executives and care visitors from various county and city governments applied for community mental patient management. Another measure used in reported cases of attempted suicide to reduce the incidence of suicidal behavior involves visiting cilents and giving regards.
4. To continue promoting the building of regional mental health networks, which will be divided into 6 areas of medical responsibility, and to identify the central hospitals, assist various county and city governments to manage issues including: (1). Analysis of resource and situational problems of various counties and cities, establish a cross-county, cross-city, and cross-agency resource integration and cooperation mechanism, implement mental care network emergency contact center functions, provide local crisis intervention services for mental patients (including bed

management and hospital bed management scheduling), assist the health bureau establish disaster mental health services and an emergency immobilization plan, support the health bureau to manage major disasters or crisis events, and provide follow-up counseling for people concerning psychological matters. (2). Promote mental illness prevention work; develop mental health care and community psychiatric rehabilitation professional services. (3). Conduct professional training for mental health care personnel.

5. On July 4, 2008, the Mental Health Act was amended. In accordance with the amendment, "the mandatory identification of patients with serious mental illnesses and compulsory community treatment review meeting" composing of specialists physicians, nurses, occupational therapists, psychologists, social workers, other professionals, legal experts and representatives of patients' rights advocacy groups, was established to review applications. There has been a significant decrease in mandatory hospital admissions.
6. Under the Domestic Violence Of fender Intervention Project, providing offenders with cognitive education, counseling, psychological treatment, psychiatric

Figure 6-3 Number of Suicide Cases and Mortality Rate by Year



treatment and addiction withdrawal treatment services.

7. The DOH designated 109 institutions for drug addiction withdrawal treatment. In addition, the DOH implemented the "HIV-negative replacement therapy plan" by partially subsidizing the medical costs involving alternative therapies for HIV-negative drug addicts. In 2011,the 104 alternative therapy institutions nationwide handle 12,090 alternative therapy cases monthly on average. Between 2007 to 2011, the number of HIV cases involving drug addiction fell from 733 in 2007 to 99 and 2011.

Section 2, Mental Health and Suicide Prevention

In Taiwan, the suicide death rate per 100,000 people increased from 6.2 in 1993 to 19.3 in 2006, so that suicide had become one of the ten leading causes of death for the 13 consecutive years since 1997. However, in 2011, suicide was not among the ten leading causes of death as the suicide death rate fell to 15.1, ranking the twelfth on the list (see Figure 6-3). Major achievements in this area in 2011 are as follow:

1. The DOH established a "National Suicide Prevention Center" for the planning and assessment of suicide prevention strategies and efficiency. A toll-free 24-hour "peace of mind hotline" (0800-788995) was set up to provide the public with 24-hour professional counseling services.
2. The DOH executed the "National Action Plan on Strategies for the Prevention of Suicide-Second period." The plan is formulated on the concept of prevention in three stages and by five levels, where suicide prevention strategy incorporates The DOH also drafted short, mid and long-term goals for suicide prevention under the plan.
3. The DOH set up a "Suicide Prevention Reporting and Care System" to strengthen reporting of suicide attempts and to provide subsidies to county and city health bureaus to conduct suicide outreach visits, strengthen the functions of the community mental health centers, and activate community support networks. Through follow-up house visits and referral tracking, the plan has reduced repetitive suicide attempts and suicide mortality rates.
4. In 2011, the "National Psychological Health and Mental Health Service Resource Manual" was published. It was sent to the Executive Yuan Ministry, various county and city governments, and mental health institutions.
5. Since 2010, the DOH has promoted screening for geriatric depression. By the end of 2011, the head count, taken by health bureaus screening services from various counties and cities, reached a total of 447,024 people, accounting for 18.24% of the national elderly population.
6. In order to establish a central cross-department cooperation mechanism, the Executive Yuan has set up a "Psychological Health Promotion and Suicide Prevention Conference", which was held a total of three times in 2011.
7. In order to meet the mental rehabilitation treatment of victims of the Typhoon Morakot

disaster, the DOH established a disaster mental health system.

Chapter 4, Long-Term Care Service Systems

Section 1, Establishing Accessible and Universal Long-term Care Services

The main strategies are summarized as follows.

1. Developing a community aging-in-place service network

1) Continued promotion of long-term care plans to improve service utilization rates:

In 2008, the Executive Yuan promoted the Ten-year Plan for Long-term Care to assist counties and cities with the establishment of long-term care management systems. As of 2011, there were 22 long-term care management centers. The coverage rate of the total disabled elderly population served by this network has increased to 21%(nine times) in the end of 2011.

2) Improving the accessibility of long-term care for the economically disadvantaged population:

An analysis of comparative case socio-economic status data taken from a four year period of the nation's long-term care case data shows that mid- to low-income households account for 12.23% of all households receiving assistance for such care (this group accounts for 4% of the total population); while low-income households account for 14.24% of the assisted households (and 1% of the total population). These figures show that economically disadvantaged population are receiving more assistance than is the general public.

3) Setting up Service Centers in Remote Areas

The DOH has promoted the pilot project of "setting up community-based long-term care service centers in remote areas (including mountains and islands)" in order provide people living in remote areas with access long-term care services when required.

2. The Planning of Long-Term Care Service Network

The promotion of the "Long-Term Service Network of 2010 has continued into 2011. The main results of the project can be seen below:

1) Establishment of a long-term care resource inventory system, cooperation with the Ministry of the Interior and the Veterans Affairs Commission, completion of the first long-term care service resource inventory, and the preliminary division of the nation into long-term care areas, of which there are 22 large, 63 medium, and 368 small.

2) To provide more high-quality long-term care service human resources, the DOH has strengthened the training of various types of carer and medical long term care specialty training courses have been divided into three stages, and stage-by-stage long-term medical care professional training has been carried out.

3.Creating a legal basis for long-term care

The DOH advocates a legal basis for long-term care services, a "long-term care services draft-law" was drafted, and on March 31, 2011, the legislature was submitted through the Executive Yuan in the seventh part of the seventh-session conference for evaluation. However, due to term related issues the entire case was discontinued. It was then re-opened by the Executive Yuan on February 16, 2012.

4. Planning of a Long-Term Care Insurance System

1) For the purpose of building a foundation database for national long-term care need, the DOH required data on the supply and demand of long-term care resources, the scope of insurance, and the actuarial insurance premium rate. To obtain this data, the DOH completed the first phase of "the National Long-term Care Need Survey" in 2010 and has completed 350,000 interview-based surveys. In 2011, the second stage of the investigation was completed.

2) From the start of April 2011, the DOH have carried out a home-based and facility-base long-term care service resource utilization groups investigation, and predict that in 2012, 7,000 cases will be collected for data, to create a preliminary model.

3) The DOH conducted to establish a long-term care insurance payment fee schedule which reflects costs and takes reasonable working conditions into account. Estimates indicate that the cost analysis of the home care service infrastructure will be completed in 2012.

4) The DOH has proposed a multi-dimensional LTC need assessment instrument (draft), and established an inventory of long-term care assessment tools for the purpose of developing practical long-term care insurance assessment tools for the nation.

Section 2, Long-term Care Professional Training

The DOH has held a number of "Long-Term Care Professional Workforce Training Plan" meetings, and completed the planning for the long-term care medical manpower and the care center care management staff.

1. Long-Term Care Medical Workforce Course Plan:

1) Level 1 – General Course (18 hours): focuses on the basic knowledge of long-term care field staff, and basic and broad long-term care concepts.

2) Level 2 – Professional Course (32 hours): in accordance with the time required for training in the various professional fields, course specifics have been further diversified, and developed for individual professional fields.

3) Level 3 – Integrated Course (24 hours): integrate courses to strengthen interdisciplinary and integrated ability.

2. Care Center Care Management Staff Course Plan:

1) Phase 1: current care center care

commissioners have a core curriculum of 40 hours, and spend 40 hours on a practical training course.

2) Phase 2: place an emphasis on practice, coordination and communication, and individual cases of cross -disciplinary services as a design guideline in the development of the curriculum.

3) Phase 3: coordinate with continuing education concepts and the development of advanced abilities, in order to focus on cross-disciplinary case teaching, inter-regional service system resource utilization and integrate the enhancement of abilities.

Section 3, Integration of Long-Term Care Institution Management to Improve Quality

1. Since 2009, the DOH has conducted nursing home accreditation in accordance with the Nursing Personnel Act to guarantee and upgrade service quality.
2. The DOH invited the Ministry of the Interior, the Veterans Affairs Commission representatives, and expert scholars to work together in the completion of the long-term care institution evaluation integrating operating principals and standards, and to completed trial evaluations at 30 general nursing home institutions, from October to November of 2011.

Section 4, Promoting Tele-healthcare

1. Service Expansion

Since 2010, the DOH has commissioned teams in the northern, central, southern and eastern regions to integrate 130 healthcare institutions, and 65 cross-sector partners to set up a tele-healthcare center in the north and the south. The tele-healthcare centers will provide 24 hour continuous healthcare consulting and health management services, and assist with patient referrals (fig.6-4). At this present stage, the development goals are the standardization and industrialization of services, encouraging the integration of hospitals and other industries, the development of new products, and the establishment of a commercial operations model.

2. Creating a Sound Environment

The DOH is conducting research on tele-healthcare information transmission standards, relevant policies and laws, and service cost-effectiveness assessment. The following results have been achieved:

1) Promotion of standards: The DOH formulated standards for the use of continuity care documents, drafted tele-healthcare standards, and improved processes.

2) Research on regulations: The implementation of medium and long-term regulatory support measures was proposed in response to the Personal Data Protection Act regarding the collection, storage, and usage restrictions of sensitive personal data.

3) Evaluation of effectiveness: The DOH has investigated members participating in the tele-healthcare service from 2010 to 2011, this was done to understand the benefits

of the implementation, and to establish a long-term assessment model.

3. Information Integration and Interfacing

1) In line with the differing degree of information provided by different medical institutions, the DOH has developed an information does not fall to the ground/fall to the ground cooperative model for information referrals in the newly established the north and south tele-healthcare centers.

2) Furthermore, in response to future healthcare plans in government cloud computing, the DOH will integrate the healthcare cloud with regional healthcare services, link regional service systems and life resources, and establish a cloud healthcare record database. The Department also will use various cloud computing terminal equipment to provide new types of smart, mobile, and personalized healthcare services.

4. Service Advocacy and Promotion

1) The DOH successfully updated the portal function of the tele-healthcare program, added portal links to 89 healthcare institutions, and provided the public with a service resource query and online interaction.

2) In 2011, the Bio Club Biotechnology Exhibition and the Formosan Medical Association Medical Exhibition, promoted the tele-healthcare service achievements, and the services of the new tele-healthcare center service system to the public.

Chapter 5, Quality of Medical Care

Section 1, Quality of Medical Care Services

Achievement highlights in 2011 are as follows:

1. Patient Safety and Quality of Medical Care

1) The DOH formulated the "Annual Objectives for the Promotion of Patient Safety and Quality of Medical Care in Hospitals for 2012- 2013." Annual objectives were formulated including improving the safe use of drugs, implementing infection control, improving surgical safety, etc. In addition, the "Annual Objectives for the Promotion of Patient Safety andQuality of Medical Care in Clinics for 2012- 2013." Three annual objectives were formulated including improving the safe use of drugs, preventing patient falls, and improving surgical safety. The DOH arranges scheduled and non-scheduled assessments of the above-mentioned objectives and implementation strategies.

2) The DOH established the Taiwan Patient Safety Reporting System (TPR) to build up a patient-safety culture and create a nonpunitive learning environment to avoid the repeated occurrences of mistakes and errors to improve patient safety.

3) The DOH set up a patient safety website to provide patients with the latest information on safety and to serve as a platform for the exchange of information, collect international information relating to patient

safety. This was done to provide learning exchanges for national hospitals and medical personnel.

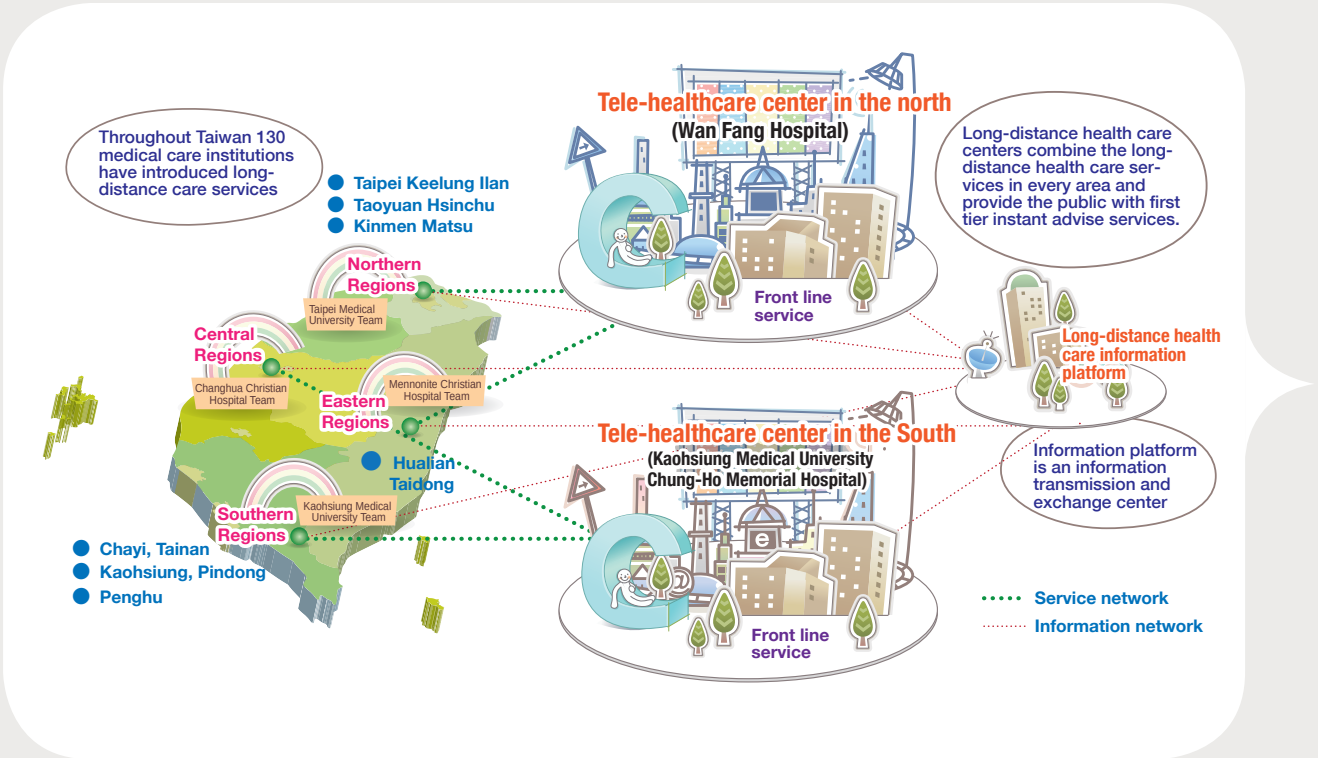
4) Regulations on safe hospital environments are stipulated by the "Hospital Accreditation Standards." The regulations have been designed to create a safe environment in which to provide medical treatment, and include items such as the safety of the environment and facilities, etc.

2. Hospital Accreditation System

1) In 2011, the DOH implemented the revised "Hospital Accreditation Standard" and "Teaching Hospital Accreditation Standard".

The revised version of the "Hospital Accreditation Standard" has consolidated 238 items from the previous 505, and seven medical workforce distribution channels were named as essential items. The revised "Teaching Hospital Accreditation Standard" incorporates accreditation and inquiry functions, including the "New Teaching Hospital Accreditation Scheme", "Post-Graduate General Medical Training Survey", and a "review of the teaching hospital teaching expense subsidy plan". 14 categories of medical personnel are now within the scope of teaching hospital accreditation.

Figure 6-4 2011 Tele-Healthcare Service Overview



2) Establishment of a "Non-Scheduled and Timely" regular follow-up supervision and inspection system to ensure the continuous improvement in the quality of medical care.

3) By the end of 2011, the DOH had completed a total of 400 field evaluations with the goal of reducing internal operation faults of counseling psychiatric rehabilitation institutions, to ensure the quality of care, and manage the "Psychiatric Rehabilitation Institutions Evaluation". In recent years, the number of re-evaluations has steadily decreased. This shows that the evaluation system is indeed capable of improving the quality of care in institutions. Additionally, since 2011, the DOH has handled the evaluation of psychiatric nursing homes for the first time.

4) To establish a superior patient-centered Chinese medicine healthcare system and to provide a safe healthcare environment for the public, the DOH proceeded with the 2011 "Accreditation of Chinese Medical Hospitals and Chinese Medical Departments Affiliated with Western Hospitals".

5) The DOH has been integrating hospital accreditation, medical treatment and hygiene service, as well as specialist training institute functions.

Section 2, Improving the Quality of Blood Supply and Transfusion

1. To reduce the risk of HIV infection by blood transfusion recipients, the DOH has been actively educating the public the correct blood donation attitude, dissuading HIV-positive high-risk people to use blood donation to test for AIDS.
2. In order to prevent hemolysis in patients that have received blood transfusions, the DOH screens for blood red blood cell antigens to efficiently increase the number of red blood cell antigen records so as to increase the probability of a suitable blood transfusion match for patients with rare blood types.
3. In order to respond to patients with rare blood transfusion requirements, the DOH established a rare blood-type database, a blood reference laboratory, and an external blood consulting inspection service.
4. In order to effectively shorten the test window times, reduce the probability of infected blood being transfused, the phased implementation of the nucleic acid amplification test (NAT) began in July of 2010, and the nucleic acid amplification test blood transfusion bag has been fully implemented in blood transfusions since 2012.
5. The DOH will manage the "incentives for blood transfusion quality improvement plan", for blood donation centers of the blood foundation, blood donation posts, etc. to ensure quality in blood transfusions.

Section 3, Improving the Efficiency and Quality of Organ Donation and Transplantation

1. In Taiwan, there are 10 Organ Procurement Hospital (OPH), each cooperates with 200 local hospitals, to establish Organ

Procurement Organization (OPO) to actively encourage potential donors.

2. The Registration Center launched the "Organ Donation and Transplantation Registration System". From April 1, 2005 on-wards, all cadaveric organ donations have been allotted on the Organ Donation and Transplantation Registration System to establish a fair, impartial and transparent mechanism for organ allocation.
3. The DOH revised the organ transplant payment provisions on January, 1, 2008; this was done to encourage hospitals to implement organ procurement and transplantation.
4. On November, 15, 2011, the DOH completed the "Organ Donation and Transplantation Login System", and the "HIV Reporting and Tracking System" which function as tools of close inspection. When hospitals enter information about donors, the organ donation and transplantation registry system is directly checked against the regulated data file of previously HIV-infected people, in order repeat check test results and verify the accuracy of the entered information.
5. On the December, 21, 2011, the President announced the Human Organ Transplant Act amendment, which stipulates the following matters: (1) The will to donate organs should be indicated on Health Insurance IC card, and regarded as official; (2) Organ transplant allocation and administration shall be authorized by the DOH; (3)The donor's laboratory test report shall be submitted to the recipient's hospital.

Section 4, Quality of Nursing Car

1. Promotion of the Professional Registered Nurse System. Additionally, in 2011, there were 80 training hospitals for surgical nurse practitioners.
2. Continue the promotion of continuing education for nursing staff and implement related integrated crediting assessments.
3. Continue the promotion of full-care systems and establishing a nursing and paramedical staff cooperation model to reduce nursing staff workloads.
4. In order to encourage hospitals to retain nursing staff, the DOH managed the "promote Friendly Practice Hospitals"–characteristic contest recognition plan', to develop local Friendly Practice Hospitals characteristics indicators.
5. The DOH has managed the "nurse work content and pay adjustments in a series of public hearings held in the northern, central, and southern regions".
6. On 01/11/2011, the DOH provided written notifications for hospitals to follow regarding "medical institution and nursing staff labor contract proposals of matters which should and which should not be recorded" and "the regular labor conditions of hospital hired employees being below the labor standards law and other relevant laws and regulations matters".
7. The DOH organized the post-natal care nursing institution quality improvement assessment in 2011.

Chapter 6, Medical Manpower

Section 1, Current Status of Medical Manpower

1. According to the licensing system for professional medical personnel, there are 14 laws and regulations governing the management of medical personnel, including the Physician's Act, Pharmacist's Act, etc. In addition, the Optometrist Act (draft) is under review by the Legislative Yuan.
2. Practicing Medical Personnel till end of 2011, see table 6-2.

Section 2, Fostering of Medical Manpower

1. The DOH adopts a quota system for cultivation of medical personnel. In principle, the number of the medical students to be enrolled each year is limited to 1,300. The training of other categories of medical personnel is based on the special quota system. Applications shall be filed prior to the establishment of medical training programs, and be reviewed by the Ministry of Education for control purposes.
2. To foster medical personnel in resource-poor mountainous/indigenous and off-shore island Areas. Since 1969, the DOH has managed the local healthcare worker program. From 2002, the said funding programs in Kinmen and Lien Chiang counties were integrated. As of the end of 2011, the program has trained a total of 776 healthcare professionals. The program retention rate stands at 72%.
3. Development of the Government Sponsored Physician System has been implemented for over 30 years. And the aims of the policy have now been fulfilled. Each year since 2006 there has been a reduction of 40 recruitments from government scholarships, and recruitment completely stopped in 2009, local development of Government Sponsored Physician has increased the development quota from an annual amount of 6-9 to 27.
4. The DOH has commissioned professional medical associations to conduct screening and review of specialty physicians to improve the quality of medical professional training. Hospitals for the training of specialty physicians are accredited and certified every three years. Currently, accreditation is provided in 26 areas of specialization.
5. The DOH has been actively promoting a "Post-Graduation General Medical Training Program" to strengthen holistic care concepts and ability among physicians, increase the quality residency training. Three-month general medical training courses have been offered since 2003.The second phase of the program came into effect in 2006. Based on the model of the three-month training program, this phase includes six-month post-graduation medical training. Phase three commenced in July 2011 and involves one-year post-graduation medical training aiming at increasing the quality of primary care services.
6. To establish a systemic clinical dentistry training program, improve post-graduate training quality and results, and improve the general quality of healthcare, the DOH implemented the "two-year Post Graduate Year program" on July 1, 2010.
7. In order to facilitate the normal development of proper Chinese medicine education, and

Table 6-2 Practicing Medical Personnel in 2011

Category	No. of Practicing Persons	No. of Practicing persons (Per 10,000 population)	Category	No. of Practicing Persons	No. of Practicing persons (Per 10,000 population)
Physicians	40,002	17.34	Occupational therapists (technicians)	2,496	1.12
Dentists	11,992	5.24	Physical therapists (technicians)	5,608	2.45
Chinese medicine doctors	5,570	2.31	Counseling psychologists	836	0.54
Medical technologists (technicians)	8,579	3.86	Clinical psychologists	757	0.36
Medical radiology technologists (technicians)	5,113	2.27	Dietitians	1,824	1.11
Pharmacists (assistant pharmacists)	31,300	13.87	Respiratory therapists	1,810	0.79
Nursing personnel	133,336	48.49	Language therapists	498	0.22
Midwives	134	0.06	Audiologists	157	0.07

increase the ratio of properly educated Chinese medicine practitioners, the initial qualifying examination for doctors of Chinese medicine was terminated in 2008, while the special examination for doctors of Chinese medicine will be terminated in 2011.

8. To establish a system for Chinese medicine clinical training, we must first improve the supervisory capacities of supervising physician in Chinese medical care institutions. In 2014, the DOH will implement the "Chinese medical care institution supervising physician training program." In future, all candidates must work a two-year residency at an accredited or DOH-designated Chinese medicine department/ clinic.

9. In order to maintain the quality of practice among Chinese medicine practitioners, the DOH has promoted the “enhancing the quality of practice for medical personnel program”. The DOH also organized TCM health care training programs, in which a total of 1645 nurses completed training.
10. The DOH started running the teaching hospital free education subsidy program in 2011, for medical personnel to receive training and licensing on core training courses developed by teaching hospitals within 2 years.
11. The DOH completed the continuing education system for 14 types of medical personnel. The system requires that medical personnel accept a certain number of hours spent in continued education every six years, before they apply for license renewals. This is in order to ensure the practice skills of the medical personal, and to keep them up to date.

7 The National Health Insurance

The National Health Insurance

The implementation of National Health Insurance (NHI) enables a sick and impoverished people to receive proper medical care. Now the NHI has become a mainstay of Taiwan's social security. To ensure it can continue, reforms of the National Health Insurance have been ongoing. After efforts from all sectors, on Jan. 26, 2011 the National Health Insurance Amendment was announced by the President. This is to be an important turning point as it will provide a stable foundation for the National Health Insurance to continue in a sustainable direction.

Chapter 1, Current Status of the National Health Insurance

Section 1, Current Status of Insurance Enrollment

The National Health Insurance is a mandatory social insurance. All individuals holding the Republic of China nationality and having registered their household in Taiwan for more than four months shall, by law, be enrolled in the NHI. Legal aliens with certification documents for residency and having resided in Taiwan for more than four months shall also, by law, be enrolled in the NHI. However, those with employee status are not subject to the restrictions of the aforementioned four-month period.

By the end of 2011, the total enrollment was 23,198,664 persons, with the enrollment rate of higher than 99% of the population, nearly approaching the goal of full insurance enrollment.

Section 2, Insurance Financing

The DOH constantly promoted measures for achieving financial stability. Revenue raising measures employed in between 2010 and 2011 include:

1) Check the category and premium amounts of the insured.
2) Lobby for approximately NT$1 billion annually from the public welfare lottery profits and NT$24 billion from the health surcharge on cigarettes.

Table 7-1 Average Annual Medical Utilization Per Person in 2011

Type	No. of Visits	Rate of Change (%)
Outpatient	15.1	3.33
Western Medicine	12.1	3.86
Dentistry	1.3	-0.93
Chinese Medicine	1.7	3.10
Inpatient	0.14	1.87
Length of Stay in Hospital	1.4 days	

Table 7-2 Number and Type of Contracted Medical Institutions

Type of Contracted Institutions	No.	Contract Rate (%)
Hospitals and Clinics	19,763	92.64
Pharmacies	5,037	65.02
Home-care Agencies	528	52.64
Mid-wife Centers	12	5.50
Psychiatric Rehabilitation Institutions	170	91.89
Physical Therapy Clinics	13	39.39
Medical Laboratories	213	49.88
Medical Radiation Institutions	10	14.08
Occupational Therapy Clinics	1	12.50

3) The NHI premium rate adjusted from 4.55% to 5.17%, and the ceiling of NHI insurable amount increased from NT$131,700 to 182,000.

4) In accordance to the basic salary adjustments since Jan. 1 2011, the level 1 of payroll bracket of NHI insured amount was shifted to NT$17,880, levels of the insured amounts changed accordingly. The minimum insured amounts for the insured in category 2 is based on level 6 of new payroll Bracket, which is NT$21, 900. In addition, starting from April 1, 2011, the insured amount for the insured in category 3 was amended to NT$21, 900.

Section3, Insurance Benefits and Payment

In 2011, the important highlights are presented as follows.

1. NHI Visits

In 2011, there were 375.82 million outpatient visits, and 3.28 million hospital admissions. The average annual outpatient/inpatient visits per person are shown in Table 1.

2. Strengthening Health Services Accessibility for the Insured

At the end of 2011, there were 25,747 NHI contracted medical institutions(see Table 2) including 19,763 hospitals and clinics, which accounted for 92.64% of hospitals and clinics nationwide.

3. Reducing the Financial Burden of Patients with Catastrophic Illness

People suffering from cancer, chronic mental illness, congenital illness or rare diseases, along with dialysis patients, were able to get treatment without copayment. At the end of 2011, more than 860,000 patients held catastrophic illness certificates to take advantage of this program. (see Table 3).

4. Enhancing the Quality of Medical Services and Reasonable Payments

1) For Western Medicine

a) Continuing to Promote and Adopt Tw-DRGs Payment System:

The Taiwan Diagnosis Related Groups

Table 7-3 Issuance of Catastrophic Illness Certificates

Catastrophic Illness	No. of Certificates	Percentage (%)
Cancers requiring active or long-term treatments	432,344	47.06
Chronic mental illness	208,432	22.69
Systematic autoimmune syndromes requiring lifelong treatment	79,672	8.67
Chronic renal failure (uremia) requiring regular dialysis treatment	68,536	7.46
Congenital malformations and chromosomal abnormalities of the cardio, pulmonary, gastrointestinal, renal, nervous, skeletal system and others	35,878	3.91
Others	93,858	10.22
Total	918,720	100

(Tw-DRGs) payment system has been promoted in stages since 2010. In the first year, 155 DRG items related to the original case payment were implemented. To more accurately reflect the seriousness of each DRG illness, in 2011 the original 155 items were further regrouped into 164 DRG items. The NHI system excluded extracorporeal membrane oxygenation (ECMD) treatments from DRG, expanded medical services (including chemotherapy, radiotherapy, ventilator, dialysis etc.) from DRG to fee-for-service system, and furthermore paid in full for the points exceeding the upper limit of the DRGs for patients with congenital diseases under the age of 18. "The New Technology Add-on Payments under the DRG Payment System" was also implemented.

b) Revised Medical Services Program to Enhance the Quality of Care

The NHI system reviewed and revised the family physician care plan, patient-centered integrated care plans, put forth pilot projects for capitation payment system and pharmacy home care, improvement program for remote areas, improvement plan for medical services in remote areas, implementation project for retention money of global budget for quality assurance, quality of medical services indicators and monitoring values, plan to improve the quality of inpatient nursing care, the early stage of chronic kidney disease care plan, and expanded the pay-for-performance projects.

c) New Payment Items to Increase Scope of Medical Services

In response to advances in medical technology, new payment items covered testing, treatment, and surgery, with major items including Everolimus – a test for the levels of anti-rejection drugs in the blood of organ transplant patients, examine for free prostate-specific antigen (Free PSA) for prostate cancers, and the design and formulate of the multi-leaf collimator alloy module used in radiotherapy for cancer patients. Five applicable items of hospital are also opened for clinics, to benefit the public in seeking medical services. In addition, to improve quality of medical services and fairness of care and reduce the burden of the public.

d) Adjusting Fee Schedule for Pediatrics, OB/GYN and Surgery:

Since 2011, outpatient diagnostic fee for patients under age 4 can be paid by 20% more for pediatricians in clinics and all physicians in hospitals. Also the declaration cost for outpatient diagnostic fees was raised by 17% in hospitals for OB/GYN, pediatrics and neonatal care, and surgery services (including orthopedics, neurosurgery, urology, plastic surgery, colorectal surgery, cardiovascular surgery, thoracic surgery, digestive surgery, pediatric surgery and chiropractics). For patients under the age of 4, the above outpatient diagnostic fee could

be raised by 37%, thereby strengthening treatment scope and quality.

e) **Pilot Project for Capitation Payment**

In accordance to Article 42 of the NHI Act, which stipulates the Fee Schedule of Medical Services may follow the principal of capitation, and Article 44, which stipulates accountable family physician program should be paid on the basis of capitation, the pilot project for capitation payment was announced in February 2011. Medical institutions across the nation teamed up to submit proposals. After reviewing by experts, three models and 7 teams were selected and put into a three-year trial period beginning in July 2011.

2) For Chinese Medicine

To enhance the overall medical service quality, the NHI system reviewed and amended improvement program for Chinese Medicine services in remote areas, and 5 continuity trial plans: "Pilot Project on the Outpatient Clinic Care Using Chinese Medicine for Children with Asthma", "Pilot Project on Outpatient Clinic Care Using Chinese Medicine For Children with Cerebral Palsy", and " Complementally Chinese Medicine Pilot Project for Inpatients of Western Medicine with Cerebrovascular Disease and Tumor after Surgery, Chemotherapy and Radiation Therapy" and "Chinese Medicine Outpatient Care Plan for Patients with Sequelae of Cerebrovascular Disease."

3) For Dentistry

"Implementation Project for Retention Money of Dentistry Global Budget for Quality Assurance", "Health Care Quality Indicators and Inspection Values", "Pilot Project for Special Dental Services (strengthening the dental services for patients with congenital cleft lip and palate and craniofacial abnormalities, as well as for patients of moderate to severe mental or physical disabilities)", “Comprehensive Periodontal Treatment Plan", and "Improvement Program for Dental Services in Remote Areas" were reviewed and amended to reward outstanding contracted dental clinics, and improved the medical care quality for special target groups.

4) Building a Platform for Medical Expenditure Co-management

To control medical expenditure at a reasonable level, a co-management platform has been built consistently. The NHI system invited commissioned units, experts, scholars and representatives from medical field, pharmaceutical field, Department of Health, as well as NHI Medical Expenditure Negotiation Committee to compose a payment commission for each sector of global budget. The payment commission took responsibility for the deliberations of related administrative procedures; supervised practical operation of global budget payment system and continued to reform the system; promoted reasonable use of medical resources; and continuously monitored variations in points and point value.

5) Improvement of the Pharmaceutical Pricing System and Enhancement of Public Rights in Drug Accessibility.

a) Reasonable Drug Price Adjustments

The DOH amended the Pharmaceutical Benefit Scheme for National Health Insurance. In addition, it adjusts drug prices once every two years. Thus far, it has adjusted prices seven times, effectively easing the growth in drug expenditures.

b) Expand the Scope of Drug Benefits

In 2011 the DOH adjusted drug benefits and increased their scope to improve the quality of public health care. This includes the relaxation of some of the restrictions in malignant medication, heart and diabetes medication, chronic hepatitis B and C drugs, Thrombocytopenic purpura medication, multiple sclerosis medication, macular degenerative diseases and dry eye ophthalmic drugs etc.

c) Ensuring Medical care and medication usage Availability for Rare Disease and Hemophilia Sufferers.

The NHI Medical Expenditure Negotiation Committee has set the earmarked budget for rare disease and hemophilia in the hospital sector under the NHI Global Budget System since 2005.

Section 4, Disclosure of Medical Care Quality Information and Public Satisfaction Ratings

1. Disclose of information on the quailty of medical care

1) The DOH has continued to disclose the medical quality information of all hospitals and departments, and publish the information on the National Health Insurance official website (http://www.nhi.gov.tw) under the designated "Medical Quality Information Disclosure" section.

2) Information on the quality of individual medical care institutions can be divided into two major categories. First there were service indicators, with disclosure made of widely applicable and highly feasible service items. These indicators were used on hospitals, clinics, Chinese medicine providers, dentists and dialysis centers. The other category included disease indicators. These used disease types or treatment items to develop professional indicators related to medical care service quality. Disclosure was made of six designated diseases, including diabetes, knee replacement surgery, hysteromyoma, dialysis, peptic ulcers and asthma. Disclosed information explained the meaning behind the indicators and assessed their value. Each indicator provided valuable health information to help viewers expand their knowledge.

3) Every enrolled individual could access personal utilization data for the past 3 months from NHI website by the Citizen Digital Certificate.

2. Level of Public Satisfaction

The DOH conducts public satisfaction surveys with the NHI program each year to understand the expectation of the insured and as a reference of policy making. In 2011, nearly 80.4% of local residents are satisfied with the system.

Section 5, NHI IC Card Applications

Achievement highlights in 2011 are as follows:

1. Approximately 99.9% of all NHI contracted medical care institutions have been electronically linked to the system and finished authentication, enhancing computerization and providing a platform for communication.
2. The NHI implemented the "Counseling Project for Heavy users". Those who have had more than 20 outpatient visits monthly were recruited in the project. On average the number of outpatient visits fell by 40-50%.
3. By the end of 2011, 138,972 people marked on their IC cards that they were willing to act as donors; in addition, 99,086 people had registered for hospice and palliative care. By the information of IC cards, medical personnel can quickly understand patients' willingness to donate organs.
4. Records of Medications, Major Tests

   NHI IC cards stored records of patients' six previous medical visits (including 60 sets of records related to doctors' orders, medication and tests) for safety reasons. Information was updated on a recurring basis and available for doctors to read and consider when issuing prescriptions.

Section 6, Assistance to Disadvantaged Groups

In 2011 the DOH continued to offer the following assistance measures:

1. Subsidies on Insurance Premiums

Government agencies provide subsidies on premiums for the disadvantaged groups, including low-income households, jobless veterans, unemployed laborers and their dependents, the mentally or physically disabled, those middle-income households, underprivileged people with subsidization from tobacco surcharge, and unemployed indigenous citizens, under age of 20 and over 55 years old.

2. Assistance Measures on Premiums

1) Rate Adjustments for Premium Subsidies

The NHI premium rate was raised from 4.55 to 5.17% on April 1, 2010. To lower the negative effects of the raise, the government budgeted money to cover subsidies for people below a certain income level. The subsidies took each person's economic ability into account and were used to pay the additional fees generated by the premium rate hike.

2) Continued the Relief Fund for individuals

For those who are not qualified as low-income households and are not eligible for government subsidies, the DOH has budgeted a fund providing loans to those encountering financial difficulties and unable to pay premiums & co-payments.

The insured who are qualified as specified in the Regulations for Identifying the Underprivileged and the Destitute for National Health Insurance Purposes, to apply for interest-free loans to pay off overdue premiums and the co-payments. The insured may begin to repay the loans debt in one year later.

3) Payment by Installments

Installment plans were available for the insured encounter difficulties and could

not pay the premiums on time.

4) Premium sponsorship referrals

For the insured encountering finical problems and are unable to pay the arrears, The DOH refers the cases to charity organizations for premium subsidies.

3. Medical Care Assistance for the insured with arrears

We guarantee the disadvantaged group holding the certificate of poverty issued by village (town) chiefs or hospitals can receive the treatment when having serious diseases even if they are not enrolled or have overdue premiums. Later on the Bureau of National Health Insurance will give assistance to process their enrollments, apply for the Relief Fund loans, premium referral or installment payment plans.

4. Release IC Cards to Eliminate Medical Care Impediments for Disadvantaged Groups

1) Following the spirit of the second-generation National Health Insurance, the Bureau of National Health Insurance has launched the Worry-free Medical Service Plan for the Disadvantaged. To exclude the people are able to pay their premium from the insured in arrears then unlock their IC cards. The way is try to draw a clear line between owing premiums and the right to receive the medical coverage. The plan had approved by the Executive Yuan since October 29, 2010.

2) The plan focused on children under 18, near-poor households, and families in unstable situation.

Chapter 2, Promoting the second generation NHI

The National Health Insurance Act was amended and announced on January 26, 2011, the biggest reform since its inception. The president instructed this department that all preparatory work must be completed in one to two years so that the second generation NHI could be implemented.

Section 1, Reform Points of Focus

1. Controlling the Use of Resources and Reducing Inadequate Medical Treatment:

1) The penalty for deceitful claims of insurance benefits or medical expenses shall be increased to up to 20 times the

amount illegally received. In addition, insurance contracts for contracted medical care institutions involved in significant violations may be suspended for a specified period of time or permanently revoked depending on the severity of the violation.

2) Medical resources for the promotion of health care shall not be improperly used. Failure to observe these relevant regulations may result in rejection of insurance benefits.

3) The Bureau of National Health Insurance shall, on a yearly basis, submit and implement an improvement plan to prevent the inadequate consumption of medical resources. The Bureau is also responsible for reasonably adjusting drug prices each year based on the market transaction status.

4) To promote the control of yearly drug expense, any expenses in excess of the limit shall be deducted from the medical payment; the limit will be adjusted each year in accordance with drug prices.

2. Improving the financial responsibility of the government

   1) The Act clearly stipulates that the annual funds to be allocated by the government for NHI shall not be lower than 36% of the total premium revenue (after deducting other legal incomes, such as the tobacco health surtax). According to the results of a preliminary estimation, the government will need to further invest roughly NT$10 billion during the first year of implementing the revised National Health Insurance Act. This cost would increase in the future corresponding with the growth of medical spending.

   2) Financial deficits accumulated before the implementation of the revised National, Health Insurance Act shall be made up by the government through its annual budgeting process.

3. The NHI Supervisory Commission and the NHI Medical Expenditure Negotiation Committee will combine to form the NHI Board and will coordinate to control financial linking mechanisms to ensure the sound management of NHIs finances.

4. Expanding the NHI Premium Calculation Base, Improving the Fairness of Financial Burdens.

   1) Income from part of the bonuses from the year-to-date payment exceeding the current month insured amount by the insured units, salary from payment by uninsured units, stock dividends, business execution, rental, and interest will be included in the basis for calculating supplementary premiums for the insured. Such will relieve the pressure of general raise in premium rate and narrow the gap in premium burden between people that receive the same and enhance the fairness of burden.

   2) A supplementary premium shall be collected from employers based on the difference between the total monthly salary paid by the employer and the sum of insured amount for the employees. This is to distribute the burden of premium in corporates that have different salary structure but pay the same gross salary.

5. Adopting Diversified Payment Methods: The principle for payment shall be "Treatments of diseases in the same Diagnosis Related Group (DRG) shall receive the same amount of NHI payment". The "Capitation Payment Methodology" shall also be incorporated into the system and PQRS (Physical Quality and Responsibility System) shall be implemented. These approaches are adopted to invest in the well-being of the people.
6. Keeping Important Information Transparent and Encouraging Public Participation
   1) It is clearly stipulated in the Act that the following information should be disclosed publicly: meeting records on major NHI-related issues and interests of the participating members; financial reports; medical quality information and ratio of insured beds of the contracted medical care institutions; as well as the number of insured beds and major violations of contracted hospitals.
   2) Representatives of premium payers shall participate in all discussions and decisions of important matters, including premium rates, insurance coverage, total amount of medical payments for the year, fee schedule for medical services and drugs, full payment system, liability for the remaining balance, etc. If necessary, the NHI Board shall also organize relevant citizen participation activities to obtain feedback from the general public.
7. Protecting the Rights and Interests of the Disadvantaged by Reducing Copayments:
   1) After the insurer has inspected and counseled, those who are able to pay but refuse to do so shall be denied for insurance benefits in order to protect the rights of the disadvantaged receiving medical care.
   2) Reduction or exemption of copayment shall be granted for those in areas with shortages of medical resources.
   3) The percentage of copayment for home nursing care shall be reduced to 5%.
8. Stricter restrictions shall be enforced on access to NHI benefits by new residents and individuals who have stayed overseas for a long period of time. In order to be eligible for health insurance you must have a household registry or have obtained a residence card for at least six months; if not you must have been employed or obtained registry within the last two years.
9. Convicts are now covered by the NHI to protect their basic human rights as regards health.

Section 2, Preparatory Work

1. Integration of Healthcare Organizations

1) The important reformation in the organizational system is merging the NHI Supervision Commission and the Medical Expenses Agreement Committee into the NHI Council. Powers over financial revenues and expenditures were united to link revenues to expenses and to achieve balance in finance.

2) To ensure the formation of the NHI Council will fully represent all people in participating and taking the responsibility of maintaining the financial balance of NHI, the council followed the fifth item of the NHI Act regulating the composition and proportion of a committee to develop its representation, formation method, procedure specification, self-disclosure of interests they represent, open disclosure, etc. Expectations of accountability from the outside are appropriately included to build the foundation for the council to carry out its role.

3) In coordination with the organizational transformation of the Executive Yuan, preparatory work for Health Well-fare Department was conducted. In accordance with the principle of overall planning, the NHI Council was positioned as a permanent task force within the Health Well-fare Department.

2. Preparatory Work for Setting Regulations

After announcement of amendment to the NHI Act, at least 30 regulations needed to be amended and among them at least 16 were added during the amendment. The Department successively invited experts and scholars for advice, held meetings with representatives from relevant mechanisms and organizations, and completed amendment and publication of relevant regulations according to the operating rules of the legal system and the Administrative Procedure Act.

3. Planning for the New System

For the implementation of the Second Generation NHI, many new systems, including establishment of supplementary insurance withholding and information system, insurance for the convicts, health technology assessment, family physician liability system, NHI medical care institutions earnings made public, quality of NHI medical care made public, signing trading contracts for drugs, etc., required detailed planning. Professional advices from multiple sources were also collected to ensure the successful execution of various measures and relevant specification for the new NHI to function most effectively.

4. Strengthening Advocacy in Different Groups and Different Stages

With "second-generation NHI, better welfare for all" as the core demand, when publicizing the changes it focused on four major directions – NHI value, taking care of the disadvantaged, increasing income but cutting expenditure, and linking revenue and expenses and reasonable insurance premiums, targeted different groups of people to take a more personalized approach, and decided to implement reform in stages. The first stage was to give people a strong understanding of the key points of the second-generation NHI while gathering opinions from different groups that it could refer to when formulating potential changes or additions. Stage two involved more concrete explanation on issues that people cared strongly about regarding the execution of second-generation NHI. In stage three the focus shifted to practical and operational issues to help achieve smooth implementation of the second-generation NHI.

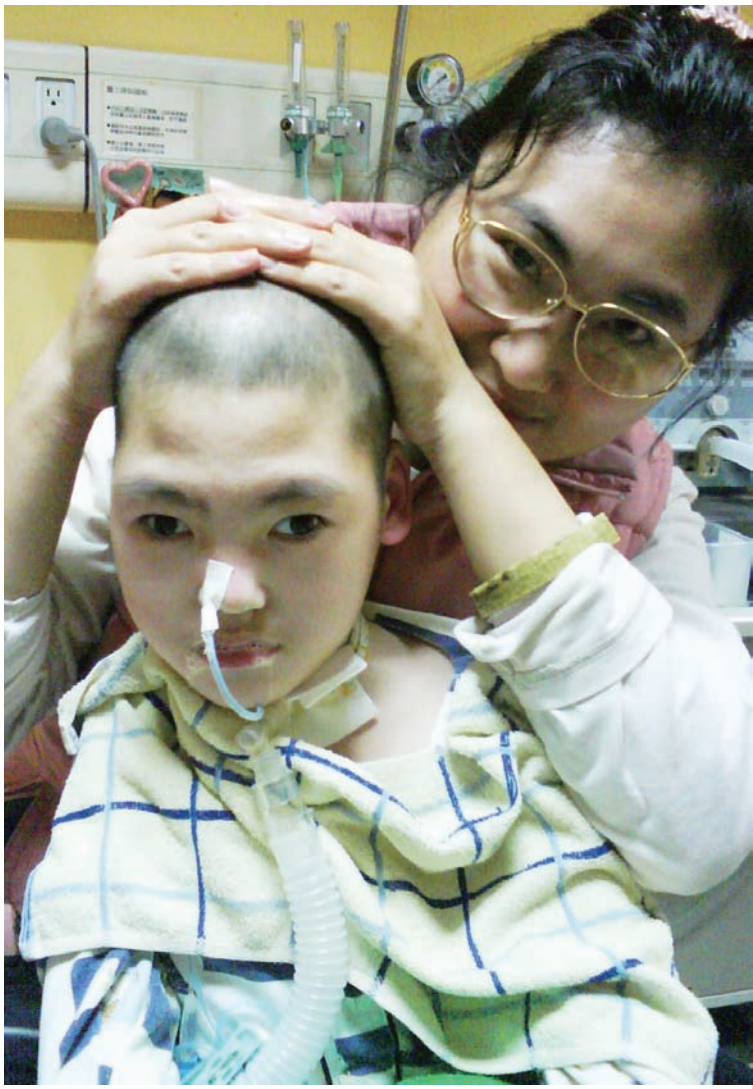
8 Health Care for the Less Privileged Groups

Health Care for the Less Privileged Groups

In 1998, when the WHO announced its health for all in the 21st century policy in 1998, it focused on equity in health, emphasizing treatment among the different sexes and races along with helping the disadvantaged groups. Since then, more research has shown that different approaches are needed for the different sexes, races, income groups and the disabled when dealing with factors that affect people's health and working to prevent disease.

Chapter 1, Health Care for the Mentally and Physically Impaired

1. The New Disability Identification System: The President of the Republic issued the People with Disabilities Rights Protection Act on July 11, 2007; the disability identification system and Needs Evaluation System are required by law to be fully implemented by July 11, 2012. In order to advocate the New Identification System, the Department has been implementing it since 2008, and preparing the core of and environment for the completing of the Identification System.
2. Disability Rehabilitation Aid Centers: In 2004 counties and cities began establishing Rehabilitation Aid Centers, providing assistive consultations, assessments, individual evaluations, and other such services, allowing those with disabilities to maintain integrity and access a diversity of professional medical series. In 2011, 12 hospitals established these centers, serving 54,194 people.
3. The DOH conducted the Preventive Oral Health Services Plan for the Disabled to train employees who work with the disabled to be capable of oral care; established eight home service teams and 22 organizations for the disabled; about 4,400 disabled people received oral health services.
4. Established a nation-wide Joint Assessment Children Development Center to provide school-aged children with early intervention professional assessments and transition



mechanism, including establishing multi-disciplinary team services, community outreach services, and parental support groups. Since 2009 25 such institutions have been built, making 45 in all in 2011.

Chapter 2, Health Care for Residents of Mountain Areas and Offshore Islands and the Indigenous Peoples

The mountain areas and offshore Islands Areas, because of their special geographic environment and extensive locations, include ethnic groups with poor health care resources and health care services. To improve the accessibility, comprehensiveness and continuity of health care for residents of mountain areas and offshore islands and indigenous peoples, the Department has taken action with priority to integrate medical care resources in offshore islands, upgrade quality of medical care in mountain areas and offshore islands, improve the function of health rooms, and actively promote the quality of medical manpower and enhance the emphasis on prevention and control of major diseases.

1. Improvement of Hardware Facilities in mountain areas, Offshore Islands and remote areas: through 2011, the DOH had agreed to subsidize two health centers undertaking rebuilding projects and 18 doing renovations; in mountainous and indigenous areas the lighting and air-conditioning at 23 health centers were improved; and repairs were also made on three helicopter pads. Besides improving facilities, the DOH also gave equipment subsidies to health rooms in mountain area and offshore islands. Included were 115 pieces of information related equipment, 135 pieces of medical equipment, six mobile medical care vehicles, 62 mobile medical care motorcycles and one ambulance. These projects improved the quality of medical services and increased resources in remote regions, bridging the health care gap between rural areas and the city.
2. Continuous fostering of local medical manpower. Medical graduates on government scholarship are sent back to work in their own townships. In coordination with the Integrated Delivery System (IDS) of the National Health Insurance, to encourage medical personnel subsidized to stay on after completion of their duties. In 2011, 72% of these medical personnel stayed on.
3. The DOH encouraged people to work together on community health building programs, enhancing its work by integrating local resources and drive community participation. In 2011, through Building Healthy Communities Program. in indigenous area and offshore islands it established two counseling centers and 86 community health building centers. In 2011, the DOH subsidized 40 sessions of the Community Tribe Health Service Camp for College and University Students in Mountain Areas and Offshore Islands. About 1,600 people are expected from the teams to provide tribal community services.
4. The DOH worked to improve medical information available in remote indigenous communities by forming shared information platforms.
   1) The DOH set up 308 mobile medical stations at 48 health centers in 15 counties, providing

mobile clinics medical care to the tribes; and a User-friendly Mother Tongue Clinic Registration System to provide more convenient medical care services to the local residents, reducing the medical resource gap between cities and rural areas.

2) The picture archiving and communication system (PACS) is set up; and health information systems are integrated. 32 health centers in Nanao Township, Yilan County were connected to the DOH-Hospital to improve the medical care quality in remote tribes.

3) To provide people in remote areas the same interpretation quality and timely service as people in cities, since 2011 health centers in mountain areas and outlying islands have been provided with image interpretation support by the DOH.

5. Protecting Health and the Rights to Medical Care for the residents of mountain areas and offshore islands: In coordination with the Integrated Delivery System of the National Health Insurance, the rights of the residents on offshore islands to medical care are protected through support of specialists. Four health bureaus in Penghu, Kinmen, Lienchiang and Taitung are subsidized to conduct tele-medical care continuously. Total is 25 connection points.

6. Emergency Delivery of Patients in mountain areas and offshore islands.

   1) A 24-hour DOH National Emergency Aeromedical Center was set up; in June 2012 there were 10 cases of emergency medical consultation services given; 152 people applied to be transferred via air, and the results show that 141 people were thus transferred, an approval rate of about 92.76%.

   2) A set of Guidelines Governing Subsidies to Transportation Costs for Delivery of Critically Ill or Emergency Patients in Mountain Areas and Offshore Islands for Medical Care is formulated to subsidize costs for transporting patients to Taiwan for medical care. In 2011 there were 27,033 patients from offshore islands who came to Taiwan for accepting treatment and received subsidies.

Chapter 3, Health Care for Groups with Special Health Needs and New Immigrants

Section 1, Community-Based Long-Term Care for the Elderly with Dementia or Functional Disabilities

1. To understand the condition of dementia among people over the age of 65 in Taiwan, in early 2011 the DOH proceeded to conduct an epidemiological investigation of dementia. The investigation is expected to complete by the end of 2013. Through such investigation, we can establish the prevalence and incidence of dementia in the nation and understand the prevention, causes and risk factors for dementia. Appropriate resources for dementia care can thus be planned for and care capacity for dementia patients in the nation can be upgraded.

2. In 2011, the DOH, Ministry of the Interior, and Veterans Affairs Commission jointly completed the first national inter-ministerial dementia resources inventory. The results showed that there are nine counties and cities across the country without institutional dementia service resources and 12 counties

and cities across the country without community dementia day care resources.

3. Improving Care Services for the Elderly
   1) The DOH hospitals have been providing community care services for the dementia and disabled since 2009. By 2011, there are a total of nine hospitals (Keeling, Miaoli, Taichung, Nantou, Puzi,Chishan, and Pingtung Hospitals, Tsaotun and Jianan Mental Hospitals), five of them providing interim care services (Keelung, Taoyuan, Miaoli, Nantou, and Pingtung Hospitals).
   2) By the end of 2011, the DOH hospitals provided 2,224 beds of nursing home services (including psychiatric nursing home).
   3) For the time being six hospitals provide home hospice service (Fengyuan, Taichung, Changhua, Sinying, Tainan, and Pingtung), nine hospitals provide palliative care, and four hospitals provide hospital hospice care. They have all passed certification to set up a home hospice service team to provide holistic hospice and stay-at-home services.

Section 2, Human Rights Protection and Care of Hansen's Disease Patients

1. On July 18, 2008, Legislative Yuan passed Hansen's Disease Patient Human Rights Protection and Compensation Act to change the terminology of the condition from leprosy to Hansen's disease in all relevant laws and provisions.
2. The Hansen's Disease Patient Human Rights Protection and Advocacy Group had held a total of 16 meetings by December 2011.
3. The DOH promote the implementation plan of Directly Observed Treatments (DOTS) for Hansen's Disease Patients to provide quality care for Hansen's Disease cases.
4. On January 24, 2011, Lo-sheng Bridge was launched into service. The bridge connects the new campus St. Hope Square, crossing over the MRT train yard, and the Penglai Home in the old campus, increasing convenience in caring for residents.

Section 3, Rare disease prevention

1. By the end of 2011, 193 rare diseases, 78 rare disease drugs and 40 special foods needed to sustain life have been announced; rare diseases have been brought within the scope of serious diseases, reducing some of the medical treatment burden of the patient. In accordance with the Regulations for Rare Disease Subsidies, subsidies are provided for 29 special foods needed to sustain life and 9 emergency use drugs.
2. Overseas testing service and partial subsidy have been provided to an average of 42 people annually; subsidies for diagnosis and treatment fees not covered by the National Health Insurance Scheme are also provided, with subsidies totaling NT$40.08 million paid in 2011; Genetic diagnosis and advice and other services for rare disease patents and their families with are provided, rare disease prevention public education work is also strengthened.
3. In coordination with the Rare Disease and Orphan Drug Act, on April 4, 2011, the amended Regulations for Rare Disease Subsidies were announced. In addition to continuing to provide patients with rare diseases special foods, subsidies for overseas testing were also increased; full subsidies are provided to low and middle income patients.

Also subsidies for home-use medical equipment needed to sustain life, testing in Taiwan to confirm diagnosis, nutrition advice, emergency treatment etc. were added. The subsidies for diagnosis confirmation testing and home medical equipment needed to sustain life are backdated to 2011.

Section 4, Human Rights Protection and Care of the HIV-Infected

The Department has spared no efforts in the human rights protection and health care of AIDS patients. Taiwan is one of the few countries that provide the HIV-infected with free medical care. When HAART (highly active antiretroviral therapy) was first developed in 1997, it was immediately brought in to provide the infected with free cocktail therapy.

1. In the Protection of Human Rights

1) On December 17, 1990, "the AIDS Prevention and Control Act" was promulgated. In response to changes in the epidemic and international as well as national protection of human rights of AIDS patients, the Act was amended on July 11, 2007 and renamed "the HIV Infection Control and Patient Rights Protection Act". The amendment was to meet the demand of prevention and treatment and fulfill the spirit of a nation founded upon the principles of human rights.

2) Two sets of regulations, "Regulations Governing Protection of the Rights of the HIV-Patients", and "Operational Directions for Reviewing of Applications for Stay or Residence for HIV-Infected Individuals", have been formulated.

3) "The Regulations Governing Compensations to Persons Infected with HIV through Execution of Preventive Functions" were formulated to provide compensation for those who become infected while perform their official duties.

4) To provide timely assistance to people infected with HIV, procedures were established for AIDS patients to report rights violations.

2. Health Care

1) Since the amendment of the AIDS Prevention and Control Act (now the HIV Infection Control and Patient Rights Protection Act) on February 5, 2005, free anti-HIV medications have been provided, and payment under the National Health Insurance has been extended to the non-insured HIV-infected to improve the coverage of medical care and accessibility to medical care. In 2011, about 86%of the HIV-infected sought medical treatment.

2) To encourage the HIV-infected to perform self-management a case management project for HIV infection has been implemented since 2007. In 2011, 45 designated medical care institutions for HIV control joined this project to provide cases with health education and counseling. The cumulative number of case management reached10,201 people.

3) Through follow-up management of county and city bureau of health and case managers, they advice cases to regularly visit designated hospitals for treatments and care about their treatment situations to increase their desire to obtain treatment.

4) Private sector organizations and charity groups have been subsidized to assist in the care of cases, making arrangement for

their medical care, emergency placement, and provide case management services. In 2011 they provided 146 AIDS patients with placement and 359 with case management services.

Section 5, Health Care for the New Immigrants

1. Differences in language and cultural customs make new immigrants a disadvantaged group in terms of health. To protect their rights to proper health care, the DOH helped new immigrants join the NHI system. Other steps it took included the launch of the "Reproductive Health Management Plan for Parents from Foreign Countries and Mainland China". This provided new residents and their children with reproductive health counseling services and management of their NHI card, and advising for reproductive planning, breastfeeding, health care during pregnancy, regular prenatal examinations and nutrition during pregnancy In 2011, the management rate of NHI cards was 99.43%.
2. Ensuring the reproductive health of new immigrants before they have joined the NHI program is an important task. From 2005 to 2010, the DOH formulated the Prenatal Health Subsidy Plan for Foreign Spouses without Household Registration. The plan was used to subsidize prenatal health checks for foreign spouses who were not yet a part of the NHI system. There was a limit of five NT$600 subsidy payouts per pregnancy. Starting from 2011, budget responsibility for the prenatal checks shifted to the DOH's Bureau of Health Promotion. In 2011, subsidies were used 10,461 times at a total cost of more than NT$5.08 million.
3. The DOH launched its Translator Service Project for Foreign Spouses on Reproductive Health, working with local health centers to train translators who could assist new residents seeking health care information. A total of 210 health centers in 17 counties and cities joined the project in 2011, recruiting 364 translators.
4. The DOH also produced reproductive health materials in many languages, including Vietnamese, Indonesian, Thai, English and Khmer. The materials ranged from pamphlets on reproductive health, pregnant women's health, and children's health to a reproductive health VCD series, etc.

Section 6, Health Care for Oil Disease Patients

1. Health Care for Oil Disease Patients

1) An oil disease outbreak occurred due to consumption of rice oil contaminated with PCBs. In 2005 since the next generation could be affected owing to contamination of the placenta or breast-milk, the DOH provided a care plan for children born after January 1, 1980, whose mothers affected by the outbreak (these children were known as second-generation oil disease patients). Through the end of 2011, 1,541 oil disease patients had benefited from this plan, including 1,308 first-generation patients and 233 second generation patients.

2) Health services provided to oil disease patients include: 1.setting up the Regulation of Implementing Health Care Services for PCB Affected Patients; 2.

waiving copayments for first-generation oil disease patients when using any inpatient services, 3. waiving copayments for oil disease patients who bring their IC card when receiving outpatient or emergency services, 4. providing free annual health examinations, 5. continuing health follow-up programs (including visits and care programs), 6. establishing oil disease clinics in December 2009 at the DOH Fongyuan Hospital and Changhua Christian Hospital.

2. Taiwan-Japan Conference on Oil Disease Health Care

1) Understanding Japan's policies for dealing with Oil Disease patients is important because Taiwan can then use that knowledge when formulating its own policies. Therefore, on April 29, 2011, the DOH held the Taiwan- Japan Conference on Oil Disease Health Care. Also invited were health department representatives, oil disease patients, and members of oil disease associations. Over 80 people attended the conference, including over 50 oil disease patients.

2) The DOH invited oil disease patient representatives along with the Victims Support Association and other experts to engage in talks. The experts gained a better understanding of patient needs and patients gained a better understanding of DOH health services.

Section 7, Medical Services for Inmates of Correctional Institutions

1. To protect the inmates' rights of health and improve medical service and public health in correctional institutions, the DOH and Ministry of Justice collaborated to put into trial an award scheme for improving medical care of correctional institutions. DOH hospital provide general and specialist clinic, regular physical examinations, cancer screening, and chemical addiction rehabilitation and other integrative medical care services respectively.
2. The above-mentioned pilot project was executed until the end of 2011. Participating correctional institutions had an average of 12.28% decrease in guarded hospital visits, 23.17% decrease of severely ill patients; about 68% of diabetes patients had their HbA1c controlled below 7%; about 63% of hypertension patients had their systolic/diastolic blood pressure controlled below 130/85; inmates' satisfaction with medical service at the institution reached beyond 80% to 90%.

Chapter 4, Health Care for the Economically Disadvantaged

To ensure complete access to NHI medical care for people facing financial hardship, the DOH promote measures to assist them in paying NHI premiums A summary follows:

1. The DOH continued its relief fund, providing interest-free loans for people to pay overdue insurance premiums and self-payment medical costs. The borrowers were able to begin paying back the loans one year after application. Through the end of 2011, 3,872 loans were approved worth a total value of more than NT$241 million.
2. Installment plans were available for the insured encounter difficulties and could not pay the premiums on time. In 2011, 187

thousand people had benefited from this program, easing the financial burden on payments by a total of NT$4.379 billion

3. For the insured encountering finical problems and are unable to pay the arrears, The DOH refers the cases to charity organizations for premium subsidies In 2011, 2,646 cases were successfully referred and the amount was about NT$18.06 million.
4. The health surcharge on cigarettes allocates a part of its revenue (on September 7, 2011 the rate was adjusted from 4% to 6%) to subsidize the premium of economically disadvantaged people. Through the end of 2011, these funds had benefited over 530 thousand people, with subsidy amounts totaling NT$1.72 billion of which 50,000 were from middle-income households (totaling NT$70 million) and about 480 thousand of those given assistance were from difficult economic circumstances (about NT$1.65 million).
5. In 2011, the DOH had gained NT$400 million from public welfare lottery profits. These revenues were used to execute 17 subsidy plans enacted by the Bureau of National Health Insurance and 15 local governments. Subsidies provided assistance with health insurance premiums debts and related expenses in order to assist economically disadvantaged people receive needed medical care. Through the end of 2011, the program had benefited over 49,000 people.
6. The Bureau of National Health Insurance has launched the Worry-free Medical Service for the Disadvantaged that would enable members of the disadvantaged groups to seek medical care worry-free. The plan was geared toward children under 18, families nearly in poverty, and families in special situation. It sought to help members of disadvantaged families unlock their health insurance cards and through the end of 2011 had benefited 398 thousand people who were in arrears to the health insurance system.

9 International Cooperation in Health

International Cooperation in Health

The DOH has spared no effort in promoting international health through cooperation through the promotion of participation in the World Health Organization, international exchanges and cooperation, providing international medical assistance and health development services, and other such international promotions to achieve the four tasks diligently. The DOH has also timely adapted to the current situation and has developed a diversity of cooperative modes, thus achieving the goals of contributing to the world and strengthening Taiwan's status.

Chapter 1, Joining International Health Organizations

Section 1, Joining the World Health Organization

Since Taiwan's pursuit of WHO membership in 1997—during which it has experienced enterovirus infections, SARS, H1N1 outbreaks, and other major international public health incidents—it has followed a trend of cross-border cooperation, receiving the growing support and legitimization from the international community. Since 2009 Taiwan has been invited to be an observer at the World Health Assembly.

Section 2, Current WHO Membership Status

1. In 2011, Minister Wen-Ta Chiu led a team to attend the 64th World Health Assembly (WHA) and gave speeches. Representatives from Taiwan spoke on 14 technical issues including influenza pandemic preparedness and shared achievements and experiences in medicine and health of our nation. They also called upon the United States, European Union, Japan, and other major countries to continue to support our demands for protecting our dignity and professional involvement. Regarding the incidence of addressing our government inappropriately in the internal documents of the World Health Organization (WHO) on May 16, they submitted a letter of protest to the WHO and solemnly expressed the four standpoints by mouth:
   1) Our Government showed strong resistance to the internal documents of WHO.
   2) Those internal documents are totally unacceptable.
   3) The exchange of letter between our country and WHO in 2009 should go beyond the force of those WHO internal documents.
   4) WHO should address our government in the same way as WHA does.

Director Wen-Ta Chiu led Taiwan representatives to attend the 64th World Health Assembly in 2011.

2. In 2011, ROC sent delegates to attend 10 WHO Technical Conferences. The topics of discussion included medical personnel, development of vaccination, etc.
3. Cooperated with Ministry of Foreign Affairs to promote participation in WHO important mechanisms, including the International Food Safety Authorities Network (INFOSAN), Global Influenza Surveillance and Response System (GISRS), Stop TB Partnership, etc.
4. The DOH Centers for Disease Control submitted to WHO a list of authorized ports that allow the issuance of certificate of health control of ROC and reported to the Executive Yuan to establish an interagency group to promote ROC's IHR (2005) Core Competency Assessment and Implementation Plan of Specified Harbors. They also invited Japanese experts on IHR to come to Taiwan to conduct self-assessment, which was highly appraised.

Director Wen-Ta Chiu gave speeches at the APEC Health Systems Innovation Policy Dialogue in September 2011.

Chapter 2, International Exchange and Cooperation

Section 1, Participating in or Organizing International Conferences and Studies and Trainings

1. Participating in international conferences

The DOH participated in a total of 105 international conferences in 2011. The representative meetings and their effectiveness are summarized as follows:

1) In August 2011 Minister Wen-Ta Chiu visited institutions under the US Department of Health and Human Services that are responsible for food safety, health care reform, health information etc., to further improve the exchanges and cooperation on health issues between Taiwan and the US. The DOH was simultaneously invited to attend the Martin Luther King Jr. Health Equity Summit organized by the Institute for Advancement of Multicultural & Minority Medicine (IAMMM) and gave a speech on how ROC had fulfilled the ideal of health equity that Dr. King promoted for years through the implementation of Taiwan National Health Insurance (NHI).
2) On September 16 through 17, 2011, Minister Wen-Ta Chiu led delegates to attend the APEC Health Systems Innovation Policy Dialogue in San Francisco, US and gave speeches at the Panel I – Addressing NCD Challenges in the APEC.
3) On October 5 to 8, 2011, Dr. Chih-Liang Yaung (on behalf of Minister Wen-Ta Chiu) led a team to attend the 14th European Health Forum Gastein in Austria.

4) From October 29 thru November 2, 2011, Dr. Chih-Liang Yaung (on behalf of Minster Wen-Ta Chiu) led a team to attend the 139th annual meeting of American Public Health Association (APHA) held in Washington DC, US. During the meeting a forum for Taiwan "Promoting Health from Cradle to Grave: Case Studies of Taiwan's Reform and Comprehensive Approach to Care" was held to report a series of Taiwan's experiences in healthcare and shared the outcome of important policies including cancer control, preventative care for children, etc.

2. Participating in Foreign Study Trainings

The DOH sent delegates to 19 countries in 2011 to attend 38 sessions of study trainings to achieve the goals of protecting the national health and reducing disease risk.

3. Holding International Meetings Domestically

In 2011 a total of 65 international meetings were held or instructed to be held. The representative meetings and their effectiveness are summarized as follows:

1) On June 2–4, 2011, an anti-drug international seminar, national anti-drug conference, anti-drug garden party, and other serial activities were held. Of which, the anti-drug international seminar combined private non-governmental organizations and academic units to jointly participate in drug abuse control and developing new modes of drug addiction rehabilitation. They invited scholars and experts from Taiwan, Hong Kong, and the US to achieve the purpose of complete control of drug abuse through international cooperation and information exchange on drug abuse.

2) On August 18 and 19, 2011, the APEC AIDS Harm Reduction Seminars was held in Taipei. It originated as the DOH Centers of Disease Control submitted a request for the event and received support from all APEC member bodies. A total of 13 APEC member countries with their 30 representatives and 77 domestic experts attended the Seminars. The Seminars enhanced exchange of experiences between ROC and APEC member countries and effectively assisted developing member countries in establishing AIDS harm reduction ability and expanded our involvement in APEC health affairs.

3) On October 17-18, 2011, the 2011 Taiwan Health Forum was held with the subject "Sustainable Health Systems". The forum delivered keynote addresses on issues of Health Equity, Healthcare financing, Major Health Disasters. Approximately 40 foreign health officials, experts, scholars and academicians from 25 countries, including the US, UK, New Zealand, Japan, and Korea, attended this Forum.

Section 2, International Exchange and Cooperation

1. International Cooperation Plan

1) "2011 Promotion Program for Healthcare Cooperation with Central and South American Nations": The DOH Taoyuan Hospital went to Honduras to give maternal and child health education,

provides medical services in internal medicine, otolaryngology, etc and donated medical supplies and medicines. In addition, they also made a field trip to Belize and accepted 3 Belize clinical nurses to come to Taiwan for training.

2) "2011 Promotion Program for Healthcare Cooperation with West African Nations": to train healthcare personnel in Gambia and Ghana, and to establish a joint healthcare R&D laboratory in Ghana.

3) "2011 Promotion Program for Healthcare Cooperation with African Nations": to hold disaster prevention and response training courses for the Kisumu region, in cooperation with the Great Lakes University of Kisumu (Kenya);

4) Laboratory Research Projects between the National Health Research Institutes and Vietnam": In January 2011 Director of National Health Research Institutes, Ih-Jen Su, represented the ROC to visit Children's Hospital No.1 in Ho Chi Minh City, Vietnam to discuss research topics of cooperation in 2011.

2011 National Anti-Drug Conference

2. Signing of the Memorandum or Agreement

1) "Cross-strait Cooperation Agreement on Medicine and Public Health Affairs": the Agreement was signed on December 21, 2010 and was implemented on June 26, 2011. The fields of cooperation include "prevention and control of communicable diseases", "safety administration and research and development of medicinal products", "research and exchange in traditional Chinese medicine and safety administration in traditional Chinese medicinal materials", "assistance for medical emergency". The first working groups meeting convened in August 2011.

2) "Cooperation Plan for Tobacco Control in East Asian Countries": the DOH Bureau of Health Promotion, Cambodia, and Mongolia jointly signed the cooperation plan on January 1, 2011. Their main interests were to assist Cambodia in promoting legislations, establishing tobacco-free work environment, organizing "quitting tobacco is winning", providing tobacco-cessation services and supporting community health promotion projects. They also cooperated with Health Department in Ulaanbaatar City, capital of Mongolia, to promote tobacco-free work environment and increase in tobacco hazard.

3) "Agreement on the Haitian Epidemic Prevention Rooting Plan": The DOH Centers of Disease Control signed the agreement with Haiti on March 2, 2011. The terms include assistance in laboratory and epidemiology trainings, mutual

visitations, donated experiments, and epidemic prevention materials and devices.

4) "Tobacco Hazards Prevention World Wide Web Plan": the DOH Bureau of Health Promotion and the International Union Against Cancer (UICC) signed the plan in Geneva, Switzerland on March 11, 2011. Through the "GLOBALink – Tobacco hazards Prevention World Wide Web" of UICC, information on tobacco control flows rapidly.

3. Visitations by International Friends

1) In 2011 the DOH and affiliated mechanisms received 1,443 person-times of foreign guests from 51 countries visiting Taiwan.

2) The Taiwan National Health Insurance system has received many praises internationally and become an object of benchmark learning for various countries. From September 4 to 10, 2011, the 19 officers of the National Health Security Office of Thailand came to Taiwan for a one-week NHI course; from November 14 to 25, 2011, the Ministry of Health, Malaysia, sent 21 medical health officers to Taiwan for a two-week training course in Taiwan NHI.

Section 3, International Education and Training

1. Taiwan Health Center (THC) in the Republic of the Marshall Islands: In 2011 the THC helped 1,945 person-times setting up health indicators, organized 13 sessions of lectures to advocate healthy lifestyle and diets and the importance of prevention and control of metabolic syndrome. THC also collaborated with Marshall Islands Ministry of Health to conduct adolescence health education, sexual education, advocacy for prevention of sexually transmitted disease and advocacy for tobacco hazards control.
2. Taiwan Health Center (THC) in the Solomon Islands: in 2011 provided local medical services including parasite control plan which had served cumulatively 1,990 person-times, training of 176 qualified seed instructors, organizing community public health education that benefited 3,650 person-times.
3. Taiwan International Healthcare Training Center (TIHTC): In 2011, it trained 146 healthcare personnel from 23countries in clinical medicine, healthcare management, etc.

Chapter 3, International Medical Aid

Section 1, International Medical Aid

When an earthquake occurred in Haiti in January 2010, Taiwan International Health Action (TaiwanIHA) was dispatched to the disaster area to give aid and proposed a three-year three-project "Republic of China's plan to assist the Haitian with reconstruction after earthquake." The details of the work are as follows:

1. Taiwan Health Center (THC): Implemented by the DOH Tao-Yuan General Hospital. In 2011 both partiers conducted a total of 3 official mutual visit and exchange. 15 combo blood glucose-blood pressure devices, blood glucose test strips, and other medical supplies were donated to Haiti.
2. Medical Equipment Donation: Implemented by the DOH NTU Hospital Global Medical Instruments Support and Service (GMISS) and DOH Tao-Yuan General Hospital. In 2011 they provided used or brand new medical instruments for use in 9 medical centers in Haiti.

3. Haiti Epidemic Prevention Project: On March 2, 2011, the Research and Diagnostic Center of the DOH Centers of Disease Control and Haiti National Public Health Laboratories signed a cooperation agreement to improve Haiti's capability in testing for infectious diseases and capability of epidemiology investigation. From October 21 to November 3, 2011, delegates went to Haiti for experts' scholarly exchanges and visitation and donated three sets of testing equipment and 90 cases of water purifying tablets to fight against the cholera epidemic.

Section 2, International Medical Assistance

1. Establishment of the Global Medical Instruments Support & Service (GMISS) Program to provide ally and friendly countries with medical equipment. In 2011, 8 donations, comprising 449 pieces of medical equipment, were made to 7 countries.
2. In August 2011, Taiwan international Health Action (TaiwanIHA) in cooperation with Association of Medical Doctors of Asia in Japan (AMDA), visited Jaffna's Teaching Hospital in northern Sri Lanka to engage in cataract surgery medical cooperation.
3. The DOH Bureau of Health Promotion organized an event "Love of Taiwan, Kindling the Hope of Peace" to donate midwifery equipment to the Solomon Islands. On September 19, 2011, representatives donated 60 sets of midwifery tools that meet the environment for midwifery in Solomon and trainings in relevant techniques.
4. Regarding the flood in Thailand in October 2011, the DOH cooperated with the Ministry of National Defense, the Overseas Compatriot Affairs Commission, and the Environmental Protection Administration, Executive Yuan to provide 6000 health education brochures and family first aid kits and had Taiwanese merchants and Chinese groups in Thailand assist in distribution.

Taiwan International Health Action team doctor checking the eyes of a local child.

Chapter 4, Globalized Medical Services

1. Background of Development of Medical Service Industry

The operating models of hospitals have been influenced by NHI payment system, and the aging population and advancement of technologies. The areas covered by the medical services market have expanded and the medical industry has moved from the simple treatment of diseases in the past to customer service-oriented. For many years the ROC expenditure of NHI have showed a trend of growth. However, its percentage of GDP is still low compared to other developed countries. Through utilizing the advantage of the technology and quality of our medical services, we can reactivate the development

of our medical industry and enhance the international competency of our medical service industry.

2. Goals of Development of International Medical Service

Through development of medical brand, establish characteristics and provide diverse medical services. Additionally, emulate the institutionalization of the industry, organizational skills and other entrepreneurial capabilities, conduct activating integration within and outside the industry, and effectively explore innovative business strategies to lead the medical service industry move into a diverse environment.

3. Implementation Results

1) In accordance of the policy of the Executive Yuan to promote the six emerging industries, the project was listed as one of the key development projects of healthcare upgrade platinum plan of the six emerging industries.

2) Continued to review effectiveness of project implementation and coordinate inter-ministerial resources to benefit the international promotion through the inter-ministerial cooperation mechanisms of the overall planning group for the internationalization of medical services.

3) Commissioned Taiwan Private Hospitals and Medical Institutions Association to establish a unified window for the internationalization of ROC's medical services – "International Medical Management Working Team" to serve as a platform for information exchange and dissemination. Also counseled 32 participating hospitals to build an internationally competent environment.

4) Conducted a survey and estimate on supply and demand of key industry personnel of the international medical industry.

5) Commissioned Taiwan External Trade Development Council to conduct international advertising. A total of 17 print media, such as World Journal, and 8 television media, such as Radio and Television Shanghai, covered the story.

6) Introduced strategic alliances of international medical services. In 2011, six strategic alliances were created for cooperation. Medical-related service industry practitioners from 41 countries were invited to discuss issues of cooperation. Cooperation of referral service with 3 relevant industry practitioners was signed. Also, 12 service spots were set up overseas to provide consultation and services.

7) Developed apps for Taiwan Medical Tourism for Smartphones such that Smartphone users can quickly obtain information on Taiwan tourism and medical care.

8) Attended World Medical Tourism and Health Congress 2011 held in Chicago, USA, from October 25 thru 28, 2011. A service booth was set up for the image of Taiwan Medical Tourism to increase exposure of Taiwan medical care.

9) Reviewed ROC relevant regulations and made deregulation. On September 16, 2011, "Approved measures to set up or expand hospitals" stipulating requirement of DOH designation for international medical care hospitals to be set up in specified areas was amended and published.

10 Science and Technology Research in Health

Science and Technology Research in Health

The goal of DOH's investment in science and technology research is to improve human well-being. By investing in science and technology research we can obtain scientific evidences needed for health policy making, improve health and medical services quality and enhance the development of health related industries that in the long run will improve human well-being. In 2011, the science and technology research budget in health was NT$4.327 billion, accounting for 6.3% of the DOH's budget, of which 40% was in health policy research and 60% was to establish research environment to enable industrial developments and bio-tech related researches (as shown in Fig. 10-1).

Chapter 1, Health Policy Research

The DOH's health policy research achievements with regards to health promoting, food and drug management, disease monitoring and prevention and their applications in health policy making are outlined briefly below:

1. Health promotion

1) Health promotion for children and adolescents

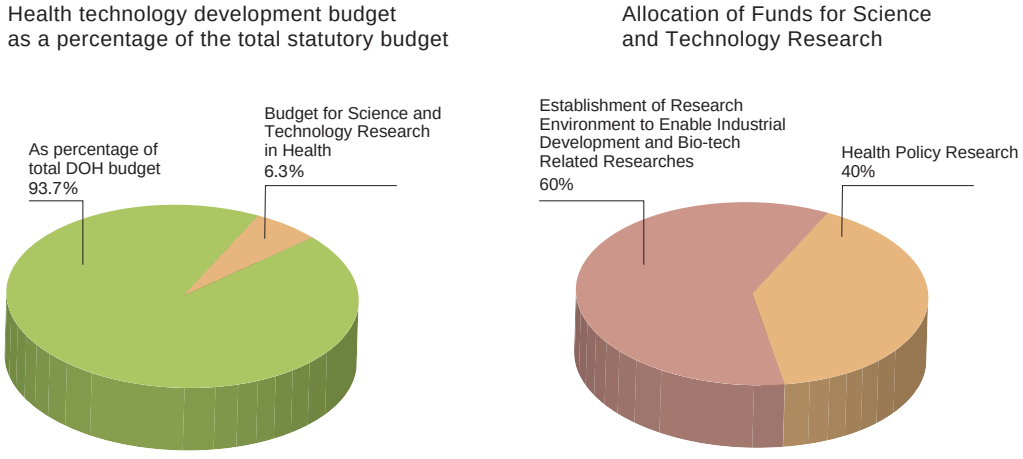
a) Using the results of a study of development dysplasia of hip (DDH) as a reference, the Department of Health's Bureau of Health Promotion has revised its notes for medical services for preventive health care to include screening for DDH during a child's first three health care examinations. This will enhance health promotion for children in Taiwan.

b) Six surveys, including Behavioral Risk Factor Surveillance System, Adult Smoking Behavior Survey, Gender Preferences for Children and Gender Selection Experience Survey, Taiwan Youth Health Survey of Senior High School Students, Child and Adolescent Behaviors in Long-term Evolution Study and Taiwan Birth Cohort Study, were completed and the results are being used as reference in the formulation of life course health policies.

2) Health promotion for the elderly

a) Research has demonstrated a J-shaped curve association between

Figure 10-1 Budget for Science and Technology Research in Health



body mass index (BMI) and the mortality rate in the elderly, indicating that those with a relatively light weight have a higher mortality risk. A similar finding has been observed concerning waist circumference and the mortality rate. The results of these studies will serve as references for the formulation of health promotion policies and health education for the elderly.

b) In accordance with the age friendly policy the Integrated Clinical and Community Elderly Fall Prevention Network Model was developed. In 2011, the Falls Prevention for the Elderly Shared Care Group was formed, combining community care spots in carrying out falls prevention intervention and, with respect to hospital patients or high risk groups, providing falls prevention joint care and building a channel in the community for shared care and referral. Research results will be used as reference in planning falls prevention modes for the elderly.

3) Cancer prevention

a) Initial analysis indicates that obese people are at a higher risk of developing colon cancer, breast cancer (menopausal women), and cervical cancer. Analyses of primary treatments for colon and breast cancer are being carried out; the results will be used as a reference in the formulation of health education concerning cancer prevention.

b) The impact of implemented for "Accreditation Program for the Quality of Cancer Treatment" Project was implemented and performance evaluation indicators of Accreditation on Program of Cancer Care Quality completed (including 5 structural indicators, 10 process indicators and 8 result indicators, 23 in all), finding that the survival situation for sufferers of the six main cancers was better at accredited hospitals than at non-accredited ones.

4) The four projects of the integrated Study of Chronic Kidney Disease Prevention targeting chronic kidney disease were completed, with results including the integration of the chronic kidney disease databanks in Taiwan, establishing of a chronic kidney disease cohort study, finding of three chronic kidney disease biological indicators, developing a eGFR (estimated Glomerular filtration rate calculation formula) for Taiwanese, putting forward empirical research data for dialysis choice clinical practice guidelines, establishing an integrated care model, putting forward chronic kidney disease pay for performance, and short medium and long-term suggestions for Taiwan's overall organ transplant policy; related research results have been taken as the basis for related policies such as early chronic kidney disease health insurance payments, and formulation of the Chronic kidney disease Patient Care Quality Improvement Project 2012-2016 prevention policy.

2. Drug and food

1) The DOH has set up a group to conduct follow-up studies for the medium and long term on victims and those who have visited special health clinics because of the plasticizer contamination incident that came to light in May, 2011.

2) The Chinese Pharmacopeia Edition VII (Ch. P. VII) was completed, containing 2,120 items, with 414 new items and 224 revised items. The contents include drug specifications, identification tests and assay methods. The revised Ch. P. keeps Taiwan in line with international standards at drug quality, drug manufacturing level, drug testing, and identification methods.

3) The Chinese and Western drug interaction information network and the Information network for medicinal materials that are sold in Taiwan and are often mixed with other drugs or mistakenly used were established.

3. Nursing and healthcare

With respect to rapidly ageing society in Taiwan, shortage of carers and medical resources in mountain areas and on outlying island, new information and communications technology was introduced and new services provided.

1) Tele-care service integration and development project: Three tele-care standard operation procedures for chronic diseases were completed. Cross-industry cooperation was carried out to develop innovative service and operating models. New functions were added to the entry portal, linking 89 long-distance health care organizations, providing the public with tele-care service resource enquiry.

2) Epidemiological Study of Dementia and Research for Dementia Care: This study was carried out in two stages. After the first stage questionnaire survey, people who screening showed to show mild cognitive function disability and dementia were referred to hospital for further diagnosis. In 2011, consultation for 30% of these patients (2,938 cases) was completed; it is estimated that consultations for all will be completed by the end of December 2013; results will serve as reference for formulation of dementia patient care in the future, allowing suitable care resources to be planned and raising the level of dementia patient care in Taiwan.

3) Long-term care requirements evaluation and resource allocation evaluation: With planning centered on “system integration” and “overall framework,”18 new functions were added to the existing system and will be used as reference in follow-up long-term care system planning.

4) Mountain township medical care effectiveness evaluation and health gap monitoring indicator establishment: Using the contribution of health risk factors to aborigine life expectancy and health indicators to form the order of priority for aborigine health policies. Using information system (such as HIS and PACS) data to establish mountain area and outlying island public health situation trends and indicators, and exploring the connection between IDS in these areas and health indicators. Establishing mountain township medical care effectiveness indicators, integrating indicators standards and verifying health risk factor connectedness for people in mountain areas and on outlying islands.

5) Mountain area and outlying island medical resources benefit evaluation survey and use: Medical personnel human resource

evaluation has been carried out and dynamic databank established, resident medical requirement and use situation explored and emergency medical personnel allocation planned to produce evaluation results that suit each area' the first stage of a mountain area and outlying island (825 copies) residents' health survey has been carried out.

4. Disease monitoring and prevention

1) The Taiwan Surveillance of Antimicrobial Resistance (TSAR) continues to provide biennial national surveillance on important pathogenic bacteria in Taiwan, monitoring current resistance rates and development of multidrug-resistant organisms, and advising policymakers on microbial control.

2) With respect to dengue fever prevention, through research into factors affecting the population of Ae. aegypti and Ae. albopictus and counter measures, a dengue fever prevention timetable tailored for Taiwan has been formulated in accordance with these factors and monthly mosquito density, which has been included in the dengue fever prevention project.

3) An Enterovirus 71 antibody IgM test reagent has been developed. It is easy to use and only takes 30 minutes in contrast to the 1-2 weeks testing process required before, allowing doctors to diagnose and treat patients quickly. The technology has been transferred to a domestic drug company and, after being mass produced and coming on the market, will help prevent enterovirus epidemics in Taiwan.

4) TB Integrated Project

a) The biggest problem in terms of TB prevention work in Taiwan is getting patients to take medicine properly. A large amount of literature and medical groups actively call for the use of fixed dose tablets, aiming to improve patient drug compliance by simplifying the tablet combination, also ensuring the correctness of the prescription content. New drug registration has been applied for the four-drug fixed-dose combinations (FDCs) developed by the DOH CDC and the aim is to get it on the market as soon as possible to increase the drug compliance of patients and thus improve the effectiveness of treatment and control. A patent has been applied for FDCs in Taiwan, the US and China.

b) By screening high risk groups for latent TB infection and evaluating treatment, large scale local data has been established, which will help prevent the onset of TB in high risk groups and can be used as a reference for the course of treatment.

Chapter 2, Establishment of research environment to enable industrial development and bio-tech related researches

The DOH's efforts to build up research environment to enable industrial development and bio-tech related research achievements with regards to new drug and vac cine R&D and technology transfer are outlined below:

1. Building a good medical health industry development environment

1) The DOH has established 1 National Center of Excellence for Clinical Trial and Research and 4 Specialty Centers of Excellence for Clinical Trial and Research. The DOH has

also initiated the Translational Medicine and Clinical Research Program to encourage new pharmaceutical drug and human vaccine research and development other than participation for the National Program on Nano Technology and National Research Program on Biopharmaceuticals. The DOH aims to promote and strengthen the national biomedical industry by working closely among the research institutes, government and pharmaceutical companies.

2) The Act on Human Subject Research has been enforced and implemented since 28 December 2011.The Act is to protect human who participate in medical or biomedical research and ensure that any research involving human subject is conducted ethically and legally.

2. Biotechnology-related research on drug discovery, vaccine development, and technology transfer

1) Anti-diabetes drug DBPR108: Collaboration with Genovate Biotechnology Co. has led to an industrial alliance with six other domestic pharmaceutical companies, establishing a new drug discovery and development model in Taiwan. DBPR108 has been approved by the U.S. Food and Drug Administration and the Taiwan Food and Drug Administration for phase I clinical trials, with this testing expected to begin in Taiwan in the first half of 2012.

2) Anti-cancer drug DBPR104: The food and drug administrations of both Taiwan and the United States have approved IND applications for phase I clinical trials of this drug candidate. One such trial is already underway at Cheng Kong University Hospital. Technology relating to this drug has been transferred to SynCore Biotechnology Co.. This serves as a good example of a domestically developed small molecule compound becoming a drug candidate.

3) Enterovirus 71 Vaccine R&D: Eight months of phase I clinical trails at Taipei Veterans Hospital and National Taiwan University Hospital have been completed. No adverse effects on safety were observed. Phase II clinical trials are scheduled. A related technology transfer to Adimmune Corp. was initiated in September, 2011.

4) H5N1 influenza vaccine R&D: Mass production of the vaccine has been achieved, a major step in the efforts to store 100,000 doses annually and strengthen the national infrastructure for vaccine research and development. The Quality Control Department received GLP certification from the Department of Health on July 31, 2011.

11 Health and Medical Care Information

Health and Medical Care Information

The DOH promotes the National Health Informatics Project (NHIP) and the Expediting Smart Healthcare Project so as to realize the goal of facilitating holistic healthcare, to provide a supportive environment for healthcare information, to develop innovative healthcare-information service models, and to raise the efficiency of how medical resources are used.

Chapter 1, Digitization of Healthcare Administration

Section 1, Health Information Services

1. Medical affairs management systems provide the DOH and local public-health agencies with a framework for managing medical, pharmaceutical, nursing and psychiatric rehabilitation institutions; medical personnel; administrative disciplinary actions; specified medical instruments; and the continuing education credits of medical personnel.
2. An on-line platform for reporting the number of available beds in intensive-care units and an automatic notification function for reporting deaths have been put in place. By the end of 2011, 198 hospitals that provide emergency medical services have participated in the ICU bed-reporting system, and 176 hospitals have participated in the death notification system.
3. The DOH has continued to urge healthcare personnel to report, give referrals, and manage cases that involve attempted suicides and mental and physical disabilities, so as to reach out to those who need follow-up care. In 2011, the suicide-prevention reporting system reported 26,885 cases, and the mental and physical disability assessment system reported 65,666 cases.
4. The DOH oversees the operation of 343 websites belonging to local public health agencies. These websites offer health information and related services to the public.
5. An online application system has been set up for the public. It offers services such as form downloads, application tracking, notifications about pickups, and authentication for those applying for certification. Furthermore, the system also links to the e-payment platform of the Research, Development and Evaluation Commission of the Executive Yuan and the payment systems of all major banks and convenience-store chains.

Section 2, The Application-Integration Platform for the Public Health Information System

The DOH has established a service-oriented public-health information system platform and portal. As of 2011, the DOH had set up a single signon mechanism for 101 web systems of the DOH and its subordinate agencies; constructed a centralized platform that integrated the services from 167 common applications; and assisted local public-health agencies in establishing a security certificate system to bolster information safety.

Section 3, The Health Information Network

The Health Information Network (HIN) is the ROC's hub for exchanging and sharing medical and health information (see Figure 11-1). The responsibilities of the network's service center include: operating various shared-information systems; providing consultation services to network members and helping them boost their efficiency and quality.

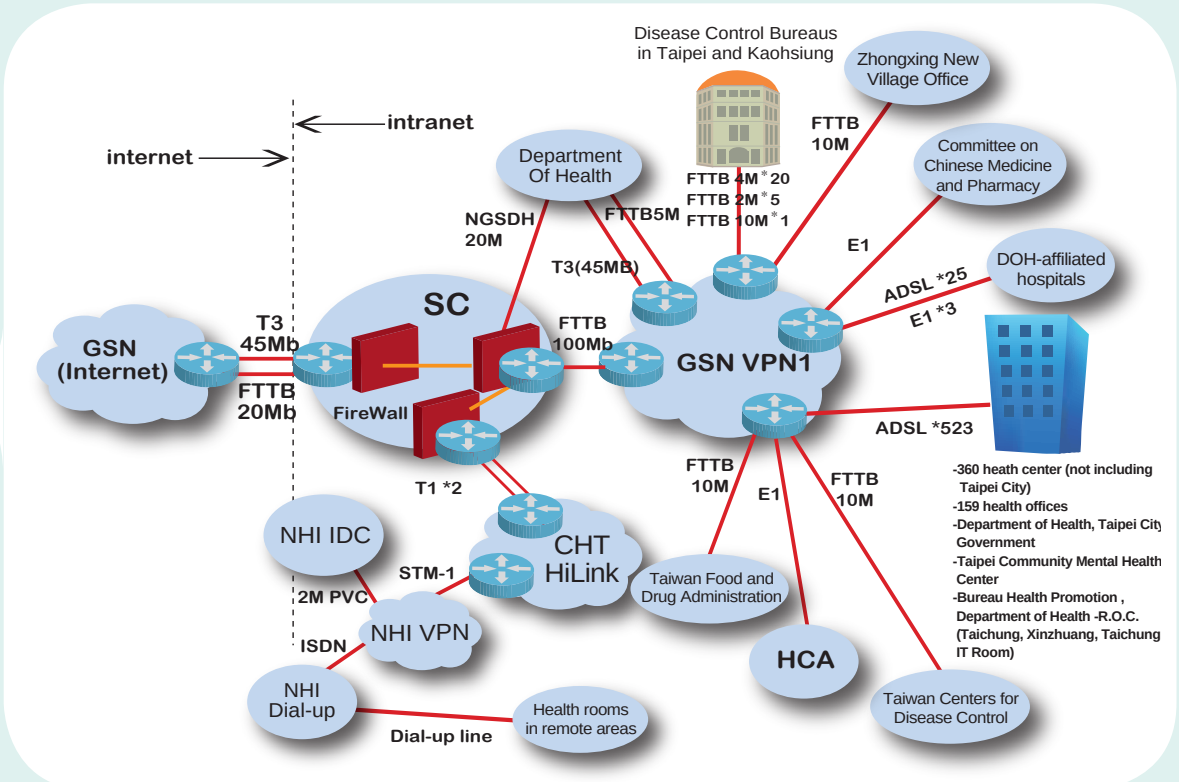
Section 4, Information Security

To ensure the information and communication security of the DOH and the Health Information Network, a mechanism for providing total protection and surveillance was established. Its components included firewalls, intrusion-prevention systems, anti-virus systems, webpage filtering, spam filtering, vulnerability assessments, and source code analyses and repairs. Furthermore, to comply with the ISO 27001:2005 (an information-security management system standard), the DOH integrated the information-security management systems of its own information center, the service center of the Health Information Network, and the Healthcare Certification Authority. Its compliance was audited and certified. The DOH also offered various information-security training sessions to raise the awareness and capabilities of medical and health personnel in terms of information security.

Section 5, "Formosan e Medical School"—a medical e-learning platform

1. To raise the public's understanding of preventive care, to teach patients with chronic diseases and their families how to care for themselves, and to provide medical professionals with professional development opportunities, the DOH has designed digital multimedia courses about the 13 chronic diseases that are most often among the 10 leading causes of death in Taiwan in any given year.
2. In 2010 and 2011, the DOH introduced a series of digital courses to train the staff of local public health agencies. As of December in 2011,there are 219 courses (373 hours) altogether, aimed at four categories of students: the general public, medical professionals, continuing-education students, and local public health agency personnel.

Figure 11-1 HIN Network Structure



Section 6, Taiwan e Doctor—Medical Consultation Services

To bolster its services to the public, the DOH established the Taiwan e Doctor website to provide free professional consultation services online about medical conditions, rare diseases, pharmaceutical products, nutrition and preventive care etc. By the end of 2011, there were a total of 48,489 entries in its Q&A column. Urology, obstetrics gynecology, and dermatology are the medical specialties most frequently asked about.

Chapter 2, Medical Care Services and Applications

Section 1, Promoting Electronic Medical Records (EMR)

To help hospitals and clinics legally and safely digitize their medical records and to increase their willingness to do so, the DOH has drawn up strategies related to four major categories: regulations, standards, safety and promotion. As of 2011, the following steps had been taken:

1. The DOH formulated standards for EMR interoperability, finished digitizing 117 different medical record forms, and established a mechanism to ensure compliance to EMR standards, so as to ensure the completeness and accuracy of these records.
2. The DOH formulated and published EMR interoperability standards and regulations covering four areas, including medical imaging and reports, blood tests, discharge summaries, and medication records for outpatient use.
3. The DOH coached hospitals on how to digitize their medical records in accordance with the Regulations Governing the Development and Management of Electronic Medical Records. So far 274 hospitals have adopted the system.
4. The DOH has been checking the regulatory compliance of various medical institutions' EMR systems. So far 208 hospitals have passed.
5. As part of the task of boosting EMR security, 93 hospitals have received ISO 27001:2005 certification for meeting international information security standards.
6. In 2011, the DOH has continued to implement the “EMR and Interoperability Assistance Program”, expediting the development of EMR systems, with 56 hospitals certified compliant.

Section 2, Operation of the Healthcare Certification Authority

The Healthcare Certification Authority (HCA) formally began operations on June 13, 2003 to provide certification services and a mechanism for electronic signatures. So as to boost the safety of medical credential keys, beginning on January 1, 2011, the HCA began issuing 2048-bit, rather than 1024-bit, keys. As of 2011, it had issued 322,977 medical IC cards. These cards can be used in the following areas: EMR systems, health-information reporting platforms, public-health information portals, regional medical-information platforms, management of teaching hospitals’ tuition subsidies, psychiatric-care information management, first-aid care management, joint purchasing networks for pharmaceutical products, medical personnel online application systems, application and cancellation of multiple-certificate online insurance, online birth notifications, disease-prevention

information exchange centers, centralized communicable disease tracking systems, community medical information management, hospitals' electronic document exchanges, National Health Insurance IC card reading, etc.

Section 3, Establishment of an Image Exchange/Reading Center

In 2010, the DOH completed the Image Exchange/Reading Center (IEC/IRC), providing a platform for different hospitals to exchange medical images and interpretations of them, provided image reading and interpretation-support services for health agencies located in remote areas. And helped ameliorate the problem of insufficient medical specialists in remote communities.

Until the end of 2011, the IEC/IRC had provided readings of 69,946 medical images (including 5,904 for health rooms in the mountains and outer islands, and 64,042 for DOH hospitals).

Section 4, RFID Establishment Program

From 2007 to 2010, the DOH ran a pilot scheme at the Taichung Hospital for a radio-frequency identity device (RFID) system. The technology helps to raise patient medication safety, streamline inpatient care procedures, speed up patient identification, track valuable medical instruments, and so forth.

A total of 11 RFID systems have already been developed and implemented in the following areas: inpatient care and kidney dialysis procedures, inpatient tracking, special-patient monitoring, patient safety, automatic inventory control of drugs, digital health education for patients, illustrated medication identification, injection-fluid management, high value instrument management, operating room flow and ergonomics management, and operating-room patient-identification.

Section 5, Promoting Computerization and Digitization of Local Health Agencies in Remote Areas

Due to the special environmental characteristics of remote areas Consequently, they require the implementation of hospital information systems (HIS) and picture archiving and communication systems (PACS) to provide linkage to other larger supporting hospitals and IDS hospitals.

1. From 2006 to 2011, it established the system at 308 locations of 48 different local health rooms in 15 different counties. What's more, over the course of several years, the DOH has also established PACS (including remote access) in 32 local public health agencies, which provided links to DOH hospitals. The support of the specialists at those major hospitals has allowed those remote locales to increase the accuracy of diagnoses, and it has reduced the number of patients that need to be transferred to other hospitals later, increasing the ability of local public-health agencies to provide real-time diagnoses, preventing the needless duplication of medical services, and raising the quality of medical services offered.
2. Achievements:
   1) In June, 2011,HIS local public-health agencies received 409,242 visits and patients have saved more than NT$0.7 billion in transportation costs alone.
   2) In June, 2011, PACS processed around 3,269 documents, saving the public NT$6.21 million in transportation costs to and from hospital.

Chapter 3, Value-added services for Medical Data

In order to achieve the core values of "Safeguarding individual health privacy, promoting the sharing of medical information, and reducing information duplication", in December

2008 the DOH instigated a special program to plan and build the Collaboration Center of Health Information Application. The goal of establishing this center is to add value to patient medical data by collating it into useful collective information, which can then be used as reference material to advance the quality of public health policies, aid related academic research, and upgrade healthcare services, thereby advancing the people's welfare. The Collaboration Center was officially opened for use on January 1, 2011.

Section 1, Application Procedure and Use of Files

1. Non-blurred cause of death files, hospital treatment service volume files, and medical institution overview files without ID codes are available.
2. For individual case files that cannot be publicly released, users can only access these files at an independent operation zone of the Collaboration Center. The following notes and rules of use apply:
   1) The Center's case database has not been uploaded to the network. Information online is only of an indicative or statistical nature.
   2) Statistical results may only be taken out of the Center following stringent checks and controls in an independent operation zone of the Center.
   3) Only databases necessary for research purposes are to be made available, and only for use in an independent operation zone.
   4) Apart from the materials provided by the Center, the carrying in of outside materials is prohibited.

Section 2, Health Indicator Query System

1. Based on the health indicator framework of the Canadian Institute for Health Information, the DOC formulated 12 indicator categories, adapted for Taiwan. These are: 1. Demographic indicators 2. National health status indicators 3. Medical resources 4. Medical utilization 5. Non-medical health determinants 6. Economic indicators 7. Long-term care resources and utilization 8. Social security 9. Healthcare expenditure 10. Medical funding, 'SHA' and 'Other', depending on the institution involved 11. Pharmaceutical market 12. Overall quality indicators.
2. Indicator Query Systems
   1) Simplified Query Indicator System
      The definitions of the indicators are presented in a tree structure according to their corresponding category, and previous years' indicator information is available for download. Indicator data is already online, and queries can now access information for 262 different indicators, including population statistics, gender ratios, adult literacy rates and labor force etc.
   2) Healthcare Annual Report Query System
      This is based on the data 'cubes' created during the annual reports of the Collaboration Center of Health Information Application, and also incorporates the health system annual reports (including cause of death data annual reports and medical institution status and service volume reports) in selecting indicators that are suitable for release to the general public. Currently, 49 different reports have been created for past years.

Section 3, Health Data Geographical Information System Queries

Chinese and English versions of a health data geographical information platform have already been completed. The platform presents data in four indicator categories (cause of death statistics, medical institution status and service volumes, national health insurance statistics, and population statistics) together with spatial and geographical information.

Appendix

Appendix 1.

Health Indicators

Table 1. Population Statistics

Year	Total Population	Population Composition			Dependent population index	Sex Ratio (male per 100 female)	Crude Birth Rate (CBR)	Crude Death Rate (CDR)	Natural Increase Rate (NIR)	Life Expectancy at birth			Population Density (Persons / km2)
		Aged under 15	Aged 15-64	Aged over 65						Total	Male	Female	
	(1,000 persons)	%	%	%	%		‰	‰	‰	years	years	years	
1995	21,357	23.77	68.60	7.64	45.78	106	15.50	5.60	9.90	74.53	71.85	77.74	590
1996	21,525	23.15	68.99	7.86	44.94	106	15.18	5.71	9.47	74.95	72.38	78.05	595
1997	21,743	22.60	69.34	8.06	44.22	106	15.07	5.59	9.48	75.54	72.97	78.61	601
1998	21,929	21.96	69.79	8.26	43.30	105	12.43	5.64	6.79	75.76	73.12	78.93	606
1999	22,092	21.43	70.13	8.44	42.60	105	12.89	5.73	7.16	75.90	73.33	78.98	610
2000	22,277	21.11	70.26	8.62	42.32	105	13.76	5.68	8.08	76.46	73.83	79.56	616
2001	22,406	20.81	70.39	8.81	42.07	104	11.65	5.71	5.94	76.75	74.07	79.92	619
2002	22,521	20.42	70.56	9.02	41.72	104	11.02	5.73	5.29	77.19	74.58	80.24	622
2003	22,605	19.83	70.94	9.24	40.97	104	10.06	5.80	4.27	77.35	74.77	80.33	625
2004	22,689	19.34	71.19	9.48	40.48	104	9.56	5.97	3.59	77.48	74.68	80.75	627
2005	22,770	18.70	71.56	9.74	39.74	103	9.06	6.13	2.92	77.42	74.50	80.80	629
2006	22,877	18.12	71.88	10.00	39.12	103	8.96	5.95	3.01	77.90	74.86	81.41	632
2007	22,958	17.56	72.24	10.21	38.43	102	8.92	6.16	2.76	78.38	75.46	81.72	634
2008	23,037	16.95	72.62	10.43	37.70	102	8.64	6.25	2.40	78.57	75.59	81.94	637
2009	23,120	16.34	73.03	10.63	36.93	101	8.29	6.22	2.07	79.01	76.03	82.34	639
2010	23,162	15.65	73.61	10.74	35.85	101	7.21	6.30	0.91	79.18	76.13	82.55	640
2011	23,225	15.08	74.04	10.89	35.07	101	8.48	6.59	1.88	79.15	75.96	82.63	642

Note: Economic growth rate measured in real GDP (Gross Domestic Product)
Source: Department of Statistics, Ministry of the Interior, ROC

Table 2. Health and Medical Expenditures

Year	Annual Economic Growth Rate	Per Capita GDP	Private Final Consumption on Health Care Expenditure			Net Government Expenditures (Fiscal Year)	Health Expenditures as % of Net Government Expenditures	National Health Expenditure Of DOH and Affiliated Organizations as % of Total Central Government Expenditures (Fiscal Year)	National Health Expenditure as % of GDP	Consumer Price Indices	Medical Care Price Indices
	%	USD $	NTD $ million	%	%	NTD $ million	%	%	%	2006 = 100	
1995	6.4	12,918	297,442	4.09	7.15	1,910,066	1.53	0.85	5.25	89.58	76.32
1996	5.5	13,428	337,254	4.27	7.36	1,843,786	1.57	0.78	5.36	92.33	77.60
1997	5.5	13,810	373,197	4.35	7.51	1,878,764	1.51	0.79	5.35	93.17	79.44
1998	3.5	12,598	409,417	4.45	7.65	1,992,593	1.37	0.66	5.43	94.73	80.18
1999	6.0	13,585	445,716	4.62	7.87	2,050,004	1.31	1.15	5.60	94.90	82.96
2000	5.8	14,704	468,162	4.60	7.82	3,140,936	1.28	0.85	5.53	96.09	86.08
2001	-1.7	13,147	490,076	4.94	8.13	2,271,755	1.17	1.07	5.88	96.08	87.23
2002	5.3	13,404	525,273	5.05	8.42	2,144,994	1.29	1.10	5.96	95.89	88.36
2003	3.7	13,773	552,375	5.16	8.63	2,216,514	1.54	1.14	6.15	95.62	91.29
2004	6.2	15,012	594,186	5.23	8.73	2,245,047	1.48	1.15	6.21	97.17	93.09
2005	4.7	16,051	626,961	5.34	8.84	2,291,999	1.22	1.11	6.24	99.41	96.80
2006	5.4	16,491	645,441	5.27	8.90	2,214,226	1.39	1.44	6.26	100.00	100.00
2007	6.0	17,154	679,179	5.26	9.05	2,290,169	1.42	1.61	6.16	101.80	103.91
2008	0.7	17,399	708,184	5.61	9.31	2,343,585	1.47	1.30	6.49	105.39	106.17
2009	-1.8	16,359	740,924	5.94	9.78	2,670,898	1.34	1.59	6.93	104.47	106.81
2010	10.7	18,588	762,932	5.60	9.65	2,566,804	1.48	1.59	6.55	105.48	107.50
2011	4.0	20,122	788,673	5.74	9.62	2,734,760	-	-	-	106.98	109.45

Source: Directorate- General of Budget, Accounting and Stastics, Executive Yuan.

Table 3. Important indicators of medical manpower and facilities

Year	Medical Care Institutions											
	No.	Hospitals							Clinics			
		No.	Western Medicine			Chinese Medicine			No.	Western Medicine	Chinese Medicine	Dentistry
			No.	Public No.	Private No.	No.	Public No.	Private No.		No.	No.	No.
1995	16,109	787	688	94	594	99	1	98	15,322	8,683	1,933	4,706
1996	16,645	773	684	94	590	89	1	88	15,872	9,009	1,987	4,876
1997	17,398	750	667	95	572	83	2	81	16,648	9,347	2,165	5,136
1998	17,731	719	647	95	552	72	2	70	17,012	9,473	2,259	5,280
1999	17,770	700	634	96	538	66	2	64	17,070	9,378	2,317	5,375
2000	18,082	669	617	94	523	52	2	50	17,413	9,402	2,461	5,550
2001	18,265	637	593	92	501	44	2	42	17,628	9,425	2,544	5,659
2002	18,228	610	574	91	483	36	2	34	17,618	9,287	2,601	5,730
2003	18,777	594	558	91	467	36	2	34	18,183	9,565	2,729	5,889
2004	19,240	590	556	88	468	34	2	32	18,650	9,819	2,852	5,979
2005	19,433	556	531	79	452	25	1	24	18,877	9,948	2,900	6,029
2006	19,682	547	523	79	444	24	1	23	19,135	10,066	3,006	6,065
2007	19,900	530	507	79	428	23	1	22	19,370	10,197	3,069	6,104
2008	20,174	515	493	79	414	22	1	21	19,659	10,326	3,160	6,173
2009	20,306	514	496	79	417	18	1	17	19,792	10,361	3,217	6,214
2010	20,691	508	492	81	411	16	1	15	20,183	10,599	3,289	6,295
2011	21,135	507	491	81	410	16	1	15	20,628	10,815	3,411	6,402

Source: Office of Statistics, Department of Health

Table 3. Important indicators of medical manpower and facilities

Year	No. of Beds					Per 10,000 population							
		No. of Beds in Hospitals			No. of Observation Beds in Clinics		No. of Beds in Hospitals						Clinics
			Public	Private			Acute general beds	Acute psychiatric beds	Chronic general beds	Chronic psychiatric beds	Special beds	Hemodialysis bed	
	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds
1995	112,379	101,430	39,922	61,508	10,949	52.78	30.12	1.22	2.38	5.01	7.16	1.76	5.13
1996	114,923	104,111	40,125	63,986	10,812	53.39	30.61	1.59	2.18	4.49	7.60	1.90	5.02
1997	121,483	108,536	41,421	67,115	12,947	55.87	30.46	1.73	2.38	4.71	8.58	2.06	5.95
1998	124,564	111,941	42,838	69,103	12,623	56.80	30.98	1.80	2.29	5.11	8.76	2.10	5.76
1999	122,937	110,660	39,440	71,220	12,277	55.65	30.84	2.10	2.28	3.93	8.63	2.32	5.56
2000	126,476	114,179	40,129	74,050	12,297	56.77	31.03	2.25	2.40	4.38	8.61	2.59	5.52
2001	127,676	114,640	39,670	74,970	13,036	56.99	30.27	2.27	2.17	4.44	9.24	2.77	5.82
2002	133,398	119,847	41,904	77,943	13,551	59.24	30.89	2.37	2.17	4.70	10.13	2.93	6.02
2003	136,331	121,698	42,777	78,921	14,633	60.31	30.77	2.46	2.19	4.89	10.74	3.08	6.47
2004	143,343	127,667	43,865	83,802	15,676	63.18	31.87	2.59	1.91	5.13	11.55	3.19	6.91
2005	146,382	129,548	44,273	85,275	16,834	64.29	31.80	2.64	1.95	5.51	11.75	3.26	7.39
2006	148,962	131,152	44,076	87,076	17,810	65.12	31.88	2.65	1.83	5.71	11.87	3.39	7.79
2007	150,628	131,776	44,873	86,903	18,852	65.61	31.94	2.77	1.75	5.78	11.52	3.48	8.21
2008	152,901	133,020	45,450	87,570	19,881	66.37	31.87	2.86	1.71	5.93	11.69	3.53	8.63
2009	156,740	134,716	45,913	88,803	22,024	67.79	32.06	2.92	1.68	5.95	15.50	3.57	9.53
2010	158,922	135,401	45,981	89,420	23,521	68.61	32.01	2.99	1.63	6.03	15.64	3.65	10.15
2011	160,472	135,431	45,603	89,828	25,041	69.09	31.90	3.05	1.74	5.92	15.55	3.72	10.78

Source: Office of Statistics, Department of Health

Table 3. Important indicators of medical manpower and facilities (Continued)

Year	No. of Registered Medical Personnel												
		Physi-cians (Western Medicine)	Physi-cians (Chinese Medicine)	Population Served Per Physician (Including Chinese Medicine Physicians)	Dentist	Popu-lation Served per Dentist	Pharma-ceutical Personnel	Population Served per Pharma -ceutical Personnel	Nursing Personnel	Popula -tion Served nursing Personnel	Medical Techno-logists (Including Assisitant)	Medical radiology (Including Techni-cians)	Dietitians
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1995	118,242	24,465	3,030	777	7,026	3,040	19,224	1,111	57,585	371	4,722	1,793	298
1996	123,829	24,790	2,992	775	7,254	2,967	19,667	1,094	62,268	346	5,034	1,453	293
1997	137,829	25,730	3,299	749	7,573	2,871	21,246	1,023	70,447	309	5,389	2,266	515
1998	144,070	27,168	3,461	716	7,900	2,776	22,761	963	71,919	305	5,583	2,485	575
1999	152,385	28,216	3,546	696	8,240	2,681	23,937	923	76,252	290	6,015	2,500	656
2000	159,212	29,585	3,733	669	8,597	2,591	24,404	913	79,734	279	6,230	2,761	743
2001	165,855	30,562	3,979	649	8,944	2,505	24,891	900	83,281	269	6,542	3,152	778
2002	175,444	31,532	4,101	632	9,206	2,446	25,355	888	90,058	250	6,725	3,410	845
2003	183,103	32,390	4,266	617	9,551	2,367	25,033	903	95,747	236	7,055	3,557	895
2004	192,611	33,360	4,588	598	9,868	2,299	26,079	870	101,924	223	7,122	3,704	978
2005	199,734	34,093	4,610	588	10,141	2,245	26,750	850	105,183	216	7,323	3,880	1,056
2006	206,959	34,899	4,743	577	10,412	2,197	27,412	835	109,521	209	7,457	4,052	1,137
2007	214,748	35,849	4,862	567	10,740	2,138	28,040	819	114,179	201	7,642	4,211	1,239
2008	223,623	37,142	5,112	545	11,093	2,077	28,741	802	119,093	193	7,869	4,443	1,379
2009	233,553	37,880	5,290	536	11,351	2,037	29,587	781	125,081	184	8,203	4,651	1,563
2010	241,156	38,887	5,354	524	11,656	1,987	30,001	772	129,163	179	8,377	4,913	1,687
2011	250,258	40,002	5,570	510	11,992	1,937	31,300	742	133,470	174	8,579	5,113	1,824

Source: Office of Statistics, Department of Health

Table 4. Pharmaceutical Affairs

Year	No. of Pharmaceu-tial Units	Pharmacies			Medicine Dealers			Pharmaceutical Manufactures		
			Owned and Operated by Pharmacists	Owned and Operated by Assistant Pharmacists	Western Medicine	Chinese Medicine	Medical Devices	Western Medicine	Chinese Medicine	Medical Devices
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1995	34,846	4,862	2,386	2,476	9,074	9,631	10,609	253	249	168
1996	37,176	6,438	3,243	3,195	7,563	9,585	12,948	242	238	162
1997	38,583	6,707	3,443	3,264	7,020	9,123	15,098	243	218	174
1998	39,027	6,434	3,436	2,998	6,466	9,217	16,262	243	217	188
1999	40,322	6,349	3,422	2,927	6,457	9,229	17,627	244	208	208
2000	43,641	6,397	3,491	2,906	6,359	11,161	19,016	243	207	258
2001	47,130	6,440	3,600	2,840	6,524	12,864	20,560	257	202	283
2002	49,752	6,990	3,983	3,007	6,526	13,202	22,268	244	200	322
2003	51,447	7,155	4,193	2,962	6,751	12,799	23,950	243	171	378
2004	52,685	7,435	4,465	2,970	6,759	12,712	24,924	244	171	440
2005	55,802	7,673	4,691	2,982	6,875	12,682	27,641	241	150	540
2006	57,976	7,397	4,598	2,799	6,941	12,577	30,062	238	129	632
2007	59,061	7,381	4,663	2,718	6,848	12,505	31,280	244	121	682
2008	58,834	7,215	4,628	2,587	6,630	12,234	31,650	245	111	749
2009	58,524	7,450	4,902	2,548	5,370	11,481	32,963	280	134	846
2010	60,222	7,558	5,049	2,509	5,388	11,308	34,593	292	130	953
2011	63,274	7,699	5,246	2,453	5,352	11,286	37,452	293	126	1,066

Note: Number of pharmacies in 2011 includes 3,071 pharmacies that also dispense Chinese medicine
Source: Office of Statistics, Department of Health

Table 5. Food Sanitation

Year	Laboratory Testing for Food Sauitation	Disquali-fication ratio	Inspections for Food Sauitation Establish-ments	Disqualified								Incident of Food Poisoning	No. of Cases	No. of Deaths
				Under Supervision or to be Imoroved		Fined		Suspended		Transfered to Court				
	Piece	%	Store	Store	%	Store	%	Store	%	Store	%	Piece	Person	Person
1995	40,410	10.51	237,189	20,390	8.60	1,316	0.55	6	0.00	-	-	123	4,950	-
1996	38,475	10.11	210,942	22,229	10.54	2,903	1.38	95	0.05	-	-	178	4,043	-
1997	38,606	10.49	197,042	16,582	8.42	1,051	0.53	29	0.01	-	-	234	7,235	1
1998	38,141	8.72	179,485	16,821	9.37	1,035	0.58	34	0.02	-	-	180	3,951	-
1999	37,773	8.09	181,818	19,020	10.46	37	0.02	10	0.01	-	-	150	3,112	1
2000	67,020	4.42	181,865	20,363	11.20	152	0.08	8	0.00	-	-	208	3,759	3
2001	34,907	8.56	166,195	20,069	12.08	104	0.06	59	0.04	-	-	178	2,955	2
2002	33,971	8.57	158,583	15,978	10.08	69	0.04	9	0.01	-	-	262	5,566	1
2003	36,220	10.06	177,102	15,525	8.77	104	0.06	8	0.00	-	-	251	5,283	-
2004	37,158	6.89	150,698	13,426	8.91	118	0.08	10	0.01	-	-	274	3,992	2
2005	39,395	6.36	182,575	15,218	8.34	51	0.03	5	0.00	-	-	247	3,530	1
2006	39,539	...	165,208	24,376	14.75	108	0.07	19	0.01	6	0.00	265	4,401	-
2007	38,729	...	156,794	27,769	17.71	94	0.06	11	0.01	4	0.00	240	3,223	-
2008	43,545	6.04	143,779	34,177	23.77	65	0.05	81	0.06	6	0.00	269	2,921	-
2009	38,770	6.84	150,675	32,463	21.55	92	0.06	18	0.01	6	0.00	361	4,644	-
2010	38,044	6.55	136,456	28,967	21.23	131	0.10	5	0.00	3	0.00	503	6,880	1
2011	42,372	5.16	117,278	34,921	29.78	6	0.01	82	0.07	-	-	426	5,819	1

Source: Office of Statistics, Department of Health

Table 6. National Health Insurance

Year	No. of Persons Under Social Insurance		Outpatient visits per capita	No. of Inpatients per 100 Insured Persons	Average Costs Per Outpatient Visit (NTD$)	Average Costs Per Inpatient Care (NTD$)	Average Days of Hospital Stay
		As % of Total Population	National Health Insurance	National Health Insurance	National Health Insurance	National Health Insurance	National Health Insurance
	1,000 persons	%	No.	No.	No.	No.	No.
*1995	19,123	89.54	10.56	6.14	530	31,017	9.41
1996	20,041	93.11	13.61	11.72	549	31,935	9.03
1997	20,492	94.25	14.31	11.61	557	32,760	8.75
1998	20,757	94.66	15.00	11.83	588	34,851	8.78
1999	21,090	95.46	15.28	12.28	614	36,098	8.68
2000	21,401	96.07	14.72	12.57	631	36,478	8.73
2001	21,654	96.64	14.50	13.00	659	37,169	8.83
2002	21,869	97.11	14.52	13.47	707	39,160	9.05
2003	21,984	97.26	14.32	12.44	746	43,343	9.64
2004	22,134	97.55	15.50	13.60	776	46,914	9.70
2005	22,315	98.00	15.47	13.35	792	49,212	9.86
2006	22,484	98.29	14.68	12.95	840	50,216	9.92
2007	22,803	99.32	14.81	13.02	857	50,809	10.02
2008	22,918	99.48	14.88	13.30	899	51,475	10.24
2009	23,026	99.59	15.50	13.66	914	51,420	10.19
2010	23,074	99.62	15.63	13.90	932	51,267	10.25
2011	23,199	99.89	16.17	14.13	950	51,809	10.18

Note: Figures in 1995 only include from March to December rather than the whole year; " Number of times of inpatients per 1000 insured population" and "Average cost per inpatient figure" in 1995 only include from July to December.
Source: Bureau of National Health Insurance

Table 7. Cause of Death

Year	All Causes		Malignant Neoplasms			Heart Diseases			Cerebrovascular Diseases			Diabetes			Pneumonia		
	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population
1995	117,954	554.6	1	25,841	121.5	4	11,256	52.9	2	14,132	66.4	5	7,225	34.0	8	3,070	14.4
1996	120,605	562.5	1	27,961	130.4	4	11,273	52.6	2	13,944	65.0	5	7,525	35.1	8	3,200	14.9
1997	119,385	551.8	1	29,011	134.1	4	10,754	49.7	2	12,885	59.6	5	7,500	34.7	7	3,619	16.7
1998	121,946	558.5	1	29,260	134.0	3	11,030	50.5	2	12,705	58.2	5	7,532	34.5	7	4,447	20.4
1999	124,991	567.9	1	29,784	135.3	4	11,299	51.3	3	12,631	57.4	5	9,023	41.0	7	4,006	18.2
2000	124,481	561.1	1	31,554	142.2	3	10,552	47.6	2	13,332	60.1	5	9,450	42.6	8	3,302	14.9
2001	126,667	567.0	1	32,993	147.7	3	11,003	49.2	2	13,141	58.8	5	9,113	40.8	8	3,746	16.8
2002	126,936	565.1	1	34,342	152.9	3	11,441	50.9	2	12,009	53.5	4	8,818	39.3	7	4,530	20.2
2003	129,878	575.6	1	35,201	156.0	3	11,785	52.2	2	12,404	55.0	4	10,013	44.4	7	5,099	22.6
2004	133,677	590.3	1	36,357	160.5	2	12,861	56.8	3	12,339	54.5	4	9,191	40.6	6	5,536	24.4
2005	138,957	611.3	1	37,222	163.8	3	12,970	57.1	2	13,139	57.8	4	10,501	46.2	6	5,687	25.0
2006	135,071	591.8	1	37,998	166.5	3	12,283	53.8	2	12,596	55.2	4	9,690	42.5	6	5,396	23.6
2007	139,376	608.2	1	40,306	175.9	2	13,003	56.7	3	12,875	56.2	4	10,231	44.6	6	5,895	25.7
2008	142,283	618.7	1	38,913	169.2	2	15,726	68.4	3	10,663	46.4	5	8,036	34.9	4	8,661	37.7
2009	142,240	616.3	1	39,918	173.0	2	15,094	65.4	3	10,383	45.0	5	8,230	35.7	4	8,358	36.2
2010	144,709	625.3	1	41,046	177.4	2	15,675	67.7	3	10,134	43.8	5	8,211	35.5	4	8,909	38.5
2011	152,030	655.5	1	42,559	183.5	2	16,513	71.2	3	10,823	46.7	4	9,081	39.2	5	9,047	39.0

Note: 1. Coded by ICD-10 since 2008
2. The option of ranking of cause of death is only available for ICD-10 coded chronic lower respiratory diseases.
Source: Office of Statistics, Department of Health

Table 7. Causes of Death (Continued)

Year	Accidents			Chronic disease of lower respiratory Tract			Chronic liver diseases and cirrhosis			Hypertensive diseases			Nephritis, nephrotic syndrome, and nephrosis		
	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population
1995	3	12,983	61.0	…	4,017	18.9	6	4,456	21.0	9	2,616	12.3	7	3,519	16.5
1996	3	12,422	57.9	…	4,310	20.1	6	4,610	21.5	9	2,656	12.4	7	3,547	16.5
1997	3	11,297	52.2	…	4,457	20.6	6	4,767	22.0	9	2,611	12.1	8	3,504	16.2
1998	4	10,973	50.3	…	4,961	22.7	6	4,940	22.6	9	2,273	10.4	8	3,435	15.7
1999	2	12,960	58.9	…	5,046	22.9	6	5,180	23.5	10	1,856	8.4	8	3,474	15.8
2000	4	10,515	47.4	…	4,717	21.3	6	5,174	23.3	11	1,602	7.2	7	3,872	17.5
2001	4	9,513	42.6	…	5,159	23.1	6	5,239	23.5	10	1,766	7.9	7	4,056	18.2
2002	5	8,489	37.8	…	5,226	23.3	6	4,795	21.3	10	1,947	8.7	8	4,168	18.6
2003	5	8,191	36.3	…	5,192	23.0	6	5,185	23.0	10	1,844	8.2	8	4,306	19.1
2004	5	8,453	37.3	…	5,292	23.4	7	5,351	23.6	10	1,806	8.0	8	4,680	20.7
2005	5	8,365	36.8	…	5,484	24.1	7	5,621	24.7	10	1,891	8.3	8	4,822	21.2
2006	5	8,011	35.1	…	4,969	21.8	7	5,049	22.1	10	1,816	8.0	8	4,712	20.6
2007	5	7,130	31.1	…	4,914	21.4	7	5,160	22.5	10	1,977	8.6	8	5,099	22.2
2008	6	7,077	30.8	7	5,374	23.4	8	4,917	21.4	12	3,507	15.2	10	4,012	17.4
2009	6	7,358	31.9	7	4,955	21.5	8	4,918	21.3	11	3,721	16.1	10	3,999	17.3
2010	6	6,669	28.8	7	5,197	22.5	8	4,912	21.2	9	4,174	18.0	10	4,105	17.7
2011	6	6,726	29.0	7	5,984	25.8	8	5,153	22.2	9	4,631	20.0	10	4,368	18.8

Note: 1.Coded by ICD-10 since 2008
2.The option of ranking of cause of death is only available for ICD-10 coded chronic lower respiratory diseases.
Source: Office of Statistics, Department of Health

Table 8. International Comparison

Year	Life Expectancy at birth												Crude Birth Rate					
	Taiwan		Japan		US		Germany		UK		South Korea		Taiwan	Japan	US	Germany	UK	South Korea
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female						
	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	‰	‰	‰	‰	‰	‰
1995	71.9	77.7	76.4	82.9	72.5	78.9	73.3	79.7	74.0	79.2	69.6	77.4	15.5	9.6	14.8	9.4	12.6	16.0
1996	72.4	78.0	77.0	83.6	73.1	79.1	73.6	79.9	74.3	79.5	70.1	77.8	15.2	9.7	14.7	9.7	12.6	15.3
1997	73.0	78.6	77.2	83.8	73.6	79.4	74.0	80.3	74.6	79.6	70.6	78.1	15.1	9.5	14.5	9.9	12.5	14.8
1998	73.1	78.9	77.2	84.0	73.8	79.5	74.5	80.6	74.8	79.8	71.1	78.5	12.4	9.6	14.6	9.7	12.3	13.8
1999	73.3	79.0	77.1	84.0	73.9	79.4	74.7	80.7	75.0	79.8	71.7	79.2	12.9	9.4	14.5	9.4	11.9	13.2
2000	73.8	79.6	77.7	84.6	74.1	79.5	75.0	81.0	75.5	80.2	72.3	79.6	13.8	9.5	14.4	9.3	11.5	13.4
2001	74.1	79.9	78.9	84.9	74.4	79.8	75.6	81.3	75.7	80.4	72.8	80.0	11.7	9.3	14.1	8.9	11.3	11.6
2002	74.6	80.2	78.3	85.2	74.5	79.9	75.7	81.3	76.0	80.6	73.4	80.5	11.0	9.2	14.2	9.0	11.3	10.3
2003	74.8	80.3	78.4	85.3	74.4	80.1	75.8	81.3	76.2	80.5	73.9	80.8	10.1	8.9	14.1	8.6	11.7	10.2
2004	74.7	80.8	78.6	85.6	75.0	80.0	76.5	81.9	76.8	81.0	74.5	81.4	9.6	8.8	14.0	8.5	12.0	9.8
2005	74.5	80.8	78.6	85.5	74.9	80.7	76.7	82.0	77.1	81.2	75.1	81.9	9.1	8.4	13.9	8.4	12.0	9.0
2006	74.9	81.4	79.0	85.8	75.0	80.8	77.2	82.4	77.3	81.7	75.7	82.4	9.0	8.7	14.2	8.2	12.4	9.2
2007	75.5	81.7	79.2	86.0	76.0	81.0	77.4	82.7	77.0	82.0	76.1	82.7	8.9	8.7	14.3	8.3	12.8	10.0
2008	75.6	81.9	79.0	86.0	75.5	80.5	77.0	83.0	78.0	82.0	76.0	83.0	8.6	8.7	14.3	8.3	12.9	9.4
2009	75.9	82.5	80.0	86.0	75.7	80.6	78.0	83.0	78.0	82.0	77.0	83.0	8.3	8.5	13.5	8.1	13.0	9.0
2010	76.1	82.6	…	…	…	…	…	…	…	…	…	…	7.2	8.5	…	…	…	…
2011	76.0	82.7	…	…	…	…	…	…	…	…	…	…	8.5		…	…	…	…

Source: WHO and CECD websites.

Appendix 2.

Number of Notifiable Diseases

Table 1. Number of Confirmed Cases of Acute Infections Diseases in 2011

Categories	Diseases	Total	Local	Imported
I	Smallpox	0	0	0
	Plague	0	0	0
	SARS	0	0	0
	Rabies	0	0	0
	Anthrax	0	0	0
	H5N1 Influenza	0	0	0
II	Diphtheria	0	0	0
	Typhoid Fever	49	42	7
	Dengue Fever	1,702	1,545	157
	Dengue Hemorrhagic Fever / Dengue Shock Syndrome	22	20	2
	Meningcoccal Meningitis	5	5	0
	Paratyphoid Fever	6	1	5
	Poliomyelitis	0	0	0
	Acute Flaccid Paralysis	45	45	0
	Shigellosis	203	64	139
	Amoebiasis	256	121	135
	Malaria	17	0	17
	Measles	33	29	4
	Acute Hepatitis A	104	84	20
	Enterohaemorrhagic E.coli Infections	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0
	Cholera	3	2	1
	Rubella	60	27	33
	Chikungunya Fever	1	0	1
	West Nile Fever	0	0	0
	Epidemic Typhus Fever	0	0	0
III	Pertussis	77	77	0
	Tetanus※	10	-	-
	Japanese Encephalitis	22	22	0
	Congenital Rubella Syndrome	0	0	0
	Acute Hepatitis B	163	149	14
	Acute Hepatitis C	34	34	0
	Acute Hepatitis D	0	0	0
	Acute Hepatitis E	12	6	6
	Acute Hepatitis Unspecified	10	9	1
	Mumps※	1,171	-	-
	Legionellosis	97	91	6
	Invasive Haemophilus Influenzae Type b Infection	9	9	0
	Neonatal Tetanus	0	0	0
	Enterovirus Infection with Severe Complications	58	58	0

Categories	Diseases	Total	Local	Imported
	Herpesvirus B Infection	0	0	0
	Leptospirosis	55	55	0
	Melioidosis	45	44	1
	Botulism	6	6	0
	Invasive Pneumococcal Disease	839	838	1
	Q fever	35	33	2
	Endemic Typhus Fever	26	25	1
IV	Lyme Disease	0	0	0
	Tularemia	1	0	1
	Scrub Typhus	322	320	2
	Varicella※	9,868	-	-
	Cat-Scratch Disease	47	46	1
	Toxoplasmosis	5	5	0
	Severe Complicated Influenza Case	1,481	1,476	5
	NDM-1 Enterobaceriaceae	0	0	0
	Rift Valley Fever	0	0	0
	Marburg Hemorrhagic Fever	0	0	0
V	Yellow Fever	0	0	0
	Ebola Hemorrhagic Fever	0	0	0
	Lassa Fever	0	0	0

Remark:
1. Time of information retrieval: February 15, 2012. Since the Department concludes the statistics of all kinds of notifiable diseases on April 30 each year, statistical data of 2011 will be modified slightly after final organization.
2. Day of disease onset is used as the basis of analysis for all acute notifiable diseases.
3. ※Tetanus, mumps, and varicella were reported cases (no confirmed by examination of specimen). Epidemiological analysis was not conducted for these diseases and thus there was no way to determine whether they were local or imported cases.

Table 2. Number of Confirmed Cases of Chronic Notifiable Diseases in 2011

Categories	Diseases	No. of Confirmed Cases
II	MDR-TB	154
	Smear-positive Tuberculosis	4,559
	Other Tuberculosis	8,075
	Syphilis	6,372
III	Gonorrhea	1,978
	HIV infection	1,967
	AIDS	1,075
	Hansen's Disease	5
IV	Creutzfeldt–Jakob Disease	0

Remark:
1. Data download time:May 1, 2012
2. Apart from Multidrug- resistant tuberculosis, the analytical base point of which is the date of registration by the DOH Center for Disease Control, and TB (smear positive TB and other types of TB), the analytical base point of which is the day of reporting and establishing of a file, the analytical base point of all other chronic notfiable diseases will be the day of diagnosis.

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Taiwan Public Health Report

Department of Health R.O.C (Taiwan)

2012

Taiwan Public Health Report

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

Message from the Minister of Health

The Department of Health's scope of responsibility includes public health, health promotion, epidemic prevention and monitoring, food safety, drug management, medical care, national health insurance, care for disadvantaged groups, international medical affairs and development of health technology. Each of these areas is important for our population's well-being, and all health policies must meet the people's expectations.

By increasing quality, raising efficiency, distributing resources fairly and caring for the vulnerable, our Department seeks to promote and protect health. We publish a public health report every year to promote better understanding of the efforts of Taiwan's health agencies.

The Get Moving Taiwan weight management program was started in 2011 to increase public participation and make people's lives healthier at different stages of life, such as pregnant women and recent mothers, babies, children, adolescents and the middle-aged. We offer health promotion policies and prevent disease by calling on the public to eat wisely, be happy and check body weight daily. By year's end, 724,544 people had participated in the program and totally 1,104 tons of body weight had been reduced.

Even before WHO declared the H1N1 epidemic's post-pandemic period, the Department of Health published "The First Battle of the Century" recording Taiwan's experiences with H1N1 for reference. To meet demand for flu prevention during seasonal peaks, starting on December 1, 2011, the conditions for using free flu vaccine were relaxed and distribution points were increased.

Food safety risk management policy was highlighted by the discovery in the spring of 2011 that many products were contaminated with plasticizers. On June 22, 2011, the Department

of Health amended the Food Hygiene Management Law to increase punishments for violations, and it continues to carry out food safety evaluations to protect the public.

National Health Insurance offers our citizens excellent health care, and the health insurance system has become a pillar of Taiwan's social welfare system. Because of widespread acclaim for the scheme in international media, many countries send missions to learn from Taiwan's experiences. To allow the system to be sustainably managed, the amended National Health Insurance Act was announced in January 2011. These amendments improve the health insurance system's fairness, efficiency and quality.

By the end of 2011 nearly eleven percent of Taiwan's people were over 65 years old. As the population ages and disease types change, need for long-term care is increasing. To develop a long-term care system, we have sought a legal basis for service provision, formulated the Long-term Care Service Law, surveyed needs to estimate resources required, and established a national long-term care database. In response to changes in the population structure, the Department of Health and the Government Organization Reengineering Plan are integrating health and social welfare resources to provide service-oriented holistic care.

Along with trade and tourism increasing, there is a global trend for internationalized health affairs and medical services. The Department of Health has taken great efforts for achieving outernational health cooperation for a long time, and since 2009 Taiwan has been an observer at the World Health Assembly, affirming our nation's role in global health policy and raising Taiwan's profile. The Department has also taken part in international cooperation, provided health assistance and internationalized medical services development, seeking to contribute to the world and consolidate Taiwan's position.

Looking back over the last year, the Department of Health has been through a lot and has continued to receive criticism and advice from all quarters. We are aware of the need to constantly self-examine and improve to move with the times. Readers can examine our various operations and decide whether the reforms we are implementing will lead to a new health policy era in Taiwan.

Minister of Health

CONTENT

1 Health Policies

Health Policies

The Department of Health, the Executive Yuan (hereafter referred to as the DOH) is responsible for medical care, disease prevention, health promotion, drug and food administration, management of bio-tech R&D and the food industry, national health insurance and international medical affairs, all closely connected to people's lives. With limited resources, providing the people with all-round health care to ensure national health is the most pressing task at present.

Health is the ideal and objective of all. The DOH has directed its mission to promote and protect public health and welfare and endeavours to fulfil its vision of "quality, efficiency, balanced resources, and care for the disadvantaged." The DOH's mid-term administrative projects for 2010-2013, as well as the specific administrative goals for 2010 and 2011 have been set; by "encouraging participation by all people, fulfilling lifestyle wellness", "implementing healthcare and disease prevention mechanisms to guard against the threat of illness", "refining the health care systems and safeguarding the rights of the disadvantaged to medical care", "strengthening food and drug regulations to protect the public health", "developing healthcare technology", "raising administrative efficiency", "improving the financial health of the national healthcare system" and "creating a high-quality institutional culture of learning so as to develop human resources" and other strategies, the DOH is actively promoting health and medical services.

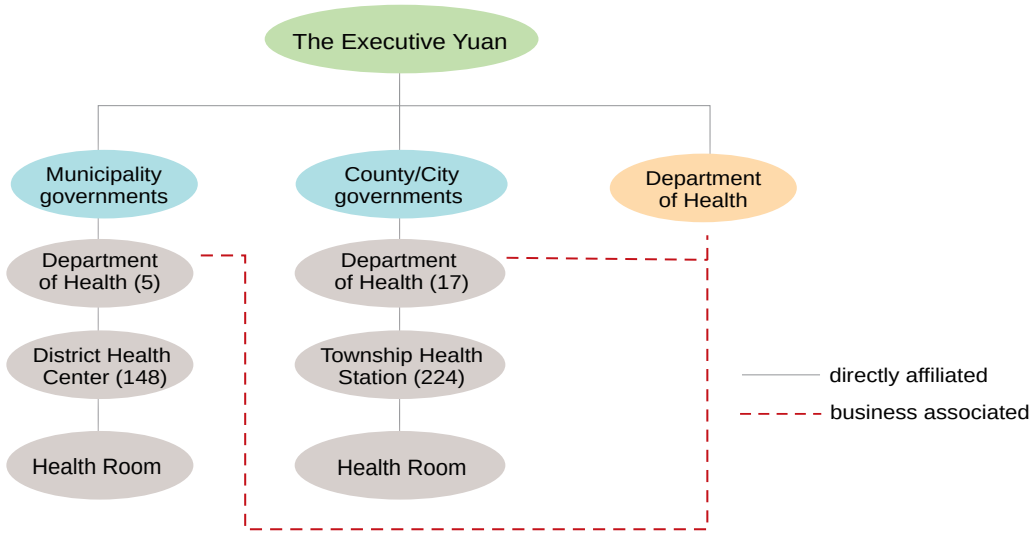
Chapter 1, Administrative goals, and highlights in 2011-2012

In accordance with the Executive Yuan's 2011 policy directions, in coordination with the medium term policy plan and approved budget, and on the basis of the current social situation and future requirements, the 2011 policy plan has been set; its objectives and key points are:

1. Strengthen public participation, realize healthy living: Build a health supportive environment, nurture healthy lifestyles for all; strengthen preventive health services, strengthen the prevention of the main chronic diseases, expand cancer screening, build a senior-friendly environment; build a tobacco hazard prevention supportive environment; build a health information monitoring mechanism, monitor the health situation of the people.
2. Implement health promotion and disease prevention preparation to eliminate the threat of disease: strengthen the infectious disease control and management system, implement disease control and reporting, carry out the 10-year plan for 50% TB reduction, HIV/AIDS prevention plan and other infectious disease prevention plans; actively promote the National Vaccine Fund and carry out preventive immunization against various diseases, actively expand disease prevention work by international cooperation and exchange.
3. Improve the healthcare system, protect the right to medical care of the disadvantaged groups: Build a complete medical health system, promote the rational allocation of medical resources, build a National Emergency Medical Service and Critical Care Network and a Community Healthcare Network; promote whole person care, build a patient-centered safe medical treatment environment; raise the quality of mental health care and promote smart medical services; give priority care to the medically disadvantaged, strengthen the health care of the mentally and physically impaired, build a complete long-term care service system.

4. Strengthen food and drug management, protect the health of the people: strengthen food, drug and cosmetics management and risk assessment, build a complete drug and food import management system, increase the safety of Chinese medical materials, implement controlled drug management and guidance, strengthen the inter-departmental coordination and cooperation mechanism; establish a complete laboratory monitoring network, increase assay capability to meet the demands of large-scale emergency testing.
5. Development of healthcare technology: the DOH carried out research on health technology, public health and safety, and strengthened research with regards to the impacts of social, economic, and environmental factors on public health, enhancing emergency-response mechanisms and the emergency-response capabilities of government and the public; helped develop the domestic biotechnology industry; promoted health technology services, raising the level of application of the results of R&D, protecting the health and well-being of the people.
6. Raise administrative efficiency: The DOH reformed drug and clinical experiment evaluation mechanism and reviewed existing management laws and regulations, building strict and highly efficient drug evaluation mechanisms and processes, set a drug evaluation model and food safety risk assessment and management principles in line with international norms; raised the efficiency and quality of food and drug safety evaluation; strengthened the professional training of evaluation personnel; and integrated the functions of the Department's hospitals to improve the efficiency of service.
7. Improve the financing of the National Health Insurance Scheme, and reduce the deficit: the DOH, in coordination with reforms that ushered in the second generation of the National Health Insurance, established

Figure 1-1 Organization of Health Administration



complementary measures and promoted payment system reform; openness of National Health Insurance treatment information and treatment quality information was promoted to increase treatment quality and the benefit of payments, reduce waste and help the disadvantaged groups overcome obstacles to receiving treatment, ensuring medical treatment equality.

8. Create a high-quality institutional culture of learning so as to develop human resources: Health professional training was strengthened to raise the level of professional, management and international view core capabilities and promote international health exchange and cooperation; performance management and human resources management strategies were used to nurture personnel's professional knowledge and competitiveness and build excellent work teams.

Chapter 2, Health Organization

Organization of health administration came originally in three levels, central, provincial, and county/city. After the promulgation of the Local System Act in 1999, the health organization was reorganized into two levels, the central, and the municipality and county/city (Figure 1-1).

The Department of Health of the Executive Yuan at the central level is the highest health authority in Taiwan, responsible for the health administration of the country, and also providing technical assistance to, supervising and coordinating local health agencies. Health administration at the local level includes health departments and bureaus, established by municipalities or county/city governments. After the creation of the five special municipalities on December 25, 2010, the number of these local departments or bureaus was reduced from 25 to 22.

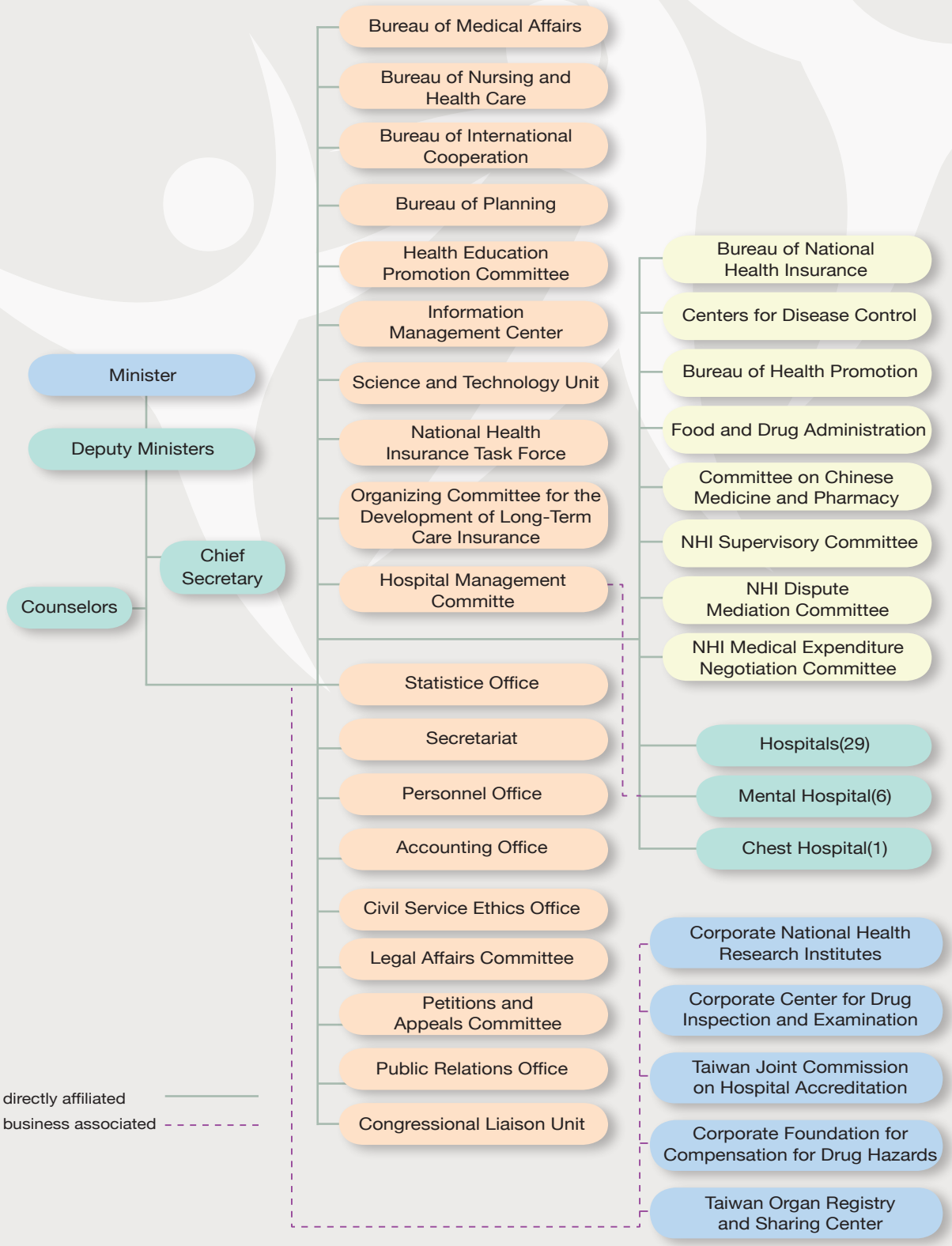
Section 1, The National Health Administration

The Department of Health consists of four bureaus: the Bureau of Medical Affairs, the Bureau of Nursing and Health Care, the Bureau of International Cooperation, and the Bureau of Planning, plus several mission-driven agencies, such as the Health Education Promotion Committee, the Information Management Center, the Science and Technology Unit, the National Health Insurance Task Force, the Long-Term-Care Insurance Preparatory Task Force, and the Hospital Management Committee and Legal Affairs Committee. The affiliated organizations under the Department include the Bureau of National Health Insurance, Center for Disease Control, Bureau of Health Promotion, Food and Drug Administration, Committee on Chinese Medicine and Pharmacy, NHI Supervisory Committee, NHI Dispute Mediation Committee, NHI Medical Expenditure Negotiation Committee, 20 DOH hospitals (including six mental hospitals and one chest hospital). In addition, the DOH also financially supported the establishment of units such as the Corporate National Health Research Institutes, Corporate Center, for Drug Inspection and Examination, Taiwan Joint Commission on Hospital Accreditation, Corporate Foundation for Compensation for Drug Hazards, and the Taiwan Organ Registry and Sharing Center (Figure 1-2).

Section 2, Ministry of Health and Welfare

In the face of globalization, every country is striving to raise its national competitiveness through organizational re-engineering to improve government efficiency while upholding the principles of "lean, flexible and efficient"

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



government administration.

Facing the impact of an aging society, low birth rate, and increased immigration, Taiwan's population structure is changing and it has to quickly integrate its medical-care and social-welfare services and other work related to the following: long-term care, senior-citizen medical care and welfare, child welfare, women's rights, and social insurance and assistance. The government needs to distribute its resources more efficiently and engage in well-considered policymaking so as to prepare for the future.

In order to integrate health and welfare resources, a new Ministry of Health and Welfare will be created by merging the existing Department of Health and the Ministry of the Interior's Department of Social Affairs, Children's Bureau, National Pension Supervisory Commission, and Domestic Violence and Sexual Assault Prevention Committee. The new ministry will be charged with planning and assessing public policies connected to public health, medical care, and social welfare services and programs, with the overarching aim of constructing a comprehensive public-health and social-welfare system oriented toward holistic care.

Chapter 3, Central Government Health Budget

In 2012, the total health budget was NT$80.8 billion, accounting for 4.2% of the total central government budget of NT$1,938.8 billion. See Figure 1-3.

In the health budget for 2012, NT$ 57.52 billion has been set aside for social insurance expenditure, 71.2% of the total health budget; NT$19.15 billion has been set aside for medical healthcare expenditure, 23.7% of the total health budget; 4.04 billion has been set aside for science expenditure, 5.0% of the total health budget;77.9 million has been set aside for education expenditure, 0.1% of the total health budget; and NT$1 million set aside for social relief, or 0.001% of the total health budget, as shown in Fig.1-4.

The 2012 health budget of NT$80.8 billion shows an increase of NT$11.79 billion or 17.1% on the budget for 2011 of 69.01 billion (final figure of NT$68.02 billion); the budget increase and decrease items are shown in table 1-1 and 1-2:

Chapter 4, Performance Evaluation

The promotion of health and medical care requires the concerted cooperation of the central and the local governments to effectively enforce the relevant policies, and thus to protect the health of the people. The overall evaluation of the Department over the achievements of local health departments/ bureaus aims primarily at evaluating the annual performances of local health organizations with a view to help them improve quality of services to the public.

In response to the restructuring of the DOH, beginning in 2010 the original evaluation items were merged and streamlined from nine categories (medical administration, long-term care, pharmaceutical administration, controlled substances, food, laboratory testing, diseases control, healthcare and health education) into six (medical administration, long-term care, food and drugs, disease control, healthcare, and health education). Supervising agencies of the local health centers are put in charge of handling follow-up incentive arrangments after evaluation, in hopes of inspiring administrative efficiency and service quality.

Figure 1-3 DOH Budget as Percentage of Total Central Government Budget, 2003-2012

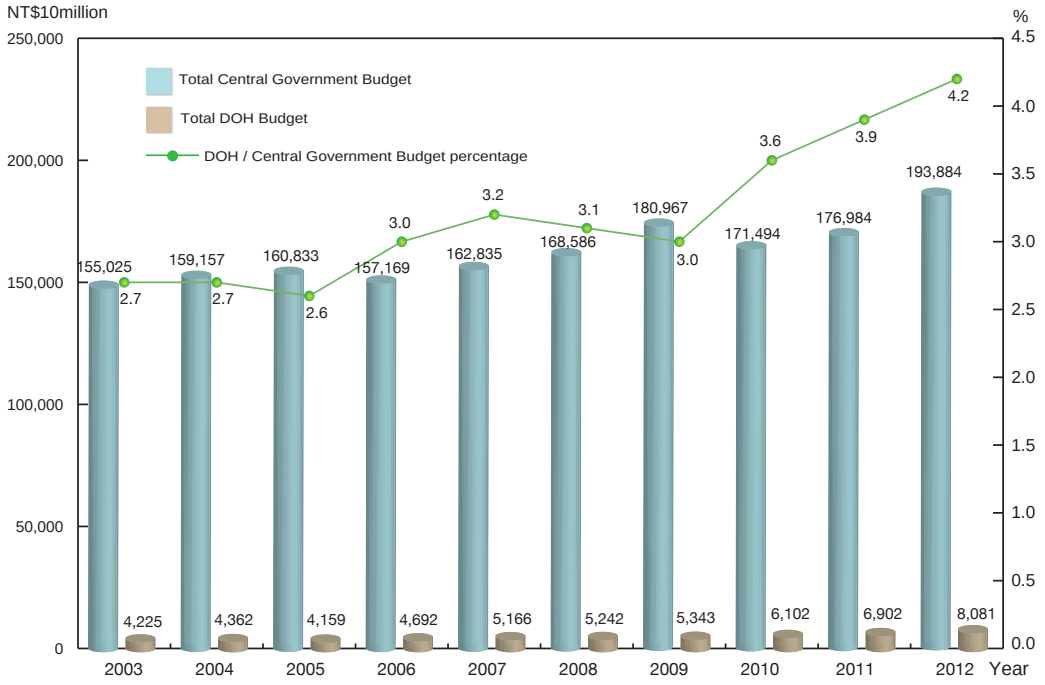


Figure 1- 4 2012 Central Government Budget Distribution Map

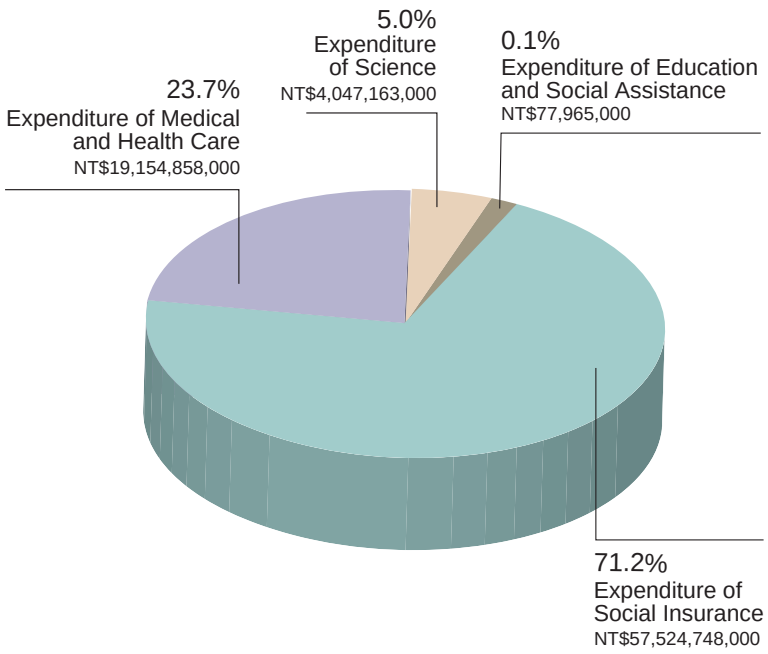


Table 1-1 Health Budget Increase Items in 2012

No.	Item	Budget
1	The statutory lower limit of national health insurance fees the government should pay and appropriation of accumulated financial deficit	NT$12,000,000,000
2	Special case subsidy for health insurance payments owed by people whose households are not registered in municipalities directly under the central government	NT$3,470,839,000
3	Insurance fee subsidies for fishermen, irrigation associations and other groups	NT$1,601,066,000
4	Funds for carrying out of food inspection registration management, drug and cosmetics evaluation, visiting overseas drugs factories for GMP checks and border food inspection.	NT$179,677,000
5	Biomedical Management Center Health building construction funds	NT$88,990,000
6	Hsinchu Biomedical Science Park Hospital establishment plan funds	NT$45,000,000
	Total	NT$17,385,572,000

Table 1-2 Health Budget decrease Items in 2012

No.	Item	Budget
1	Subsidy for national health insurance fees for people under a certain income	NT$3,405,035,000
2	Funds for carrying out the New Generation Health Navigation Project and Clinical Medical Workforce training plan.	NT$321,345,000
3	DOH hospital personnel subsidies and other funds	NT$319,386,000
4	Funds for Kinmen Medical Building construction	NT$289,100,000
5	Research funds for the National Health Research Institutes	NT$176,129,000
6	Funds for carrying out the National Health Informatics Project	NT$154,255,000
7	Funds for carrying our disease control operations	NT$422,766,000
8	Funds for preventive health operations	NT$138,040,000
9	Funds for health insurance work and operations	NT$108,856,000
10	Funds for establishing a product channel management fast check system and imported food border inspection operations	NT$185,283,000
	Total	NT$5,520,195,000

2 Health Indicators

Health Indicators

Along with increase in national incomes, improvment in living environment and national nutrition, advancement in health and medical sciences, upgrading in health standards, and increase in accessibility to medical care due to the implementation of the National Health Insurance, the average life expectancy of the people has prolonged.

Chapter 1, The Population

At the end of 2011, the total registered population in Taiwan was 23.22 million. 11.65 million were males and 11.58 million were females; giving a sex ratio [male population/ female population x100] of 101. The annual growth rate of population was 0.27 ‰.

At the end of 2011, the population density in Taiwan was 642 persons per square kilometer of land area. By county and city, Taipei City had the highest density, Hualien and Taitung counties had the lowest density .

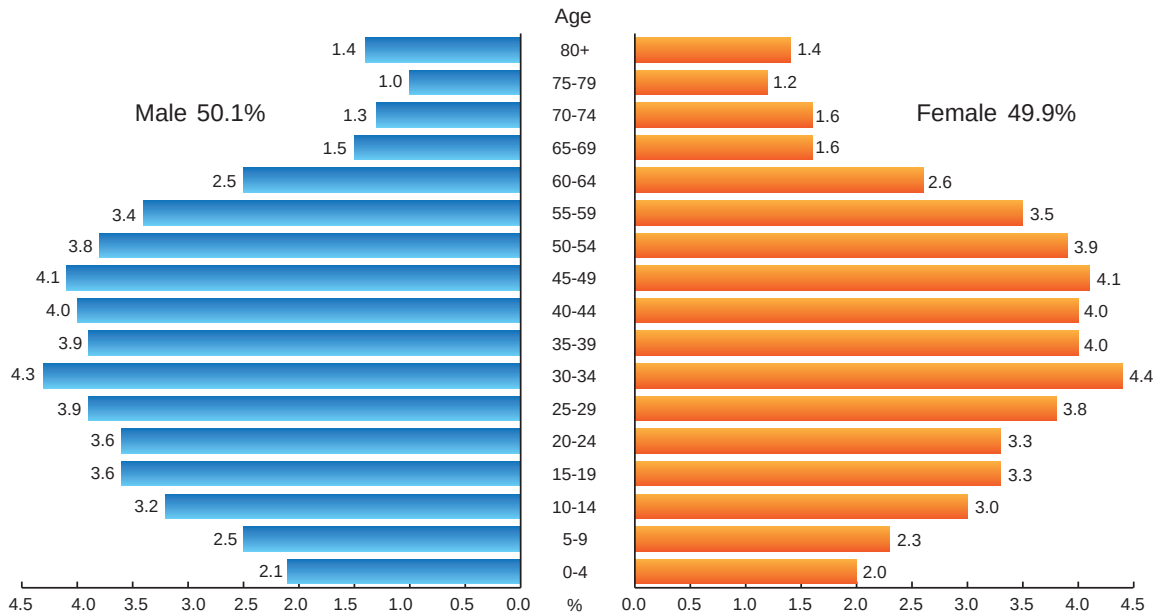
Section 1, Age Structure

The population of Taiwan reached 20 million at the end of 1989. Upon the impact of the declining birth rate year by year, the age structure of the population at the end of 2011 was already a shrinking pyramid of low birth rate and low death rate. See figure 2-1.

By age structure of population, the aged population above 65 years as a proportion of the total population reached 7% in 1993, making Taiwan an aged society. The proportion of the 0-14 young age group declined from 20.8% in 2001 to 15.1% in 2011. In the same period, the proportion of the 65 years and above elderly population increased from 8.8% to 10.9%. The aging of population is becoming more obvious. (see figure 2-2 and table 2-1)

The dependency ratio [(0-14 population + 65 above population)/15-64 population x 100] declined from 42.1% in 2001 to 35.1% in 2011, due primarily to the rapid decline of the child

Figure 2-1 The 2011 Population Pyramid



dependency ratio [0-14 population/15~64 population x100] and the steady increase of the aged dependency ratio [65 above population / 15-64 population x 100].

Section 2, Birth and Death

Fertility in Taiwan has declined year by year. Crude Birth Rate (total number of live births in the year / mid-year population x 1,000) declined from 11.7 ‰ in 2001 to 8.5 ‰ in 2011, a historically low point. Crude Death Rate [total number of deaths in the year / mid-year population x 1,000] increased slightly from 5.7 ‰ in 2001 to 6.6 ‰ in 2011, resulting in the decline of the natural increase rate of population [crude birth rate - crude death rate] to 1.9 ‰ in 2011. See Figure 2-3.

Section 3, Life Expectancy

Life expectancy at birth for both sexes in the last ten years increased from 76.7 years in 2001 to 79.2 years in 2011, an increase of 2.5 years. For males in the same period, the life expectancy at birth increased from 74.1 years to 76.0 years, an increase of 1.9 years. For females, it increased from 79.9 years to 82.7 years, an increase of 2.8 years. The increase in the life expectancy at birth for females was higher than that of the males (See Figure2-4).

Chapter 2, Vital Indicators

1. Ten Leading Causes of Death

In 1952, the leading causes of death were acute and communicable diseases; nowadays, the leading causes of mortality are

Figure 2-2 Shifts and Trends in Taiwan's Age Structure and Child / Elderly Support over the Years

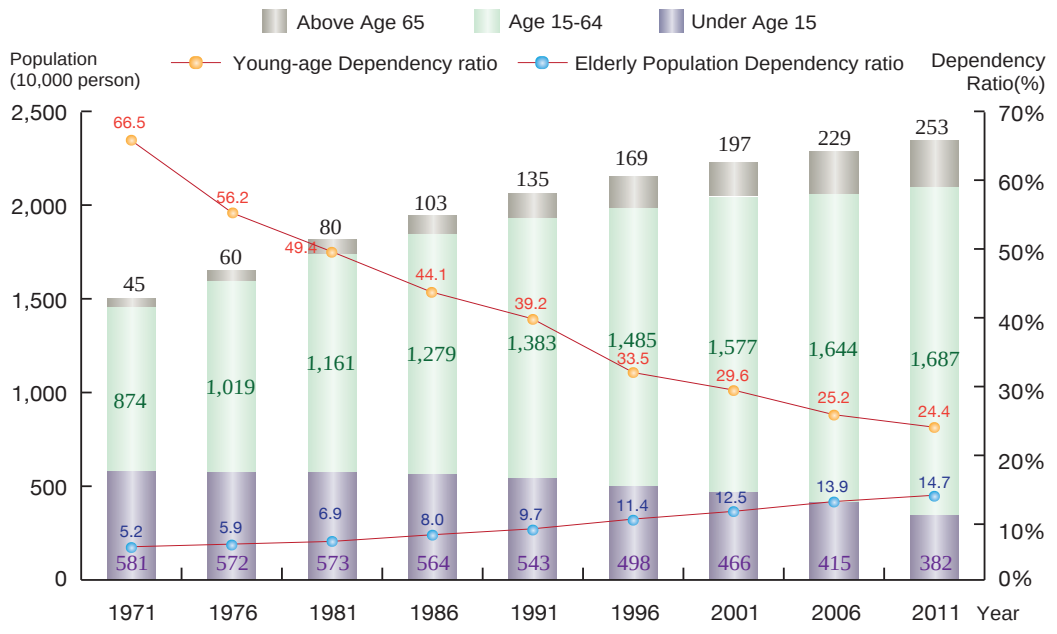


Table 2-1 Age Structure and Child / Edlerly and Aged Dependency Percentage Breakdown over the Years

Year	Total population	Population structure			Dependency Ratio	
		Under 15	Between 15~64	Above 65	Young-age Population Dependency Ratio	Elderly Population Dependency Ratio
	Per 1,000 people	%	%	%	%	%
1981	18,194	31.63	63.96	4.41	49.45	6.90
1991	20,606	26.34	67.13	6.53	39.23	9.73
2001	22,406	20.81	70.39	8.81	29.56	12.51
2011	23,225	15.08	74.04	10.89	21.37	14.70

chronic diseases, such as malignant neoplasms and cardiovascular illnesses, and accidents.

In 2011, the total number of deaths was 152,030 persons, giving a crude death rate of 655.5 per 100,000 population, and was an increase of 4.8 % over the previous year. If adjustment is made by the 2000 world standard population age structure, the standardized death rate of 2011 was 462.4 per 100,000, a decrease of 1.5 % over the previous year.

In 2011, the causes of death were coded according to The International Statistical

Figure 2-3 Crude birth rate, crude death rate, and nature increase rate of population by year

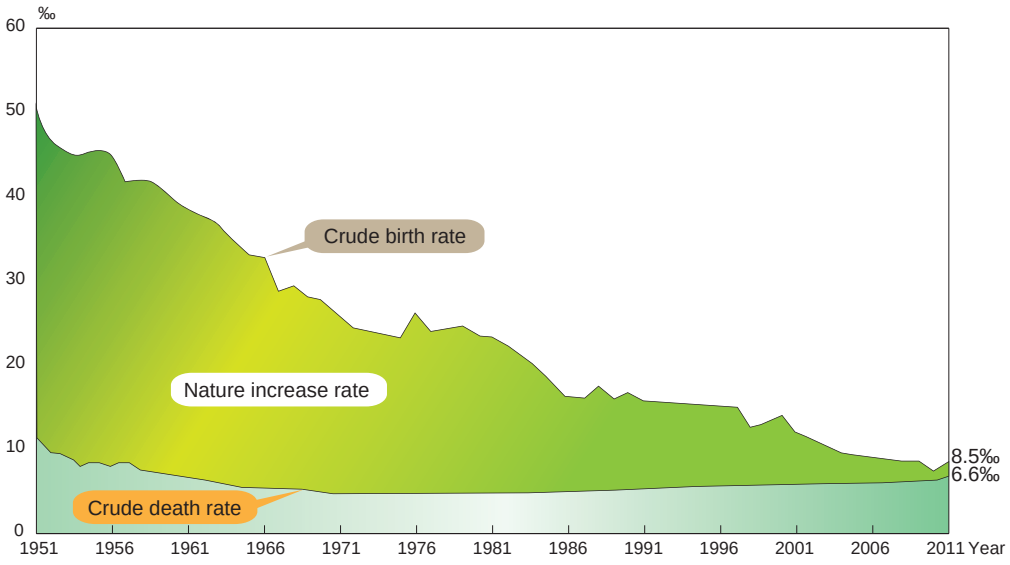
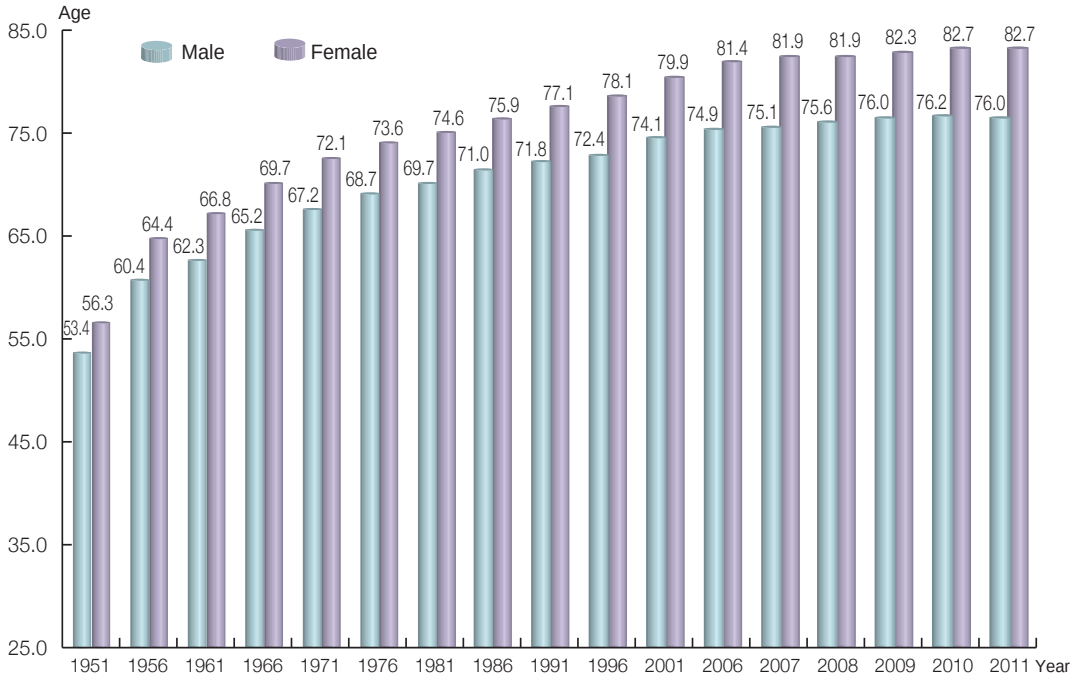


Figure 2-4 Life Expectancy at Birth



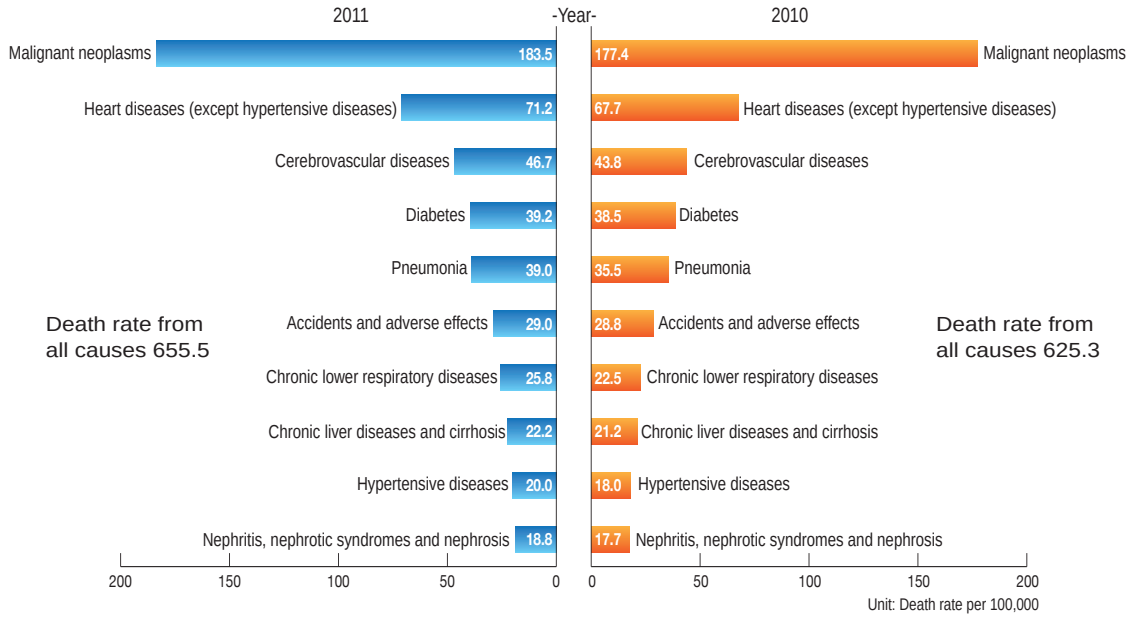
Classification of Diseases and Related Health Problems 10th Revision (ICD-10). The ten leading causes of death were malignant neoplasms, heart diseases, cerebrovascular diseases, diabetes, pneumonia, accidents and adverse effects, chronic lower respiratory diseases, chronic liver diseases and cirrhosis, hypertensive diseases, and nephritis, nephrotic syndromes and nephrosis. In comparison with the previous year, diabetes and pneumonia swapped places while suicide went out of the top 10 for the first time since 2010, dropping to 12th. See Fig. 2-5.

2. Ten Leading Causes of Cancer Death

In 2011, the number of cancer deaths was 42,559. The crude death rate was 183.5 per population of 100,000, registering an increase of 3.5% compared to the previous year. If adjusted on the basis of the 2000 standard world population age structure, the standardized mortality rate was 132.2 – a slight increase of 0.5% compared to the previous year, indicating that changes in cancer mortality in Taiwan has also been affected by an aging population.

The ten leading causes of cancer death in 2011 were: Cancers of trachea, bronchus and lung, Cancers of liver and intrahepatic bile ducts, Cancers of colon, rectum and anus, Cancer of breast(Female), Cancer of oral cavity, Cancer of stomach, Cancer of prostate, Cancer of pancreas, Cancer of oesophagus, Cancers of cervix uteri and uterus, part unspecified. Compared to the previous year the 8th, cancer of pancreas, and 9th, cancer of oesophagus, swapped places, otherwise, the list remained the same. See Figure 2-6.

Figure 2-5 Changes in the Ten Leading Causes of Death



3. Neonatal, Infant and Maternal Mortality Rates

With the advancement in public health, both infant [deaths of infants under one year of age/ number of live births of the year x 1,000] and neonatal [deaths of infants under four weeks of age/number of live births of the year x 1,000] mortality rates have with the slight exceptional increase due to the practice of the new birth reporting system in 1995, generally declined. In 2011, neonatal mortality rate had declined to 2.7 ‰; this was about 44 % of the mortality rate in 1971. In the same period, infant mortality rate dropped from 15.5 ‰ to 4.2 ‰. Furthermore, the maternal mortality rate had declined from 39.7 per 100,000 live births in 1971 to 5.0 in 2011; see Figure 2-7.

Chapter 3, National Health Expenditure

From the establishment of the National Health Insurance Scheme in 1995 national health expenditure as a proportion of GDP rose from 4.9% in 1994 to 5.3% in 1995, and to 6.6 %. In the last ten some years, the average national health expenditure per capita increased year by year from NT$ 10,765 in 1991 to NT$ 38,510 in 2010, an increase of 6.0% annually (Figure 2-8).

Chapter 4, International Comparisons

1. Comparisons in the Rate of Natural Increase (RNI)

As indicated by the 2010 Population Reference Bureau, the global population in 2010 totaled 6.892 billion. The world's population is

Figure 2-6 Changes in Ten Leading Causes of Death by Cancer

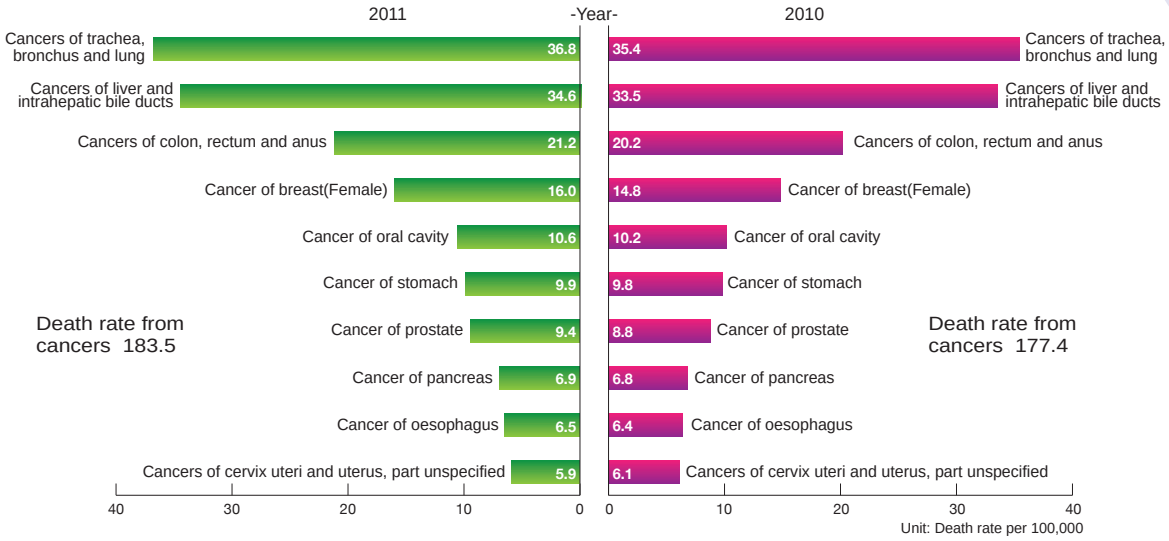
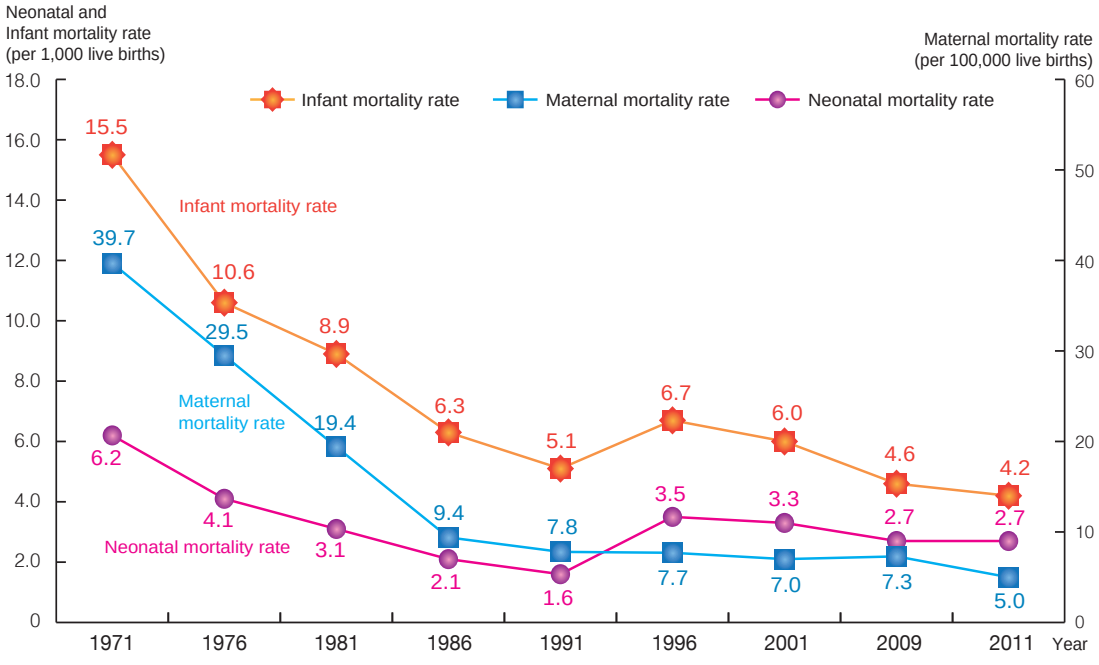


Figure 2-7 Neonatal, Infant and Maternal Mortality Rates



currently projected to reach around 9.485 billion by 2050, a 36% in population growth rate. Though the rate of demographic transition in general is on the rise, populations in certain countries have registered negative growth, with continuously declining demographic transition rates; See Table 2-2.

The global total fertility rate in 2010 (the average number of children that would be born to a woman over her lifetime) was 2.4. Fertility rates in Asian countries listed below are less than half of that, indicating that Asia has become a low-fertility rate region. Worldwide birth rate now stands at 20‰, and death rate, 8‰. Fertility rate in Germany dropped lower than mortality rate in that year. In general, demographic structures in developed countries around the world are trending towards low fertility rate and low death rate. See Table 2-2.

2. Life Expectancy Comparisons

In 2009, average life expectancy for males at birth in major countries was over 75 of age: males in Japan, Australia had the longest life expectancy, at 80; life expectancy for males in Taiwan in 2009 was at 76, equaling Japanese male's average expectancy in the 1990's. In terms of variations in life expectancy between 1960 and 2009, over the last 50 years the life expectancy of males in Taiwan has increased by 14 years, second only to Japan.

Figure 2-8 NHE/GDP Ratio and NHE per Capita by Year

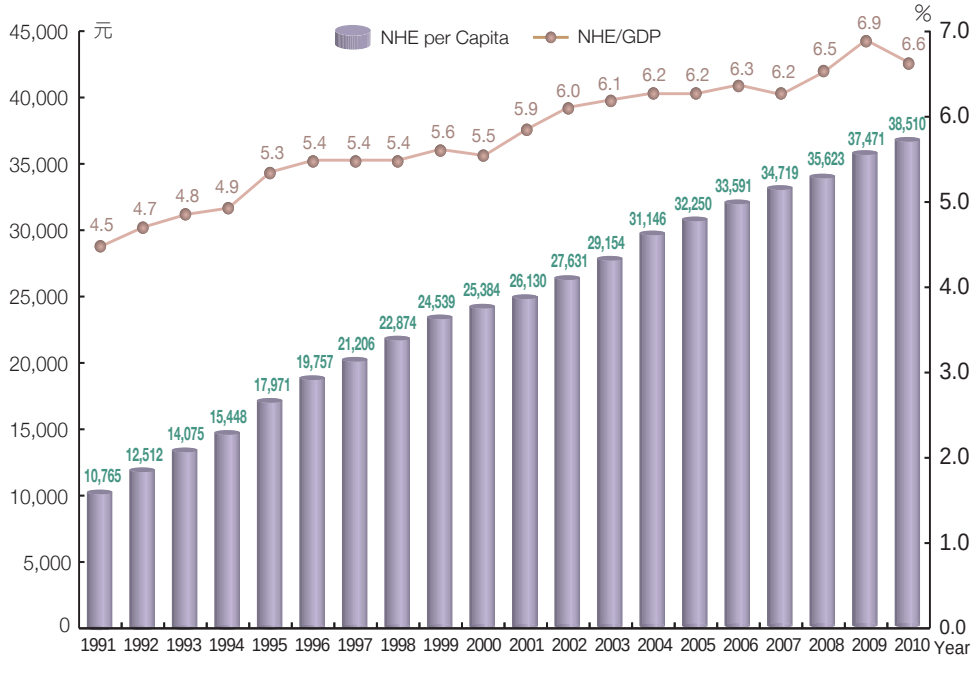


Table 2-2 Population Structures in Major Countries

	Midyear population (million)	Projected population (million)		2010-2050 Population Growth/ decline %	Total fertility rate	Birth rate ‰	Death rate ‰	RNI %
	2010	2025	2050					
Worldwide	7057.1	8082.0	9624.0	1.4	2.4	20	8	1.2
Taiwan	23.3	23.5	20.8	0.9	1.1	9	7	0.2
Singapore	5.3	5.8	6.1	1.2	1.2	10	4	0.5
Japan	127.6	119.8	95.5	0.7	1.4	9	10	-0.2
Korea	48.9	50.9	47.2	1.0	1.2	10	5	0.4
Canada	34.9	39.9	48.6	1.4	1.7	11	7	0.4
America	313.9	351.4	422.6	1.3	1.9	13	8	0.5
UK	62.2	70.5	79.6	1.3	2.0	13	9	0.4
France	63.6	67.4	72.4	1.1	2.0	13	9	0.4
Germany	81.8	79.2	71.5	0.9	1.4	8	10	-0.2

Source: 2010 World Population Data Sheet, Population Reference Bureau

In 2009, life expectancy for females at birth was well over age of 80: females in Japan had the highest life expectancy, at 86; French females came in second, at 85, and Australian females ranked third, at 84. Life expectancy for females in Taiwan in 2009 was at 83, equaling Japanese female's average expectancy in the 1990's. In terms of variations in life expectancy between 1960 and 2009, over the last 50 years the life expectancy of women in Taiwan has increased by 17 years, ahead of not just Japan but also all other major countries. (see Table 2-3).

3. Comparisons of National Health Expenditure between Different Countries

In Taiwan, National Health Expenditure (NHE) per capita in 2009 was recorded at US$1,133-much lower than the median NHE of US$3,490. Taiwan ranked 29th among OECD countries. Only Estonia, Hungary, Poland, Chile, Mexico and Turkey had lower per capita expenditure. GDP per capita in Taiwan was US$16,353 – lower than the median GDP of US$35,814, and ranked 28th among OECD member countries – higher than Slovak Republic, Estonia, Hungary, Poland, Turkey, Chile and Mexico. Overall, higher GDP per capita is always accompanied by higher NHE per capita. In 2009, NHE in Taiwan accounted for 6.9% of the GDP – it was 2.6 percent lower than the OECD median. Compared with other OECD member countries, Taiwan's NHE/GDP percentage was relatively low (see Table 2-4).

Table 2-3 Life Expectancy at Birth in Major Countries

	Male							Female						
	1960's	1970's	1980's	1990's	2000's	2005's	2009's	1960's	1970's	1980's	1990's	2000's	2005's	2009's
Taiwan	62	67	70	71	74	75	76	66	72	75	77	80	81	82
UK	68	69	70	73	76	77	78	74	75	76	79	80	81	82
US	67	67	70	72	74	75	76	73	75	77	79	80	80	81
France	67	68	70	73	75	77	78	74	76	78	81	83	84	85
Germany	67	67	70	72	75	76	78	72	74	76	78	81	82	83
Canada	68	67	72	74	77	...	79	74	76	79	81	82	83	83
Norway	71	71	72	73	76	78	79	76	77	79	80	81	83	83
Netherlands	72	71	73	74	76	77	78	75	77	79	81	81	82	83
Australia	68	67	71	74	77	79	80	74	74	78	80	82	83	84
New Zealand	69	68	70	72	76	78	79	74	75	76	78	81	82	83
Japan	65	69	73	76	78	79	80	70	75	79	82	85	86	86

Source: 1960-2005 population information was taken from 2008 OECD Health Data; 2009 information was taken from WHOSIS 2011.

Table 2-4 Comparisons of NHE per capita v.s. GDP per capita between Taiwan and OECD Member Countries, 2009

Unit: US$

Ranking	Nation—ranked by NHE per capita	NHE / GDP (%)	NHE per capita	GDP per capita
median		9.5	3,490	35,814
1	United States	17.4	7,960	45,797
2	Norway	9.6	7,516	78,409
3	Switzerland	11.4	7,160	63,525
4	Denmark	11.5	6,408	55,970
5	Luxembourg	7.8	6,196	107,174
6	Netherlands	12.0	5,953	48,398
7	Austria	11.0	5,177	45,568
8	France	11.8	4,987	41,159
9	Belgium	10.9	4,881	43,640
10	Ireland	9.5	4,877	49,738
11	Germany	11.6	4,855	40,659
12	Canada	11.4	4,748	40,041
13	Sweden	10.0	4,320	43,395
14	Australia	8.7	4,246	48,893
15	Finland	9.2	4,194	44,545
16	United Kindom	9.8	3,732	35,666
17	Iceland	9.7	3,658	37,883
18	Italy	9.5	3,490	35,814
19	Japan	8.5	3,252	38,272
20	Spain	9.5	3118	31,877
21	New Zealand	10.3	2,798	27,187
22	Greece	9.6	2,794	27,767
23	Portugal	10.1	2,325	23,713
24	Slovenia	9.3	2,319	24,333
25	Israel	7.9	2,072	26,103
26	Slovak Republic	9.1	1,515	16,165
27	Czech Republic	8.2	1,492	18,129
28	Korea	6.9	1,184	17,110
29	Taiwan	6.9	1,133	16,353
30	Estonia	7.0	1,035	14,374
31	Hungary	7.4	957	12,847
32	Poland	7.4	837	11,287
33	Chile	8.4	798	9,502
34	Turkey	6.1	620	10,197
35	Mexico	6.4	525	8,180

Source: 1. OECD Health Data 2012
2. Office of Statistics, Department of Health

3 Promoting Public Health and Well-being

Promoting Public Health and Well-being

In order to achieve "Health for All" as advocated by the World Health Organization (WHO), the DOH actively drew up policies to promote the health of pregnant women, infants and toddlers, children, teenagers, middle-aged and senior citizens, and women in general. In addition, facing the challenges brought on by a number of unhealthy lifestyle habits, bearing in mind the current state of society and likely future trends and based on human rights and gender equality, the DOH, as part of its ongoing efforts to improve the people's health, community health, society's health and global health, also planned and revised its policy goals and strategies based on research and empirical data gleaned from its health surveillance surveys and studies.

Chapter 1, Healthy Childbirth and Growth

Section 1, Ensuring the Health of Pregnant Women and Women in Labor

1. Prenatal examinations

1) Pregnant women are offered ten prenatal care inspections at designated hospitals under the National Health Insurance coverage. In 2010, the average use rate was nearly 90.94%, with 98.29% of expectant mothers taking advantage of them at least once; 92.76% of expectant mothers took advantage of them at least four times.

2) In 2010, the DOH started to subsidize pregnant women from low-income households for *Group B Streptococcus* screening. Starting in 2011, the recipients of the subsidies were expanded to include pregnant women from medium- and low-income households, as well as pregnant women in aborigine areas. The DOH provides a subsidy of NT$400 for each screening.

2. Special health issues

1) Since the promulgation of the Genetic Health Act on July 9, 1984, the DOH has been actively promoting such services as prenatal diagnosis of genetic diseases, newborn screenings, and genetic counseling. The fees of testings are reduced, exempted or subsidized. Once an abnormality is detected, health education and prenatal care are made available.

2) The gender ratio of babies delivered by all hospitals is monitored and, together with county/city health bureaus, related guidance has been provided and inspections carried out and illegal gender selection advertisements cleaned up, an inter bureau work team established and related laws and regulation revised. The result of efforts was that, in 2011, the gender ratio was down to 1.079, the lowest for 16 years (since 1996).

Section 2, Health Promotion for Infants, Toddlers, and Children

1. The DOH introduces newborn screening program for screening genetic metabolic disorders.The screening rate in 2011 was over 99%. 11 disorders are checked for, including: glucose- 6-phosphate dehydrogenate deficiency (G6PD), etc. For those newborns with abnormal results, follow-ups, referrals, diagnosis confirmations and appropriate treatments will be given.
2. Developmental screening, preventive health care programs for children and Joint Development Assessment are available:

1) The DOH subsidizes medical care institutions in providing preventive healthcare services for children under seven for early detection and intervention. The DOH pushed the "New Preventive Healthcare Program for Children" to strengthen developmental screening and provide diverse services, and referral and diagnosis confirmation reporting functions.

2) Aiming to provide timely team assessments and interventions on behalf of children for whom there are concerns about possible developmental delay, the DOH has established one to four early developmental assessment centers in each county and city throughout Taiwan. Currently there are a total of 45 such centers.

3. Breastfeeding in public Act was promulgated on November 24, 2010. A total of 158 hospitals and clinics were certified in 2011 under the "Baby-Friendly Hospital Initiative (BFHI) Accreditation Program". The rate of mothers who were exclusively breastfeeding at one month after delivery from 54.3% in 2008 to 61.8% in 2011.

Section 3. Health Care for Adolescents

1. The DOH has established a website to provide sex education and information on contraception and also provides the Secret Garden online video counseling service providing adolescents with accessible and private counseling.
2. Going into communities and schools, providing sexual health counseling to adolescents. Also, blogs and telephone were used as counseling platforms, guiding adolescents with needs to individual counseling or to hospital to receive the necessary treatment.
3. The DOH has established programs for adolescent-friendly outpatient medical services in 31 hospitals and clinics, so as to provide teens with preventive care and reproductive health services.

Section 4, Vision, hearing and oral cavity health

1. The DOH carries out preschool vision screenings for strabismus, amblyopia, and myopia for four- and five-year-old preschoolers. In 2011 the "Eye doctors go to nurseries to carry out myopia prevention work" program, providing accessible care.
2. The DOH conducted preschool hearing screenings in communities and nursery schools. The program had a coverage rate of 91.38% in 2011.
3. Since 2010, the DOH has provided a subsidy of NT$500 for each hearing screening of an infant less than three months of age from a low-income household. Also the "New born baby hearing screening medical institution certification principles" were announced on November 22, 2011.
4. Fluoride applications, oral inspection and oral health education services are provided to children under 5 twice a year. In 2011, in combination with 25 hospitals and early treatment institutions, oral examinations for children with delayed development were developed, and the children and carers taught how to brush correctly and about oral health Dental sealant were filled for first and second grade children of schools in aboriginal areas and for first graders from low-income families in non aboriginal areas.

Chapter 2, Healthy living

Section 1, A Tobacco-Free Lifestyle

1. Implementation of the New Regulations in the Tobacco Hazards Prevention Act

It is three years since the new regulations of the Tobacco Hazards Prevention Act were promulgated. There has been a slight fall in the percentage of over 18 years old who smoke (to 19.1% from 21.9% in 2008), with the number of smokers falling by 420,000 in the last three years. The second hand smoke exposure rate in statutory no smoking areas continued to fall in 2011, with a protection rate of 91.8%.

2. Educational Campaigns and Supporting Tobacco-Free Environment

1) To rise the insight of smoking risk from adolescent girls by "Quit smoking soon, no regrets" 30-second commercial film to encourage fathers to quit smoking earlier and sharing the experiences from people who have quit smoking, anti-smoking creativity competition for young people and an online video competition.

2) Veteran celebrities Yu Feng, Zhuo Sheng-li and Sun Yue share their own painful experiences and called on smokers to quit earlier to reduce the risk of cancer.

3) Smoke-free campus, workplace, military, community, etc. continue to be implemented and in 101 community units were given subsidies to implement smoke-free community; 53 hospitals have received international certification as "smoke-free hospitals", with 32 hospitals awarded the gold award in 2011.

4) To carry out smoking prevention work at schools below high school level the "Campus anti-smoking education seed teacher training plan" was implemented.

Tobacco harm prevention in 2011

3. Diverse quit smoking services

1) There were already 1,957 medical institutions in 2011 contracted to provide Outpatient Smoking Cessation Services. The medical institutions were spread out for a coverage of 99% townships, villages and cities; which smokers who want to quit smoking can receive clinical consultation and medicines (such as nicotine patches and gum), with subsidies provided for both the visitation and medicine, the success rate within six months is 23.4%.

2) By helping smokers develop a personal cessation plan via toll-free smoking cessation helpline, the cessation rate is over 30%. The "quit smoking handbook" has also been distribute through department of health in each city/country to deliver quit smoking information to the general public.

3) To develop the Joint Care and Treatment Network, 26,114 quit smoking specialists in pharmacies, schools, workplaces and hospitals were trained in 2011. Also, by in cooperation with the department of health and pharmacists associations in each city/county, 1,000 community pharmacies joined to provide free quit smoking consultation service.

4) In 2011 the "Tobacco Control Implementation Plan of Correctional Facilities" was jointly implemented with the Ministry of Justice, and helped 9,706 inmates quit smoking.

Section 2, Betel nut harm prevention

The result that the percentage of males under 18 chewing betel nut was reduced from 17.2% in 2007 to 11.3% in 2011. The work focuses are outlined below:

1. Starting in 2004 guidance has been strengthened at schools below high school level in areas with high occurrence of oral cancer to help them become betel nut free campuses, taking the skills needed to quit betel nut chewing into schools.
2. From 2007 subsidies have been provided to community health building units to carry out betel nut harm prevention work. Helping the public quit chewing betel nuts as well as providing free oral mucosa screening for chewers of betel notion 2011 the betel nut harm prevention plans carried out by 86 health building units in 15 cities and counties were subsidized.
3. In 2011, 172 workplaces that had a high rate of betel nut chewing were assisted to create betel nut-free environments through bureaus of health and NGOs and established 291 quit betel nut classes at 227 hospitals implementing the 2011 Hospital Cancer Treatment Quality Increase Plan. From 2005 the implementation of the Tobacco and Betel Nut Harm Prevention Plan by the military, intending to create a betel nut free supportive environment.

Section 3, Safe Living

1. To build a safe home environment, home safety reviews and improvements were carried out through city/county health bureau personnel.
2. The DOH carried out the "Intervention program on injury prevention promoted by Pediatrician", that developed an injury risk checklist for infants and toddlers who are four years of age or under, and health-education leaflet.
3. Implement the "Using National Health Insurance and household registration database to establish an injury surveillance system and estimate the medical cost of injury among children and adolescents" program, an enquiry systems on unintentional injury mortality rate, incidence rate, medical costs and other statistics in Taiwan.
4. The MOI promulgated the Protection of Children and Youths Welfare and Rights Act on November 30, 2011 and the DOH revised related laws and regulations in line with these revisions and also implemented child and adolescent safety protection and injury prevention measures.
5. The DOH continues to promote its program which aims at creating safe communities and schools. Meanwhile, it continues to help local communities and schools to be certified for the International Safe Communities and International Safe Schools programs of the WHO Collaborating Centre on Community Safety Promotion.

Chapter 3, Healthy Aging

Section 1, Health Policies for the Middle-Aged and Senior Citizens

1. A free adult preventive health examination is provided every three years for people aged 40-64 and annually for people over 65. New blood pressure, blood sugar and blood cholesterol abnormality rate discovered through this service was 20.8%, 8.1% and 12.0% in 2010.
2. The "Age-friendly cities" plan expanded to 20 counties and cities in 2012. It is expected that by 2013 all cities and counties in Taiwan will be age-friendly.
3. The DOH hosted the International Conference on Age-Friendly Health Care. Many overseas and local experts and scholars, including those from the UK, Singapore and Japan, were invited to share their experiences.
4. The Health Promotion Project for the Elderly (2009-2012) began in 2009. The percentage of community care spots involved nationally increased greatly from 26% in 2010 to 83.9% in 2011.
5. A national fun health competition for the elderly was held, teams of elderly representing townships were encouraged to participate. At the end of 2011, 929 teams had been formed.

Section 2, Chronic Diseases Control

1. Metabolic Syndromes

A variety of channels are used to carry out metabolic syndrome prevention education work with the result that the general recognition rate for the waist warning value In 2011 the contents of the adult health examination, adding BMI, waist and HDL Cholesterol measurement.

2. Diabetes Prevention

In 2011, 174 hospitals and clinics and 483 diabetes support groups participated in a DOH-sponsored program to promote diabetes health. The DOH also strived to promote a shared-care network for diabetics in each county and city and a certification system for diabetes health professionals.

3. Cardiovascular Diseases Prevention

1) The DOH joined forces with local health agencies to promote prevention of the 3-highs (hypertension, hyperglycemia and hyperlipidemia). To make blood-pressure measurement more accessible, the DOH set up community locations of various types that offered these services.

2) From 2002 the DOH has encouraged cities and counties to integrate health resources and to combine adult preventive healthcare and cancer screening and other items.

4. Chronic Kidney Diseases Prevention

In 2011, the DOH recognized 126 hospitals and clinics for their work in promoting kidney health. Also, 80,000 copies of a kidney disease management handbook were printed and provided to sufferers to increase their self-care knowledge.

5. Menopausal Health

The DOH established a toll-free hotline (0800-00-5107) staffed with trained counselors to provide counseling services, and offered valuable menopause-related healthcare information through a variety of media channels.

Section 3, Cancer Prevention and Control

Base on the Cancer Prevention Act that went into effect in 2003, the DOH periodically convenes meetings of the Central Cancer Prevention and Control Conference and the

Cancer Prevention and Control Policy Committee. To help lower cancer mortality rates by expanding cancer screening services, the DOH carried out its Five-Year National Cancer Control Program from 2005 and 2009 and launched the Second Phase Cancer Control Program Cancer Screening (2010-2013) in 2010.

1. Cancer Incidence

According to Cancer Registry in 2009 Cancer Registry, crude incidence rates of cancer for men and women were 421 and 332 per 100,000 persons, respectively. If adjusted by the 2000 WHO world population structure, standardized incidence rates for men and women were 336 and 253 per 100,000 persons. The top ten cancers for men and women are listed in Tables 3-1 and 3-2.

2. Cancer Screening

1) The DOH's preventive health services offer one free Pap smear test per year to women aged 30 and older, biennial mammography screening for women aged 45 to 69 (as well as to women aged 40 and 44 with relatives within second degree of kinship who have/ have had breast cancer), one oral cancer screening every two years to people aged 30 and older who chew betel nut or smoke, and one iFOBT test every two years to people aged 50 and 69.

2) From 2010 to 2011, a total of 8,832 thousand people underwent screening for cancers. 62% of 30-69 year old women have had a Pap-smear test within the last three years, and 29.3% received mammography screening, 33.9% had colorectal cancer screenings and 40% had oral cancer screenings within the last two years.

3) The DOH's national program for cancer screening and quality promotion subsides 228 hospitals as "cancer lifesavers."

3. Promoting Cancer Treatment and Care Quality

1) In 2008, the DOH started to implement the accreditation of hospitals that register 500 or more newly diagnosis cases of cancer every year. The DOH commissioned the National Health Research Institutes underwent revisions and were adopted in the trial evaluation of eight hospitals in 2010 and formally adopted in 2011, so as to construct a cancer-prevention network and deliver seamless cancer care.

2) In 2010, the DOH extended subsides to NGOs and hospitals establish one-stop center for cancer service. With resource inside and outside the hospital fully intergraded to provide cancer patients and their families.

3) The DOH encourages hospice shared care for cancer patients, hospice shared care services were available at 69 hospitals at the end of 2011. Also, death records and National Health Insurance database were used to analyze the hospice shared care used in the last year of life for cancer patients. The use rate has risen from 7.4% in 2000 to 42%.

Chapter 4, Healthy Environment

Section 1, Healthy Cities

1. The DOH has set up a task force of professionals to offer assistance, while encouraging local administrations to initiate a regional Healthy City campaign.
2. In order to promote exchange of information among cities, DOH held the Healthy City and Age-friendly City Seminar in 2011, attended by

Table 3-1 Incidence of Ten Leading Cancer for Male, 2009 (excluding carcinoma in situ)

Site	No. of Cases	Crude Incidence rate (per 100,000)
Liver and intrahepatic bile ducts	7,747	53.6
Colorectal	7,151	48.7
Lungs, bronchus and trachea	6,737	45.1
Oral cavity, oropharynx and hypopharynx	5,927	40.8
Prostate	4,013	26.9
Stomach	2,404	15.9
Esophagus	1,898	13.0
Skin	1,589	10.7
Bladder	1,419	9.4
Non-Hodgkin's Lymphoma, NHL	1,205	8.5
Others	8,932	-
Total	49,022	336.3

Table 3-2 Incidence of Ten Leading Cancer for Female, 2009 (excluding carcinoma in situ)

Site	No. of Cases	Crude Incidence rate (per 100,000)
Breast	8,926	59.9
Colorectual	5,337	34.5
Lungs, bronchus and trachea	3,906	25.2
Liver and intrahepatic bile ducts	3,333	21.7
Cervix	1,846	13.2
Thyroid	1,797	11.9
Body of uterus	1,496	9.9
Stomach	1,444	9.2
Skin	1,339	8.4
Ovary	1,113	7.7
Others	7,630	-
Total	38,167	253.5

Dr. Ruth Finkelstein of the New York Academy of Medicine and Prof. Takiko Okamoto of Meiji Gakuin University, who shared their experience of promoting age-friendly cities; the 3rd Taiwan Healthy City Awards Ceremony was also held during the conference.

3. At the end of 2011, seven counties and cities and eleven regions in Taiwan had joined the Alliance for Healthy Cities (AFHC) as NGOs.

Section 2, Healthy Communities

1. In 2011, under its Building Healthy Communities program, the DOH subsidized 16 local health agencies to work with communities (107 in all) in their jurisdictions to advocate the following: screening for four major cancers, health promotion for the elderly, tobacco control in adolescents, betel nut control (including quit smoking efforts), safety promotion, and healthy weight loss.
2. In October the book "100 Stories of Love" was published, showing achievements in promoting healthy hospital, campus, community, workplace and cities, and telling the stories of people who have advocated healthy life styles for years.
3. In 2011, the DOH subsidized 13 local health agencies to carry out the Community LOHAS Project "have more exercise and a healthier diet."

Section 3, Health Promoting Schools

1. Starting from 2002, Department of Health worked with Ministry of Education to integrate cross-departmental resources and launched the Health Promoting Schools program. In 2008, the Health Promoting School Promotion Center was established to integrate resources and establish a single counseling mechanism for the health promoting schools. In 2011, all elementary and junior schools and over 70% of high schools in Taiwan participated in the program.
2. In 2011, using the "WHO's Health Promoting School: A Framework for Action as reference, the international accreditation standards for health promoting school was set; trial evaluations were carried out in 25 schools and health issue intervention studies were conducted in 52 schools. The 2011 Conference on Health Promoting Schools in Taiwan was organized to demonstrate the achievements of health promoting schools in Taiwan. Experts from Hong Kong, the US, Scotland and Australia gave speeches to share their international experiences.

Section 4, Healthy Workplaces

1. Since 2003, the DOH has worked with teams of experts to provide health promotion and tobacco-control counseling services and training, as well as to establish workplace service networks.
2. In 2007, the DOH launched "Self-Accreditation of Healthy Workplaces" program, taking "WHO model of Healthy Workplace Continual Improvement Process" as reference and set assessment items to encourage the establishment of health promoting policies and a supportive environment in the workplace. Between 2007 and 2011, a total of 7,411 workplaces gained certification under the DOH's Self-Accreditation of Healthy Workplaces program.

Section 5, Health Promoting Hospitals

1. **Actively participating in the WHO International Network of Health Promoting Hospitals and Health Services**
   1) By the end of 2011, 76 hospitals in Taiwan had been granted WHO certification, making the network of WHO-certified

hospitals in Taiwan the fastest growing such network in the world. Furthermore, Taiwan's member hospitals have been actively publishing papers for the network's annual conference: The number of papers published by Taiwan's member hospitals ranked first in 2010 and 2011.

2) Dr. Shu-Ti Chiou, Director General of Bureau of Health Promotion (BHP), DOH, was invited to take part in the 14th Health Promoting Hospital Conference in December 2011, organized by the Trento Area Health Promoting Hospital Network in Italy. Dr. Chiou shared promotion strategies and best practice examples on health promoting hospitals in Taiwan.

3) BHP organized the WHO-HPH Autumn School (WHO-HPH Recognition Project-Advanced Course) in cooperation with the WHO's International HPH Network Secretariat, providing instructions to 15 hospitals that are participating in the international advanced recognition program.

2. Promoting Low Carbon Footprints for hospitals

1) In support of the international efforts in promoting low carbon initiatives in hospitals, the BHP held the Symposium on HPH and Environment during the 19th International Health Promoting Hospital Conference in June 2011 in Turku, Finland, and also held the 3rd Meeting of the Task Force on HPH and Environment.

2) The First Global Climate and Health Summit was organized jointly by Health Care Without Harm (HCWH) and other international organizations in Durban, South Africa, in December 2011. BHP's Director General Dr. Shu-Ti Chiou attended as the Vice Chair of the International Health Promoting Hospitals Network and Director General of BHP. She gave a presentation on Taiwan's efforts with regards to the Task Force on HPH and Environment, and outlined the carbon reduction results of hospitals in Taiwan.

3) A press conference was called by the HCWH during the UNFCCC 17th Conference of Parties (COP17), to which Dr. Shu-Ti Chiou, Director General of BHP, was invited; she jointly reported during the press conference with the Director of the WHO Public Health and Environment Division, Dr. Maria Neira, and Mr. Joshua Karliner, International Team Coordinator of HCWH, as well as representatives from two other organizations.

4) The Environmental Quality Protection Foundation (commissioned by the BHP) held the "Climate Change and Public Health: Healthy Climate, Healthy People, Healthy Economy" satellite meeting together with HCWH and other international health organizations on December 8, 2011, during UNFCCC Conference of Parties 17. Dr. Shu-Ti Chiou, Director General of BHP, attended the meeting and spoke about Taiwan's success with regards to creating environmentally friendly hospitals.

Section 6, Obesity Prevention

The DOH launched the "Healthy Centenary, Healthy Taiwan" healthy weight management campaign in 2011 with the aim to attract 600,000 citizens from 22 counties/cities and reduce a total of 600 metric tons excessive weight. The core strategies for promoting healthy weight are as follow:

1. Implement the Public Breast Feeding Act, build

Obesity prevention

healthy cities and communities, as well as health-promoting hospitals, workplaces and schools.

2. Set up a website and toll-free help line and internet telephone to provide advices on healthy diet, regular excise and healthy weight management; establish a healthy diet system and diverse sporting environments; assist hospitals and clinics to reorient from diagnoses and treatment to health promotion by establishing a reminding system that informs patients and the public on health promotion such as preventive health services and healthy-weight management.
3. Promote healthy weight loss through various media outlets; encourage people to register together in groups from communities, schools, workplaces and hospitals; devise educational materials and operational manuals; set up a website and service hotline to improve the healthy weight management literacy of the general population.

Chapter 5, Health dissemination and health monitoring

Section 1, Integrating health education resources

Help the public to understand the DOH's health education policies, carry out health education to strengthen the public's health awareness and achieve the objective of health promotion.

1. Set the axis of health education, integrate mental health promotion, safe drug use, healthy eating and other issues and promote by using an integrated marketing method, strengthening the level of understanding of these issues and their level of acceptance, increasing people's health self-management ability.
2. Integrating the DOH's health education resources, establishing health education channels, with respect to the DOH's and its related subsidiaries' health education work, through diverse resources, continuous promotion and complete packaging, raising the public's understanding of health issues; and also, using an identification system, linking policy and overall image. For emergency issues there are also instant response and carination channels that ease the public's concerns.
3. Health education weekly bulletin, food information-e newsletter, National Health Insurance E-newsletter, and the food and drug safety weekly are all included in the "Health E-newsletter".

Section 2, Raising health education personnel work knowledge and skill

Since 2008 an annual health education exchange symposium has been held annually .

In 2011 the symposium had four sessions with two themes, "principal advocacy" and "skill improvement". The main points of the "principal advocacy were "eat without worry, use safely", "cherish healthcare resources, support national health insurance scheme reform".

Section 3, Health monitoring

Series of surveys that target on population of different life-course are conducted regularly, step by step construction of the non-communicable disease surveillance system. Surveillance data are collected, analyzed and disseminated.

1. A system-based national health surveillance system has been developed; the surveys conducted from 2006 to 2011 and to be conducted 2012-2015 are listed in Table 3-3.
2. Developed diverse survey result announcement mechanisms for use in policy setting, performance assessment and health education, established diverse survey result announcement channels.
3. The online health indicators data query system "Health Indicator 123" (website http://olap.bhp.doh.gov.tw) was enhanced to provide fast and user friendly query services for various national survey and birth reporting database releasing 484 health indicators. In 2011 a diverse indicator category query route was added, also providing personalized website service and other functions.

Table 3-3 Major DOH health survey series 2006-2015

Survey	● (cross-sectional survey) ➡ (longitudinal survey)									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
【Community-based face to face interview survey】										
National Health Interview Survey				●				●		
Taiwan Longitudinal Study on Aging		➡				➡				➡
Taiwan Fertility and Family Survey			●				●			
Taiwan Birth Cohort Study	➡	➡	➡		➡	➡	➡	➡		
【School-based self-administered questionnaire survey】										
Global Youth Tobacco Survey of Junior High School Students	●		●		●	●	●	●	●	●
Global Youth Tobacco Survey of Senior High School Students		●		●		●	●	●	●	●
Taiwan Youth Health Survey of Junior High School Students	●		●		●		●		●	
Taiwan Youth Health Survey of Senior High School Students		●		●		●		●		●
【Telephone Interview Surveys】										
Adult Smoking Behavior Survey	●	●	●	●	●	●	●	●	●	●
Behavioral Risk Factor Surveillance System		●	●	●	●	●	●	●	●	●
Surveys on Healthcare issues	●	●	●	●	●	●	●	●	●	●

4 Communicable Disease Control

Communicable Disease Control

Continued efforts in epidemic surveillance and investigation, preparedness for disease prevention, immunization, research and development have effectively brought communicable diseases under control, yet more should be done to expedite the amendment of laws and regulations to be in line with global trends as well as to establish a disease control command system. It is hoped that early detection and prevention of communicable diseases could be accomplished through a comprehensive disease control system.

Chapter 1, Communicable Disease Control Act and Legal Framework

In order to arrest the occurrence, and to stop the spread of communicable diseases, the Communicable Disease Control Act and related regulations were formulated to specify the obligations and rights of the people for the prevention and control of communicable diseases. The Act and regulations also provide a legal basis for public health personnel to administer disease control activities.

Table 4-1 ROC Centenary Revised Legal Orders Issued

Name of legal order	Issue date of revision	Objective of revision
Amended portion of "Regulations Governing Management of the Health Examination of Employed Aliens"	January 25, 2011	To comply with the practical requirements of the health examination of employed aliens.
Amended portion of "Implementation Regulations Governing Materials for Communicable Disease Control and Establishment of Resources"	June 27, 2011	To implement management of the materials for communicable disease control, establish a safety reserve control mechanism, and promote the flow of stocks.
Amended Article 2 and Article 4 of "Regulations Governing Collection of Quarantine Fees at Ports"	August 12, 2011	Based on the principle of the user fee, determines who pays the quarantine fee and sets baseline fees for rabies vaccines, immunoglobulin, and amebic dysentery medications.
Amended "The Categories of Communicable Diseases and Preventive Measures for Category IV and Category V Communicable Diseases"	September 16, 2011	To comply with influenza prevention needs, and to make disease nomenclature consistent with epidemic monitoring objectives.
Amended Article 2 of "Regulations Governing Immunization Operation, Examination of Children's Immunization Record, and Catch-up Immunization"	December 6, 2011	To specify the scope of nursing personnel of health institutions implementing immunization work.

Section 1, Laws and Regulations of Communicable Disease Control

The Communicable Disease Control Act and the HIV Infection Control and Patient Rights Protection Act are two crucial acts governing the implementation of communicable disease prevention and control strategies in Taiwan. To enhance the prevention and control efforts, revisions were made to five related legal orders in 2011. See Table 4-1.

Section 2, Frameworks of Communicable Disease Control

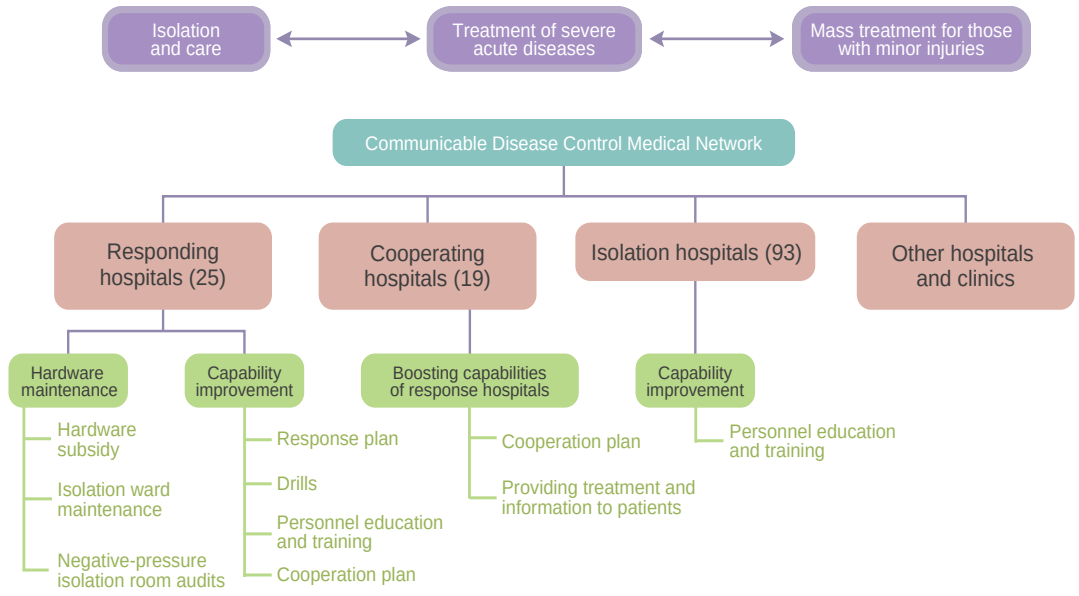
1. Prevention Network

Communicable disease prevention should be done through the efforts of central and local government. The Centers for Disease Control of the Department of Health (Taiwan CDC) is the highest authority in Taiwan to be responsible for the formulation of communicable disease control strategies and plans, and also for the supervision, direction and evaluation of communicable disease control efforts executed by local health bureaus. County/city health bureaus formulate their own action plans in accordance with that established by the central government, and execute various campaigns accordingly.

2. Testing Network

Research and Diagnostic Center of Taiwan CDC is responsible for the laboratory diagnostic and research of various communicable diseases. To meet the demands of the laboratory diagnostic of various communicable diseases, 12 virus laboratories and 9 *tuberculosis bacilli* laboratories have been contracted and 245 testing services for communicable diseases have been approved.

Figure 4-1 Communicable Disease Control Medical Network



A National Plan for the Quality Management of the Collection and Transportation of Specimens of Communicable Diseases has also been formulated to assure the quality, timing and safety of specimens submitted by local health agencies for laboratory testing.

3. Command System

When SARS epidemic devastated Taiwan in 2003, experiencing the lack of a disease-oriented disaster control center for coordination between the central and local governments, the National Health Command Center (NHCC) was then established in 2005. NHCC was aimed to consolidate relevant information supplied by ministries and departments concerned, local governments and related organizations, and then transfer it into real-time information needed by decision makers. Along with the implementation of the International Health Regulations 2005 (IHR 2005), the National Focal Point has been set up to facilitate rapid notification and response concerning major epidemics and public health emergencies.

Section 3, Communicable Disease Control Medical Network

To improve the emerging communicable disease response capability, the Infectious Disease Control Medical Network was set up in 2003. It was later renamed the Communicable Disease Control Medical Network.

In 2008, the Regulations Governing Operation of the Communicable Disease Control Medical Network was announced and it is divided into 6 sub-networks; 137 hospitals with designated isolation wards. (Figure 4-1) To optimize the preparedness of emergency response hospitals for disease outbreaks, each hospital has prepared emergency response plans.

Section 4, Disease Surveillance and Investigation

For notifiable diseases in Taiwan in 2011 (as shown in Appendix 2), the surveillance infrastructures included:

1. Multiple Communicable Diseases Surveillance Systems

Set up monitoring systems for schools and populous institutions. Use data from emergency service, National Health Insurance and death certifications to complement the limitations in passive surveillance systems.

1) School-based surveillance system: Diseases monitored through this system include influenza-like illness, hand-foot-mouth diseases or herpangina, acute diarrhea, and acute hemorrhagic conjunctivitis.

2) Surveillance system for populous institutions: Diseases monitored through this system include respiratory and gastrointestinal tract infections, and other outbreaks. Data is collected and analyzed weekly.

3) Real-time Outbreak and Disease Surveillance (RODS): Over 170 national hospitals update and transmit data regarding emergency consultations and diagnostic codes daily, allowing timely analysis and detection of disease or symptom clusters.

4) Syndromic surveillance through National Health Insurance data: Using the Bureau

of National Health Insurance's daily updated IC card database, frequencies and proportions of outpatient, inpatient and emergency room visits for specified disease ICD-9-CM codes are calculated since April 2009.

5) Monitoring of pneumonia and influenza deaths: Data is captured daily from the Office of Statistics National Death Certification System and analyzed for reports in which their cause of death are attributable to pneumonia or influenza, in order to monitor pneumonia and influenza mortality trends.

2. Integration of Surveillance Systems

1) Work to integrate various reporting systems is continued in order to achieve the goal of creating a single entry for reporting.

2) An integrated national disease control information network was set up to collect communicable disease information.

3. Investigation of Epidemics

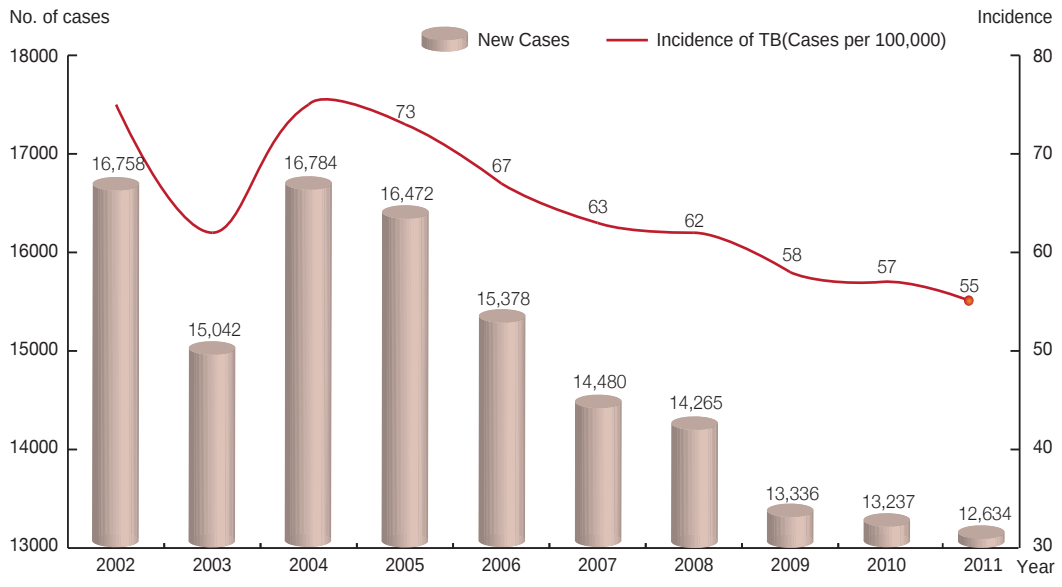
The Field Epidemiology Training Program (FETP) continues to provide professional training in field epidemiology.

Chapter 2, Control of Major Communicable/Emerging Communicable Diseases

Section 1, Tuberculosis Prevention

In 2011, confirmed tuberculosis cases totaled 12,634, showing a downward trend in the annual number of TB cases in Taiwan. In

Figure 4-2 Reported TB cases, 2002-2011



line with the WHO's "The Global Plan to Stop TB 2006-2015", Taiwan's "Mobilization Plan to Halve Tuberculosis Incidence in Ten Years" has also been implemented. It is anticipated that by 2015 the rate of incidence will be halved (See Figure 4-2). Achievements of TB control in 2011 are as follows:

1. The Directly Observed Treatment Short Course (DOTS) strategy has been launched since 2006, effectively lower treatment failure and relapse rates, preventing occurrence of multidrug resistant tuberculosis. Among all bacteriologically positive TB patients in Taiwan, 90% of them participated in DOTS.
2. "Taiwan MDR-TB Consortium" was launched for MDR-TB in 2007. Through collaboration with the designated and qualified hospitals, the program provides high quality medical care and DOTS-plus service to multi-drug resistant patients, improving the treatment success rate of MDR-TB cases.
3. Contact investigation has been strengthened and results in blocking transmission effectively.
4. "Latent TB Infection Treatment Program" and the corresponding "Directly Observed Preventive Therapy (DOPT)" have been endorsed. The target population was contacts of highly transmitted index TB cases, especially contacts under 13 years old. The program has effectively reduced the chance of subsequent development of TB of those infectious individuals.
5. In order to detect TB cases early, TB screening via mobile chest X-ray vans was performed. In 2011, the detection rate (112 per 100,000)has increased by 20% compared with last year (93 per 100,000).
6. Subsidization of inpatient treatment and living expenses for chronic infectious tuberculosis patients was endorsed to encourage the patients to stay in the hospital and to prevent the further transmission in the communities.

Section 2, Communicable Diseases of the Enteric Tract

1. Enterovirus

In 2011, 59 cases of severe enterovirus infection were confirmed, with 4 deaths. Prevention strategies for 2011-2012 include the following:

1) Commissioning local public health agencies to develop an "Enterovirus Prevention Enhancement Program" and to train local staff, promote community health education.

2) Operating a medical network for severe cases of enterovirus infection, and to facilitate direct "horizontal" contact between responsible hospitals, accelerate patient transfers. Arranging for physician education and training for responsible hospitals and regional hospitals.

3) To address an increase case number of enterovirus infectious with severe complication in the latter half of 2011, numerous press releases were issued with warnings and appeals to heads of parents, and public education efforts were redoubled. Simultaneously, health inspectors continued to focus on educational and child care institutions, as well as public places. In November a meeting of enterovirus experts was called,

Ministry of Education, Interior Ministry, Bureau of Medical Affairs as well as local health departments invited together, for discussing prevention strategies and measures for disease control. From December, a task force for enterovirus prevention and control was set up that held a meeting weekly.

4) Preliminary development of the Enterovirus 71 Rapid Screening Kit was completed and the technology has transferred to a biotechnology firm for mass production. To reduce the spread of enterovirus 71, and to further avoid sequelae and death, enterovirus 71 vaccine research is being vigorously pursued.

2. Hepatitis A

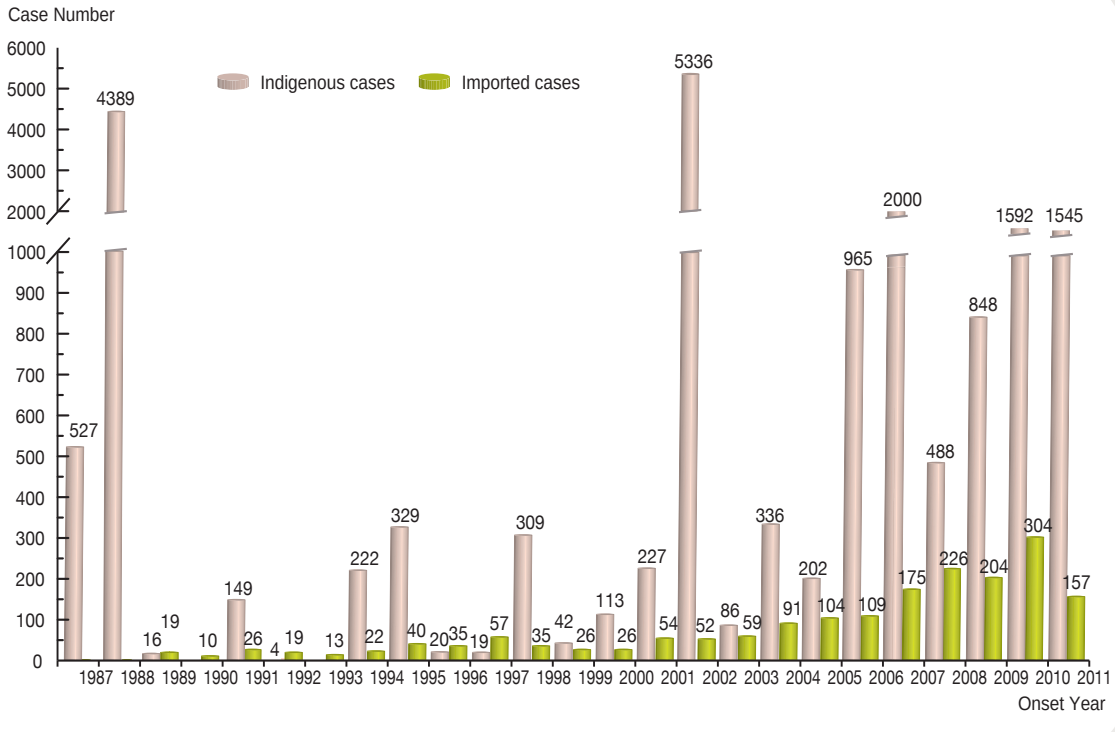
Since June 1995, the DOH has continued to provide hepatitis A immunization for preschool children in 30 aboriginal regions and nine villages in lowland areas adjacent to aboriginal regions. The hepatitis A incidence in the aboriginal areas has dropped from 90.7 per 100,000 in 1995 (183 confirmed cases) to 0.49 (1 confirmed case) in 2011.

Section 3, Vector-borne Communicable Diseases

1. Dengue Fever

1,702 dengue fever cases were confirmed in 2011, including 157 imported cases and 1,545 indigenous cases, which includes 20

Figure 4-3 Annual incidence of Dengue Fever. 1987-2011



cases of dengue hemorrhagic fever and 5 deaths. The annual confirmed cases of dengue fever over the recent decades are shown in Figure 4-3.

Strategies of prevention and control of dengue fever in 2011 as follow:

1) Implemented the main control strategies in container management and elimination of mosquito breeding sites to reduce community breeding sites.
2) In order to avoid drug resistance mosquitoes and ensure the effectiveness of emergency pesticide spraying during epidemic. The principle of reducing pesticide spraying should be applied in accordance with the professional assessment and local conditions.
3) Taiwan CDC not only established a mobilization mechanism specifically for dengue control and prevention, but also convened conferences, inspections and other activities in cooperate with relevant government agencies.
4) Strengthen the public health education among the general population, revised guidelines on prevention and control of dengue fever.
5) Strengthened disease surveillance and implemented fever screening and dengue fever rapid tests for incoming travelers at international airports.

2. Japanese Encephalitis

Japanese encephalitis is prevalent from May to October every year, and the epidemic peaks are from June to July. A total of 22 cases of Japanese encephalitis were confirmed in 2011.

3. Malaria

Malaria has been eradicated in Taiwan for 47 years. To maintain Taiwan's malaria-free status and safeguard people's health, Taiwan CDC continues to implement malaria surveillance to prevent infections caused by imported cases. A total of 17 cases of malaria were confirmed in 2011, all of which were imported.

Section 4, Blood and Body Fluid-Transmitted Communicable Diseases

1. AIDS

1) By the end of 2011, the cumulative number of HIV-reported cases stood at 22,020 in Taiwan. Of those infected, 8,413 had developed full-blown AIDS and with 3,360 death. Moreover, there were 1,967 new HIV-reported cases in 2011.
2) Implemented “Harm Reduction Program”. At the end of 2011, there were 102 medical institutions providing methadone maintenance treatment. The used needle return rate has reached 90%.
3) At the end of 2011, 45 designated hospitals offered free AIDS medical care for the HIV-infected. In addition, 32 institutions offered free anonymous counseling and testing for HIV and other sexually transmitted diseases.
4) For the prevention of mother-to-child transmission of HIV (PMTCT), the DOH has begun a prenatal HIV screening program offering free HIV counseling and testing services for all expectant mothers when they come in for antenatal care since 2005.
5) Prevention strategies for men who have sex with men (MSM)

a. Three gay community health centers have been established for providing a wide variety of gender-friendly health services.
b. The DOH has conducted several web-based health promotion interventions among men who have sex with men, such as web-based opinion leader project, websites monitoring, and health education service.
c. Working together with NGOs to provide HIV counseling and testing services in several venues, such as saunas and pubs.
d. Advancing the campaign of gender-friendly, healthy and safe logo in saunas, and installing condom vending machines in gay venues.
e. A free hotline, 0800-010-569, was set up to provide immediate and accurate HIV related information.

2. Sexually Transmitted Diseases (STD)

Effort is continued in conducting health education of the public on the prevention and control of sexually transmitted diseases and in providing laboratory testing services of HIV for patients with sexually transmitted diseases. In collaboration with private institutions, friendly clinics for STD were set up. Supervision and treatment of contacts are strengthened for more effective prevention.

3. Hepatitis B and C

1) Screening of pregnant women for hepatitis B during prenatal care visits and immunization of the newborns against hepatitis B are conducted. The carrier rate of children at age six has declined from 10.5% before implementing the immunization program to only 0.8%. The DOH has also been providing hepatitis-B booster shots to preschool children and first-graders.
2) On October 1, 2003, a "National Health Insurance Chronic Hepatitis B and C Treatment Plan" was initiated to treat already-infected subjects. By the end of 2011, the number of registered Hepatitis B subjects was 76,909, while registered Hepatitis C subjects was 46,480.

Section 5, Prevention and Control of Emerging Communicable Diseases

The DOH has commissioned research institutions to proceed with epidemiological studies of known animal hosts of zoonotic pathogens and to establish a set of testing methods since 2005. In 2011 it conducted an "Investigation of Significant Rodent-Borne

Infectious Diseases in Taiwan's Five Major Metropolitan Regions: Hemorrhagic fever with Renal Syndrome, leptospirosis, and endemic typhus fever".

Section 6, Prevention and Control of Imported Communicable Diseases

1. Quarantine

Necessary quarantine measures are conducted with regards to ships, aircraft, crew members and passengers. The DOH teamed up with port agencies to establish an international port sanitary group to ensure sanitation and safety at arrival/departure gates at international ports to prevent importation or exportation of communicable diseases. In addition, to comply with IHR (2005), the core capacities of designated ports of entry, that is Taoyuan International Airport and Kaohsiung Harbor was assessed.

2. Communicable Disease Control in Travel

1) Thermal imagers are used at international ports and airports to screen arriving travelers. Those suspected of infections are asked to fill out the "Communicable Disease Survey Form" so as to facilitate diagnosis and implementation of possible follow-up disease prevention measures. In addition, light boxes, wall stickers, and display stands are set up to disseminate their messages. Furthermore, health education promotional materials and videos were produced.

2) In January of 2008, the "Training Center for Travel Medicine" was established, and it is responsible for providing travel medicine outpatient services, etc. The results in 2011included:

A. Received more than 4,406 patient visits for medical services, as well as 4,222 phone calls and 14,685 website visits. It hosted three group health training sessions.

B. Travel-medicine training sessions: Relevant training and seminars have been organized for medical personnel and travel-industry workers.

C. Publication of relevant materials: "Individualized travel healthcare" etc. were published.

Chapter 3, Emergency Preparedness and Infection Control

Section 1, Pandemic influenza Preparedness and Response

1. Since 2005, the DOH organized the pandemic influenza preparedness operations pursuant to the National Influenza Pandemic Preparedness Plan (hereinafter referred to as the Preparedness Plan) and Phase II Plan. The Phase II Plan continued upholding the "Four Major Strategies" and "Five Lines of Defense" to outline the preparedness operations.
2. The Influenza Pandemic Strategic Plan and the Influenza Prevention and Control Guidelines were established to formulate the preparation and management of stockpile, medical intervention (including the program of influenza vaccine and influenza antivirals), consolidation of healthcare resources, etc.
3. Publishing the "First Pandemic of the 21st Century-Taiwan's Response to the H1N1 Influenza". It was a record of the response to influenza A (H1N1) 2009 pandemic of CDC

in the 303 days during the response period.

4. Surveillance and Response of Avian Influenza

1) Attended the "Avian influenza Prevention and Control Liaison Meetings of Executive Yuan" regularly held by the Council of Agriculture and communicated the control measures with the related departments. Maintained monitoring of international H5N1 influenza epidemic news updates through the IHR Focal Point, and periodically announced lasted domestic and foreign epidemic news. Furthermore, the single unit with Council of Agriculture was established.

2) For incoming passengers from specific countries/areas, intensified fever screening is required and the passengers' travel itineraries and disease exposure contacts are inquired for related quarantine measures. Enhance the self-protection measures of the quarantine inspection personnel. Moreover, provide multilingual instructional materials about the avian influenza in Chinese, Thai, Indonesian and Vietnamese.

3) The DOH launched a voluntary vaccination program that makes effective use of the domestic stockpile of H5N1 vaccine for influenza policy-makers and experts, medical personnel, and frequent travelers to nations at high risk for A/H5N1 etc. From August to November of 2011.

Section 2, Seasonal influenza monitoring and control

1. The term "Severe Complicated Influenza Case" was changed to "Complicated Influenza" on September 16, 2011. The epidemiological situation, viral distribution, and seriousness of the disease were better understood through a multiple monitoring system.
2. On October 1, 2011 the seasonal flu vaccination program was launched, with the goal of raising the coverage rate among high-risk groups.
3. From December 1st of 2011 to March 31 of 2012, the DOH expanded the target population for the government-funded influenza antiviral drug use.The DOH also notified all local health authorities to increase the number of contracted hospitals and clinics.
4. Promote vaccinations, diligent hand-washing and proper coughing etiquette

campaigns through various channels. For example: holding weekly press conferences, etc.

Section 3, Defense against bioterrorism incidents

The Ministry of Health and the Ministry of Defense signed an agreement on May 25, 2011, "Executive Yuan Department of Health and Ministry of Defense Agreement on Cooperation National Infection Disease control". Both sides will collaborate in response to significant epidemics and bioterrorist attacks, conjunctive conduct scientific seminars, and establish educational and training initiatives as well as address various disease control issues.

To enhance national bioterrorism preparedness, continue holding the national training and drill sessions known as the Biohazard Response and Verification Expert, or BRAVE.

Section 4, Materials Management for Disease Control Protective Equipment

1. Stockpiles of personal protective equipment (PPE) for 30 days have been established and maintained by the central and local governments as well as medical institutions. The DOH has also signed several contracts such as inventory replacement contract, vendor-managed inventory contract, as well as joint procurement contract of PPE, to fulfill all kinds of logistics needs. Furthermore, by linking those inventory data through the Management Information System (MIS), the DOH is able to track national inventory quantity of disease-prevention materials in real time.
2. The DOH has entrusted its central warehouses to the professional logistics firm, which provide well inventory rotation. As a result, the DOH is able to ensure that all supplies can be promptly distributed to front-line disease-control staff and health-care worker.
3. The DOH has launched the Medical Masks Joint Procurement and Logistics Program, establishing a central, local government and hospital joint procurement mechanism, promoting the circulation of the central face mask stock and inventory maintenance.

Section 5, Nosocomial Infection Control

1. Taiwan Joint Commission on Hospital Accreditation and Quality of Care was commissioned to conduct on-the-spot inspection of infection control in 490 hospitals, in accordance with the 2011 Plan for Inspection and Enhancement of Hospital Infection Control.
2. The DOH has continued to encourage hospitals to voluntarily participate in the Taiwan Nosocomial Infections Surveillance System (TNIS), in which 445 hospitals in Taiwan have participated currently.
3. In response to the drug-resistant bacteria infection in hospitals, implement relevant disease control measures, and "Preventive Measures in Hospitals for Addressing Multi-Resistant Infectious Bacteria" for the general use of hospitals was revised accordingly.

   In response to the WHO SAVE LIVES: For "Clean Your Hands global campaign", the DOH has implemented as following:

   1) Certification of hospitals adopting proper

hand hygiene protocols.

2) Establishment of Excellence Center for Hand Hygiene : The DOH commissioned the National Taiwan University Hospital, the Tri-Service General Hospital and Kaohsiung Veterans General Hospital adopt the implementation of the WHO multi-model strategy to increase hand hygiene awareness in their hospitals, as well as to establish domestic implementation guide.

4. "Guidelines for Implementing Infectious Disease Control in Populous Institutions" and "Healthcare Personnel Vaccination Recommendations" were revised to provide a reference for compliance issues.

Section 6, Research and Laboratory Testing

1. The DOH initiated the "The development and application of surveillance techniques for emerging and re-emerging pathogens" project to strengthen the surveillance of unknown/emerging pathogenic agents. Sapovirus, saffold virus, HPeV, Aichi virus, astrovirus, salivirus, tt virus, hepatitis G virus, HCoV-HKU1, HCoV-NL63, HCoV-OC43, HCoV-229E, and human bocavirus, human metapneumovirus have been detected in the surveillance system.
2. Continue the operation of "PulseNet Taiwan" –a molecular subtyping network for surveillance of foodborne diseases, to detect cluster of infection caused by foodborne pathogens to halt the spread of epidemics. It also serves as a platform for information exchange and collaboration with the members of PulseNet International.
3. Continue collaboration with the National Institute of Infectious Diseases (NIID) of Japan, projects to address tuberculosis, leprosy, amebic dysentery, brucellosis, leptospirosis, diarrhea pathogens, and mosquito-borne diseases. Collaborate with the US CDC and Prevention on preserving effective treatment for multidrug-resistant tuberculosis. Collaborate with the Japan Research Institute of Tuberculosis on genomics of Beijing genotypes of Mycobacterium tuberculosis. The Taiwan CDC also participated in the WHO and US CDC-sponsored global rotavirus vaccine plan, and is a member of the Asian Rotavirus Surveillance Network (ARSN).
4. Taiwan Pathogenic Microorganism Genome Database (TPMGD): The TPMGD contains genotyping and epidemiological data of some 20 different pathogens. It is available to all interested parties who can file requests for enterovirus or influenza virus sequences and related epidemiological information.
5. Continue promoting an approval system for domestic testing organizations on clinical diagnosis of infectious diseases.

Section 7, Management of Laboratory Bio-safety

1. A legal basis for the management of infectious biological materials and laboratory biosafety has been established. By 2011, a total of 515 agencies or institutions had established bio-safety committees (or designated personnel), In Taiwan, nineteen Bio-safety Level 3 (BSL-3) labs and one BSL-4 lab have been approved by DOH (two of which are temporarily suspended).

Table 4-2 Immunization Schedule

Age	Vaccine
Within 24 hours after birth	● HBIG, 1 dose[1] ● Hep B, 1st dose
After 24 hours after birth	● BCG, 1 dose 1 Month
1 Month	● Hep B, 2nd dose
2 Month	● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 1st dose[3]
4 Months	● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 2nd dose
6 Months	● Hep B, 3rd dose ● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 3rd dose.
12 Months	● MMR, 1st dose ● VAR, 1 dose
15 Months	● JE, 1st and 2nd doses (spaced 2 weeks apart)[4]
18 Months	● Five-in-one vaccine (diphtheria, tetanus, pertussis, haemophilus b, and polio), 4th dose
27 Months	● JE, 3rd dose
Between 5 years and first grade of elementary school 4	● Tdap-IPV, 1 dose[3] ● MMR, 2nd dose ● JE, 4th dose

Notes: 1. If mothers are highly contagious hepatitis B carriers (HBeAg positive), their babies should be given one dose of hepatitis B immunoglobulin(HBIG) immediately after birth and not later than 24 hours.
2. The first dose of Japanese encephalitis vaccine in is given 15 months after birth; the second dose is given two weeks later, and the third dose a year later.
3. From 2011, Tdap-IPV is given to first graders of elementary school.
4. From April 2012, Tdap-IPV and MMR are recommended to be given between 5 years and first grade of elementary school.

Additionally, in 2011, biosafety inspection of the 44 domestic laboratories which storing or using BSL 3 biological materials was completed.

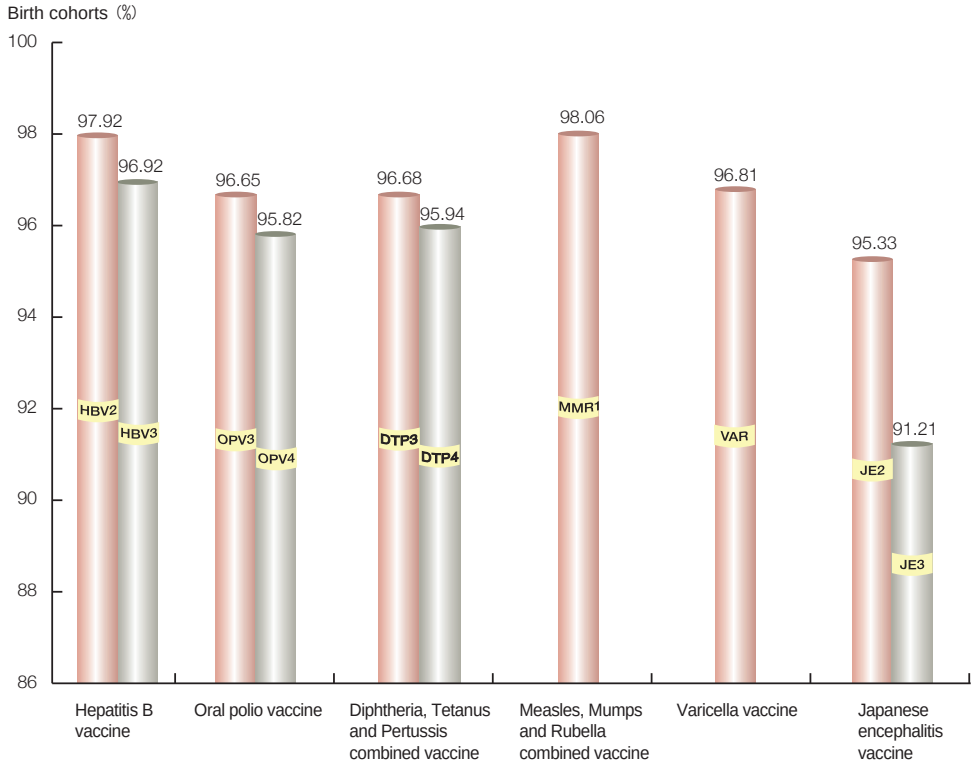
2. Publishing "Handbook of Guidelines for the Transportation of Infectious Materials" (2011-2012 edition), and a global information network was set up in the Health Department's Disease Control Center.

Chapter 4, Vaccinnation

Section 1, Current Status of Immunization and Trend

Currently, the government provides infants with free vaccinations under the schedule displayed in Table 4-2. The DOH also offers

Figure 4-4 Immunization Coverage Rates for Children, 2011



Note: Birth cohort: HBV2,HBV3,OPV3,DTP3:Jan. 1 2010 to Dec. 31, 2010; DTP4、OPV4、MMR1、JE2 are Jan. 1 2009 to Dec.31 2009; JE3 is Jan.1 2008 to Dec. 31 2008;VAR is July 1 2009 to June 30, 2010.
Data Source: National Immunization Information System (data calculated in January 2011).

hepatitis A vaccinations and booster shots in aboriginal regions and other high-risk areas. The DOH provides convenient immunization services through local public health stations and contracted hospitals and clinics. National immunization coverage rates are detailed in Figure 4-4. The DOH has also continued to inspect the vaccination records of students entering elementary schools. Among those students, 99.85% had vaccination record cards. For those with incomplete immunization, arrangements are made for them to complete the immunization series.

In 2010, a national vaccine fund was launched based on Article 27 of the Communicable Disease Control Act. The fund looks for multiple sources of funding, lists budget items independently and is used exclusively for the procurement of vaccines and implementation of immunization work. In

July 2009, the DOH began to promote the vaccination of pneumococcal conjugate vaccines (PCV) for high-risk children under five years of age. In January 2010, the DOH expanded the PCV vaccination to children under five years of age from low-income households and children born after 2010 living in aboriginal areas or on offshore islands. Since March of 2010, the DOH has been promoting a five-in-one vaccination for diphtheria, tetanus, pertussis, haemophilus b, and polio (DTaP-Hib-IPV), offering this high-quality combination vaccine to reduce adverse reactions and the total number of shots gave to children. From 2011, Tdap-IPV is given to first graders of elementary school to replace the originally used Tdap and OPV. Further, in January 2012, the DOH expanded the PCV vaccination targets to children under 5 years of age from medium-to-low income household.

In 2011, the seasonal flu vaccination program began on October 1.The main vaccination targets included: people aged 65 and over; people who live in nursing homes or other chronic care facilities, etc. The plan was intended to protect the health of high-risk groups and reduce care payments.

An application and review system for the relief fund of victims of immunization was set up by the government to offer adequate relief.

Section 2. Development and Manufacturing of Serum Vaccines

1. Production of Biological Products

1) Antivenin serum is manufactured by using horse serum.

2) A supply of vaccines, toxoids, and antivenins, totaling 2,680,000 shots were manufactured.

3) Animals for experiment such as mice, guinea pigs, rabbits, poisonous snakes and ferrets are supplied and raised.

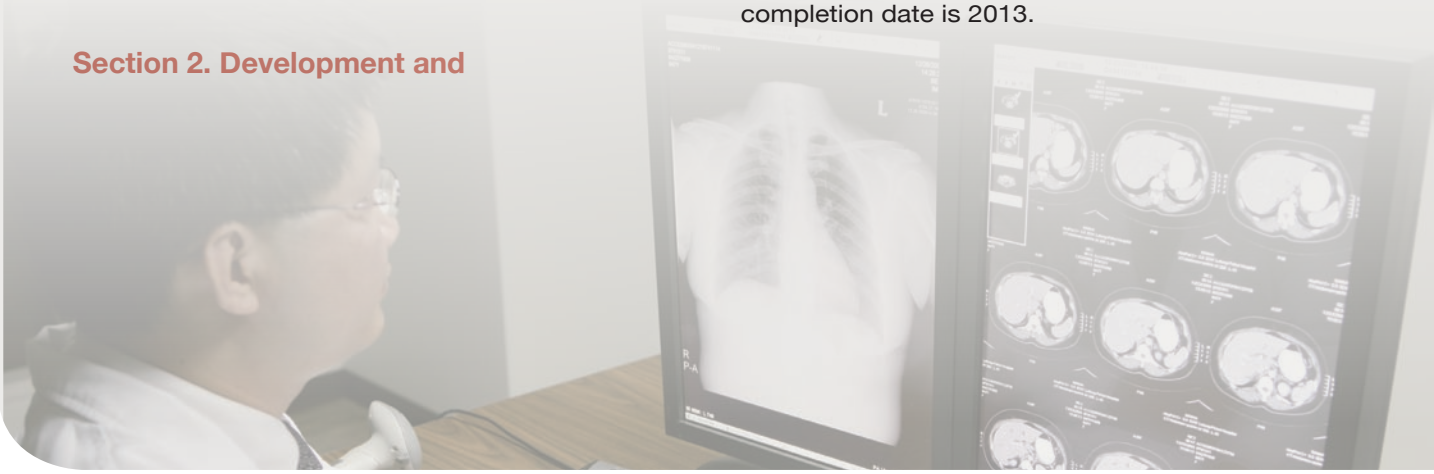
2. Development of Biological Products

1) Established a bank of 38 strains of enterovirus 71, and manufactured 5 lots of enterovirus 71, C4 genogroup, of the prototype vaccine.

2) Developed anti-venom serum antibodies- plan for assessing quality and stability of snake venom materials from non-captive snakes.

3) Determined the optimal tetanus vaccination schedule while maintaining the health of the horse, and the quality and safety of the snake antivenin products.

4) The Taiwan Centers for Disease Control implemented its plan to build horse stables for use in producing horse serum. This is the first such facility in Taiwan being constructed according to current Good Manufacturing Practices (cGMP) for pharmaceutical production. The projected completion date is 2013.



5 Management of Food and Drugs

Management of Food and Drugs

In 2010, the Department of Health formed the Taiwan Food and Drug Administration (TFDA) so as to help protect consumer health. In 2011, the major focuses of the TFDA include perfect TFDA-regulated products regulatory standards and registration, risk assessment and national reference laboratories, monitoring safety and quality at the manufacturing site, post-market surveillance, consumer education and risk communication, dealing with incidents involving plasticizers added to emulsifiers, and issuing the "Countermeasures for foods contaminated with plasticizer"

Chapter 1, Regulatory standards and product registration

Section 1, Perfect regulatory standards

1. Food safety regulations

1) To strength management of food additives, articles 31 and 34 of the Act Government Food Sanitation have been revised to have heavier penalties for violators, and went into effect on June 22, 2011.

2) Based on the needs of agricultural crop health and pest control as well as food processing needs, in 2011, 667 items in allowance of agricultural chemical residues were revised. 18 items in standards for specification scope, application and limitation of food additives were revised.

3) The "Countermeasures for foods contaminated with plasticizer" was issued on May 28, 2011. An immediate recall went into effect for five types of food products determined by the Food and Drug Administration to be contaminated by plasticizer contaminated emulsifiers, namely sports drinks, juices, teas, syrups and jams, and tablets and powders. Products using emulsifiers shall have safety certifications before the deadline of May 31, 2011, otherwise product sales are prohibited, and violators will be severely punished according to law. The industry notice became inapplicable on August 1, 2011 when contamination was brought under control and there were no new contamination cases.

4) On November 6, 2011, inspection registration was required by TFDA for vacuum-packed instant soybean food products.

2. Regulation of pharmaceutical affairs

1) On December 7, 2011, clauses 19 through 34 of the Pharmaceutical Affairs Law were revised. Pharmacies may now sell certain classes of medical devices without the need to apply for a permit.

2) Controlled drugs are divided into four schedules, and the Executive Yuan on January 14, 2011 classified 5-MeO-DIPT and Thiamylal as a Schedule 4 controlled substances. On October 20, 2011, the authority constituents found in "K2(Spice)", namely the active ingredients in cannabis (JWH-018、JWH-073、JWH-250、HU-210、CP47,497), as well as chloroamphetamines, were placed in Schedule 3 controlled drugs.

3) On January 26, 2011, the partially amended Statute for Controlled Drugs Management, amendments to the

Controlled Drugs Act was partially amended. The amendments authorize the administrative agencies may determine and announce, such as revise the negative qualifications for controlled drug managers, the management of controlled drug registration licenses, etc.

4) On November, 22, 2011 Rules for the issuing of controlled drug use licenses and registration certificate issuing and management were implemented, clearly stipulating controlled drug use license and registration certificate related management matters.

5) Supervision was enhanced over safety restrictions on concentrated preparations of traditional Chinese medicinal products. On August 29, 2011, revisions were announced to the "Restrictions on Concentrated Preparations of Chinese Medicinal Products Containing Unusual Substances". This went into effect on December 1, 2011 and would have until July 1, 2012 to comply with the standard. Among the 200 concentrated preparations for which norms are applicable, 100 of them have not yet met the criteria, and have until July 1, 2013.

Section 2, Registration for food and drug

1. On November 6, 2011, registration for vacuum-packed instant soybean food products was enforced. Food products without registrations filed with and licenses procured from the Department of Health shall not be manufactured, processed, prepared, repacked or sold.
2. Starting January 1, 2011, products made in Taiwan with any vitamin added must be registered for inspection if its daily intake is greater than 150% of the "Dietary Reference Intakes", and less than the "Scope, application and Limitation of Food Additives" for foods in capsule and tablet form.
3. The "Health Food Control Act" stipulates that any health food that does not have prior approval to register for inspection may not be manufactured or imported. Such products may also not be indicated or advertised as being a health food, nor emphasize that it has health benefits.
4. Registration of drugs: Drug efficacy and safety are the major issues for drug registration. During the licensing process of a new drug, the pharmacological/toxicological and pharmacokinetic properties (PK/PD/BA/BE) of the drug, and its performance on patients or healthy individuals in well-designed clinical trials are the major points considered by the reviewers. As for generic drugs, a bioequivalence (BE) study is required to replace the non-clinical and clinical tests.
5. Registration of medical devices and cosmeceuticals Medical devices are categorized into three classes according to risk level.
6. Reform of pharmaceutical product review mechanisms: The integrated medicinal products review office (iMPRO) is formed by integrating the review board and administrative manpower in Taiwan Food and Drug Administration and Center for Drug Evaluation, and works closely with related advisory committees, which have

been built up with acknowledgeable experiences for years. The purpose of the reformation is to enhance the review quality, transparency and to shorten the review time during license application. All of this has assisted the long term development of biotechnology industry.

Chapter 2, Risk Assessment and National Reference Laboratories

Section 1, Risk assessment

1. In 2011 this department established the "Food Safety Risk Assessment Advisory Council", engaging academic experts to collaborate in establishing risk assessment technology risk analysis working principles were adopted, risk assessment priorities were established, food consumption database set-up planning and training programs for risk assessment started.
2. Held a "Food Safety Risk Assessment Planning Workshop" and an "Introduction to Food Safety Risk Assessment Training Class".
3. Promoted projects of food safety risk assessment
   1) From 2010 to 2011, undertook a Total Diet Study (TDS), and established a "Risk Assessment Model for Food Additives".
   2) Continued assessment of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) migration from food containers using migration test methods, with reference to the latest international developments in risk assessment and detection methods.
   3) Collected and compiled information of risk monitoring and early warning models of different countries, established in our country a monitoring and early warning model for marine toxins.

Section 2, Testing and research for foods, drugs and cosmetics

1. Product testing:

1) Administrative test:
The Department performs administrative testing to support regulatory registration of products such as medical devices, health food, foods for special dietary uses and food additives, and others which require permit by law. Import and domestic biologics were applied to TFDA lot-release testing and sealing lot-by-lot. NRL also provides technological support in need when unexpected incidences occur.

2) Supervisory test:
The Department supports local health authorities where they are unable to conduct testing for themselves. The test subjects usually include samples turned in to local health department by consumer complaints; food poisoning samples collected from the local health bureaus-but not from special municipalities under Executive Yuan.

3) Assistance test:
The Department carries out many testing jobs upon request to assisting other law enforcement agencies such as judiciary, military, police departments. There are also fee-for-service contract testing commissioned by government bodies, public enterprises and organizations, public interest groups and foundations.

2. Development and promotion of official and reference analytical methods

1) The Department sets up regulatory standards for medical devices and biologics, and promulgates standard analytical methods for the use of food laboratories in the country. In 2011, NRL published “Minimum Requirements for Biological Products I”.

2) In 2011, the department held a number of training workshops to facilitate capacity building on various fields, such as authentic raw materials of traditional Chinese medicinal preparations (TCMP) and dietary supplements with synthetic chemical medicines...etc.

3) In 2011 the department annual investigation of quality of consumer products on the market included the following: testing for fungal toxins in food, testing for pesticide residues in food and in marketed raw materials of TCMP; monitoring the quality of surgical masks on the market, monitoring the safety quality of cosmetic products: foot mask, heavy metals content of lead, arsenic, and cadmium in cosmetics, monitoring for residues of 1,4-Dioxane in cleansing products, etc.

4) In 2011, completed standardization of sennoside A, and began to prepare the canadates of Japanese encephalitis virus vaccine standard and enterovirus 71 serological standard.

Chapter 3, Management of TFDA-regulated products sourcing

Section 1, Management of food product sourcing

1. The Hazard Analysis and Critical Control Points, or HACCP. By the end of 2011, the following items have been stressed:

1) Seafood: from 2005 to 2011, inspections for compliance with HACCP were undertaken for food products deriving from aquatic sources.

2) Meat: Since August 15, 2009, meat processing plants have all implemented HACCP.

3) Dairy: Since July 1, 2011, HACCP has been implemented for various dairy processors.

4) Food Service: Since August 2009, the HACCP system has been promoted.

2. Promote a processed food tracking system:

By the end of 2011, this has been done for 64 products and 14 kinds of production modules. Consumers can go online to track products themselves (http://tfts.firdi.org.tw), and look up the sources of ingredients of products in question, test results for it, etc.

3. Food import management

1) Starting from 2011, the department has managed the inspection of food imports itself, a total of 420,602 reported applications for import, of which 29,801 were tested.

2) The nuclear accident in Japan temporarily suspended handling of inspection applications for food imports from the five prefectures of Fukushima, Ibaraki, Tochigi, Gunma and Chiba. With the collaboration of the Atomic Energy Commission, radiation checks were intensified from March 20, 2011, checking lot by lot food

products in the following eight categories including fresh, refrigerated / frozen fruits and vegetables, fresh, refrigerated / frozen aquatic products, dairy products, baby food, mineral water and other drinking water, and seaweed.

3) Daily monitoring of the network of global food information by specialists. From 2010 to the end of 2011, 214 international food alerts were issued, among which there were 12 import records, and once all had been confirmed, all items of the same lot were removed from the shelves and recalled. Different lot numbers, however, were tested, found to be in compliance, and permitted to be sold.

4) Controls on beef imports were subject to the "Three Controls, Five Checkpoints" policy. In 2011, the Committee participated in on-site inspections of meat production facilities in the US. The objective was to confirm that beef originating in the US and imported to Taiwan conforms to health and safety regulations.

Section 2, Management of pharmaceutical manufacturing precursors

1. The DOH has continued to promote the implementation of the PIC/S (Pharmaceutical Inspection Convention and Pharmaceutical Inspection Cooperation Scheme) Guide to Good Manufacturing Practices (GMP) for Medicinal Products.
2. Pushing for membership in the PIC/S: In December 2011, the second stage of qualification evaluation for membership took place, and the PIC/S delegation will visit Taiwan in June 2012 to carry out inspection.
3. The DOH has continued to promote GMP assessments of manufacturers of medical devices.
4. Starting in 2008, GMP rules were voluntarily implemented in the cosmetics industry, and were jointly inspected by the Department of Health and the Industrial Development Bureau of the Ministry of Economic Affairs. By the end of 2011, 47 manufacturers applied for GMP certification. Among those, 23 have received that certification.
5. Enhance quality management of active pharmaceutical ingredients. Establish a Drug master file (DMF) system for active pharmaceutical ingredients.
6. Domestic pharmaceutical plants have implemented good manufacturing practices (GMP). By the end of 2011, 116 plants had GMPs in place.

Chapter 4, Product chain monitoringg

Section 1, Food product distribution management

1. The DOH works with local health authorities to implement food post-market surveillance programs every year. Outcomes for 2011 are presented in Table 5-1:
2. In 2011 the "Product Access Management Rapid Inquiry System" was established. It allows front-line inspectors to gather the latest inspection reports for imported food products, as well as food product safety management information.
3. From June 2010 to the end of 2011, according to the Executive Yuan, inspections of key agricultural products turned up imports of irregular commodities;

a total of 214 inspections were done with 5,383 instances of irregularity.

4. Beef labeling inspection: County and city health departments pursue five major strategies: have food and beverage industry operators post the places of origin of the beef on their menus; require sellers of food, beverages and other commodities to display the origin of their beef; have a special "beef area" set up in markets; undertake sourcing management; actively carry out inspections and announce information.
5. Special inspections of food products carried out jointly by a combination of agencies include investigation of commerce on busy streets during the New Year; quality monitoring and label checks of ritual food items; inspection of wholesale chrysanthemums and day-lilies; and joint inspection of plasticizers. In the case of violations, the DOH has informed local health agencies to take punitive and counseling measures.
6. In 2011 there were 30 inspections of factories producing health foods. There were 47 cases of monitoring of health food products.
7. For domestic producers and sellers holding permits for food additives, inspect factory operations areas and stockpile environments.

Section 2, Drug safety and quality control

1. For post-market new drugs, REMS (Risk Evaluation and Mitigation Strategies) is implemented to minimize the risk relating to medicinal products. In 2011, 40 drug safety quality controls were completed.
2. In July 2011, a system to enhance reporting of drug adverse events was established. Data for vaccines, drugs, and medical devices were organized into separate databases, and a safety alert function was created.
3. The reporting center for adverse events involving Chinese herbal medicine products received a total of 142 reports.
4. The TFDA established a health information sharing platform so that local health departments can immediately access information about defective and non-compliant products, raising the effectiveness of their inspections.
5. The department provided sealing test for batch release of biological preparations including blood products, vaccines, toxoid biopharmaceuticals, antitoxins and antiserums, and other biopharmaceuticals imported and produced domestically.
6. The TFDA collaborated with members of the Global Harmonization Task Force (GHTF) and the National Competent Authority Report exchange program (NCAR).
7. From July to November 2011, carried out joint inspections of traditional Chinese medicines and related packaging labels. The compliance rate for 622 items sampled was 99.2%.

Section 3, Cracking down on illegal food and drugs

1. Integrating interdepartmental resources to enhance interdiction of counterfeit drugs

1) In March 2010, the Executive Yuan established the program "Strengthening Eradication of Counterfeit Medicines and Illegal Broadcasting Stations", and

Table 5-1 Post-market surveillance outcomes for products in 2011

Item	Result			
	Total sampled	Qualified Number	Unqualified Number	Qualified rate (%)
Pesticide Residues in Commercial and Package Plant Agricultural Products	2,110	1,878	232	89.0
Veterinary Drug Residues in Foods	481	437	44	90.8
Heavy Metals (cadmium, mercury and lead) Content in Rice	160	160	0	100
Residual Mycotoxin Content (ochratoxin A, patulin, citrinin) in Commercial Food	364	339	25	93.1

together with the Department of Health, the Ministry of Justice, and the National Police Agency and related agencies, along with county and municipal governments, formed the "Joint Counterfeit Drug Task Force", performing inspections of inferior drugs, foods mixed with Western medicines and Chinese medicines mixed with Western drugs. Some of its outcomes are as follows:

a) Compared with before the establishment of the task force (the first quarter of 2010), from April 2010 until December 2011, there were an average of 253 investigations resulting in arrest (a 130% increase), and 171 case referrals (a fourfold increase). The number of Health Department inspections and seizures has remained consistently over 1,500. The rate of illegal drug seizures has decreased from 27.22% in May of 2010 to 2.03% in December of 2011.

b) From April, 2010 to June 30, 2011, after the task force was formed, a total of 13,562,000 illegal pills were confiscated. That increase represents a growth of 7.4 times.

c) In the confiscated illegal drugs, the detection rate for adulterated synthetic chemical medicines was 22%.

2) In 2011, there were a total of 242 cases forwarded by prosecution agencies, 19% of which containing illegal synthetic chemical medicines.

3) The rate of infractions for false advertising for drugs, cosmetics and food products was 4.95% by December 2011.

2. Continuous monitoring of the marketplace for illicit drugs, food products and cosmetics

1) In 2011, 218 lots of imported food in tablet or capsule form were tested for mixture with Western pharmaceuticals, with sample test probability of 2.79%;

there were 3 non-compliant lots.

2) Implementing the inspection plan for illicit drugs, 321 sites inspected in 2011.

3) Carried out the "Joint 2011 Special Investigation Plan for Illegal Drugs, Cosmetics and Food Products". Inspections of markets, street vendors, etc. In all, 262 sites were inspected, and 13 cases of suspected involvement in illicit activities were found.

4) Carried out sampling and inspection of traditional Chinese medicines mixed with Western drugs.

5) In 2011 there were 2,713 cases of illicit drug interdiction. Of this number, 794 were penalty infractions.

6) Outcomes of the 2011 "Illegal Advertising Monitoring Plan – Print Media Monitoring" are as follows (Table 5-2).

Section 4, Controlled drug Management

1. Management of controlled substance licenses:

relevant businesses or institutions need to apply for controlled substance licenses if they intend to import, export, manufacture, or transact controlled substances. Using the schedule 1-3 controlled substances requires a prescription license.

2. Inspection Control

1) The manufacture, import, and export of controlled drugs, and the use of controlled dugs in medical or educational research, all require approval from the authorities in charge.

2) In 2011, the DOH performed 15,247 on-site inspections.

Chapter 5, Consumer education and risk communication

Section 1, Consumer Information

1. The Food and Drug Consumer Knowledge Information Web was established on June 30, 2011 as a public information resource.
2. On July 6, 2011 "Dietary Guideline", "Daily Food Guide", and "Vegetarian Dietary Guideline" were issued to remind citizens to reasonably adhere to the 12 principles recommended.
3. Red and green lights for food consumption

   When there is an incident involving food safety, an Advisory Group of specialists will do an assessment and issue a public announcement with safety information according to a system of red, yellow or green lights. If a national incident involving food safety occurs, a news announcement or "traffic light" food alert will immediately be made to inform consumers.
4. The TFDA established the "Rapid Monitoring and Transmission Platform for Drug Safety Information". At the end of 2011, there were 287 bulletins with of domestic and international drug safety information.
5. Surveyed drug consumption habits in central Taiwan and in Penghu. Carried out training with seed instructors.

Section 2, Risk communication and health education

1. Communication of dangers involved in the food contamination incident involving plasticizer emulsifiers

   1) Websites of the DOH and the TFDA alike set specific areas to provide information

about health-risk assessments and all food recalls, as well as Q&A sections. All information is continually updated.

2) Bulletins were sent to 22 countries and regions that might have imported the contaminated products. Communications were also done to all foreign diplomatic offices or trade offices in Taiwan.

3) Press releases were issued every day to provide updates on current developments.

4) A special hotline number (with a total of 20 lines) was established to answer questions about this matter from the general public. DOH personnel staffed the hotline from 7 a.m. to 11 pm.

5) Making diverse propaganda materials and providing mass media to promote health education.

2. As a basis for public service announcements, worked with the Executive Yuan's joint plan to interdict counterfeit and poor-quality drugs, as well as the "Five No's" and the "Five Core Competences", principles of taking correct medications.

3. Handled various initiatives to provide information to schools and the community, including "Promoting Drug Safety Education in the Community. Developed and researched 34 health education curriculum models.

4. Handled the initiative "Website and digital education for correct medication administration"; used digital media and Internet communities to disseminate knowledge on this topic.

5. Organized the "Medical Device Safe Use Campaign" ceremony. Created public information brochures relating to food safety, medications and cosmetics. Created print media announcements and provided public information for download on the website of both the TFDA and the Executive Yuan.

6. Prevention of drug abuse: For the "Controlled Drug Abuse Report", the DOH continues to supervise health institutions and encourage their greater participation; to compile the "Drug Abuse Cases and Testing Statistics" and to publish the "Controlled Drugs Bulletin". In addition, a variety of propaganda and education materials are developed.

2011 anti-club drug campaign poster

Table 5-2 2011 Printed Media Monitoring

Category of offense	No.	Concluded	Pendingv	Confirmed infraction	Penalty
	No. of cases	No. of cases	No. of cases	No. of cases	NT$
Traditional Chinese medicine	2	2	0	0	0
Western armaceutical	3	2	1	0	0
Chinese medicine	1	1	0	1	50,000
Western medicine	47	11	36	7	230,000
Food	186	149	37	134	2,875,000
Cosmetics	1,724	1,134	590	1,080	20,545,000
Medical supplies	12	11	1	11	200,000
Dietary aids	3	3	0	1	50,000
Others	14	7	7	5	200,000
Total	1,992	1,320	672	1,239	24,150,000

Note: “Confirmed infraction” refers to the number of cases of administrative sanction.

6 Health Care

Health Care

The main issues that need to be addressed of health care include the provision of a holistic and adequate public health care system, implementing community health care and preventive medicine, and continuously improving the people's health and quality of life.

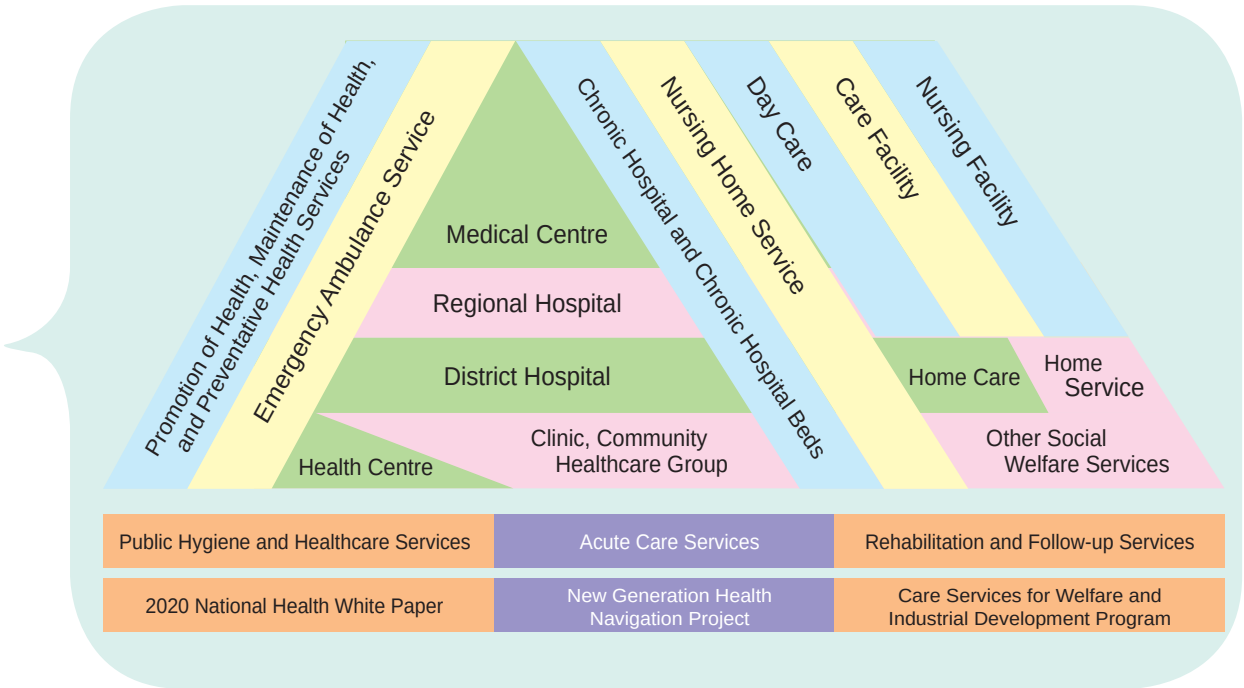
Chapter 1, Health Care Systems

In 1985, the DOH implemented a health care network project that divided the country into 17 medical care regions with the aim to evenly allocate medical care manpower and facilities. The project was implemented in four phases over four periods of 20 years resulting in a steady increase in hospital bed sufficiency and improvements in the quality of medical care. In 2005 to 2008, the Department carried out the "Holistic Health Care Plan" in conjunction with a post-SARS reorganization of the medical care system. The plan emphasized patient safety, patient-centered care and the development of a community health care system. Furthermore, the DOH is implementing a "New Generation Health Navigation Project" from 2009 to 2012 to strengthen the provision of holistic health care service founded upon suitability, proximity, comprehensiveness and sustainability to help people live longer, healthier, and happier lives. The current Health Care Systems diagram, see figure 6-1.

Section 1, Medical Care Resources

1. The current status of medical institutions: There is a total of 507 hospitals, 20,628 clinics, 7,558 pharmacies, 390 general nursing homes, 28 mental nursing homes, 516 home care units, 103 post natal care units, 14 day care units, 64 midwifery practices, 455 medical laboratories. As shown in figure 6-2, the number of hospitals is decreasing on a yearly basis, whilst there has been a gradual increase in the number of clinics.

Figure6-1 The Current Health Care System



2. Current Status of Hospital Beds

1) In 2011, there were 160,472 beds in medical care institutions (including general beds and special beds). Of them, general beds accounted for 62%. In all medical care institutions, there were 99,306 general beds (including 74,082 general beds for acute care, 4,037 general beds for chronic care, 7,091 beds for acute psychiatric care, 13,748 beds for chronic psychiatric care, 48 beds for tuberculosis care, and 300 beds for Hansen's disease). On average, there were 69.09 hospital beds per 10,000 population.

2) On September,16, 2012, the DOH made amendments to the article on "the establishment or expansion of approaches to licensing for hospitals". Environmental change, the review of secondary medical regions, and the reorganization of the secondary medical regions from 63 into 50 (details of prior to and after the reorganization can be seen in table 6-1).

3. Medical region assistance and resource integration the DOH promoted the "Medical Region Counseling and Medical Resources Integration Plan" in accordance with the "New Generation Health Navigation Project" approved by the Executive Yuan on

Figure 6-2 Number of Hospitals and Clinics by Year

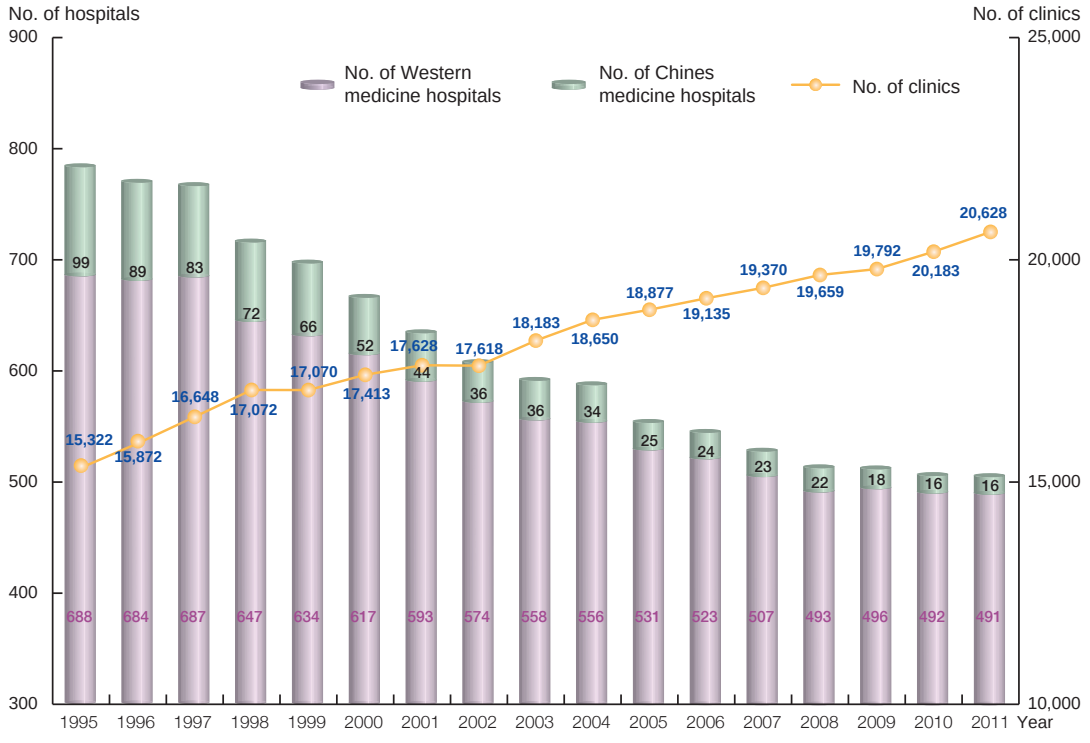


Table 6-1 Secondary Medical Care region division

Regulation after revision (50 Secondary Medical Care Regions announced in September 2011)			Regulation before revision (63 Secondary Medical Care Regions announced in 1993)		
Level 1 Medical Care Region	Level 2 Medical Care Region	Secondary Medical Care Region	Level 1 Medical Care Region	Level 2 Medical Care Region	Secondary Medical Care Region
Taipei	Taipei	North Region, Northwest Region, Central Region, West Region, South Region, East Region	Taipei	Taipei	Taipei, Danzi, Tailin, Sanying, Pingwu
	Keelung	Region free		Keelung	Region free
	Yilan	Yilan, Luodong		Yilan	Yilan, Luodong
North Region	Taoyuan	Taoyuan, Zhongli	North Region	Taoyuan	Taoyuan, Zhongli
	Hsinchu	Hsinchu, Zhubei, Zhudong		Hsinchu	Zhuxi, Zhubei, Zhudong
	Miaoli	Sea line, Miaoli, Zhonggang		Miaoli	Sealine, Miaoli, Zhonggang, Mountainline
Central Region	Taichung	Mountainline, Sealine, Tunqu	Central Region	Taichung	Fengyuan, Qinshui, Dajia, Wufeng, Taichung
	Changhua	North Changhua, South Changhua		Changhua	Changhua, Lugang, Erlin, Yuanlin, Tianzhong
	Nantou	Puli, Caotun, Nantou, Zhushan		Nantou	Puli, Caotun, Nantou, Zhushan
South Region	Yunlin	Beigang, Huwei, Douliu	South Region	Yunlin	Xiluo, Beigang, Huwei, Douliu, Taixi
	Chiayi	Chiayi, Alishan, Taibao		Chiayi	Chiayi, Chiadong, Chiabei, Chiaxi
	Tainan	Xinying, Yongkang, Tainan		Tainan	Xinying, Cengwen, Beimen, Xinfeng, Tainan, Xinbei
Kaohsiung and Pingdong	Kaohsiung	Gangshan, Kaohsiung, Qishan	Kaohsiung and Pingdong	Kaohsiung	Gangshan, Kaohsiung, Qishan, Xiaogang
	Pingdong	Pingdong, Donggang, Fangliao, Hengchun		Pingdong	Pingdong, Chaozhou, Donggang, Hengchun, Kaoshu
	Penghu	Region free		Penghu	Region free
East Region	Taidong	Taidong, Guanshan, Chenggong, Dawu	East Region	Taidong	Taidong, Guanshan, Chenggong, Dawu
	Hualian	Hualian, Fenglin, Yuli		Hualian	Hualian, Fenglin, Yuli

Note:
1. 6 Level 1 Medical Care Region, 17 Level 2 Medical Care Region and 50 Secondary Medical Care Region)
2. The population of Kinmen County and Lianchiang County are included in Taipei's Level 1 Medical Care Region but not in Level 2 Medical Care Region and Secondary Medical Care Region)

Note:
1. 6 Level 1 Medical Care Region, 17 Level 2 Medical Care Region and 63 Secondary Medical Care Region)
2. The population of Kinmen County and Lianchiang County are included in Taipei's Level 1 Medical Care Region but not in Level 2 Medical Care Region and Secondary Medical Care Region)

February 12, 2009. The plan aims to encourage medical institutions and private sector organizations to operate in line with related health care policies set forth by the DOH. It also seeks to promote the autonomous development of medical specialization in each region.

Section 2, Community Health Care System

To promote the Community Health Care System project aims to integrate acute medical care resources by region and category. Health centers in each region serve as the operation hubs to connect various relevant agencies, such as clinics, community hospitals, etc. The project integrates resources for improved division and labor and expands the participation of primary health care institutions in providing public health care services.

Chapter 2, Emergency Medical Care and Disaster Response

Section 1, Emergency Medical Care

1. The DOH has fortified the capabilities of the six Regional Emergency Operation Centers (REOC) around Taiwan, integrating emergency response measures for hazard (chemical, nuclear power plant and poison), to monitor and have immediate access to all information related to medical incidents or other regional catastrophes.
2. On July 13, 2009, the DOH promulgated the "Standards for Classification of Hospital Emergency Medical Capabilities" as authorized under Article 38 of the Emergency Medical Services Act. According to these standards, the DOH classified hospitals based on their emergency medical capabilities and designated severe level hospitals as the last line for hospital referral. To safeguard patient rights, these hospitals are not allowed to refer out patients with emergency conditions.
3. The DOH carried out improvement projects for regions lacking emergency medical resources. These projects strengthened the emergency medical services during specific period (such as evenings, holidays, and peak tourist seasons). They also provide the emergency medical needs for local residents and visitors.
4. The DOH encouraged hospitals in remote areas to establish centers for special and intensive emergency care. Major focus was placed on the establishment of centers for trauma, cardiac catheterization, stroke, perinatal conditions, emergency care, and pediatric intensive care.
5. Since 2009, the DOH began to provide "cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED)" emergency training classes.
6. The DOH, National Fire Agency under the Ministry of the Interior, Medical Bureau under the Ministry of National Defense, and county city public health bureaus formed a "No Warning Inspection Group" to conduct spot checks on ambulance equipment, ambulance management.
7. To alleviate the issue of congestion in emergency rooms, the DOH new generation health pilot project place "the annual rate of patients staying for over 24 hours in hospitals with moderate and above emergencies" on a performance indication list.

Section 2, Disaster Response

1. In response to the 0311, in Japan the DOH opened public a radiation health counseling clinic on the March 17, 2011. The purpose was to resolve the doubts for the people, and manage hospital demonstration drills for radiation patients care and the Central Disaster Prevention and Rescue Committee held five project meetings. The DOH was responsible for domestic iodine tablets, which were issued as response measures, and to strengthen the monitoring and detection of radioactive contamination food, agricultural products, and fresh seafood products imported from Japan.
2. An accident occurred at the Alishan Forest Railway on the April 27, 2011. The DOH and the Southern District Emergency Medical Response Centre assisted the Chiayi County Government to promptly implement the emergency medical services system.
3. In 2011, the DOH participated in evaluation the municipal, county (city) regional disaster prevention.
4. In 2011, the Central Emergency Operation Center was in operation seven times during which, the DOH deployed response staff, and the emergency medical management system also proved effective.

Chapter 3, Psychiatric Care, Mental Health, and Suicide Prevention

Section 1, Psychiatric Care Services

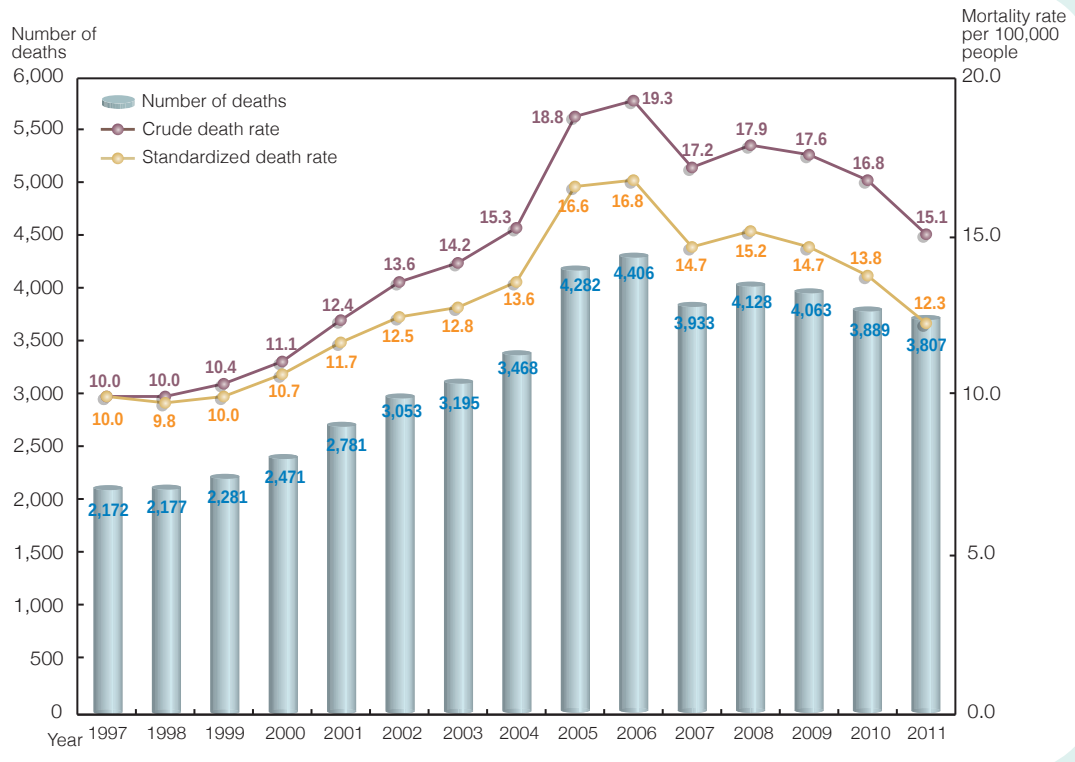
Major achievements in this area in 2011 are as follows:

1. The DOH provides subsidies to private sector organizations at various levels for substantial psychiatric rehabilitation, and psychiatric care facilities and equipment to improve the accessibility of medical care services for psychiatric patients in stable conditions.
2. The DOH has actively strengthened psychiatric rehabilitation facilities and community rehabilitation services to encourage psychiatric patients who are n stable condition to return to the society.
3. The county (city) governments will list mental patients requiring care in each community to effectively account for mental patients in each community, and provide supervision on a county level. In addition, to manage the 2011 annual “Integrated Mental Prevention and Psychological Health Plan” and the “High-Risk Group Care Visit Plan” a total of 300 health executives and care visitors from various county and city governments applied for community mental patient management. Another measure used in reported cases of attempted suicide to reduce the incidence of suicidal behavior involves visiting cilents and giving regards.
4. To continue promoting the building of regional mental health networks, which will be divided into 6 areas of medical responsibility, and to identify the central hospitals, assist various county and city governments to manage issues including: (1). Analysis of resource and situational problems of various counties and cities, establish a cross-county, cross-city, and cross-agency resource integration and cooperation mechanism, implement mental care network emergency contact center functions, provide local crisis intervention services for mental patients (including bed

management and hospital bed management scheduling), assist the health bureau establish disaster mental health services and an emergency immobilization plan, support the health bureau to manage major disasters or crisis events, and provide follow-up counseling for people concerning psychological matters. (2). Promote mental illness prevention work; develop mental health care and community psychiatric rehabilitation professional services. (3). Conduct professional training for mental health care personnel.

5. On July 4, 2008, the Mental Health Act was amended. In accordance with the amendment, "the mandatory identification of patients with serious mental illnesses and compulsory community treatment review meeting" composing of specialists physicians, nurses, occupational therapists, psychologists, social workers, other professionals, legal experts and representatives of patients' rights advocacy groups, was established to review applications. There has been a significant decrease in mandatory hospital admissions.
6. Under the Domestic Violence Of fender Intervention Project, providing offenders with cognitive education, counseling, psychological treatment, psychiatric

Figure 6-3 Number of Suicide Cases and Mortality Rate by Year



treatment and addiction withdrawal treatment services.

7. The DOH designated 109 institutions for drug addiction withdrawal treatment. In addition, the DOH implemented the "HIV-negative replacement therapy plan" by partially subsidizing the medical costs involving alternative therapies for HIV-negative drug addicts. In 2011,the 104 alternative therapy institutions nationwide handle 12,090 alternative therapy cases monthly on average. Between 2007 to 2011, the number of HIV cases involving drug addiction fell from 733 in 2007 to 99 and 2011.

Section 2, Mental Health and Suicide Prevention

In Taiwan, the suicide death rate per 100,000 people increased from 6.2 in 1993 to 19.3 in 2006, so that suicide had become one of the ten leading causes of death for the 13 consecutive years since 1997. However, in 2011, suicide was not among the ten leading causes of death as the suicide death rate fell to 15.1, ranking the twelfth on the list (see Figure 6-3). Major achievements in this area in 2011 are as follow:

1. The DOH established a "National Suicide Prevention Center" for the planning and assessment of suicide prevention strategies and efficiency. A toll-free 24-hour "peace of mind hotline" (0800-788995) was set up to provide the public with 24-hour professional counseling services.
2. The DOH executed the "National Action Plan on Strategies for the Prevention of Suicide-Second period." The plan is formulated on the concept of prevention in three stages and by five levels, where suicide prevention strategy incorporates The DOH also drafted short, mid and long-term goals for suicide prevention under the plan.
3. The DOH set up a "Suicide Prevention Reporting and Care System" to strengthen reporting of suicide attempts and to provide subsidies to county and city health bureaus to conduct suicide outreach visits, strengthen the functions of the community mental health centers, and activate community support networks. Through follow-up house visits and referral tracking, the plan has reduced repetitive suicide attempts and suicide mortality rates.
4. In 2011, the "National Psychological Health and Mental Health Service Resource Manual" was published. It was sent to the Executive Yuan Ministry, various county and city governments, and mental health institutions.
5. Since 2010, the DOH has promoted screening for geriatric depression. By the end of 2011, the head count, taken by health bureaus screening services from various counties and cities, reached a total of 447,024 people, accounting for 18.24% of the national elderly population.
6. In order to establish a central cross-department cooperation mechanism, the Executive Yuan has set up a "Psychological Health Promotion and Suicide Prevention Conference", which was held a total of three times in 2011.
7. In order to meet the mental rehabilitation treatment of victims of the Typhoon Morakot

disaster, the DOH established a disaster mental health system.

Chapter 4, Long-Term Care Service Systems

Section 1, Establishing Accessible and Universal Long-term Care Services

The main strategies are summarized as follows.

1. Developing a community aging-in-place service network

1) Continued promotion of long-term care plans to improve service utilization rates:

In 2008, the Executive Yuan promoted the Ten-year Plan for Long-term Care to assist counties and cities with the establishment of long-term care management systems. As of 2011, there were 22 long-term care management centers. The coverage rate of the total disabled elderly population served by this network has increased to 21%(nine times) in the end of 2011.

2) Improving the accessibility of long-term care for the economically disadvantaged population:

An analysis of comparative case socio-economic status data taken from a four year period of the nation's long-term care case data shows that mid- to low-income households account for 12.23% of all households receiving assistance for such care (this group accounts for 4% of the total population); while low-income households account for 14.24% of the assisted households (and 1% of the total population). These figures show that economically disadvantaged population are receiving more assistance than is the general public.

3) Setting up Service Centers in Remote Areas

The DOH has promoted the pilot project of "setting up community-based long-term care service centers in remote areas (including mountains and islands)" in order provide people living in remote areas with access long-term care services when required.

2. The Planning of Long-Term Care Service Network

The promotion of the "Long-Term Service Network of 2010 has continued into 2011. The main results of the project can be seen below:

1) Establishment of a long-term care resource inventory system, cooperation with the Ministry of the Interior and the Veterans Affairs Commission, completion of the first long-term care service resource inventory, and the preliminary division of the nation into long-term care areas, of which there are 22 large, 63 medium, and 368 small.

2) To provide more high-quality long-term care service human resources, the DOH has strengthened the training of various types of carer and medical long term care specialty training courses have been divided into three stages, and stage-by-stage long-term medical care professional training has been carried out.

3.Creating a legal basis for long-term care

The DOH advocates a legal basis for long-term care services, a "long-term care services draft-law" was drafted, and on March 31, 2011, the legislature was submitted through the Executive Yuan in the seventh part of the seventh-session conference for evaluation. However, due to term related issues the entire case was discontinued. It was then re-opened by the Executive Yuan on February 16, 2012.

4. Planning of a Long-Term Care Insurance System

1) For the purpose of building a foundation database for national long-term care need, the DOH required data on the supply and demand of long-term care resources, the scope of insurance, and the actuarial insurance premium rate. To obtain this data, the DOH completed the first phase of "the National Long-term Care Need Survey" in 2010 and has completed 350,000 interview-based surveys. In 2011, the second stage of the investigation was completed.

2) From the start of April 2011, the DOH have carried out a home-based and facility-base long-term care service resource utilization groups investigation, and predict that in 2012, 7,000 cases will be collected for data, to create a preliminary model.

3) The DOH conducted to establish a long-term care insurance payment fee schedule which reflects costs and takes reasonable working conditions into account. Estimates indicate that the cost analysis of the home care service infrastructure will be completed in 2012.

4) The DOH has proposed a multi-dimensional LTC need assessment instrument (draft), and established an inventory of long-term care assessment tools for the purpose of developing practical long-term care insurance assessment tools for the nation.

Section 2, Long-term Care Professional Training

The DOH has held a number of "Long-Term Care Professional Workforce Training Plan" meetings, and completed the planning for the long-term care medical manpower and the care center care management staff.

1. Long-Term Care Medical Workforce Course Plan:

1) Level 1 – General Course (18 hours): focuses on the basic knowledge of long-term care field staff, and basic and broad long-term care concepts.

2) Level 2 – Professional Course (32 hours): in accordance with the time required for training in the various professional fields, course specifics have been further diversified, and developed for individual professional fields.

3) Level 3 – Integrated Course (24 hours): integrate courses to strengthen interdisciplinary and integrated ability.

2. Care Center Care Management Staff Course Plan:

1) Phase 1: current care center care

commissioners have a core curriculum of 40 hours, and spend 40 hours on a practical training course.

2) Phase 2: place an emphasis on practice, coordination and communication, and individual cases of cross -disciplinary services as a design guideline in the development of the curriculum.

3) Phase 3: coordinate with continuing education concepts and the development of advanced abilities, in order to focus on cross-disciplinary case teaching, inter-regional service system resource utilization and integrate the enhancement of abilities.

Section 3, Integration of Long-Term Care Institution Management to Improve Quality

1. Since 2009, the DOH has conducted nursing home accreditation in accordance with the Nursing Personnel Act to guarantee and upgrade service quality.
2. The DOH invited the Ministry of the Interior, the Veterans Affairs Commission representatives, and expert scholars to work together in the completion of the long-term care institution evaluation integrating operating principals and standards, and to completed trial evaluations at 30 general nursing home institutions, from October to November of 2011.

Section 4, Promoting Tele-healthcare

1. Service Expansion

Since 2010, the DOH has commissioned teams in the northern, central, southern and eastern regions to integrate 130 healthcare institutions, and 65 cross-sector partners to set up a tele-healthcare center in the north and the south. The tele-healthcare centers will provide 24 hour continuous healthcare consulting and health management services, and assist with patient referrals (fig.6-4). At this present stage, the development goals are the standardization and industrialization of services, encouraging the integration of hospitals and other industries, the development of new products, and the establishment of a commercial operations model.

2. Creating a Sound Environment

The DOH is conducting research on tele-healthcare information transmission standards, relevant policies and laws, and service cost-effectiveness assessment. The following results have been achieved:

1) Promotion of standards: The DOH formulated standards for the use of continuity care documents, drafted tele-healthcare standards, and improved processes.

2) Research on regulations: The implementation of medium and long-term regulatory support measures was proposed in response to the Personal Data Protection Act regarding the collection, storage, and usage restrictions of sensitive personal data.

3) Evaluation of effectiveness: The DOH has investigated members participating in the tele-healthcare service from 2010 to 2011, this was done to understand the benefits

of the implementation, and to establish a long-term assessment model.

3. Information Integration and Interfacing

1) In line with the differing degree of information provided by different medical institutions, the DOH has developed an information does not fall to the ground/fall to the ground cooperative model for information referrals in the newly established the north and south tele-healthcare centers.

2) Furthermore, in response to future healthcare plans in government cloud computing, the DOH will integrate the healthcare cloud with regional healthcare services, link regional service systems and life resources, and establish a cloud healthcare record database. The Department also will use various cloud computing terminal equipment to provide new types of smart, mobile, and personalized healthcare services.

4. Service Advocacy and Promotion

1) The DOH successfully updated the portal function of the tele-healthcare program, added portal links to 89 healthcare institutions, and provided the public with a service resource query and online interaction.

2) In 2011, the Bio Club Biotechnology Exhibition and the Formosan Medical Association Medical Exhibition, promoted the tele-healthcare service achievements, and the services of the new tele-healthcare center service system to the public.

Chapter 5, Quality of Medical Care

Section 1, Quality of Medical Care Services

Achievement highlights in 2011 are as follows:

1. Patient Safety and Quality of Medical Care

1) The DOH formulated the "Annual Objectives for the Promotion of Patient Safety and Quality of Medical Care in Hospitals for 2012- 2013." Annual objectives were formulated including improving the safe use of drugs, implementing infection control, improving surgical safety, etc. In addition, the "Annual Objectives for the Promotion of Patient Safety andQuality of Medical Care in Clinics for 2012- 2013." Three annual objectives were formulated including improving the safe use of drugs, preventing patient falls, and improving surgical safety. The DOH arranges scheduled and non-scheduled assessments of the above-mentioned objectives and implementation strategies.

2) The DOH established the Taiwan Patient Safety Reporting System (TPR) to build up a patient-safety culture and create a nonpunitive learning environment to avoid the repeated occurrences of mistakes and errors to improve patient safety.

3) The DOH set up a patient safety website to provide patients with the latest information on safety and to serve as a platform for the exchange of information, collect international information relating to patient

safety. This was done to provide learning exchanges for national hospitals and medical personnel.

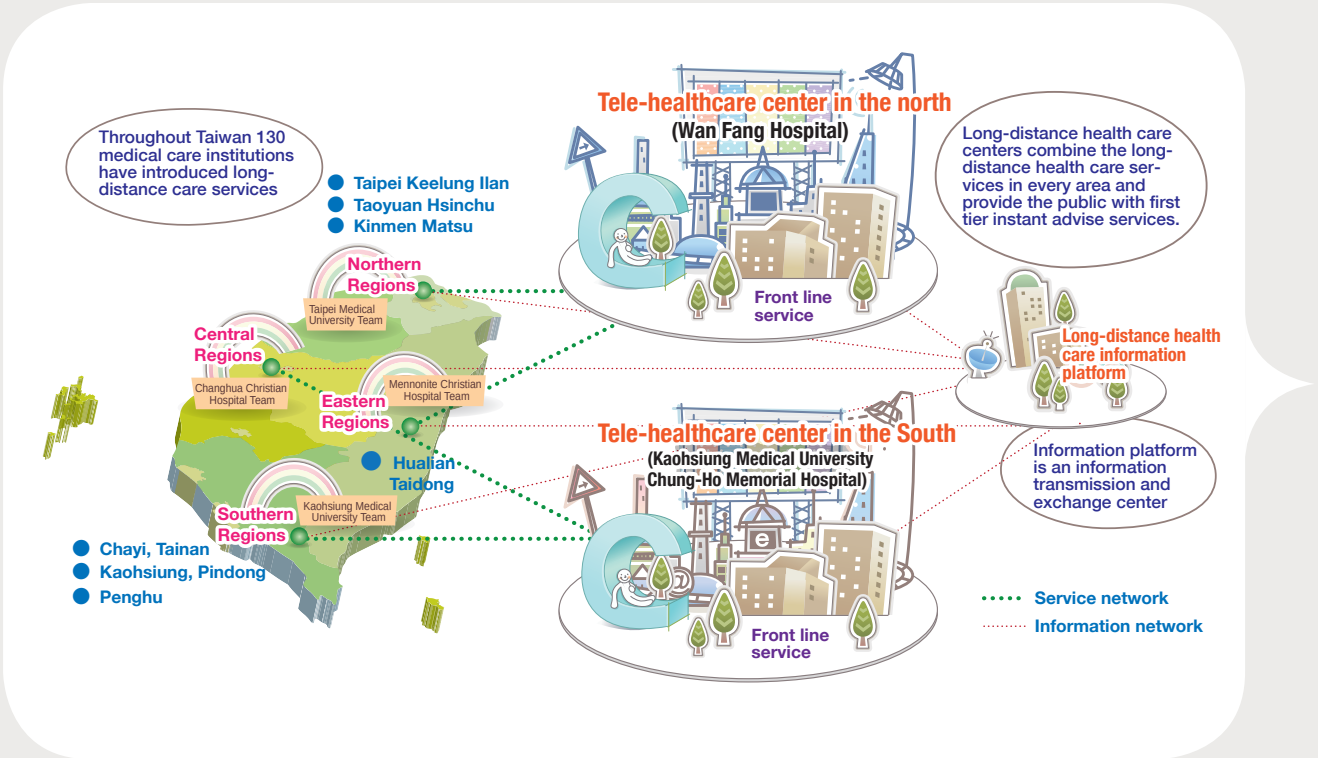
4) Regulations on safe hospital environments are stipulated by the "Hospital Accreditation Standards." The regulations have been designed to create a safe environment in which to provide medical treatment, and include items such as the safety of the environment and facilities, etc.

2. Hospital Accreditation System

1) In 2011, the DOH implemented the revised "Hospital Accreditation Standard" and "Teaching Hospital Accreditation Standard".

The revised version of the "Hospital Accreditation Standard" has consolidated 238 items from the previous 505, and seven medical workforce distribution channels were named as essential items. The revised "Teaching Hospital Accreditation Standard" incorporates accreditation and inquiry functions, including the "New Teaching Hospital Accreditation Scheme", "Post-Graduate General Medical Training Survey", and a "review of the teaching hospital teaching expense subsidy plan". 14 categories of medical personnel are now within the scope of teaching hospital accreditation.

Figure 6-4 2011 Tele-Healthcare Service Overview



2) Establishment of a "Non-Scheduled and Timely" regular follow-up supervision and inspection system to ensure the continuous improvement in the quality of medical care.

3) By the end of 2011, the DOH had completed a total of 400 field evaluations with the goal of reducing internal operation faults of counseling psychiatric rehabilitation institutions, to ensure the quality of care, and manage the "Psychiatric Rehabilitation Institutions Evaluation". In recent years, the number of re-evaluations has steadily decreased. This shows that the evaluation system is indeed capable of improving the quality of care in institutions. Additionally, since 2011, the DOH has handled the evaluation of psychiatric nursing homes for the first time.

4) To establish a superior patient-centered Chinese medicine healthcare system and to provide a safe healthcare environment for the public, the DOH proceeded with the 2011 "Accreditation of Chinese Medical Hospitals and Chinese Medical Departments Affiliated with Western Hospitals".

5) The DOH has been integrating hospital accreditation, medical treatment and hygiene service, as well as specialist training institute functions.

Section 2, Improving the Quality of Blood Supply and Transfusion

1. To reduce the risk of HIV infection by blood transfusion recipients, the DOH has been actively educating the public the correct blood donation attitude, dissuading HIV-positive high-risk people to use blood donation to test for AIDS.
2. In order to prevent hemolysis in patients that have received blood transfusions, the DOH screens for blood red blood cell antigens to efficiently increase the number of red blood cell antigen records so as to increase the probability of a suitable blood transfusion match for patients with rare blood types.
3. In order to respond to patients with rare blood transfusion requirements, the DOH established a rare blood-type database, a blood reference laboratory, and an external blood consulting inspection service.
4. In order to effectively shorten the test window times, reduce the probability of infected blood being transfused, the phased implementation of the nucleic acid amplification test (NAT) began in July of 2010, and the nucleic acid amplification test blood transfusion bag has been fully implemented in blood transfusions since 2012.
5. The DOH will manage the "incentives for blood transfusion quality improvement plan", for blood donation centers of the blood foundation, blood donation posts, etc. to ensure quality in blood transfusions.

Section 3, Improving the Efficiency and Quality of Organ Donation and Transplantation

1. In Taiwan, there are 10 Organ Procurement Hospital (OPH), each cooperates with 200 local hospitals, to establish Organ

Procurement Organization (OPO) to actively encourage potential donors.

2. The Registration Center launched the "Organ Donation and Transplantation Registration System". From April 1, 2005 on-wards, all cadaveric organ donations have been allotted on the Organ Donation and Transplantation Registration System to establish a fair, impartial and transparent mechanism for organ allocation.
3. The DOH revised the organ transplant payment provisions on January, 1, 2008; this was done to encourage hospitals to implement organ procurement and transplantation.
4. On November, 15, 2011, the DOH completed the "Organ Donation and Transplantation Login System", and the "HIV Reporting and Tracking System" which function as tools of close inspection. When hospitals enter information about donors, the organ donation and transplantation registry system is directly checked against the regulated data file of previously HIV-infected people, in order repeat check test results and verify the accuracy of the entered information.
5. On the December, 21, 2011, the President announced the Human Organ Transplant Act amendment, which stipulates the following matters: (1) The will to donate organs should be indicated on Health Insurance IC card, and regarded as official; (2) Organ transplant allocation and administration shall be authorized by the DOH; (3)The donor's laboratory test report shall be submitted to the recipient's hospital.

Section 4, Quality of Nursing Car

1. Promotion of the Professional Registered Nurse System. Additionally, in 2011, there were 80 training hospitals for surgical nurse practitioners.
2. Continue the promotion of continuing education for nursing staff and implement related integrated crediting assessments.
3. Continue the promotion of full-care systems and establishing a nursing and paramedical staff cooperation model to reduce nursing staff workloads.
4. In order to encourage hospitals to retain nursing staff, the DOH managed the "promote Friendly Practice Hospitals"–characteristic contest recognition plan', to develop local Friendly Practice Hospitals characteristics indicators.
5. The DOH has managed the "nurse work content and pay adjustments in a series of public hearings held in the northern, central, and southern regions".
6. On 01/11/2011, the DOH provided written notifications for hospitals to follow regarding "medical institution and nursing staff labor contract proposals of matters which should and which should not be recorded" and "the regular labor conditions of hospital hired employees being below the labor standards law and other relevant laws and regulations matters".
7. The DOH organized the post-natal care nursing institution quality improvement assessment in 2011.

Chapter 6, Medical Manpower

Section 1, Current Status of Medical Manpower

1. According to the licensing system for professional medical personnel, there are 14 laws and regulations governing the management of medical personnel, including the Physician's Act, Pharmacist's Act, etc. In addition, the Optometrist Act (draft) is under review by the Legislative Yuan.
2. Practicing Medical Personnel till end of 2011, see table 6-2.

Section 2, Fostering of Medical Manpower

1. The DOH adopts a quota system for cultivation of medical personnel. In principle, the number of the medical students to be enrolled each year is limited to 1,300. The training of other categories of medical personnel is based on the special quota system. Applications shall be filed prior to the establishment of medical training programs, and be reviewed by the Ministry of Education for control purposes.
2. To foster medical personnel in resource-poor mountainous/indigenous and off-shore island Areas. Since 1969, the DOH has managed the local healthcare worker program. From 2002, the said funding programs in Kinmen and Lien Chiang counties were integrated. As of the end of 2011, the program has trained a total of 776 healthcare professionals. The program retention rate stands at 72%.
3. Development of the Government Sponsored Physician System has been implemented for over 30 years. And the aims of the policy have now been fulfilled. Each year since 2006 there has been a reduction of 40 recruitments from government scholarships, and recruitment completely stopped in 2009, local development of Government Sponsored Physician has increased the development quota from an annual amount of 6-9 to 27.
4. The DOH has commissioned professional medical associations to conduct screening and review of specialty physicians to improve the quality of medical professional training. Hospitals for the training of specialty physicians are accredited and certified every three years. Currently, accreditation is provided in 26 areas of specialization.
5. The DOH has been actively promoting a "Post-Graduation General Medical Training Program" to strengthen holistic care concepts and ability among physicians, increase the quality residency training. Three-month general medical training courses have been offered since 2003.The second phase of the program came into effect in 2006. Based on the model of the three-month training program, this phase includes six-month post-graduation medical training. Phase three commenced in July 2011 and involves one-year post-graduation medical training aiming at increasing the quality of primary care services.
6. To establish a systemic clinical dentistry training program, improve post-graduate training quality and results, and improve the general quality of healthcare, the DOH implemented the "two-year Post Graduate Year program" on July 1, 2010.
7. In order to facilitate the normal development of proper Chinese medicine education, and

Table 6-2 Practicing Medical Personnel in 2011

Category	No. of Practicing Persons	No. of Practicing persons (Per 10,000 population)	Category	No. of Practicing Persons	No. of Practicing persons (Per 10,000 population)
Physicians	40,002	17.34	Occupational therapists (technicians)	2,496	1.12
Dentists	11,992	5.24	Physical therapists (technicians)	5,608	2.45
Chinese medicine doctors	5,570	2.31	Counseling psychologists	836	0.54
Medical technologists (technicians)	8,579	3.86	Clinical psychologists	757	0.36
Medical radiology technologists (technicians)	5,113	2.27	Dietitians	1,824	1.11
Pharmacists (assistant pharmacists)	31,300	13.87	Respiratory therapists	1,810	0.79
Nursing personnel	133,336	48.49	Language therapists	498	0.22
Midwives	134	0.06	Audiologists	157	0.07

increase the ratio of properly educated Chinese medicine practitioners, the initial qualifying examination for doctors of Chinese medicine was terminated in 2008, while the special examination for doctors of Chinese medicine will be terminated in 2011.

8. To establish a system for Chinese medicine clinical training, we must first improve the supervisory capacities of supervising physician in Chinese medical care institutions. In 2014, the DOH will implement the "Chinese medical care institution supervising physician training program." In future, all candidates must work a two-year residency at an accredited or DOH-designated Chinese medicine department/ clinic.

9. In order to maintain the quality of practice among Chinese medicine practitioners, the DOH has promoted the “enhancing the quality of practice for medical personnel program”. The DOH also organized TCM health care training programs, in which a total of 1645 nurses completed training.
10. The DOH started running the teaching hospital free education subsidy program in 2011, for medical personnel to receive training and licensing on core training courses developed by teaching hospitals within 2 years.
11. The DOH completed the continuing education system for 14 types of medical personnel. The system requires that medical personnel accept a certain number of hours spent in continued education every six years, before they apply for license renewals. This is in order to ensure the practice skills of the medical personal, and to keep them up to date.

7 The National Health Insurance

The National Health Insurance

The implementation of National Health Insurance (NHI) enables a sick and impoverished people to receive proper medical care. Now the NHI has become a mainstay of Taiwan's social security. To ensure it can continue, reforms of the National Health Insurance have been ongoing. After efforts from all sectors, on Jan. 26, 2011 the National Health Insurance Amendment was announced by the President. This is to be an important turning point as it will provide a stable foundation for the National Health Insurance to continue in a sustainable direction.

Chapter 1, Current Status of the National Health Insurance

Section 1, Current Status of Insurance Enrollment

The National Health Insurance is a mandatory social insurance. All individuals holding the Republic of China nationality and having registered their household in Taiwan for more than four months shall, by law, be enrolled in the NHI. Legal aliens with certification documents for residency and having resided in Taiwan for more than four months shall also, by law, be enrolled in the NHI. However, those with employee status are not subject to the restrictions of the aforementioned four-month period.

By the end of 2011, the total enrollment was 23,198,664 persons, with the enrollment rate of higher than 99% of the population, nearly approaching the goal of full insurance enrollment.

Section 2, Insurance Financing

The DOH constantly promoted measures for achieving financial stability. Revenue raising measures employed in between 2010 and 2011 include:

1) Check the category and premium amounts of the insured.
2) Lobby for approximately NT$1 billion annually from the public welfare lottery profits and NT$24 billion from the health surcharge on cigarettes.

Table 7-1 Average Annual Medical Utilization Per Person in 2011

Type	No. of Visits	Rate of Change (%)
Outpatient	15.1	3.33
Western Medicine	12.1	3.86
Dentistry	1.3	-0.93
Chinese Medicine	1.7	3.10
Inpatient	0.14	1.87
Length of Stay in Hospital	1.4 days	

Table 7-2 Number and Type of Contracted Medical Institutions

Type of Contracted Institutions	No.	Contract Rate (%)
Hospitals and Clinics	19,763	92.64
Pharmacies	5,037	65.02
Home-care Agencies	528	52.64
Mid-wife Centers	12	5.50
Psychiatric Rehabilitation Institutions	170	91.89
Physical Therapy Clinics	13	39.39
Medical Laboratories	213	49.88
Medical Radiation Institutions	10	14.08
Occupational Therapy Clinics	1	12.50

3) The NHI premium rate adjusted from 4.55% to 5.17%, and the ceiling of NHI insurable amount increased from NT$131,700 to 182,000.

4) In accordance to the basic salary adjustments since Jan. 1 2011, the level 1 of payroll bracket of NHI insured amount was shifted to NT$17,880, levels of the insured amounts changed accordingly. The minimum insured amounts for the insured in category 2 is based on level 6 of new payroll Bracket, which is NT$21, 900. In addition, starting from April 1, 2011, the insured amount for the insured in category 3 was amended to NT$21, 900.

Section3, Insurance Benefits and Payment

In 2011, the important highlights are presented as follows.

1. NHI Visits

In 2011, there were 375.82 million outpatient visits, and 3.28 million hospital admissions. The average annual outpatient/inpatient visits per person are shown in Table 1.

2. Strengthening Health Services Accessibility for the Insured

At the end of 2011, there were 25,747 NHI contracted medical institutions(see Table 2) including 19,763 hospitals and clinics, which accounted for 92.64% of hospitals and clinics nationwide.

3. Reducing the Financial Burden of Patients with Catastrophic Illness

People suffering from cancer, chronic mental illness, congenital illness or rare diseases, along with dialysis patients, were able to get treatment without copayment. At the end of 2011, more than 860,000 patients held catastrophic illness certificates to take advantage of this program. (see Table 3).

4. Enhancing the Quality of Medical Services and Reasonable Payments

1) For Western Medicine

a) Continuing to Promote and Adopt Tw-DRGs Payment System:

The Taiwan Diagnosis Related Groups

Table 7-3 Issuance of Catastrophic Illness Certificates

Catastrophic Illness	No. of Certificates	Percentage (%)
Cancers requiring active or long-term treatments	432,344	47.06
Chronic mental illness	208,432	22.69
Systematic autoimmune syndromes requiring lifelong treatment	79,672	8.67
Chronic renal failure (uremia) requiring regular dialysis treatment	68,536	7.46
Congenital malformations and chromosomal abnormalities of the cardio, pulmonary, gastrointestinal, renal, nervous, skeletal system and others	35,878	3.91
Others	93,858	10.22
Total	918,720	100

(Tw-DRGs) payment system has been promoted in stages since 2010. In the first year, 155 DRG items related to the original case payment were implemented. To more accurately reflect the seriousness of each DRG illness, in 2011 the original 155 items were further regrouped into 164 DRG items. The NHI system excluded extracorporeal membrane oxygenation (ECMD) treatments from DRG, expanded medical services (including chemotherapy, radiotherapy, ventilator, dialysis etc.) from DRG to fee-for-service system, and furthermore paid in full for the points exceeding the upper limit of the DRGs for patients with congenital diseases under the age of 18. "The New Technology Add-on Payments under the DRG Payment System" was also implemented.

b) Revised Medical Services Program to Enhance the Quality of Care

The NHI system reviewed and revised the family physician care plan, patient-centered integrated care plans, put forth pilot projects for capitation payment system and pharmacy home care, improvement program for remote areas, improvement plan for medical services in remote areas, implementation project for retention money of global budget for quality assurance, quality of medical services indicators and monitoring values, plan to improve the quality of inpatient nursing care, the early stage of chronic kidney disease care plan, and expanded the pay-for-performance projects.

c) New Payment Items to Increase Scope of Medical Services

In response to advances in medical technology, new payment items covered testing, treatment, and surgery, with major items including Everolimus – a test for the levels of anti-rejection drugs in the blood of organ transplant patients, examine for free prostate-specific antigen (Free PSA) for prostate cancers, and the design and formulate of the multi-leaf collimator alloy module used in radiotherapy for cancer patients. Five applicable items of hospital are also opened for clinics, to benefit the public in seeking medical services. In addition, to improve quality of medical services and fairness of care and reduce the burden of the public.

d) Adjusting Fee Schedule for Pediatrics, OB/GYN and Surgery:

Since 2011, outpatient diagnostic fee for patients under age 4 can be paid by 20% more for pediatricians in clinics and all physicians in hospitals. Also the declaration cost for outpatient diagnostic fees was raised by 17% in hospitals for OB/GYN, pediatrics and neonatal care, and surgery services (including orthopedics, neurosurgery, urology, plastic surgery, colorectal surgery, cardiovascular surgery, thoracic surgery, digestive surgery, pediatric surgery and chiropractics). For patients under the age of 4, the above outpatient diagnostic fee could

be raised by 37%, thereby strengthening treatment scope and quality.

e) **Pilot Project for Capitation Payment**

In accordance to Article 42 of the NHI Act, which stipulates the Fee Schedule of Medical Services may follow the principal of capitation, and Article 44, which stipulates accountable family physician program should be paid on the basis of capitation, the pilot project for capitation payment was announced in February 2011. Medical institutions across the nation teamed up to submit proposals. After reviewing by experts, three models and 7 teams were selected and put into a three-year trial period beginning in July 2011.

2) For Chinese Medicine

To enhance the overall medical service quality, the NHI system reviewed and amended improvement program for Chinese Medicine services in remote areas, and 5 continuity trial plans: "Pilot Project on the Outpatient Clinic Care Using Chinese Medicine for Children with Asthma", "Pilot Project on Outpatient Clinic Care Using Chinese Medicine For Children with Cerebral Palsy", and " Complementally Chinese Medicine Pilot Project for Inpatients of Western Medicine with Cerebrovascular Disease and Tumor after Surgery, Chemotherapy and Radiation Therapy" and "Chinese Medicine Outpatient Care Plan for Patients with Sequelae of Cerebrovascular Disease."

3) For Dentistry

"Implementation Project for Retention Money of Dentistry Global Budget for Quality Assurance", "Health Care Quality Indicators and Inspection Values", "Pilot Project for Special Dental Services (strengthening the dental services for patients with congenital cleft lip and palate and craniofacial abnormalities, as well as for patients of moderate to severe mental or physical disabilities)", “Comprehensive Periodontal Treatment Plan", and "Improvement Program for Dental Services in Remote Areas" were reviewed and amended to reward outstanding contracted dental clinics, and improved the medical care quality for special target groups.

4) Building a Platform for Medical Expenditure Co-management

To control medical expenditure at a reasonable level, a co-management platform has been built consistently. The NHI system invited commissioned units, experts, scholars and representatives from medical field, pharmaceutical field, Department of Health, as well as NHI Medical Expenditure Negotiation Committee to compose a payment commission for each sector of global budget. The payment commission took responsibility for the deliberations of related administrative procedures; supervised practical operation of global budget payment system and continued to reform the system; promoted reasonable use of medical resources; and continuously monitored variations in points and point value.

5) Improvement of the Pharmaceutical Pricing System and Enhancement of Public Rights in Drug Accessibility.

a) Reasonable Drug Price Adjustments

The DOH amended the Pharmaceutical Benefit Scheme for National Health Insurance. In addition, it adjusts drug prices once every two years. Thus far, it has adjusted prices seven times, effectively easing the growth in drug expenditures.

b) Expand the Scope of Drug Benefits

In 2011 the DOH adjusted drug benefits and increased their scope to improve the quality of public health care. This includes the relaxation of some of the restrictions in malignant medication, heart and diabetes medication, chronic hepatitis B and C drugs, Thrombocytopenic purpura medication, multiple sclerosis medication, macular degenerative diseases and dry eye ophthalmic drugs etc.

c) Ensuring Medical care and medication usage Availability for Rare Disease and Hemophilia Sufferers.

The NHI Medical Expenditure Negotiation Committee has set the earmarked budget for rare disease and hemophilia in the hospital sector under the NHI Global Budget System since 2005.

Section 4, Disclosure of Medical Care Quality Information and Public Satisfaction Ratings

1. Disclose of information on the quailty of medical care

1) The DOH has continued to disclose the medical quality information of all hospitals and departments, and publish the information on the National Health Insurance official website (http://www.nhi.gov.tw) under the designated "Medical Quality Information Disclosure" section.

2) Information on the quality of individual medical care institutions can be divided into two major categories. First there were service indicators, with disclosure made of widely applicable and highly feasible service items. These indicators were used on hospitals, clinics, Chinese medicine providers, dentists and dialysis centers. The other category included disease indicators. These used disease types or treatment items to develop professional indicators related to medical care service quality. Disclosure was made of six designated diseases, including diabetes, knee replacement surgery, hysteromyoma, dialysis, peptic ulcers and asthma. Disclosed information explained the meaning behind the indicators and assessed their value. Each indicator provided valuable health information to help viewers expand their knowledge.

3) Every enrolled individual could access personal utilization data for the past 3 months from NHI website by the Citizen Digital Certificate.

2. Level of Public Satisfaction

The DOH conducts public satisfaction surveys with the NHI program each year to understand the expectation of the insured and as a reference of policy making. In 2011, nearly 80.4% of local residents are satisfied with the system.

Section 5, NHI IC Card Applications

Achievement highlights in 2011 are as follows:

1. Approximately 99.9% of all NHI contracted medical care institutions have been electronically linked to the system and finished authentication, enhancing computerization and providing a platform for communication.
2. The NHI implemented the "Counseling Project for Heavy users". Those who have had more than 20 outpatient visits monthly were recruited in the project. On average the number of outpatient visits fell by 40-50%.
3. By the end of 2011, 138,972 people marked on their IC cards that they were willing to act as donors; in addition, 99,086 people had registered for hospice and palliative care. By the information of IC cards, medical personnel can quickly understand patients' willingness to donate organs.
4. Records of Medications, Major Tests

   NHI IC cards stored records of patients' six previous medical visits (including 60 sets of records related to doctors' orders, medication and tests) for safety reasons. Information was updated on a recurring basis and available for doctors to read and consider when issuing prescriptions.

Section 6, Assistance to Disadvantaged Groups

In 2011 the DOH continued to offer the following assistance measures:

1. Subsidies on Insurance Premiums

Government agencies provide subsidies on premiums for the disadvantaged groups, including low-income households, jobless veterans, unemployed laborers and their dependents, the mentally or physically disabled, those middle-income households, underprivileged people with subsidization from tobacco surcharge, and unemployed indigenous citizens, under age of 20 and over 55 years old.

2. Assistance Measures on Premiums

1) Rate Adjustments for Premium Subsidies

The NHI premium rate was raised from 4.55 to 5.17% on April 1, 2010. To lower the negative effects of the raise, the government budgeted money to cover subsidies for people below a certain income level. The subsidies took each person's economic ability into account and were used to pay the additional fees generated by the premium rate hike.

2) Continued the Relief Fund for individuals

For those who are not qualified as low-income households and are not eligible for government subsidies, the DOH has budgeted a fund providing loans to those encountering financial difficulties and unable to pay premiums & co-payments.

The insured who are qualified as specified in the Regulations for Identifying the Underprivileged and the Destitute for National Health Insurance Purposes, to apply for interest-free loans to pay off overdue premiums and the co-payments. The insured may begin to repay the loans debt in one year later.

3) Payment by Installments

Installment plans were available for the insured encounter difficulties and could

not pay the premiums on time.

4) Premium sponsorship referrals

For the insured encountering finical problems and are unable to pay the arrears, The DOH refers the cases to charity organizations for premium subsidies.

3. Medical Care Assistance for the insured with arrears

We guarantee the disadvantaged group holding the certificate of poverty issued by village (town) chiefs or hospitals can receive the treatment when having serious diseases even if they are not enrolled or have overdue premiums. Later on the Bureau of National Health Insurance will give assistance to process their enrollments, apply for the Relief Fund loans, premium referral or installment payment plans.

4. Release IC Cards to Eliminate Medical Care Impediments for Disadvantaged Groups

1) Following the spirit of the second-generation National Health Insurance, the Bureau of National Health Insurance has launched the Worry-free Medical Service Plan for the Disadvantaged. To exclude the people are able to pay their premium from the insured in arrears then unlock their IC cards. The way is try to draw a clear line between owing premiums and the right to receive the medical coverage. The plan had approved by the Executive Yuan since October 29, 2010.

2) The plan focused on children under 18, near-poor households, and families in unstable situation.

Chapter 2, Promoting the second generation NHI

The National Health Insurance Act was amended and announced on January 26, 2011, the biggest reform since its inception. The president instructed this department that all preparatory work must be completed in one to two years so that the second generation NHI could be implemented.

Section 1, Reform Points of Focus

1. Controlling the Use of Resources and Reducing Inadequate Medical Treatment:

1) The penalty for deceitful claims of insurance benefits or medical expenses shall be increased to up to 20 times the

amount illegally received. In addition, insurance contracts for contracted medical care institutions involved in significant violations may be suspended for a specified period of time or permanently revoked depending on the severity of the violation.

2) Medical resources for the promotion of health care shall not be improperly used. Failure to observe these relevant regulations may result in rejection of insurance benefits.

3) The Bureau of National Health Insurance shall, on a yearly basis, submit and implement an improvement plan to prevent the inadequate consumption of medical resources. The Bureau is also responsible for reasonably adjusting drug prices each year based on the market transaction status.

4) To promote the control of yearly drug expense, any expenses in excess of the limit shall be deducted from the medical payment; the limit will be adjusted each year in accordance with drug prices.

2. Improving the financial responsibility of the government

   1) The Act clearly stipulates that the annual funds to be allocated by the government for NHI shall not be lower than 36% of the total premium revenue (after deducting other legal incomes, such as the tobacco health surtax). According to the results of a preliminary estimation, the government will need to further invest roughly NT$10 billion during the first year of implementing the revised National Health Insurance Act. This cost would increase in the future corresponding with the growth of medical spending.

   2) Financial deficits accumulated before the implementation of the revised National, Health Insurance Act shall be made up by the government through its annual budgeting process.

3. The NHI Supervisory Commission and the NHI Medical Expenditure Negotiation Committee will combine to form the NHI Board and will coordinate to control financial linking mechanisms to ensure the sound management of NHIs finances.

4. Expanding the NHI Premium Calculation Base, Improving the Fairness of Financial Burdens.

   1) Income from part of the bonuses from the year-to-date payment exceeding the current month insured amount by the insured units, salary from payment by uninsured units, stock dividends, business execution, rental, and interest will be included in the basis for calculating supplementary premiums for the insured. Such will relieve the pressure of general raise in premium rate and narrow the gap in premium burden between people that receive the same and enhance the fairness of burden.

   2) A supplementary premium shall be collected from employers based on the difference between the total monthly salary paid by the employer and the sum of insured amount for the employees. This is to distribute the burden of premium in corporates that have different salary structure but pay the same gross salary.

5. Adopting Diversified Payment Methods: The principle for payment shall be "Treatments of diseases in the same Diagnosis Related Group (DRG) shall receive the same amount of NHI payment". The "Capitation Payment Methodology" shall also be incorporated into the system and PQRS (Physical Quality and Responsibility System) shall be implemented. These approaches are adopted to invest in the well-being of the people.
6. Keeping Important Information Transparent and Encouraging Public Participation
   1) It is clearly stipulated in the Act that the following information should be disclosed publicly: meeting records on major NHI-related issues and interests of the participating members; financial reports; medical quality information and ratio of insured beds of the contracted medical care institutions; as well as the number of insured beds and major violations of contracted hospitals.
   2) Representatives of premium payers shall participate in all discussions and decisions of important matters, including premium rates, insurance coverage, total amount of medical payments for the year, fee schedule for medical services and drugs, full payment system, liability for the remaining balance, etc. If necessary, the NHI Board shall also organize relevant citizen participation activities to obtain feedback from the general public.
7. Protecting the Rights and Interests of the Disadvantaged by Reducing Copayments:
   1) After the insurer has inspected and counseled, those who are able to pay but refuse to do so shall be denied for insurance benefits in order to protect the rights of the disadvantaged receiving medical care.
   2) Reduction or exemption of copayment shall be granted for those in areas with shortages of medical resources.
   3) The percentage of copayment for home nursing care shall be reduced to 5%.
8. Stricter restrictions shall be enforced on access to NHI benefits by new residents and individuals who have stayed overseas for a long period of time. In order to be eligible for health insurance you must have a household registry or have obtained a residence card for at least six months; if not you must have been employed or obtained registry within the last two years.
9. Convicts are now covered by the NHI to protect their basic human rights as regards health.

Section 2, Preparatory Work

1. Integration of Healthcare Organizations

1) The important reformation in the organizational system is merging the NHI Supervision Commission and the Medical Expenses Agreement Committee into the NHI Council. Powers over financial revenues and expenditures were united to link revenues to expenses and to achieve balance in finance.

2) To ensure the formation of the NHI Council will fully represent all people in participating and taking the responsibility of maintaining the financial balance of NHI, the council followed the fifth item of the NHI Act regulating the composition and proportion of a committee to develop its representation, formation method, procedure specification, self-disclosure of interests they represent, open disclosure, etc. Expectations of accountability from the outside are appropriately included to build the foundation for the council to carry out its role.

3) In coordination with the organizational transformation of the Executive Yuan, preparatory work for Health Well-fare Department was conducted. In accordance with the principle of overall planning, the NHI Council was positioned as a permanent task force within the Health Well-fare Department.

2. Preparatory Work for Setting Regulations

After announcement of amendment to the NHI Act, at least 30 regulations needed to be amended and among them at least 16 were added during the amendment. The Department successively invited experts and scholars for advice, held meetings with representatives from relevant mechanisms and organizations, and completed amendment and publication of relevant regulations according to the operating rules of the legal system and the Administrative Procedure Act.

3. Planning for the New System

For the implementation of the Second Generation NHI, many new systems, including establishment of supplementary insurance withholding and information system, insurance for the convicts, health technology assessment, family physician liability system, NHI medical care institutions earnings made public, quality of NHI medical care made public, signing trading contracts for drugs, etc., required detailed planning. Professional advices from multiple sources were also collected to ensure the successful execution of various measures and relevant specification for the new NHI to function most effectively.

4. Strengthening Advocacy in Different Groups and Different Stages

With "second-generation NHI, better welfare for all" as the core demand, when publicizing the changes it focused on four major directions – NHI value, taking care of the disadvantaged, increasing income but cutting expenditure, and linking revenue and expenses and reasonable insurance premiums, targeted different groups of people to take a more personalized approach, and decided to implement reform in stages. The first stage was to give people a strong understanding of the key points of the second-generation NHI while gathering opinions from different groups that it could refer to when formulating potential changes or additions. Stage two involved more concrete explanation on issues that people cared strongly about regarding the execution of second-generation NHI. In stage three the focus shifted to practical and operational issues to help achieve smooth implementation of the second-generation NHI.

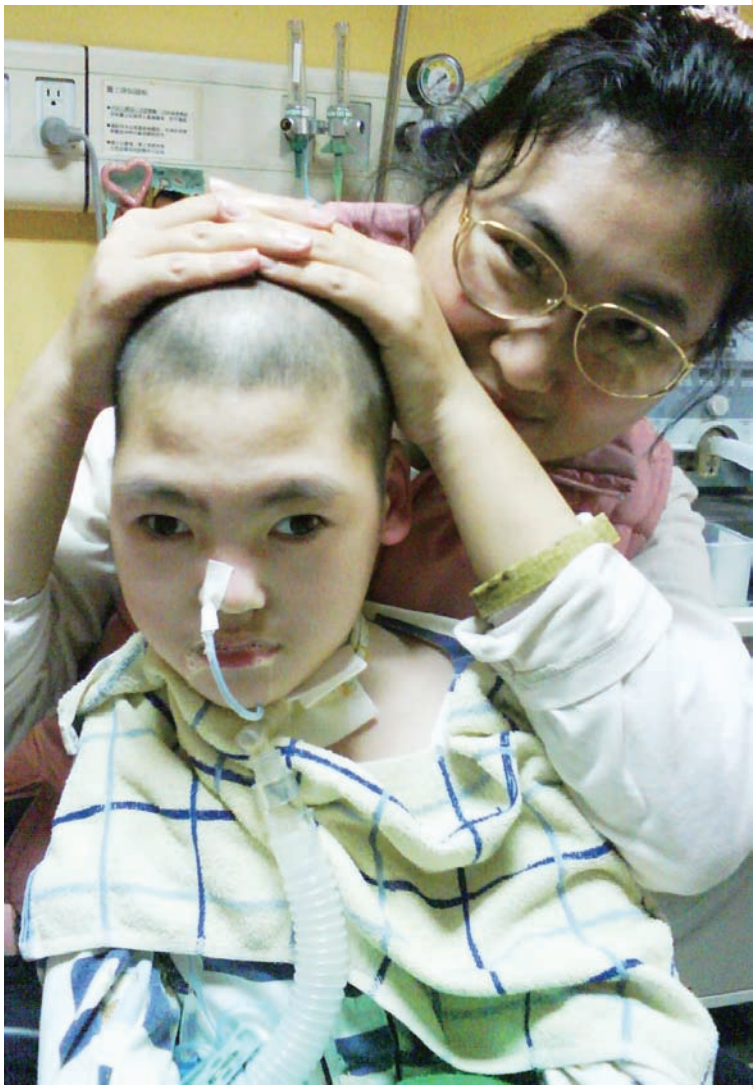
8 Health Care for the Less Privileged Groups

Health Care for the Less Privileged Groups

In 1998, when the WHO announced its health for all in the 21st century policy in 1998, it focused on equity in health, emphasizing treatment among the different sexes and races along with helping the disadvantaged groups. Since then, more research has shown that different approaches are needed for the different sexes, races, income groups and the disabled when dealing with factors that affect people's health and working to prevent disease.

Chapter 1, Health Care for the Mentally and Physically Impaired

1. The New Disability Identification System: The President of the Republic issued the People with Disabilities Rights Protection Act on July 11, 2007; the disability identification system and Needs Evaluation System are required by law to be fully implemented by July 11, 2012. In order to advocate the New Identification System, the Department has been implementing it since 2008, and preparing the core of and environment for the completing of the Identification System.
2. Disability Rehabilitation Aid Centers: In 2004 counties and cities began establishing Rehabilitation Aid Centers, providing assistive consultations, assessments, individual evaluations, and other such services, allowing those with disabilities to maintain integrity and access a diversity of professional medical series. In 2011, 12 hospitals established these centers, serving 54,194 people.
3. The DOH conducted the Preventive Oral Health Services Plan for the Disabled to train employees who work with the disabled to be capable of oral care; established eight home service teams and 22 organizations for the disabled; about 4,400 disabled people received oral health services.
4. Established a nation-wide Joint Assessment Children Development Center to provide school-aged children with early intervention professional assessments and transition



mechanism, including establishing multi-disciplinary team services, community outreach services, and parental support groups. Since 2009 25 such institutions have been built, making 45 in all in 2011.

Chapter 2, Health Care for Residents of Mountain Areas and Offshore Islands and the Indigenous Peoples

The mountain areas and offshore Islands Areas, because of their special geographic environment and extensive locations, include ethnic groups with poor health care resources and health care services. To improve the accessibility, comprehensiveness and continuity of health care for residents of mountain areas and offshore islands and indigenous peoples, the Department has taken action with priority to integrate medical care resources in offshore islands, upgrade quality of medical care in mountain areas and offshore islands, improve the function of health rooms, and actively promote the quality of medical manpower and enhance the emphasis on prevention and control of major diseases.

1. Improvement of Hardware Facilities in mountain areas, Offshore Islands and remote areas: through 2011, the DOH had agreed to subsidize two health centers undertaking rebuilding projects and 18 doing renovations; in mountainous and indigenous areas the lighting and air-conditioning at 23 health centers were improved; and repairs were also made on three helicopter pads. Besides improving facilities, the DOH also gave equipment subsidies to health rooms in mountain area and offshore islands. Included were 115 pieces of information related equipment, 135 pieces of medical equipment, six mobile medical care vehicles, 62 mobile medical care motorcycles and one ambulance. These projects improved the quality of medical services and increased resources in remote regions, bridging the health care gap between rural areas and the city.
2. Continuous fostering of local medical manpower. Medical graduates on government scholarship are sent back to work in their own townships. In coordination with the Integrated Delivery System (IDS) of the National Health Insurance, to encourage medical personnel subsidized to stay on after completion of their duties. In 2011, 72% of these medical personnel stayed on.
3. The DOH encouraged people to work together on community health building programs, enhancing its work by integrating local resources and drive community participation. In 2011, through Building Healthy Communities Program. in indigenous area and offshore islands it established two counseling centers and 86 community health building centers. In 2011, the DOH subsidized 40 sessions of the Community Tribe Health Service Camp for College and University Students in Mountain Areas and Offshore Islands. About 1,600 people are expected from the teams to provide tribal community services.
4. The DOH worked to improve medical information available in remote indigenous communities by forming shared information platforms.
   1) The DOH set up 308 mobile medical stations at 48 health centers in 15 counties, providing

mobile clinics medical care to the tribes; and a User-friendly Mother Tongue Clinic Registration System to provide more convenient medical care services to the local residents, reducing the medical resource gap between cities and rural areas.

2) The picture archiving and communication system (PACS) is set up; and health information systems are integrated. 32 health centers in Nanao Township, Yilan County were connected to the DOH-Hospital to improve the medical care quality in remote tribes.

3) To provide people in remote areas the same interpretation quality and timely service as people in cities, since 2011 health centers in mountain areas and outlying islands have been provided with image interpretation support by the DOH.

5. Protecting Health and the Rights to Medical Care for the residents of mountain areas and offshore islands: In coordination with the Integrated Delivery System of the National Health Insurance, the rights of the residents on offshore islands to medical care are protected through support of specialists. Four health bureaus in Penghu, Kinmen, Lienchiang and Taitung are subsidized to conduct tele-medical care continuously. Total is 25 connection points.

6. Emergency Delivery of Patients in mountain areas and offshore islands.

   1) A 24-hour DOH National Emergency Aeromedical Center was set up; in June 2012 there were 10 cases of emergency medical consultation services given; 152 people applied to be transferred via air, and the results show that 141 people were thus transferred, an approval rate of about 92.76%.

   2) A set of Guidelines Governing Subsidies to Transportation Costs for Delivery of Critically Ill or Emergency Patients in Mountain Areas and Offshore Islands for Medical Care is formulated to subsidize costs for transporting patients to Taiwan for medical care. In 2011 there were 27,033 patients from offshore islands who came to Taiwan for accepting treatment and received subsidies.

Chapter 3, Health Care for Groups with Special Health Needs and New Immigrants

Section 1, Community-Based Long-Term Care for the Elderly with Dementia or Functional Disabilities

1. To understand the condition of dementia among people over the age of 65 in Taiwan, in early 2011 the DOH proceeded to conduct an epidemiological investigation of dementia. The investigation is expected to complete by the end of 2013. Through such investigation, we can establish the prevalence and incidence of dementia in the nation and understand the prevention, causes and risk factors for dementia. Appropriate resources for dementia care can thus be planned for and care capacity for dementia patients in the nation can be upgraded.

2. In 2011, the DOH, Ministry of the Interior, and Veterans Affairs Commission jointly completed the first national inter-ministerial dementia resources inventory. The results showed that there are nine counties and cities across the country without institutional dementia service resources and 12 counties

and cities across the country without community dementia day care resources.

3. Improving Care Services for the Elderly
   1) The DOH hospitals have been providing community care services for the dementia and disabled since 2009. By 2011, there are a total of nine hospitals (Keeling, Miaoli, Taichung, Nantou, Puzi,Chishan, and Pingtung Hospitals, Tsaotun and Jianan Mental Hospitals), five of them providing interim care services (Keelung, Taoyuan, Miaoli, Nantou, and Pingtung Hospitals).
   2) By the end of 2011, the DOH hospitals provided 2,224 beds of nursing home services (including psychiatric nursing home).
   3) For the time being six hospitals provide home hospice service (Fengyuan, Taichung, Changhua, Sinying, Tainan, and Pingtung), nine hospitals provide palliative care, and four hospitals provide hospital hospice care. They have all passed certification to set up a home hospice service team to provide holistic hospice and stay-at-home services.

Section 2, Human Rights Protection and Care of Hansen's Disease Patients

1. On July 18, 2008, Legislative Yuan passed Hansen's Disease Patient Human Rights Protection and Compensation Act to change the terminology of the condition from leprosy to Hansen's disease in all relevant laws and provisions.
2. The Hansen's Disease Patient Human Rights Protection and Advocacy Group had held a total of 16 meetings by December 2011.
3. The DOH promote the implementation plan of Directly Observed Treatments (DOTS) for Hansen's Disease Patients to provide quality care for Hansen's Disease cases.
4. On January 24, 2011, Lo-sheng Bridge was launched into service. The bridge connects the new campus St. Hope Square, crossing over the MRT train yard, and the Penglai Home in the old campus, increasing convenience in caring for residents.

Section 3, Rare disease prevention

1. By the end of 2011, 193 rare diseases, 78 rare disease drugs and 40 special foods needed to sustain life have been announced; rare diseases have been brought within the scope of serious diseases, reducing some of the medical treatment burden of the patient. In accordance with the Regulations for Rare Disease Subsidies, subsidies are provided for 29 special foods needed to sustain life and 9 emergency use drugs.
2. Overseas testing service and partial subsidy have been provided to an average of 42 people annually; subsidies for diagnosis and treatment fees not covered by the National Health Insurance Scheme are also provided, with subsidies totaling NT$40.08 million paid in 2011; Genetic diagnosis and advice and other services for rare disease patents and their families with are provided, rare disease prevention public education work is also strengthened.
3. In coordination with the Rare Disease and Orphan Drug Act, on April 4, 2011, the amended Regulations for Rare Disease Subsidies were announced. In addition to continuing to provide patients with rare diseases special foods, subsidies for overseas testing were also increased; full subsidies are provided to low and middle income patients.

Also subsidies for home-use medical equipment needed to sustain life, testing in Taiwan to confirm diagnosis, nutrition advice, emergency treatment etc. were added. The subsidies for diagnosis confirmation testing and home medical equipment needed to sustain life are backdated to 2011.

Section 4, Human Rights Protection and Care of the HIV-Infected

The Department has spared no efforts in the human rights protection and health care of AIDS patients. Taiwan is one of the few countries that provide the HIV-infected with free medical care. When HAART (highly active antiretroviral therapy) was first developed in 1997, it was immediately brought in to provide the infected with free cocktail therapy.

1. In the Protection of Human Rights

1) On December 17, 1990, "the AIDS Prevention and Control Act" was promulgated. In response to changes in the epidemic and international as well as national protection of human rights of AIDS patients, the Act was amended on July 11, 2007 and renamed "the HIV Infection Control and Patient Rights Protection Act". The amendment was to meet the demand of prevention and treatment and fulfill the spirit of a nation founded upon the principles of human rights.

2) Two sets of regulations, "Regulations Governing Protection of the Rights of the HIV-Patients", and "Operational Directions for Reviewing of Applications for Stay or Residence for HIV-Infected Individuals", have been formulated.

3) "The Regulations Governing Compensations to Persons Infected with HIV through Execution of Preventive Functions" were formulated to provide compensation for those who become infected while perform their official duties.

4) To provide timely assistance to people infected with HIV, procedures were established for AIDS patients to report rights violations.

2. Health Care

1) Since the amendment of the AIDS Prevention and Control Act (now the HIV Infection Control and Patient Rights Protection Act) on February 5, 2005, free anti-HIV medications have been provided, and payment under the National Health Insurance has been extended to the non-insured HIV-infected to improve the coverage of medical care and accessibility to medical care. In 2011, about 86%of the HIV-infected sought medical treatment.

2) To encourage the HIV-infected to perform self-management a case management project for HIV infection has been implemented since 2007. In 2011, 45 designated medical care institutions for HIV control joined this project to provide cases with health education and counseling. The cumulative number of case management reached10,201 people.

3) Through follow-up management of county and city bureau of health and case managers, they advice cases to regularly visit designated hospitals for treatments and care about their treatment situations to increase their desire to obtain treatment.

4) Private sector organizations and charity groups have been subsidized to assist in the care of cases, making arrangement for

their medical care, emergency placement, and provide case management services. In 2011 they provided 146 AIDS patients with placement and 359 with case management services.

Section 5, Health Care for the New Immigrants

1. Differences in language and cultural customs make new immigrants a disadvantaged group in terms of health. To protect their rights to proper health care, the DOH helped new immigrants join the NHI system. Other steps it took included the launch of the "Reproductive Health Management Plan for Parents from Foreign Countries and Mainland China". This provided new residents and their children with reproductive health counseling services and management of their NHI card, and advising for reproductive planning, breastfeeding, health care during pregnancy, regular prenatal examinations and nutrition during pregnancy In 2011, the management rate of NHI cards was 99.43%.
2. Ensuring the reproductive health of new immigrants before they have joined the NHI program is an important task. From 2005 to 2010, the DOH formulated the Prenatal Health Subsidy Plan for Foreign Spouses without Household Registration. The plan was used to subsidize prenatal health checks for foreign spouses who were not yet a part of the NHI system. There was a limit of five NT$600 subsidy payouts per pregnancy. Starting from 2011, budget responsibility for the prenatal checks shifted to the DOH's Bureau of Health Promotion. In 2011, subsidies were used 10,461 times at a total cost of more than NT$5.08 million.
3. The DOH launched its Translator Service Project for Foreign Spouses on Reproductive Health, working with local health centers to train translators who could assist new residents seeking health care information. A total of 210 health centers in 17 counties and cities joined the project in 2011, recruiting 364 translators.
4. The DOH also produced reproductive health materials in many languages, including Vietnamese, Indonesian, Thai, English and Khmer. The materials ranged from pamphlets on reproductive health, pregnant women's health, and children's health to a reproductive health VCD series, etc.

Section 6, Health Care for Oil Disease Patients

1. Health Care for Oil Disease Patients

1) An oil disease outbreak occurred due to consumption of rice oil contaminated with PCBs. In 2005 since the next generation could be affected owing to contamination of the placenta or breast-milk, the DOH provided a care plan for children born after January 1, 1980, whose mothers affected by the outbreak (these children were known as second-generation oil disease patients). Through the end of 2011, 1,541 oil disease patients had benefited from this plan, including 1,308 first-generation patients and 233 second generation patients.

2) Health services provided to oil disease patients include: 1.setting up the Regulation of Implementing Health Care Services for PCB Affected Patients; 2.

waiving copayments for first-generation oil disease patients when using any inpatient services, 3. waiving copayments for oil disease patients who bring their IC card when receiving outpatient or emergency services, 4. providing free annual health examinations, 5. continuing health follow-up programs (including visits and care programs), 6. establishing oil disease clinics in December 2009 at the DOH Fongyuan Hospital and Changhua Christian Hospital.

2. Taiwan-Japan Conference on Oil Disease Health Care

1) Understanding Japan's policies for dealing with Oil Disease patients is important because Taiwan can then use that knowledge when formulating its own policies. Therefore, on April 29, 2011, the DOH held the Taiwan- Japan Conference on Oil Disease Health Care. Also invited were health department representatives, oil disease patients, and members of oil disease associations. Over 80 people attended the conference, including over 50 oil disease patients.

2) The DOH invited oil disease patient representatives along with the Victims Support Association and other experts to engage in talks. The experts gained a better understanding of patient needs and patients gained a better understanding of DOH health services.

Section 7, Medical Services for Inmates of Correctional Institutions

1. To protect the inmates' rights of health and improve medical service and public health in correctional institutions, the DOH and Ministry of Justice collaborated to put into trial an award scheme for improving medical care of correctional institutions. DOH hospital provide general and specialist clinic, regular physical examinations, cancer screening, and chemical addiction rehabilitation and other integrative medical care services respectively.
2. The above-mentioned pilot project was executed until the end of 2011. Participating correctional institutions had an average of 12.28% decrease in guarded hospital visits, 23.17% decrease of severely ill patients; about 68% of diabetes patients had their HbA1c controlled below 7%; about 63% of hypertension patients had their systolic/diastolic blood pressure controlled below 130/85; inmates' satisfaction with medical service at the institution reached beyond 80% to 90%.

Chapter 4, Health Care for the Economically Disadvantaged

To ensure complete access to NHI medical care for people facing financial hardship, the DOH promote measures to assist them in paying NHI premiums A summary follows:

1. The DOH continued its relief fund, providing interest-free loans for people to pay overdue insurance premiums and self-payment medical costs. The borrowers were able to begin paying back the loans one year after application. Through the end of 2011, 3,872 loans were approved worth a total value of more than NT$241 million.
2. Installment plans were available for the insured encounter difficulties and could not pay the premiums on time. In 2011, 187

thousand people had benefited from this program, easing the financial burden on payments by a total of NT$4.379 billion

3. For the insured encountering finical problems and are unable to pay the arrears, The DOH refers the cases to charity organizations for premium subsidies In 2011, 2,646 cases were successfully referred and the amount was about NT$18.06 million.
4. The health surcharge on cigarettes allocates a part of its revenue (on September 7, 2011 the rate was adjusted from 4% to 6%) to subsidize the premium of economically disadvantaged people. Through the end of 2011, these funds had benefited over 530 thousand people, with subsidy amounts totaling NT$1.72 billion of which 50,000 were from middle-income households (totaling NT$70 million) and about 480 thousand of those given assistance were from difficult economic circumstances (about NT$1.65 million).
5. In 2011, the DOH had gained NT$400 million from public welfare lottery profits. These revenues were used to execute 17 subsidy plans enacted by the Bureau of National Health Insurance and 15 local governments. Subsidies provided assistance with health insurance premiums debts and related expenses in order to assist economically disadvantaged people receive needed medical care. Through the end of 2011, the program had benefited over 49,000 people.
6. The Bureau of National Health Insurance has launched the Worry-free Medical Service for the Disadvantaged that would enable members of the disadvantaged groups to seek medical care worry-free. The plan was geared toward children under 18, families nearly in poverty, and families in special situation. It sought to help members of disadvantaged families unlock their health insurance cards and through the end of 2011 had benefited 398 thousand people who were in arrears to the health insurance system.

9 International Cooperation in Health

International Cooperation in Health

The DOH has spared no effort in promoting international health through cooperation through the promotion of participation in the World Health Organization, international exchanges and cooperation, providing international medical assistance and health development services, and other such international promotions to achieve the four tasks diligently. The DOH has also timely adapted to the current situation and has developed a diversity of cooperative modes, thus achieving the goals of contributing to the world and strengthening Taiwan's status.

Chapter 1, Joining International Health Organizations

Section 1, Joining the World Health Organization

Since Taiwan's pursuit of WHO membership in 1997—during which it has experienced enterovirus infections, SARS, H1N1 outbreaks, and other major international public health incidents—it has followed a trend of cross-border cooperation, receiving the growing support and legitimization from the international community. Since 2009 Taiwan has been invited to be an observer at the World Health Assembly.

Section 2, Current WHO Membership Status

1. In 2011, Minister Wen-Ta Chiu led a team to attend the 64th World Health Assembly (WHA) and gave speeches. Representatives from Taiwan spoke on 14 technical issues including influenza pandemic preparedness and shared achievements and experiences in medicine and health of our nation. They also called upon the United States, European Union, Japan, and other major countries to continue to support our demands for protecting our dignity and professional involvement. Regarding the incidence of addressing our government inappropriately in the internal documents of the World Health Organization (WHO) on May 16, they submitted a letter of protest to the WHO and solemnly expressed the four standpoints by mouth:
   1) Our Government showed strong resistance to the internal documents of WHO.
   2) Those internal documents are totally unacceptable.
   3) The exchange of letter between our country and WHO in 2009 should go beyond the force of those WHO internal documents.
   4) WHO should address our government in the same way as WHA does.

Director Wen-Ta Chiu led Taiwan representatives to attend the 64th World Health Assembly in 2011.

2. In 2011, ROC sent delegates to attend 10 WHO Technical Conferences. The topics of discussion included medical personnel, development of vaccination, etc.
3. Cooperated with Ministry of Foreign Affairs to promote participation in WHO important mechanisms, including the International Food Safety Authorities Network (INFOSAN), Global Influenza Surveillance and Response System (GISRS), Stop TB Partnership, etc.
4. The DOH Centers for Disease Control submitted to WHO a list of authorized ports that allow the issuance of certificate of health control of ROC and reported to the Executive Yuan to establish an interagency group to promote ROC's IHR (2005) Core Competency Assessment and Implementation Plan of Specified Harbors. They also invited Japanese experts on IHR to come to Taiwan to conduct self-assessment, which was highly appraised.

Director Wen-Ta Chiu gave speeches at the APEC Health Systems Innovation Policy Dialogue in September 2011.

Chapter 2, International Exchange and Cooperation

Section 1, Participating in or Organizing International Conferences and Studies and Trainings

1. Participating in international conferences

The DOH participated in a total of 105 international conferences in 2011. The representative meetings and their effectiveness are summarized as follows:

1) In August 2011 Minister Wen-Ta Chiu visited institutions under the US Department of Health and Human Services that are responsible for food safety, health care reform, health information etc., to further improve the exchanges and cooperation on health issues between Taiwan and the US. The DOH was simultaneously invited to attend the Martin Luther King Jr. Health Equity Summit organized by the Institute for Advancement of Multicultural & Minority Medicine (IAMMM) and gave a speech on how ROC had fulfilled the ideal of health equity that Dr. King promoted for years through the implementation of Taiwan National Health Insurance (NHI).
2) On September 16 through 17, 2011, Minister Wen-Ta Chiu led delegates to attend the APEC Health Systems Innovation Policy Dialogue in San Francisco, US and gave speeches at the Panel I – Addressing NCD Challenges in the APEC.
3) On October 5 to 8, 2011, Dr. Chih-Liang Yaung (on behalf of Minister Wen-Ta Chiu) led a team to attend the 14th European Health Forum Gastein in Austria.

4) From October 29 thru November 2, 2011, Dr. Chih-Liang Yaung (on behalf of Minster Wen-Ta Chiu) led a team to attend the 139th annual meeting of American Public Health Association (APHA) held in Washington DC, US. During the meeting a forum for Taiwan "Promoting Health from Cradle to Grave: Case Studies of Taiwan's Reform and Comprehensive Approach to Care" was held to report a series of Taiwan's experiences in healthcare and shared the outcome of important policies including cancer control, preventative care for children, etc.

2. Participating in Foreign Study Trainings

The DOH sent delegates to 19 countries in 2011 to attend 38 sessions of study trainings to achieve the goals of protecting the national health and reducing disease risk.

3. Holding International Meetings Domestically

In 2011 a total of 65 international meetings were held or instructed to be held. The representative meetings and their effectiveness are summarized as follows:

1) On June 2–4, 2011, an anti-drug international seminar, national anti-drug conference, anti-drug garden party, and other serial activities were held. Of which, the anti-drug international seminar combined private non-governmental organizations and academic units to jointly participate in drug abuse control and developing new modes of drug addiction rehabilitation. They invited scholars and experts from Taiwan, Hong Kong, and the US to achieve the purpose of complete control of drug abuse through international cooperation and information exchange on drug abuse.

2) On August 18 and 19, 2011, the APEC AIDS Harm Reduction Seminars was held in Taipei. It originated as the DOH Centers of Disease Control submitted a request for the event and received support from all APEC member bodies. A total of 13 APEC member countries with their 30 representatives and 77 domestic experts attended the Seminars. The Seminars enhanced exchange of experiences between ROC and APEC member countries and effectively assisted developing member countries in establishing AIDS harm reduction ability and expanded our involvement in APEC health affairs.

3) On October 17-18, 2011, the 2011 Taiwan Health Forum was held with the subject "Sustainable Health Systems". The forum delivered keynote addresses on issues of Health Equity, Healthcare financing, Major Health Disasters. Approximately 40 foreign health officials, experts, scholars and academicians from 25 countries, including the US, UK, New Zealand, Japan, and Korea, attended this Forum.

Section 2, International Exchange and Cooperation

1. International Cooperation Plan

1) "2011 Promotion Program for Healthcare Cooperation with Central and South American Nations": The DOH Taoyuan Hospital went to Honduras to give maternal and child health education,

provides medical services in internal medicine, otolaryngology, etc and donated medical supplies and medicines. In addition, they also made a field trip to Belize and accepted 3 Belize clinical nurses to come to Taiwan for training.

2) "2011 Promotion Program for Healthcare Cooperation with West African Nations": to train healthcare personnel in Gambia and Ghana, and to establish a joint healthcare R&D laboratory in Ghana.

3) "2011 Promotion Program for Healthcare Cooperation with African Nations": to hold disaster prevention and response training courses for the Kisumu region, in cooperation with the Great Lakes University of Kisumu (Kenya);

4) Laboratory Research Projects between the National Health Research Institutes and Vietnam": In January 2011 Director of National Health Research Institutes, Ih-Jen Su, represented the ROC to visit Children's Hospital No.1 in Ho Chi Minh City, Vietnam to discuss research topics of cooperation in 2011.

2011 National Anti-Drug Conference

2. Signing of the Memorandum or Agreement

1) "Cross-strait Cooperation Agreement on Medicine and Public Health Affairs": the Agreement was signed on December 21, 2010 and was implemented on June 26, 2011. The fields of cooperation include "prevention and control of communicable diseases", "safety administration and research and development of medicinal products", "research and exchange in traditional Chinese medicine and safety administration in traditional Chinese medicinal materials", "assistance for medical emergency". The first working groups meeting convened in August 2011.

2) "Cooperation Plan for Tobacco Control in East Asian Countries": the DOH Bureau of Health Promotion, Cambodia, and Mongolia jointly signed the cooperation plan on January 1, 2011. Their main interests were to assist Cambodia in promoting legislations, establishing tobacco-free work environment, organizing "quitting tobacco is winning", providing tobacco-cessation services and supporting community health promotion projects. They also cooperated with Health Department in Ulaanbaatar City, capital of Mongolia, to promote tobacco-free work environment and increase in tobacco hazard.

3) "Agreement on the Haitian Epidemic Prevention Rooting Plan": The DOH Centers of Disease Control signed the agreement with Haiti on March 2, 2011. The terms include assistance in laboratory and epidemiology trainings, mutual

visitations, donated experiments, and epidemic prevention materials and devices.

4) "Tobacco Hazards Prevention World Wide Web Plan": the DOH Bureau of Health Promotion and the International Union Against Cancer (UICC) signed the plan in Geneva, Switzerland on March 11, 2011. Through the "GLOBALink – Tobacco hazards Prevention World Wide Web" of UICC, information on tobacco control flows rapidly.

3. Visitations by International Friends

1) In 2011 the DOH and affiliated mechanisms received 1,443 person-times of foreign guests from 51 countries visiting Taiwan.

2) The Taiwan National Health Insurance system has received many praises internationally and become an object of benchmark learning for various countries. From September 4 to 10, 2011, the 19 officers of the National Health Security Office of Thailand came to Taiwan for a one-week NHI course; from November 14 to 25, 2011, the Ministry of Health, Malaysia, sent 21 medical health officers to Taiwan for a two-week training course in Taiwan NHI.

Section 3, International Education and Training

1. Taiwan Health Center (THC) in the Republic of the Marshall Islands: In 2011 the THC helped 1,945 person-times setting up health indicators, organized 13 sessions of lectures to advocate healthy lifestyle and diets and the importance of prevention and control of metabolic syndrome. THC also collaborated with Marshall Islands Ministry of Health to conduct adolescence health education, sexual education, advocacy for prevention of sexually transmitted disease and advocacy for tobacco hazards control.
2. Taiwan Health Center (THC) in the Solomon Islands: in 2011 provided local medical services including parasite control plan which had served cumulatively 1,990 person-times, training of 176 qualified seed instructors, organizing community public health education that benefited 3,650 person-times.
3. Taiwan International Healthcare Training Center (TIHTC): In 2011, it trained 146 healthcare personnel from 23countries in clinical medicine, healthcare management, etc.

Chapter 3, International Medical Aid

Section 1, International Medical Aid

When an earthquake occurred in Haiti in January 2010, Taiwan International Health Action (TaiwanIHA) was dispatched to the disaster area to give aid and proposed a three-year three-project "Republic of China's plan to assist the Haitian with reconstruction after earthquake." The details of the work are as follows:

1. Taiwan Health Center (THC): Implemented by the DOH Tao-Yuan General Hospital. In 2011 both partiers conducted a total of 3 official mutual visit and exchange. 15 combo blood glucose-blood pressure devices, blood glucose test strips, and other medical supplies were donated to Haiti.
2. Medical Equipment Donation: Implemented by the DOH NTU Hospital Global Medical Instruments Support and Service (GMISS) and DOH Tao-Yuan General Hospital. In 2011 they provided used or brand new medical instruments for use in 9 medical centers in Haiti.

3. Haiti Epidemic Prevention Project: On March 2, 2011, the Research and Diagnostic Center of the DOH Centers of Disease Control and Haiti National Public Health Laboratories signed a cooperation agreement to improve Haiti's capability in testing for infectious diseases and capability of epidemiology investigation. From October 21 to November 3, 2011, delegates went to Haiti for experts' scholarly exchanges and visitation and donated three sets of testing equipment and 90 cases of water purifying tablets to fight against the cholera epidemic.

Section 2, International Medical Assistance

1. Establishment of the Global Medical Instruments Support & Service (GMISS) Program to provide ally and friendly countries with medical equipment. In 2011, 8 donations, comprising 449 pieces of medical equipment, were made to 7 countries.
2. In August 2011, Taiwan international Health Action (TaiwanIHA) in cooperation with Association of Medical Doctors of Asia in Japan (AMDA), visited Jaffna's Teaching Hospital in northern Sri Lanka to engage in cataract surgery medical cooperation.
3. The DOH Bureau of Health Promotion organized an event "Love of Taiwan, Kindling the Hope of Peace" to donate midwifery equipment to the Solomon Islands. On September 19, 2011, representatives donated 60 sets of midwifery tools that meet the environment for midwifery in Solomon and trainings in relevant techniques.
4. Regarding the flood in Thailand in October 2011, the DOH cooperated with the Ministry of National Defense, the Overseas Compatriot Affairs Commission, and the Environmental Protection Administration, Executive Yuan to provide 6000 health education brochures and family first aid kits and had Taiwanese merchants and Chinese groups in Thailand assist in distribution.

Taiwan International Health Action team doctor checking the eyes of a local child.

Chapter 4, Globalized Medical Services

1. Background of Development of Medical Service Industry

The operating models of hospitals have been influenced by NHI payment system, and the aging population and advancement of technologies. The areas covered by the medical services market have expanded and the medical industry has moved from the simple treatment of diseases in the past to customer service-oriented. For many years the ROC expenditure of NHI have showed a trend of growth. However, its percentage of GDP is still low compared to other developed countries. Through utilizing the advantage of the technology and quality of our medical services, we can reactivate the development

of our medical industry and enhance the international competency of our medical service industry.

2. Goals of Development of International Medical Service

Through development of medical brand, establish characteristics and provide diverse medical services. Additionally, emulate the institutionalization of the industry, organizational skills and other entrepreneurial capabilities, conduct activating integration within and outside the industry, and effectively explore innovative business strategies to lead the medical service industry move into a diverse environment.

3. Implementation Results

1) In accordance of the policy of the Executive Yuan to promote the six emerging industries, the project was listed as one of the key development projects of healthcare upgrade platinum plan of the six emerging industries.

2) Continued to review effectiveness of project implementation and coordinate inter-ministerial resources to benefit the international promotion through the inter-ministerial cooperation mechanisms of the overall planning group for the internationalization of medical services.

3) Commissioned Taiwan Private Hospitals and Medical Institutions Association to establish a unified window for the internationalization of ROC's medical services – "International Medical Management Working Team" to serve as a platform for information exchange and dissemination. Also counseled 32 participating hospitals to build an internationally competent environment.

4) Conducted a survey and estimate on supply and demand of key industry personnel of the international medical industry.

5) Commissioned Taiwan External Trade Development Council to conduct international advertising. A total of 17 print media, such as World Journal, and 8 television media, such as Radio and Television Shanghai, covered the story.

6) Introduced strategic alliances of international medical services. In 2011, six strategic alliances were created for cooperation. Medical-related service industry practitioners from 41 countries were invited to discuss issues of cooperation. Cooperation of referral service with 3 relevant industry practitioners was signed. Also, 12 service spots were set up overseas to provide consultation and services.

7) Developed apps for Taiwan Medical Tourism for Smartphones such that Smartphone users can quickly obtain information on Taiwan tourism and medical care.

8) Attended World Medical Tourism and Health Congress 2011 held in Chicago, USA, from October 25 thru 28, 2011. A service booth was set up for the image of Taiwan Medical Tourism to increase exposure of Taiwan medical care.

9) Reviewed ROC relevant regulations and made deregulation. On September 16, 2011, "Approved measures to set up or expand hospitals" stipulating requirement of DOH designation for international medical care hospitals to be set up in specified areas was amended and published.

10 Science and Technology Research in Health

Science and Technology Research in Health

The goal of DOH's investment in science and technology research is to improve human well-being. By investing in science and technology research we can obtain scientific evidences needed for health policy making, improve health and medical services quality and enhance the development of health related industries that in the long run will improve human well-being. In 2011, the science and technology research budget in health was NT$4.327 billion, accounting for 6.3% of the DOH's budget, of which 40% was in health policy research and 60% was to establish research environment to enable industrial developments and bio-tech related researches (as shown in Fig. 10-1).

Chapter 1, Health Policy Research

The DOH's health policy research achievements with regards to health promoting, food and drug management, disease monitoring and prevention and their applications in health policy making are outlined briefly below:

1. Health promotion

1) Health promotion for children and adolescents

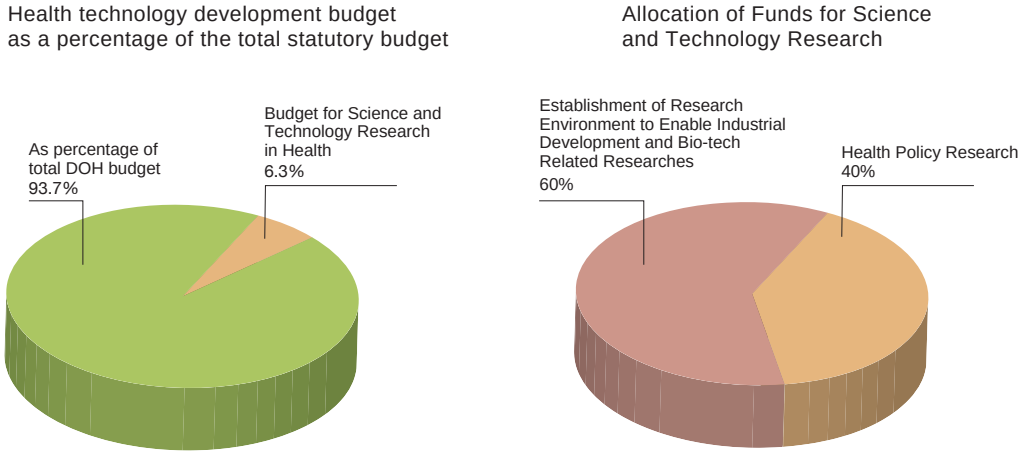
a) Using the results of a study of development dysplasia of hip (DDH) as a reference, the Department of Health's Bureau of Health Promotion has revised its notes for medical services for preventive health care to include screening for DDH during a child's first three health care examinations. This will enhance health promotion for children in Taiwan.

b) Six surveys, including Behavioral Risk Factor Surveillance System, Adult Smoking Behavior Survey, Gender Preferences for Children and Gender Selection Experience Survey, Taiwan Youth Health Survey of Senior High School Students, Child and Adolescent Behaviors in Long-term Evolution Study and Taiwan Birth Cohort Study, were completed and the results are being used as reference in the formulation of life course health policies.

2) Health promotion for the elderly

a) Research has demonstrated a J-shaped curve association between

Figure 10-1 Budget for Science and Technology Research in Health



body mass index (BMI) and the mortality rate in the elderly, indicating that those with a relatively light weight have a higher mortality risk. A similar finding has been observed concerning waist circumference and the mortality rate. The results of these studies will serve as references for the formulation of health promotion policies and health education for the elderly.

b) In accordance with the age friendly policy the Integrated Clinical and Community Elderly Fall Prevention Network Model was developed. In 2011, the Falls Prevention for the Elderly Shared Care Group was formed, combining community care spots in carrying out falls prevention intervention and, with respect to hospital patients or high risk groups, providing falls prevention joint care and building a channel in the community for shared care and referral. Research results will be used as reference in planning falls prevention modes for the elderly.

3) Cancer prevention

a) Initial analysis indicates that obese people are at a higher risk of developing colon cancer, breast cancer (menopausal women), and cervical cancer. Analyses of primary treatments for colon and breast cancer are being carried out; the results will be used as a reference in the formulation of health education concerning cancer prevention.

b) The impact of implemented for "Accreditation Program for the Quality of Cancer Treatment" Project was implemented and performance evaluation indicators of Accreditation on Program of Cancer Care Quality completed (including 5 structural indicators, 10 process indicators and 8 result indicators, 23 in all), finding that the survival situation for sufferers of the six main cancers was better at accredited hospitals than at non-accredited ones.

4) The four projects of the integrated Study of Chronic Kidney Disease Prevention targeting chronic kidney disease were completed, with results including the integration of the chronic kidney disease databanks in Taiwan, establishing of a chronic kidney disease cohort study, finding of three chronic kidney disease biological indicators, developing a eGFR (estimated Glomerular filtration rate calculation formula) for Taiwanese, putting forward empirical research data for dialysis choice clinical practice guidelines, establishing an integrated care model, putting forward chronic kidney disease pay for performance, and short medium and long-term suggestions for Taiwan's overall organ transplant policy; related research results have been taken as the basis for related policies such as early chronic kidney disease health insurance payments, and formulation of the Chronic kidney disease Patient Care Quality Improvement Project 2012-2016 prevention policy.

2. Drug and food

1) The DOH has set up a group to conduct follow-up studies for the medium and long term on victims and those who have visited special health clinics because of the plasticizer contamination incident that came to light in May, 2011.

2) The Chinese Pharmacopeia Edition VII (Ch. P. VII) was completed, containing 2,120 items, with 414 new items and 224 revised items. The contents include drug specifications, identification tests and assay methods. The revised Ch. P. keeps Taiwan in line with international standards at drug quality, drug manufacturing level, drug testing, and identification methods.

3) The Chinese and Western drug interaction information network and the Information network for medicinal materials that are sold in Taiwan and are often mixed with other drugs or mistakenly used were established.

3. Nursing and healthcare

With respect to rapidly ageing society in Taiwan, shortage of carers and medical resources in mountain areas and on outlying island, new information and communications technology was introduced and new services provided.

1) Tele-care service integration and development project: Three tele-care standard operation procedures for chronic diseases were completed. Cross-industry cooperation was carried out to develop innovative service and operating models. New functions were added to the entry portal, linking 89 long-distance health care organizations, providing the public with tele-care service resource enquiry.

2) Epidemiological Study of Dementia and Research for Dementia Care: This study was carried out in two stages. After the first stage questionnaire survey, people who screening showed to show mild cognitive function disability and dementia were referred to hospital for further diagnosis. In 2011, consultation for 30% of these patients (2,938 cases) was completed; it is estimated that consultations for all will be completed by the end of December 2013; results will serve as reference for formulation of dementia patient care in the future, allowing suitable care resources to be planned and raising the level of dementia patient care in Taiwan.

3) Long-term care requirements evaluation and resource allocation evaluation: With planning centered on “system integration” and “overall framework,”18 new functions were added to the existing system and will be used as reference in follow-up long-term care system planning.

4) Mountain township medical care effectiveness evaluation and health gap monitoring indicator establishment: Using the contribution of health risk factors to aborigine life expectancy and health indicators to form the order of priority for aborigine health policies. Using information system (such as HIS and PACS) data to establish mountain area and outlying island public health situation trends and indicators, and exploring the connection between IDS in these areas and health indicators. Establishing mountain township medical care effectiveness indicators, integrating indicators standards and verifying health risk factor connectedness for people in mountain areas and on outlying islands.

5) Mountain area and outlying island medical resources benefit evaluation survey and use: Medical personnel human resource

evaluation has been carried out and dynamic databank established, resident medical requirement and use situation explored and emergency medical personnel allocation planned to produce evaluation results that suit each area' the first stage of a mountain area and outlying island (825 copies) residents' health survey has been carried out.

4. Disease monitoring and prevention

1) The Taiwan Surveillance of Antimicrobial Resistance (TSAR) continues to provide biennial national surveillance on important pathogenic bacteria in Taiwan, monitoring current resistance rates and development of multidrug-resistant organisms, and advising policymakers on microbial control.

2) With respect to dengue fever prevention, through research into factors affecting the population of Ae. aegypti and Ae. albopictus and counter measures, a dengue fever prevention timetable tailored for Taiwan has been formulated in accordance with these factors and monthly mosquito density, which has been included in the dengue fever prevention project.

3) An Enterovirus 71 antibody IgM test reagent has been developed. It is easy to use and only takes 30 minutes in contrast to the 1-2 weeks testing process required before, allowing doctors to diagnose and treat patients quickly. The technology has been transferred to a domestic drug company and, after being mass produced and coming on the market, will help prevent enterovirus epidemics in Taiwan.

4) TB Integrated Project

a) The biggest problem in terms of TB prevention work in Taiwan is getting patients to take medicine properly. A large amount of literature and medical groups actively call for the use of fixed dose tablets, aiming to improve patient drug compliance by simplifying the tablet combination, also ensuring the correctness of the prescription content. New drug registration has been applied for the four-drug fixed-dose combinations (FDCs) developed by the DOH CDC and the aim is to get it on the market as soon as possible to increase the drug compliance of patients and thus improve the effectiveness of treatment and control. A patent has been applied for FDCs in Taiwan, the US and China.

b) By screening high risk groups for latent TB infection and evaluating treatment, large scale local data has been established, which will help prevent the onset of TB in high risk groups and can be used as a reference for the course of treatment.

Chapter 2, Establishment of research environment to enable industrial development and bio-tech related researches

The DOH's efforts to build up research environment to enable industrial development and bio-tech related research achievements with regards to new drug and vac cine R&D and technology transfer are outlined below:

1. Building a good medical health industry development environment

1) The DOH has established 1 National Center of Excellence for Clinical Trial and Research and 4 Specialty Centers of Excellence for Clinical Trial and Research. The DOH has

also initiated the Translational Medicine and Clinical Research Program to encourage new pharmaceutical drug and human vaccine research and development other than participation for the National Program on Nano Technology and National Research Program on Biopharmaceuticals. The DOH aims to promote and strengthen the national biomedical industry by working closely among the research institutes, government and pharmaceutical companies.

2) The Act on Human Subject Research has been enforced and implemented since 28 December 2011.The Act is to protect human who participate in medical or biomedical research and ensure that any research involving human subject is conducted ethically and legally.

2. Biotechnology-related research on drug discovery, vaccine development, and technology transfer

1) Anti-diabetes drug DBPR108: Collaboration with Genovate Biotechnology Co. has led to an industrial alliance with six other domestic pharmaceutical companies, establishing a new drug discovery and development model in Taiwan. DBPR108 has been approved by the U.S. Food and Drug Administration and the Taiwan Food and Drug Administration for phase I clinical trials, with this testing expected to begin in Taiwan in the first half of 2012.

2) Anti-cancer drug DBPR104: The food and drug administrations of both Taiwan and the United States have approved IND applications for phase I clinical trials of this drug candidate. One such trial is already underway at Cheng Kong University Hospital. Technology relating to this drug has been transferred to SynCore Biotechnology Co.. This serves as a good example of a domestically developed small molecule compound becoming a drug candidate.

3) Enterovirus 71 Vaccine R&D: Eight months of phase I clinical trails at Taipei Veterans Hospital and National Taiwan University Hospital have been completed. No adverse effects on safety were observed. Phase II clinical trials are scheduled. A related technology transfer to Adimmune Corp. was initiated in September, 2011.

4) H5N1 influenza vaccine R&D: Mass production of the vaccine has been achieved, a major step in the efforts to store 100,000 doses annually and strengthen the national infrastructure for vaccine research and development. The Quality Control Department received GLP certification from the Department of Health on July 31, 2011.

11 Health and Medical Care Information

Health and Medical Care Information

The DOH promotes the National Health Informatics Project (NHIP) and the Expediting Smart Healthcare Project so as to realize the goal of facilitating holistic healthcare, to provide a supportive environment for healthcare information, to develop innovative healthcare-information service models, and to raise the efficiency of how medical resources are used.

Chapter 1, Digitization of Healthcare Administration

Section 1, Health Information Services

1. Medical affairs management systems provide the DOH and local public-health agencies with a framework for managing medical, pharmaceutical, nursing and psychiatric rehabilitation institutions; medical personnel; administrative disciplinary actions; specified medical instruments; and the continuing education credits of medical personnel.
2. An on-line platform for reporting the number of available beds in intensive-care units and an automatic notification function for reporting deaths have been put in place. By the end of 2011, 198 hospitals that provide emergency medical services have participated in the ICU bed-reporting system, and 176 hospitals have participated in the death notification system.
3. The DOH has continued to urge healthcare personnel to report, give referrals, and manage cases that involve attempted suicides and mental and physical disabilities, so as to reach out to those who need follow-up care. In 2011, the suicide-prevention reporting system reported 26,885 cases, and the mental and physical disability assessment system reported 65,666 cases.
4. The DOH oversees the operation of 343 websites belonging to local public health agencies. These websites offer health information and related services to the public.
5. An online application system has been set up for the public. It offers services such as form downloads, application tracking, notifications about pickups, and authentication for those applying for certification. Furthermore, the system also links to the e-payment platform of the Research, Development and Evaluation Commission of the Executive Yuan and the payment systems of all major banks and convenience-store chains.

Section 2, The Application-Integration Platform for the Public Health Information System

The DOH has established a service-oriented public-health information system platform and portal. As of 2011, the DOH had set up a single signon mechanism for 101 web systems of the DOH and its subordinate agencies; constructed a centralized platform that integrated the services from 167 common applications; and assisted local public-health agencies in establishing a security certificate system to bolster information safety.

Section 3, The Health Information Network

The Health Information Network (HIN) is the ROC's hub for exchanging and sharing medical and health information (see Figure 11-1). The responsibilities of the network's service center include: operating various shared-information systems; providing consultation services to network members and helping them boost their efficiency and quality.

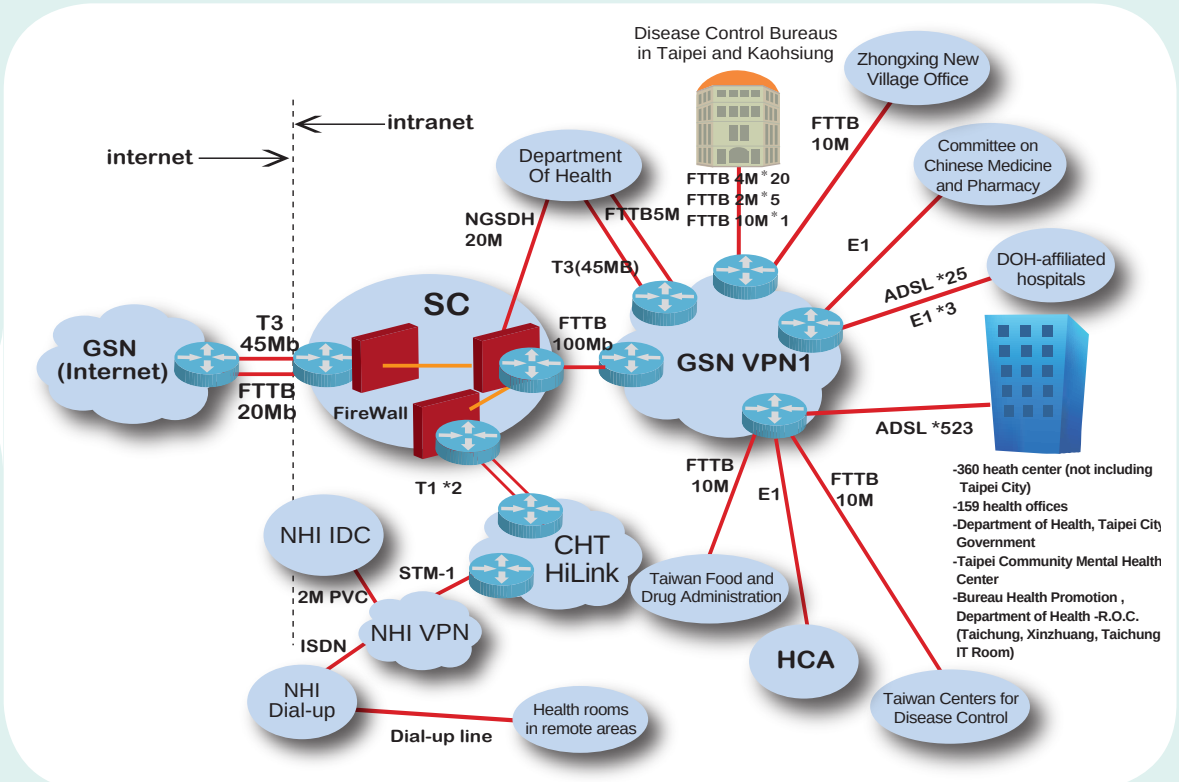
Section 4, Information Security

To ensure the information and communication security of the DOH and the Health Information Network, a mechanism for providing total protection and surveillance was established. Its components included firewalls, intrusion-prevention systems, anti-virus systems, webpage filtering, spam filtering, vulnerability assessments, and source code analyses and repairs. Furthermore, to comply with the ISO 27001:2005 (an information-security management system standard), the DOH integrated the information-security management systems of its own information center, the service center of the Health Information Network, and the Healthcare Certification Authority. Its compliance was audited and certified. The DOH also offered various information-security training sessions to raise the awareness and capabilities of medical and health personnel in terms of information security.

Section 5, "Formosan e Medical School"—a medical e-learning platform

1. To raise the public's understanding of preventive care, to teach patients with chronic diseases and their families how to care for themselves, and to provide medical professionals with professional development opportunities, the DOH has designed digital multimedia courses about the 13 chronic diseases that are most often among the 10 leading causes of death in Taiwan in any given year.
2. In 2010 and 2011, the DOH introduced a series of digital courses to train the staff of local public health agencies. As of December in 2011,there are 219 courses (373 hours) altogether, aimed at four categories of students: the general public, medical professionals, continuing-education students, and local public health agency personnel.

Figure 11-1 HIN Network Structure



Section 6, Taiwan e Doctor—Medical Consultation Services

To bolster its services to the public, the DOH established the Taiwan e Doctor website to provide free professional consultation services online about medical conditions, rare diseases, pharmaceutical products, nutrition and preventive care etc. By the end of 2011, there were a total of 48,489 entries in its Q&A column. Urology, obstetrics gynecology, and dermatology are the medical specialties most frequently asked about.

Chapter 2, Medical Care Services and Applications

Section 1, Promoting Electronic Medical Records (EMR)

To help hospitals and clinics legally and safely digitize their medical records and to increase their willingness to do so, the DOH has drawn up strategies related to four major categories: regulations, standards, safety and promotion. As of 2011, the following steps had been taken:

1. The DOH formulated standards for EMR interoperability, finished digitizing 117 different medical record forms, and established a mechanism to ensure compliance to EMR standards, so as to ensure the completeness and accuracy of these records.
2. The DOH formulated and published EMR interoperability standards and regulations covering four areas, including medical imaging and reports, blood tests, discharge summaries, and medication records for outpatient use.
3. The DOH coached hospitals on how to digitize their medical records in accordance with the Regulations Governing the Development and Management of Electronic Medical Records. So far 274 hospitals have adopted the system.
4. The DOH has been checking the regulatory compliance of various medical institutions' EMR systems. So far 208 hospitals have passed.
5. As part of the task of boosting EMR security, 93 hospitals have received ISO 27001:2005 certification for meeting international information security standards.
6. In 2011, the DOH has continued to implement the “EMR and Interoperability Assistance Program”, expediting the development of EMR systems, with 56 hospitals certified compliant.

Section 2, Operation of the Healthcare Certification Authority

The Healthcare Certification Authority (HCA) formally began operations on June 13, 2003 to provide certification services and a mechanism for electronic signatures. So as to boost the safety of medical credential keys, beginning on January 1, 2011, the HCA began issuing 2048-bit, rather than 1024-bit, keys. As of 2011, it had issued 322,977 medical IC cards. These cards can be used in the following areas: EMR systems, health-information reporting platforms, public-health information portals, regional medical-information platforms, management of teaching hospitals’ tuition subsidies, psychiatric-care information management, first-aid care management, joint purchasing networks for pharmaceutical products, medical personnel online application systems, application and cancellation of multiple-certificate online insurance, online birth notifications, disease-prevention

information exchange centers, centralized communicable disease tracking systems, community medical information management, hospitals' electronic document exchanges, National Health Insurance IC card reading, etc.

Section 3, Establishment of an Image Exchange/Reading Center

In 2010, the DOH completed the Image Exchange/Reading Center (IEC/IRC), providing a platform for different hospitals to exchange medical images and interpretations of them, provided image reading and interpretation-support services for health agencies located in remote areas. And helped ameliorate the problem of insufficient medical specialists in remote communities.

Until the end of 2011, the IEC/IRC had provided readings of 69,946 medical images (including 5,904 for health rooms in the mountains and outer islands, and 64,042 for DOH hospitals).

Section 4, RFID Establishment Program

From 2007 to 2010, the DOH ran a pilot scheme at the Taichung Hospital for a radio-frequency identity device (RFID) system. The technology helps to raise patient medication safety, streamline inpatient care procedures, speed up patient identification, track valuable medical instruments, and so forth.

A total of 11 RFID systems have already been developed and implemented in the following areas: inpatient care and kidney dialysis procedures, inpatient tracking, special-patient monitoring, patient safety, automatic inventory control of drugs, digital health education for patients, illustrated medication identification, injection-fluid management, high value instrument management, operating room flow and ergonomics management, and operating-room patient-identification.

Section 5, Promoting Computerization and Digitization of Local Health Agencies in Remote Areas

Due to the special environmental characteristics of remote areas Consequently, they require the implementation of hospital information systems (HIS) and picture archiving and communication systems (PACS) to provide linkage to other larger supporting hospitals and IDS hospitals.

1. From 2006 to 2011, it established the system at 308 locations of 48 different local health rooms in 15 different counties. What's more, over the course of several years, the DOH has also established PACS (including remote access) in 32 local public health agencies, which provided links to DOH hospitals. The support of the specialists at those major hospitals has allowed those remote locales to increase the accuracy of diagnoses, and it has reduced the number of patients that need to be transferred to other hospitals later, increasing the ability of local public-health agencies to provide real-time diagnoses, preventing the needless duplication of medical services, and raising the quality of medical services offered.
2. Achievements:
   1) In June, 2011,HIS local public-health agencies received 409,242 visits and patients have saved more than NT$0.7 billion in transportation costs alone.
   2) In June, 2011, PACS processed around 3,269 documents, saving the public NT$6.21 million in transportation costs to and from hospital.

Chapter 3, Value-added services for Medical Data

In order to achieve the core values of "Safeguarding individual health privacy, promoting the sharing of medical information, and reducing information duplication", in December

2008 the DOH instigated a special program to plan and build the Collaboration Center of Health Information Application. The goal of establishing this center is to add value to patient medical data by collating it into useful collective information, which can then be used as reference material to advance the quality of public health policies, aid related academic research, and upgrade healthcare services, thereby advancing the people's welfare. The Collaboration Center was officially opened for use on January 1, 2011.

Section 1, Application Procedure and Use of Files

1. Non-blurred cause of death files, hospital treatment service volume files, and medical institution overview files without ID codes are available.
2. For individual case files that cannot be publicly released, users can only access these files at an independent operation zone of the Collaboration Center. The following notes and rules of use apply:
   1) The Center's case database has not been uploaded to the network. Information online is only of an indicative or statistical nature.
   2) Statistical results may only be taken out of the Center following stringent checks and controls in an independent operation zone of the Center.
   3) Only databases necessary for research purposes are to be made available, and only for use in an independent operation zone.
   4) Apart from the materials provided by the Center, the carrying in of outside materials is prohibited.

Section 2, Health Indicator Query System

1. Based on the health indicator framework of the Canadian Institute for Health Information, the DOC formulated 12 indicator categories, adapted for Taiwan. These are: 1. Demographic indicators 2. National health status indicators 3. Medical resources 4. Medical utilization 5. Non-medical health determinants 6. Economic indicators 7. Long-term care resources and utilization 8. Social security 9. Healthcare expenditure 10. Medical funding, 'SHA' and 'Other', depending on the institution involved 11. Pharmaceutical market 12. Overall quality indicators.
2. Indicator Query Systems
   1) Simplified Query Indicator System
      The definitions of the indicators are presented in a tree structure according to their corresponding category, and previous years' indicator information is available for download. Indicator data is already online, and queries can now access information for 262 different indicators, including population statistics, gender ratios, adult literacy rates and labor force etc.
   2) Healthcare Annual Report Query System
      This is based on the data 'cubes' created during the annual reports of the Collaboration Center of Health Information Application, and also incorporates the health system annual reports (including cause of death data annual reports and medical institution status and service volume reports) in selecting indicators that are suitable for release to the general public. Currently, 49 different reports have been created for past years.

Section 3, Health Data Geographical Information System Queries

Chinese and English versions of a health data geographical information platform have already been completed. The platform presents data in four indicator categories (cause of death statistics, medical institution status and service volumes, national health insurance statistics, and population statistics) together with spatial and geographical information.

Appendix

Appendix 1.

Health Indicators

Table 1. Population Statistics

Year	Total Population	Population Composition			Dependent population index	Sex Ratio (male per 100 female)	Crude Birth Rate (CBR)	Crude Death Rate (CDR)	Natural Increase Rate (NIR)	Life Expectancy at birth			Population Density (Persons / km2)
		Aged under 15	Aged 15-64	Aged over 65						Total	Male	Female	
	(1,000 persons)	%	%	%	%		‰	‰	‰	years	years	years	
1995	21,357	23.77	68.60	7.64	45.78	106	15.50	5.60	9.90	74.53	71.85	77.74	590
1996	21,525	23.15	68.99	7.86	44.94	106	15.18	5.71	9.47	74.95	72.38	78.05	595
1997	21,743	22.60	69.34	8.06	44.22	106	15.07	5.59	9.48	75.54	72.97	78.61	601
1998	21,929	21.96	69.79	8.26	43.30	105	12.43	5.64	6.79	75.76	73.12	78.93	606
1999	22,092	21.43	70.13	8.44	42.60	105	12.89	5.73	7.16	75.90	73.33	78.98	610
2000	22,277	21.11	70.26	8.62	42.32	105	13.76	5.68	8.08	76.46	73.83	79.56	616
2001	22,406	20.81	70.39	8.81	42.07	104	11.65	5.71	5.94	76.75	74.07	79.92	619
2002	22,521	20.42	70.56	9.02	41.72	104	11.02	5.73	5.29	77.19	74.58	80.24	622
2003	22,605	19.83	70.94	9.24	40.97	104	10.06	5.80	4.27	77.35	74.77	80.33	625
2004	22,689	19.34	71.19	9.48	40.48	104	9.56	5.97	3.59	77.48	74.68	80.75	627
2005	22,770	18.70	71.56	9.74	39.74	103	9.06	6.13	2.92	77.42	74.50	80.80	629
2006	22,877	18.12	71.88	10.00	39.12	103	8.96	5.95	3.01	77.90	74.86	81.41	632
2007	22,958	17.56	72.24	10.21	38.43	102	8.92	6.16	2.76	78.38	75.46	81.72	634
2008	23,037	16.95	72.62	10.43	37.70	102	8.64	6.25	2.40	78.57	75.59	81.94	637
2009	23,120	16.34	73.03	10.63	36.93	101	8.29	6.22	2.07	79.01	76.03	82.34	639
2010	23,162	15.65	73.61	10.74	35.85	101	7.21	6.30	0.91	79.18	76.13	82.55	640
2011	23,225	15.08	74.04	10.89	35.07	101	8.48	6.59	1.88	79.15	75.96	82.63	642

Note: Economic growth rate measured in real GDP (Gross Domestic Product)
Source: Department of Statistics, Ministry of the Interior, ROC

Table 2. Health and Medical Expenditures

Year	Annual Economic Growth Rate	Per Capita GDP	Private Final Consumption on Health Care Expenditure			Net Government Expenditures (Fiscal Year)	Health Expenditures as % of Net Government Expenditures	National Health Expenditure Of DOH and Affiliated Organizations as % of Total Central Government Expenditures (Fiscal Year)	National Health Expenditure as % of GDP	Consumer Price Indices	Medical Care Price Indices
	%	USD $	NTD $ million	%	%	NTD $ million	%	%	%	2006 = 100	
1995	6.4	12,918	297,442	4.09	7.15	1,910,066	1.53	0.85	5.25	89.58	76.32
1996	5.5	13,428	337,254	4.27	7.36	1,843,786	1.57	0.78	5.36	92.33	77.60
1997	5.5	13,810	373,197	4.35	7.51	1,878,764	1.51	0.79	5.35	93.17	79.44
1998	3.5	12,598	409,417	4.45	7.65	1,992,593	1.37	0.66	5.43	94.73	80.18
1999	6.0	13,585	445,716	4.62	7.87	2,050,004	1.31	1.15	5.60	94.90	82.96
2000	5.8	14,704	468,162	4.60	7.82	3,140,936	1.28	0.85	5.53	96.09	86.08
2001	-1.7	13,147	490,076	4.94	8.13	2,271,755	1.17	1.07	5.88	96.08	87.23
2002	5.3	13,404	525,273	5.05	8.42	2,144,994	1.29	1.10	5.96	95.89	88.36
2003	3.7	13,773	552,375	5.16	8.63	2,216,514	1.54	1.14	6.15	95.62	91.29
2004	6.2	15,012	594,186	5.23	8.73	2,245,047	1.48	1.15	6.21	97.17	93.09
2005	4.7	16,051	626,961	5.34	8.84	2,291,999	1.22	1.11	6.24	99.41	96.80
2006	5.4	16,491	645,441	5.27	8.90	2,214,226	1.39	1.44	6.26	100.00	100.00
2007	6.0	17,154	679,179	5.26	9.05	2,290,169	1.42	1.61	6.16	101.80	103.91
2008	0.7	17,399	708,184	5.61	9.31	2,343,585	1.47	1.30	6.49	105.39	106.17
2009	-1.8	16,359	740,924	5.94	9.78	2,670,898	1.34	1.59	6.93	104.47	106.81
2010	10.7	18,588	762,932	5.60	9.65	2,566,804	1.48	1.59	6.55	105.48	107.50
2011	4.0	20,122	788,673	5.74	9.62	2,734,760	-	-	-	106.98	109.45

Source: Directorate- General of Budget, Accounting and Stastics, Executive Yuan.

Table 3. Important indicators of medical manpower and facilities

Year	Medical Care Institutions											
	No.	Hospitals							Clinics			
		No.	Western Medicine			Chinese Medicine			No.	Western Medicine	Chinese Medicine	Dentistry
			No.	Public No.	Private No.	No.	Public No.	Private No.		No.	No.	No.
1995	16,109	787	688	94	594	99	1	98	15,322	8,683	1,933	4,706
1996	16,645	773	684	94	590	89	1	88	15,872	9,009	1,987	4,876
1997	17,398	750	667	95	572	83	2	81	16,648	9,347	2,165	5,136
1998	17,731	719	647	95	552	72	2	70	17,012	9,473	2,259	5,280
1999	17,770	700	634	96	538	66	2	64	17,070	9,378	2,317	5,375
2000	18,082	669	617	94	523	52	2	50	17,413	9,402	2,461	5,550
2001	18,265	637	593	92	501	44	2	42	17,628	9,425	2,544	5,659
2002	18,228	610	574	91	483	36	2	34	17,618	9,287	2,601	5,730
2003	18,777	594	558	91	467	36	2	34	18,183	9,565	2,729	5,889
2004	19,240	590	556	88	468	34	2	32	18,650	9,819	2,852	5,979
2005	19,433	556	531	79	452	25	1	24	18,877	9,948	2,900	6,029
2006	19,682	547	523	79	444	24	1	23	19,135	10,066	3,006	6,065
2007	19,900	530	507	79	428	23	1	22	19,370	10,197	3,069	6,104
2008	20,174	515	493	79	414	22	1	21	19,659	10,326	3,160	6,173
2009	20,306	514	496	79	417	18	1	17	19,792	10,361	3,217	6,214
2010	20,691	508	492	81	411	16	1	15	20,183	10,599	3,289	6,295
2011	21,135	507	491	81	410	16	1	15	20,628	10,815	3,411	6,402

Source: Office of Statistics, Department of Health

Table 3. Important indicators of medical manpower and facilities

Year	No. of Beds					Per 10,000 population							
		No. of Beds in Hospitals			No. of Observation Beds in Clinics		No. of Beds in Hospitals						Clinics
			Public	Private			Acute general beds	Acute psychiatric beds	Chronic general beds	Chronic psychiatric beds	Special beds	Hemodialysis bed	
	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds	Beds
1995	112,379	101,430	39,922	61,508	10,949	52.78	30.12	1.22	2.38	5.01	7.16	1.76	5.13
1996	114,923	104,111	40,125	63,986	10,812	53.39	30.61	1.59	2.18	4.49	7.60	1.90	5.02
1997	121,483	108,536	41,421	67,115	12,947	55.87	30.46	1.73	2.38	4.71	8.58	2.06	5.95
1998	124,564	111,941	42,838	69,103	12,623	56.80	30.98	1.80	2.29	5.11	8.76	2.10	5.76
1999	122,937	110,660	39,440	71,220	12,277	55.65	30.84	2.10	2.28	3.93	8.63	2.32	5.56
2000	126,476	114,179	40,129	74,050	12,297	56.77	31.03	2.25	2.40	4.38	8.61	2.59	5.52
2001	127,676	114,640	39,670	74,970	13,036	56.99	30.27	2.27	2.17	4.44	9.24	2.77	5.82
2002	133,398	119,847	41,904	77,943	13,551	59.24	30.89	2.37	2.17	4.70	10.13	2.93	6.02
2003	136,331	121,698	42,777	78,921	14,633	60.31	30.77	2.46	2.19	4.89	10.74	3.08	6.47
2004	143,343	127,667	43,865	83,802	15,676	63.18	31.87	2.59	1.91	5.13	11.55	3.19	6.91
2005	146,382	129,548	44,273	85,275	16,834	64.29	31.80	2.64	1.95	5.51	11.75	3.26	7.39
2006	148,962	131,152	44,076	87,076	17,810	65.12	31.88	2.65	1.83	5.71	11.87	3.39	7.79
2007	150,628	131,776	44,873	86,903	18,852	65.61	31.94	2.77	1.75	5.78	11.52	3.48	8.21
2008	152,901	133,020	45,450	87,570	19,881	66.37	31.87	2.86	1.71	5.93	11.69	3.53	8.63
2009	156,740	134,716	45,913	88,803	22,024	67.79	32.06	2.92	1.68	5.95	15.50	3.57	9.53
2010	158,922	135,401	45,981	89,420	23,521	68.61	32.01	2.99	1.63	6.03	15.64	3.65	10.15
2011	160,472	135,431	45,603	89,828	25,041	69.09	31.90	3.05	1.74	5.92	15.55	3.72	10.78

Source: Office of Statistics, Department of Health

Table 3. Important indicators of medical manpower and facilities (Continued)

Year	No. of Registered Medical Personnel												
		Physi-cians (Western Medicine)	Physi-cians (Chinese Medicine)	Population Served Per Physician (Including Chinese Medicine Physicians)	Dentist	Popu-lation Served per Dentist	Pharma-ceutical Personnel	Population Served per Pharma -ceutical Personnel	Nursing Personnel	Popula -tion Served nursing Personnel	Medical Techno-logists (Including Assisitant)	Medical radiology (Including Techni-cians)	Dietitians
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1995	118,242	24,465	3,030	777	7,026	3,040	19,224	1,111	57,585	371	4,722	1,793	298
1996	123,829	24,790	2,992	775	7,254	2,967	19,667	1,094	62,268	346	5,034	1,453	293
1997	137,829	25,730	3,299	749	7,573	2,871	21,246	1,023	70,447	309	5,389	2,266	515
1998	144,070	27,168	3,461	716	7,900	2,776	22,761	963	71,919	305	5,583	2,485	575
1999	152,385	28,216	3,546	696	8,240	2,681	23,937	923	76,252	290	6,015	2,500	656
2000	159,212	29,585	3,733	669	8,597	2,591	24,404	913	79,734	279	6,230	2,761	743
2001	165,855	30,562	3,979	649	8,944	2,505	24,891	900	83,281	269	6,542	3,152	778
2002	175,444	31,532	4,101	632	9,206	2,446	25,355	888	90,058	250	6,725	3,410	845
2003	183,103	32,390	4,266	617	9,551	2,367	25,033	903	95,747	236	7,055	3,557	895
2004	192,611	33,360	4,588	598	9,868	2,299	26,079	870	101,924	223	7,122	3,704	978
2005	199,734	34,093	4,610	588	10,141	2,245	26,750	850	105,183	216	7,323	3,880	1,056
2006	206,959	34,899	4,743	577	10,412	2,197	27,412	835	109,521	209	7,457	4,052	1,137
2007	214,748	35,849	4,862	567	10,740	2,138	28,040	819	114,179	201	7,642	4,211	1,239
2008	223,623	37,142	5,112	545	11,093	2,077	28,741	802	119,093	193	7,869	4,443	1,379
2009	233,553	37,880	5,290	536	11,351	2,037	29,587	781	125,081	184	8,203	4,651	1,563
2010	241,156	38,887	5,354	524	11,656	1,987	30,001	772	129,163	179	8,377	4,913	1,687
2011	250,258	40,002	5,570	510	11,992	1,937	31,300	742	133,470	174	8,579	5,113	1,824

Source: Office of Statistics, Department of Health

Table 4. Pharmaceutical Affairs

Year	No. of Pharmaceu-tial Units	Pharmacies			Medicine Dealers			Pharmaceutical Manufactures		
			Owned and Operated by Pharmacists	Owned and Operated by Assistant Pharmacists	Western Medicine	Chinese Medicine	Medical Devices	Western Medicine	Chinese Medicine	Medical Devices
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1995	34,846	4,862	2,386	2,476	9,074	9,631	10,609	253	249	168
1996	37,176	6,438	3,243	3,195	7,563	9,585	12,948	242	238	162
1997	38,583	6,707	3,443	3,264	7,020	9,123	15,098	243	218	174
1998	39,027	6,434	3,436	2,998	6,466	9,217	16,262	243	217	188
1999	40,322	6,349	3,422	2,927	6,457	9,229	17,627	244	208	208
2000	43,641	6,397	3,491	2,906	6,359	11,161	19,016	243	207	258
2001	47,130	6,440	3,600	2,840	6,524	12,864	20,560	257	202	283
2002	49,752	6,990	3,983	3,007	6,526	13,202	22,268	244	200	322
2003	51,447	7,155	4,193	2,962	6,751	12,799	23,950	243	171	378
2004	52,685	7,435	4,465	2,970	6,759	12,712	24,924	244	171	440
2005	55,802	7,673	4,691	2,982	6,875	12,682	27,641	241	150	540
2006	57,976	7,397	4,598	2,799	6,941	12,577	30,062	238	129	632
2007	59,061	7,381	4,663	2,718	6,848	12,505	31,280	244	121	682
2008	58,834	7,215	4,628	2,587	6,630	12,234	31,650	245	111	749
2009	58,524	7,450	4,902	2,548	5,370	11,481	32,963	280	134	846
2010	60,222	7,558	5,049	2,509	5,388	11,308	34,593	292	130	953
2011	63,274	7,699	5,246	2,453	5,352	11,286	37,452	293	126	1,066

Note: Number of pharmacies in 2011 includes 3,071 pharmacies that also dispense Chinese medicine
Source: Office of Statistics, Department of Health

Table 5. Food Sanitation

Year	Laboratory Testing for Food Sauitation	Disquali-fication ratio	Inspections for Food Sauitation Establish-ments	Disqualified								Incident of Food Poisoning	No. of Cases	No. of Deaths
				Under Supervision or to be Imoroved		Fined		Suspended		Transfered to Court				
	Piece	%	Store	Store	%	Store	%	Store	%	Store	%	Piece	Person	Person
1995	40,410	10.51	237,189	20,390	8.60	1,316	0.55	6	0.00	-	-	123	4,950	-
1996	38,475	10.11	210,942	22,229	10.54	2,903	1.38	95	0.05	-	-	178	4,043	-
1997	38,606	10.49	197,042	16,582	8.42	1,051	0.53	29	0.01	-	-	234	7,235	1
1998	38,141	8.72	179,485	16,821	9.37	1,035	0.58	34	0.02	-	-	180	3,951	-
1999	37,773	8.09	181,818	19,020	10.46	37	0.02	10	0.01	-	-	150	3,112	1
2000	67,020	4.42	181,865	20,363	11.20	152	0.08	8	0.00	-	-	208	3,759	3
2001	34,907	8.56	166,195	20,069	12.08	104	0.06	59	0.04	-	-	178	2,955	2
2002	33,971	8.57	158,583	15,978	10.08	69	0.04	9	0.01	-	-	262	5,566	1
2003	36,220	10.06	177,102	15,525	8.77	104	0.06	8	0.00	-	-	251	5,283	-
2004	37,158	6.89	150,698	13,426	8.91	118	0.08	10	0.01	-	-	274	3,992	2
2005	39,395	6.36	182,575	15,218	8.34	51	0.03	5	0.00	-	-	247	3,530	1
2006	39,539	...	165,208	24,376	14.75	108	0.07	19	0.01	6	0.00	265	4,401	-
2007	38,729	...	156,794	27,769	17.71	94	0.06	11	0.01	4	0.00	240	3,223	-
2008	43,545	6.04	143,779	34,177	23.77	65	0.05	81	0.06	6	0.00	269	2,921	-
2009	38,770	6.84	150,675	32,463	21.55	92	0.06	18	0.01	6	0.00	361	4,644	-
2010	38,044	6.55	136,456	28,967	21.23	131	0.10	5	0.00	3	0.00	503	6,880	1
2011	42,372	5.16	117,278	34,921	29.78	6	0.01	82	0.07	-	-	426	5,819	1

Source: Office of Statistics, Department of Health

Table 6. National Health Insurance

Year	No. of Persons Under Social Insurance		Outpatient visits per capita	No. of Inpatients per 100 Insured Persons	Average Costs Per Outpatient Visit (NTD$)	Average Costs Per Inpatient Care (NTD$)	Average Days of Hospital Stay
		As % of Total Population	National Health Insurance	National Health Insurance	National Health Insurance	National Health Insurance	National Health Insurance
	1,000 persons	%	No.	No.	No.	No.	No.
*1995	19,123	89.54	10.56	6.14	530	31,017	9.41
1996	20,041	93.11	13.61	11.72	549	31,935	9.03
1997	20,492	94.25	14.31	11.61	557	32,760	8.75
1998	20,757	94.66	15.00	11.83	588	34,851	8.78
1999	21,090	95.46	15.28	12.28	614	36,098	8.68
2000	21,401	96.07	14.72	12.57	631	36,478	8.73
2001	21,654	96.64	14.50	13.00	659	37,169	8.83
2002	21,869	97.11	14.52	13.47	707	39,160	9.05
2003	21,984	97.26	14.32	12.44	746	43,343	9.64
2004	22,134	97.55	15.50	13.60	776	46,914	9.70
2005	22,315	98.00	15.47	13.35	792	49,212	9.86
2006	22,484	98.29	14.68	12.95	840	50,216	9.92
2007	22,803	99.32	14.81	13.02	857	50,809	10.02
2008	22,918	99.48	14.88	13.30	899	51,475	10.24
2009	23,026	99.59	15.50	13.66	914	51,420	10.19
2010	23,074	99.62	15.63	13.90	932	51,267	10.25
2011	23,199	99.89	16.17	14.13	950	51,809	10.18

Note: Figures in 1995 only include from March to December rather than the whole year; " Number of times of inpatients per 1000 insured population" and "Average cost per inpatient figure" in 1995 only include from July to December.
Source: Bureau of National Health Insurance

Table 7. Cause of Death

Year	All Causes		Malignant Neoplasms			Heart Diseases			Cerebrovascular Diseases			Diabetes			Pneumonia		
	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population
1995	117,954	554.6	1	25,841	121.5	4	11,256	52.9	2	14,132	66.4	5	7,225	34.0	8	3,070	14.4
1996	120,605	562.5	1	27,961	130.4	4	11,273	52.6	2	13,944	65.0	5	7,525	35.1	8	3,200	14.9
1997	119,385	551.8	1	29,011	134.1	4	10,754	49.7	2	12,885	59.6	5	7,500	34.7	7	3,619	16.7
1998	121,946	558.5	1	29,260	134.0	3	11,030	50.5	2	12,705	58.2	5	7,532	34.5	7	4,447	20.4
1999	124,991	567.9	1	29,784	135.3	4	11,299	51.3	3	12,631	57.4	5	9,023	41.0	7	4,006	18.2
2000	124,481	561.1	1	31,554	142.2	3	10,552	47.6	2	13,332	60.1	5	9,450	42.6	8	3,302	14.9
2001	126,667	567.0	1	32,993	147.7	3	11,003	49.2	2	13,141	58.8	5	9,113	40.8	8	3,746	16.8
2002	126,936	565.1	1	34,342	152.9	3	11,441	50.9	2	12,009	53.5	4	8,818	39.3	7	4,530	20.2
2003	129,878	575.6	1	35,201	156.0	3	11,785	52.2	2	12,404	55.0	4	10,013	44.4	7	5,099	22.6
2004	133,677	590.3	1	36,357	160.5	2	12,861	56.8	3	12,339	54.5	4	9,191	40.6	6	5,536	24.4
2005	138,957	611.3	1	37,222	163.8	3	12,970	57.1	2	13,139	57.8	4	10,501	46.2	6	5,687	25.0
2006	135,071	591.8	1	37,998	166.5	3	12,283	53.8	2	12,596	55.2	4	9,690	42.5	6	5,396	23.6
2007	139,376	608.2	1	40,306	175.9	2	13,003	56.7	3	12,875	56.2	4	10,231	44.6	6	5,895	25.7
2008	142,283	618.7	1	38,913	169.2	2	15,726	68.4	3	10,663	46.4	5	8,036	34.9	4	8,661	37.7
2009	142,240	616.3	1	39,918	173.0	2	15,094	65.4	3	10,383	45.0	5	8,230	35.7	4	8,358	36.2
2010	144,709	625.3	1	41,046	177.4	2	15,675	67.7	3	10,134	43.8	5	8,211	35.5	4	8,909	38.5
2011	152,030	655.5	1	42,559	183.5	2	16,513	71.2	3	10,823	46.7	4	9,081	39.2	5	9,047	39.0

Note: 1. Coded by ICD-10 since 2008
2. The option of ranking of cause of death is only available for ICD-10 coded chronic lower respiratory diseases.
Source: Office of Statistics, Department of Health

Table 7. Causes of Death (Continued)

Year	Accidents			Chronic disease of lower respiratory Tract			Chronic liver diseases and cirrhosis			Hypertensive diseases			Nephritis, nephrotic syndrome, and nephrosis		
	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population	Rank	No. of Deaths	Mortality per 100,000 population
1995	3	12,983	61.0	…	4,017	18.9	6	4,456	21.0	9	2,616	12.3	7	3,519	16.5
1996	3	12,422	57.9	…	4,310	20.1	6	4,610	21.5	9	2,656	12.4	7	3,547	16.5
1997	3	11,297	52.2	…	4,457	20.6	6	4,767	22.0	9	2,611	12.1	8	3,504	16.2
1998	4	10,973	50.3	…	4,961	22.7	6	4,940	22.6	9	2,273	10.4	8	3,435	15.7
1999	2	12,960	58.9	…	5,046	22.9	6	5,180	23.5	10	1,856	8.4	8	3,474	15.8
2000	4	10,515	47.4	…	4,717	21.3	6	5,174	23.3	11	1,602	7.2	7	3,872	17.5
2001	4	9,513	42.6	…	5,159	23.1	6	5,239	23.5	10	1,766	7.9	7	4,056	18.2
2002	5	8,489	37.8	…	5,226	23.3	6	4,795	21.3	10	1,947	8.7	8	4,168	18.6
2003	5	8,191	36.3	…	5,192	23.0	6	5,185	23.0	10	1,844	8.2	8	4,306	19.1
2004	5	8,453	37.3	…	5,292	23.4	7	5,351	23.6	10	1,806	8.0	8	4,680	20.7
2005	5	8,365	36.8	…	5,484	24.1	7	5,621	24.7	10	1,891	8.3	8	4,822	21.2
2006	5	8,011	35.1	…	4,969	21.8	7	5,049	22.1	10	1,816	8.0	8	4,712	20.6
2007	5	7,130	31.1	…	4,914	21.4	7	5,160	22.5	10	1,977	8.6	8	5,099	22.2
2008	6	7,077	30.8	7	5,374	23.4	8	4,917	21.4	12	3,507	15.2	10	4,012	17.4
2009	6	7,358	31.9	7	4,955	21.5	8	4,918	21.3	11	3,721	16.1	10	3,999	17.3
2010	6	6,669	28.8	7	5,197	22.5	8	4,912	21.2	9	4,174	18.0	10	4,105	17.7
2011	6	6,726	29.0	7	5,984	25.8	8	5,153	22.2	9	4,631	20.0	10	4,368	18.8

Note: 1.Coded by ICD-10 since 2008
2.The option of ranking of cause of death is only available for ICD-10 coded chronic lower respiratory diseases.
Source: Office of Statistics, Department of Health

Table 8. International Comparison

Year	Life Expectancy at birth												Crude Birth Rate					
	Taiwan		Japan		US		Germany		UK		South Korea		Taiwan	Japan	US	Germany	UK	South Korea
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female						
	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	‰	‰	‰	‰	‰	‰
1995	71.9	77.7	76.4	82.9	72.5	78.9	73.3	79.7	74.0	79.2	69.6	77.4	15.5	9.6	14.8	9.4	12.6	16.0
1996	72.4	78.0	77.0	83.6	73.1	79.1	73.6	79.9	74.3	79.5	70.1	77.8	15.2	9.7	14.7	9.7	12.6	15.3
1997	73.0	78.6	77.2	83.8	73.6	79.4	74.0	80.3	74.6	79.6	70.6	78.1	15.1	9.5	14.5	9.9	12.5	14.8
1998	73.1	78.9	77.2	84.0	73.8	79.5	74.5	80.6	74.8	79.8	71.1	78.5	12.4	9.6	14.6	9.7	12.3	13.8
1999	73.3	79.0	77.1	84.0	73.9	79.4	74.7	80.7	75.0	79.8	71.7	79.2	12.9	9.4	14.5	9.4	11.9	13.2
2000	73.8	79.6	77.7	84.6	74.1	79.5	75.0	81.0	75.5	80.2	72.3	79.6	13.8	9.5	14.4	9.3	11.5	13.4
2001	74.1	79.9	78.9	84.9	74.4	79.8	75.6	81.3	75.7	80.4	72.8	80.0	11.7	9.3	14.1	8.9	11.3	11.6
2002	74.6	80.2	78.3	85.2	74.5	79.9	75.7	81.3	76.0	80.6	73.4	80.5	11.0	9.2	14.2	9.0	11.3	10.3
2003	74.8	80.3	78.4	85.3	74.4	80.1	75.8	81.3	76.2	80.5	73.9	80.8	10.1	8.9	14.1	8.6	11.7	10.2
2004	74.7	80.8	78.6	85.6	75.0	80.0	76.5	81.9	76.8	81.0	74.5	81.4	9.6	8.8	14.0	8.5	12.0	9.8
2005	74.5	80.8	78.6	85.5	74.9	80.7	76.7	82.0	77.1	81.2	75.1	81.9	9.1	8.4	13.9	8.4	12.0	9.0
2006	74.9	81.4	79.0	85.8	75.0	80.8	77.2	82.4	77.3	81.7	75.7	82.4	9.0	8.7	14.2	8.2	12.4	9.2
2007	75.5	81.7	79.2	86.0	76.0	81.0	77.4	82.7	77.0	82.0	76.1	82.7	8.9	8.7	14.3	8.3	12.8	10.0
2008	75.6	81.9	79.0	86.0	75.5	80.5	77.0	83.0	78.0	82.0	76.0	83.0	8.6	8.7	14.3	8.3	12.9	9.4
2009	75.9	82.5	80.0	86.0	75.7	80.6	78.0	83.0	78.0	82.0	77.0	83.0	8.3	8.5	13.5	8.1	13.0	9.0
2010	76.1	82.6	…	…	…	…	…	…	…	…	…	…	7.2	8.5	…	…	…	…
2011	76.0	82.7	…	…	…	…	…	…	…	…	…	…	8.5		…	…	…	…

Source: WHO and CECD websites.

Appendix 2.

Number of Notifiable Diseases

Table 1. Number of Confirmed Cases of Acute Infections Diseases in 2011

Categories	Diseases	Total	Local	Imported
I	Smallpox	0	0	0
	Plague	0	0	0
	SARS	0	0	0
	Rabies	0	0	0
	Anthrax	0	0	0
	H5N1 Influenza	0	0	0
II	Diphtheria	0	0	0
	Typhoid Fever	49	42	7
	Dengue Fever	1,702	1,545	157
	Dengue Hemorrhagic Fever / Dengue Shock Syndrome	22	20	2
	Meningcoccal Meningitis	5	5	0
	Paratyphoid Fever	6	1	5
	Poliomyelitis	0	0	0
	Acute Flaccid Paralysis	45	45	0
	Shigellosis	203	64	139
	Amoebiasis	256	121	135
	Malaria	17	0	17
	Measles	33	29	4
	Acute Hepatitis A	104	84	20
	Enterohaemorrhagic E.coli Infections	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0
	Cholera	3	2	1
	Rubella	60	27	33
	Chikungunya Fever	1	0	1
	West Nile Fever	0	0	0
	Epidemic Typhus Fever	0	0	0
III	Pertussis	77	77	0
	Tetanus※	10	-	-
	Japanese Encephalitis	22	22	0
	Congenital Rubella Syndrome	0	0	0
	Acute Hepatitis B	163	149	14
	Acute Hepatitis C	34	34	0
	Acute Hepatitis D	0	0	0
	Acute Hepatitis E	12	6	6
	Acute Hepatitis Unspecified	10	9	1
	Mumps※	1,171	-	-
	Legionellosis	97	91	6
	Invasive Haemophilus Influenzae Type b Infection	9	9	0
	Neonatal Tetanus	0	0	0
	Enterovirus Infection with Severe Complications	58	58	0

Categories	Diseases	Total	Local	Imported
	Herpesvirus B Infection	0	0	0
	Leptospirosis	55	55	0
	Melioidosis	45	44	1
	Botulism	6	6	0
	Invasive Pneumococcal Disease	839	838	1
	Q fever	35	33	2
	Endemic Typhus Fever	26	25	1
IV	Lyme Disease	0	0	0
	Tularemia	1	0	1
	Scrub Typhus	322	320	2
	Varicella※	9,868	-	-
	Cat-Scratch Disease	47	46	1
	Toxoplasmosis	5	5	0
	Severe Complicated Influenza Case	1,481	1,476	5
	NDM-1 Enterobaceriaceae	0	0	0
	Rift Valley Fever	0	0	0
	Marburg Hemorrhagic Fever	0	0	0
V	Yellow Fever	0	0	0
	Ebola Hemorrhagic Fever	0	0	0
	Lassa Fever	0	0	0

Remark:
1. Time of information retrieval: February 15, 2012. Since the Department concludes the statistics of all kinds of notifiable diseases on April 30 each year, statistical data of 2011 will be modified slightly after final organization.
2. Day of disease onset is used as the basis of analysis for all acute notifiable diseases.
3. ※Tetanus, mumps, and varicella were reported cases (no confirmed by examination of specimen). Epidemiological analysis was not conducted for these diseases and thus there was no way to determine whether they were local or imported cases.

Table 2. Number of Confirmed Cases of Chronic Notifiable Diseases in 2011

Categories	Diseases	No. of Confirmed Cases
II	MDR-TB	154
	Smear-positive Tuberculosis	4,559
	Other Tuberculosis	8,075
	Syphilis	6,372
III	Gonorrhea	1,978
	HIV infection	1,967
	AIDS	1,075
	Hansen's Disease	5
IV	Creutzfeldt–Jakob Disease	0

Remark:
1. Data download time:May 1, 2012
2. Apart from Multidrug- resistant tuberculosis, the analytical base point of which is the date of registration by the DOH Center for Disease Control, and TB (smear positive TB and other types of TB), the analytical base point of which is the day of reporting and establishing of a file, the analytical base point of all other chronic notfiable diseases will be the day of diagnosis.

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