



Annual Report 2001



MINISTRY OF HEALTH
SINGAPORE





chapter



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ABOUT

the Ministry

Health Status of Singaporeans

The state of health in Singapore is good by international standards. The infant mortality rate in 2000 stood at 2.5 per 1000 resident live births while the average life expectancy rate was 78.0 years. Rising standards of living, high standards of education, good housing, safe water supply and sanitation, a high level of medical services and the active promotion of preventive medicine, have all helped to significantly boost the health of Singaporeans. The leading causes of morbidity and mortality are currently the major non-communicable diseases such as cancer, coronary heart diseases, strokes, diabetes, hypertension and injuries.

Healthcare Delivery System

Singapore has a dual system of healthcare delivery, comprising the public and private system. Primary healthcare is provided at private medical practitioners' clinics and outpatient polyclinics. Secondary and tertiary specialist care are provided in the private and public hospitals.

80% of the primary healthcare services is provided by the private practitioners while the public polyclinics provide the remaining 20%. For the more costly hospital care, it is the reverse with 80% of the hospital care being provided by the public sector and the remaining 20% by the private sector.

In 1999, the public healthcare delivery system was re-organised into two vertically integrated delivery networks, National Healthcare Group (NHG) and Singapore Health Services (SingHealth). This is to enable more integrated and better quality healthcare services through greater co-operation and collaboration among public sector healthcare providers. This system will minimise duplication of services and ensure optimal development of clinical capabilities.

Patients are free to choose the providers within the dual healthcare delivery system and can walk in for a consultation at any private clinic or any government polyclinic. For emergency services, patients can go at any time to the 24-hour Accident & Emergency Departments located in the public hospitals. The Singapore Civil Defence Force runs an Emergency Ambulance Service to transport accident and trauma cases and medical emergencies to the acute general hospitals.

Healthcare Philosophy

The Singapore healthcare philosophy emphasises the building of a healthy population through preventive healthcare programmes and the promotion of healthy living. Singaporeans are encouraged to adopt a healthy lifestyle and be responsible for their own health. Through public education programmes, they are made aware of the adverse consequences of harmful habits like smoking, alcohol consumption, bad dietary intakes and sedentary lifestyles.

The Government ensures that good and affordable basic medical services are made available to all Singaporeans through the provision of heavily subsidised medical services at the public hospitals and polyclinics. All private hospitals, medical clinics, clinical laboratories and nursing homes are required to maintain a good standard of medical services through licensing by the Ministry.

The Singapore healthcare financing system is based on individual responsibility, coupled with government subsidies to keep basic healthcare affordable. Patients are expected to pay part of the cost of medical services which they use, and pay more when they demand a higher level of services. The principle of co-payment applies even to the most heavily subsidised wards to avoid the pitfalls of providing “free” medical services. For those who choose to be accommodated in the lower classes or types of wards in the public hospitals, their hospitalisation expenses are subsidised up to 80% by the government.

Individuals are encouraged to take responsibility for their own health by saving for medical expenses. Under the Medisave scheme, every working person is required by law to set aside 6-8% of his income into his personal Medisave account which can be used to pay for the hospitalisation expenses incurred by himself or his immediate family members. MediShield, a catastrophic illness insurance scheme, is designed to help individuals meet the medical expenses from major or prolonged illnesses. Medifund acts as a safety net of last resort for those who are indigent. Therefore, no Singaporean will be denied access to the healthcare system or turned away by the public hospitals because of the inability to pay.

MOH's Mission Statements

MOH's mission statements are:

To promote good health and reduce illnesses

Good health is to a great extent the responsibility of the individual. But the Ministry plays a major role in educating and providing information to the public on how they can maintain a healthy lifestyle. The Ministry also plays a key role in reducing illnesses in Singapore through the control and prevention of diseases and ensuring that resources are allocated appropriately to do this.

To ensure that Singaporeans have access to good and affordable healthcare that is appropriate to their needs

The Ministry is responsible for ensuring that healthcare in Singapore is characterised by good clinical outcomes and professional standards, and that services delivered are appropriate to each patient's needs. While we emphasise the principle of co-payment, we also ensure that healthcare remains affordable to Singaporeans.

To pursue medical excellence

Our healthcare system is well regarded and Singaporeans have benefited from it. Increasing numbers of foreign patients seek treatment in Singapore. We will build on this so that we become even better known for certain areas in healthcare. In the process, we must make sure that healthcare costs continue to remain affordable to Singaporeans.

The Ministry Strategic Thrusts

The Ministry has identified specific desired health outcomes in line with our mission statements and have formulated strategies to help us achieve them.

Table 1.1: Strategic Thrusts in Relation to MOH's Mission Statements and Desired Outcomes

The Ministry Mission	Desired Outcomes	Strategic Thrusts
To promote good health and reduce illnesses	Singaporeans who enjoy good health	<ul style="list-style-type: none"> Strategic plan for health promotion Disease management plans
	Low infant and maternal mortality	
	Low incidence of illness, disability and death from major communicable and non-communicable diseases	
Ensure access to good and affordable healthcare that is appropriate to needs	Good healthcare services for the elderly	<ul style="list-style-type: none"> Integrated framework for elderly care Review of Medisave, MediShield and Medifund (3Ms) Contracting private practitioners to provide subsidised primary healthcare to the elderly
	Cost effective and affordable healthcare	
Pursue medical excellence	High quality of healthcare professionals and institutions	<ul style="list-style-type: none"> Strengthening training of doctors Clinical quality assurance programmes

To improve good health and reduce illnesses, the Ministry is focussing on health promotion programmes and comprehensive disease management programmes. To ensure good and affordable healthcare, the Ministry is reviewing the '3Ms' health financing framework, setting up a framework of integrated healthcare services for the elderly and enlisting the help of private practitioners to provide responsive primary healthcare to elderly Singaporeans. To pursue medical excellence, the Ministry is strengthening the training regime for doctors and introducing clinical quality assurance programmes. Table 1.1 illustrates how the Ministry's mission statements translate into desired outcomes and strategic thrusts.

Review of 3Ms

In an ongoing effort to ensure that Singaporeans are able to afford their medical expenses, we are reviewing the '3Ms' framework which comprises Medisave, MediShield and Medifund. As part of measures to ensure long term adequacy of Medisave, we will be increasing Medisave contribution from 6-8% to 7-9% when the CPF cuts are restored. We are currently reviewing the Medisave withdrawal limits to ensure that they keep in line with increasing medical expenses. We also initiated reviews of the MediShield and Private Medical Insurance Scheme (PMIS) and we will be expecting results in 2001.

Strategic plan for health promotion

The health of Singaporeans is good. However, we need to reduce the prevalence of cancer, coronary heart disease and stroke which are major causes of ill-health and death among Singaporeans. Most of these major diseases are lifestyle-related and can be prevented. The risk factors are smoking, unhealthy diet, physical inactivity, obesity, hypertension, high blood cholesterol, diabetes and hypertension. Health promotion programmes to reduce these risk factors will result in a delay or even prevent the onset of coronary heart disease, stroke and some cancers. At the same time, the following areas of health among children also need to be addressed: obesity, myopia, infectious diseases and oral health.

Disease management plans

The Ministry is developing integrated disease management plans for the major causes of mortality and disability in Singapore. These include coronary heart disease, stroke, cancer, diabetes, hypertension, end-stage renal disease, psychiatric illness and myopia. Each plan will incorporate strategies for primary prevention, early detection and screening, clinical management and rehabilitation. These plans will be implemented in a systematic, integrated manner and evaluated using various indicators.

Integrated framework for elderly care

To assist service providers and to streamline and improve the quality and access to healthcare for the elderly, the Ministry is developing a framework of integrated health services to be put in place over the next 10 years. The goals are to upgrade professional standards of care which the Ministry will set and audit, and to provide seamless care for the elderly. Step-down health services for the elderly will be organised around three zones, i.e. West, Central and East. Each zone will be anchored around an acute regional hospital with a geriatric department that will provide professional leadership for the development of geriatric step-down care.

To ensure that indigent Singaporeans are able to afford nursing home charges, a three-tier means testing framework was introduced to provide 75%, 50% and 25% subsidy of charges based on an applicant's income.

Contracting private practitioners to provide primary healthcare to the elderly

The Ministry aims to provide responsive primary healthcare to elderly Singaporeans. Private general practitioners can be contracted to serve the elderly needy who do not live within close proximity to the polyclinics. These elderly can then have easier access to basic healthcare services at affordable, subsidised rates.

Strengthening the training of doctors

The Ministry is reviewing the training of doctors in the public sector. This includes the training of house officers, specialist training programmes for basic and advanced speciality trainees, and preparation for non-trainee medical officers to enter general practice after completion of their bonds. The Ministry will also continue to improve the Continuing Medical Education (CME) activities and encourage greater participation to ensure that our pool of medical professionals can constantly upgrade their skills and provide healthcare services that are of a high standard.

Clinical quality assurance programmes

The Ministry will increase its focus on licensing and accreditation, legislative enforcement, surveillance, clinical audit and quality assurance programmes. Some major priorities include developing suitable clinical audit indicators and credentialling mechanisms for Singapore, streamlining the process of managing and responding to complaints about medical practice, and implementing the Singapore Quality Indicator Project

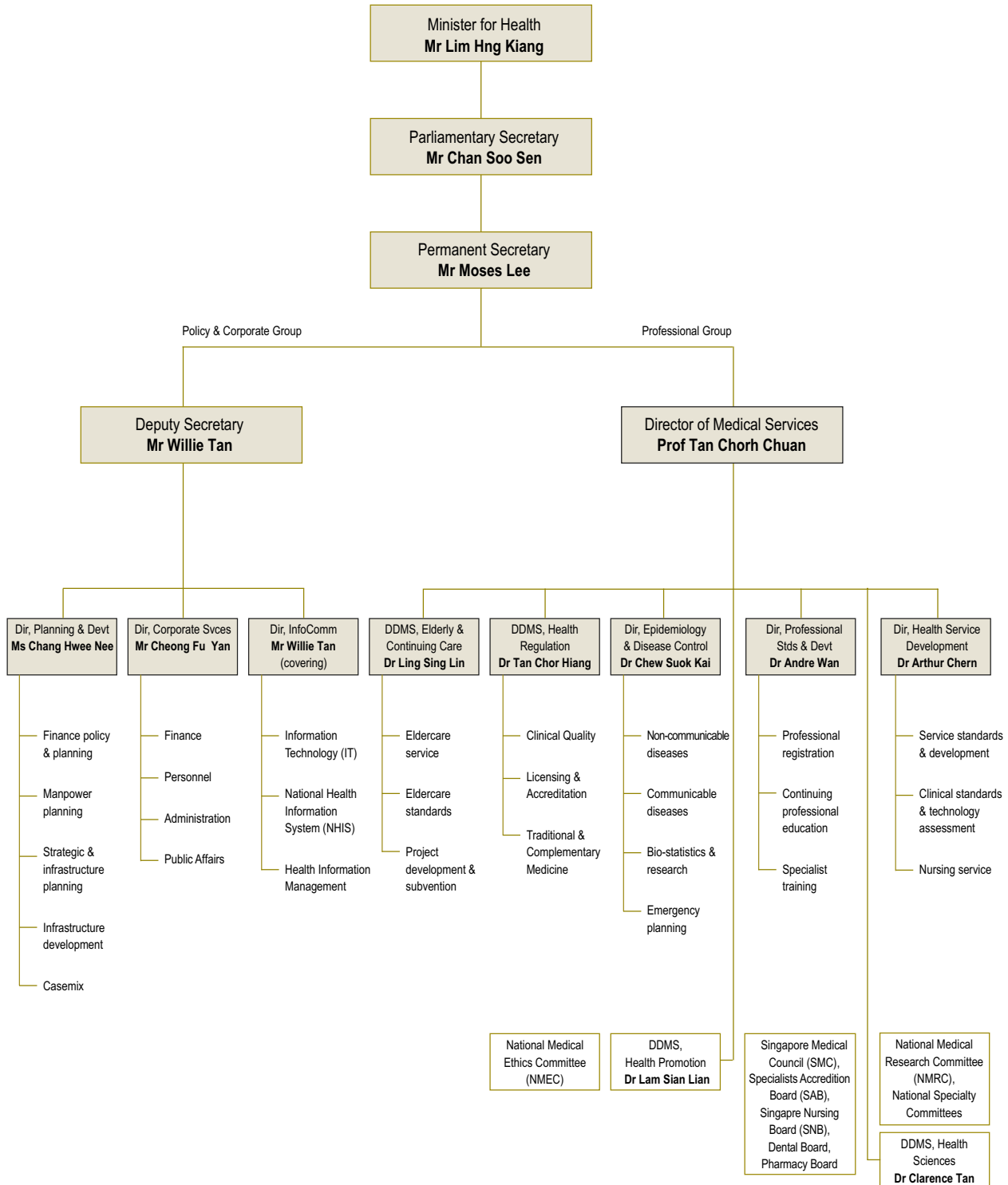
National Health Manpower to Population Ratios, 2000

Table 1.2: National Health Manpower to Population Ratios, 2000	
Doctor	1 : 720
Dentists	1 : 3,910
Pharmacists	1 : 3,660
Nurses	1 : 240

MOH Organisation Chart

The work of the Ministry is implemented via the Policy and Corporate and Professional Groups. The Policy and Corporate Group (PCG) comprises three divisions – Planning and Development (P&D), Corporate Services (CS) and InfoComm while the Professional Group consists of the Elderly and Continuing Care (E&CC), Health Regulation (HR), Epidemiology and Disease Control (E&DC), Professional Standards and Development (PS&D) and Health Service Development (HSD). The Ministry also leads and supports five professional boards, namely, Singapore Medical Council (SMC), Singapore Nursing Board (SNB), Singapore Dental Board (SDB), Pharmacy Board and Contact Lens Practitioner Board.

The Ministry of Health Organisation Chart



Departments:
 Center for Drug Evaluation (CDE),
 Product Regulation,
 National Pharmaceutical Administration (NPA),
 Institute of Science & Forensic Medicine (ISFM),
 Singapore Blood Transfusion Service (SBTS)



Mr Lim Hng Kiang
Minister for Health &
Second Minister for Finance



Mr Chan Soo Sen
Parliamentary Secretary
(Prime Minister's Office &
Ministry of Health)



Seated from left:

Mr Willie Tan Deputy Secretary, **Mr Moses Lee** Permanent Secretary, **Prof. Tan Chorh Chuan** Director of Medical Services

Standing from left:

Ms Chang Hwee Nee Director, Planning & Development, **Mr Cheong Fu Yan** Director, Corporate Services, **Dr Ling Sing Lin** DDMS, Elderly & Continuing Care, **Dr Tan Chor Hiang** DDMS, Health Regulation, **Dr Chew Suok Kai** Director, Epidemiology & Disease Control, **Dr Andre Wan** DDMS, Professional Standards & Development, **Dr Arthur Chern** Director, Health Service Development.

2000

I. Appointment of New Director of Medical Services

Dr Chen Ai Ju, Director of Medical Services (DMS), retired on 31 May 2000. Professor Tan Chorh Chuan, formerly Dean of the Faculty of Medicine, National University of Singapore (NUS), was appointed DMS on 1 Jun 2000.

Professor Tan Chorh Chuan joined NUS in 1987 as a Lecturer in the Department of Medicine and subsequently became Senior Lecturer and Associate Professor in Jul 1991 and Jul 1995 respectively. A renal physician by training, he has obtained several postgraduate degrees in Medicine and was conferred the PhD in Medicine in 1993. He won the Youth Award for medical research in 1996. Professor Tan was appointed as the Dean of the Faculty of Medicine, NUS in Sep 1997.



II. Reorganisation and Restructuring of Public Healthcare Services

The Ministry reorganised the public healthcare delivery system into two vertically integrated delivery networks or clusters, the National Healthcare Group (NHG) and Singapore Health Services (SingHealth). This reorganisation positions Singapore's healthcare delivery system to deliver more integrated and holistic healthcare to Singaporeans.

The two clusters were incorporated on 1 Oct 2000 with the completion of the restructuring of Alexandra Hospital, Woodbridge Hospital and the polyclinics. Each cluster will provide a full range of acute services ranging from primary care at the polyclinics to secondary and tertiary care at the regional and tertiary hospitals and national centres. Under these clusters, the restructured healthcare institutions enjoy greater management and operational flexibility, which in turn, enhance their ability to respond to changing circumstances and needs as well as provide better healthcare services to Singaporeans.

III. Healthcare for the Elderly

A. Health Programmes:

(i) Community Health Screening Programme

The "Check Your Health" community health screening programme was launched on 9 Jul 2000. It is a screening programme for diabetes, hypertension and high blood cholesterol for people aged 55 years and above. These three conditions can lead to heart disease and stroke, the major causes of ill health and death in Singapore.



*"Check Your Health" Programme at Kim Seng Constituency
(Measuring their blood pressure).*



*"Check Your Health" Programme at Kim Seng Constituency
(officiated by Dr. Richard Hu & Dr. Lily Neo).*

The programme was piloted in 19 constituencies and 16,736 participants have been screened as at Dec 2000. 11 constituencies : Ayer Rajah, Bukit Gombak, Buona Vista, Kampong Chai Chee, Kim Seng, MacPherson, Nee Soon Central, Punggol South, Radin Mas, Teck Ghee and Whampoa have completed the screening. 11,643 persons from these 11 constituencies were screened.

The programme aims to screen about 374,000 people aged 55 years and above over a period of three years. This screening programme will help to prevent severe disabilities arising from complications in diabetes, hypertension and heart disease.

(ii) Comprehensive Chronic Care Programme

In Aug 2000, the Ministry launched the Comprehensive Chronic Care Programme (CCCP) for patients suffering from three major chronic illnesses – diabetes, blood pressure and high blood cholesterol. The "Diabetes Care Programme", "Blood Pressure Care Programme" and "Blood Cholesterol Care Programme" each provides a comprehensive treatment package which will ensure effective control of the three conditions, and consequently, in the long-term, achieve early detection and reduction in complications such as blindness, stroke, kidney failure and heart attacks. The programmes will ensure a uniform good standard of care for Singaporeans with these conditions who are currently on the follow-up list in the polyclinics, as well as those picked up during the community health screening programme.

(iii) Primary Care Partnership Scheme

The Ministry piloted the Primary Care Partnership Scheme (PCPS) on 1 Oct 2000 with the aim of providing responsive primary healthcare to elderly Singaporeans needing subsidised care. Under the scheme, private general practitioners (GPs) will be contracted to serve the elderly needy who do not live within close proximity to the polyclinics.

GPs are invited to provide common outpatient medical services for simple medical conditions, such as coughs and colds. Singaporeans aged 65 years and above with per capita household income of \$700 and below are eligible for the scheme. Similar to the polyclinic charges, patients under the scheme pay \$4 per attendance and 70 cents per drug item per week. Patients with chronic illnesses will continue to be managed by polyclinics.

The PCPS was piloted for the residents in four areas - Kreta Ayer Constituency of Kreta Ayer-Tanglin GRC, Jalan Besar Constituency of Jalan Besar GRC, Simei estate and Bukit Panjang new town. Roll out plans will be considered based on the feedback received during the three-year pilot for this scheme.

B. Healthcare Financing

(i) ElderCare Fund

In Jan 2000, the Government established an endowment fund, the ElderCare Fund to finance the operating subsidies for the entire range of elderly and continuing care. This will cover community hospitals, hospices, nursing homes, day rehabilitation, home medical and home nursing care. The ElderCare Fund will help to secure the future affordability of step-down facilities, especially for elderly Singaporeans from low- and lower-middle income households.

(ii) MediShield Scheme for the Elderly

The MediShield Scheme for the Elderly (MSE) was first announced by Prime Minister Goh Chok Tong at the National Day Rally in Aug. Under the MSE, elderly Singaporeans aged 61 to 69 without MediShield or Medisave-approved insurance coverage will receive 2 years of basic MediShield premium rebate if they sign up for MediShield or a Medisave-approved insurance plan before 31 Dec 2000. In addition, the medical report and/or medical examination which may be required for the underwriting process will be paid for by the Government, with the applicant making a small co-payment of \$20. Applicants who fail to qualify for cover because of pre-existing medical conditions will receive the equivalent of the rebate in the form of a Medisave top-up.

C. Healthcare Facilities

(i) Development of Nursing Homes

In Jan 2000, the Ministry unveiled the development plan for nursing homes up to 2010. To ensure an adequate number of private nursing home beds for Singaporeans, the Ministry will take steps to increase the number of private nursing home beds to 40% of the national requirement. The private nursing home beds will complement the 60% nursing home beds provided by Voluntary Welfare Organisations (VWOs). Steps will be taken to encourage the provision of nursing home service by private providers to provide more choices to Singaporeans as well as to ensure that there are sufficient VWO nursing homes to cater to the poor. An additional 1,500 VWO nursing home beds will be built by 2005.

(ii) Tender of Sale Site for Private Nursing Home

The Government launched a sale site programme for private nursing homes in Jul 2000.

Each sale site, which can provide about 200 beds, will have a lease period of 30 years. Another 17 sale sites will be identified and released gradually to the private operators over the next few years. The longer land tenure would enable private operators to invest with a longer term horizon and to obtain reasonable rates of return on their investment.

To facilitate easy access of nursing home services for the community, most of the proposed sale sites will be located near or in HDB towns. The Government will review the sale site programme regularly to ensure that sufficient sites are available to meet the national demand for private nursing home beds.

On 26 Jul 2000, the Ministry launched its first sale site for a purpose-built private nursing home at Toa Payoh. The Toa Payoh sale site is located at Lorong 6 adjacent to Toa Payoh East Community Club. The site is 0.2ha with a required gross plot ratio of 1:8 and can accommodate about 200 nursing home beds. Some of the medical facilities near the sale site are Toa Payoh Polyclinic, Ren Ci Community Hospital and Medical Centre, and Tan Tock Seng Hospital.

IV. Health Manpower

A. Salary Revision

(i) Revision of Nurses' Salary

In view of the national shortage of nurses, and future increase in demand for nurses, nurses' salaries were revised in Jun 2000 to ensure that it is competitive enough to attract secondary school leavers to join the nursing profession and to retain younger nurses. The total cost of the salary revision, at \$33m, amounted to a 13% increase in annual salaries. Allowances were also increased to provide incentives for nurses to perform more demanding, round-the-clock duties. In addition to the adjustment of nurses' salaries, nurses' jobs were reviewed and restructured to make them professionally more challenging, by encouraging the growth of clinical specialists, case managers and trainers. This would help nurses fulfill their different career aspirations.

(ii) Revision of Doctors' Salaries

The salaries of doctors were increased in Jul 2000. The average salary increase was about 25% for Medical Officers (MOs), Registrars and Associate Consultants, and 19% for Consultants and Senior Consultants. The salary review incorporated a new remuneration structure that would guide future reviews. The increase was higher for MOs as a more competitive salary structure was necessary in order to retain them for a longer time in the public sector. The overall salary increase was about 22%.

B. “Return-to-Nursing” Training Scheme

The competent practice of nursing requires nurses to constantly update their knowledge and skills to keep up with advances in medical science and technology. There is therefore a need to upgrade the competency of non-practising nurses before they return to nursing.

The “Return-To-Nursing” training scheme was piloted in three healthcare institutions in Aug 2000. These institutions are the Changi General Hospital, KK Women's & Children's Hospital and National Heart Centre. The training course consists of theory and clinical attachment ranging from two to three months. This training aims to ensure that nurses acquire the compulsory core competencies and also the specialty competencies determined by the respective institution. The nurses will receive a Certificate of Attendance, issued by the respective institution when they complete the training course.

An initial group of 15 nurses were re-trained under this pilot scheme in 2000. Another 36 nurses are expected to attend the “Return-To-Nursing” courses conducted by the various hospitals and institutions in the first and second quarter of 2001.

Given the incentives of a monetary allowance for attending the training programme, and the flexible working hours that the institutions are offering, more nurses are expected to sign up for the scheme.

V. Developments in Traditional Chinese Medicine

The Traditional Chinese Medicine (TCM) Practitioners Act 2000 was passed by Parliament on 14 Nov 2000 to provide for the registration of TCM practitioners in phases, starting with acupuncturists. Under the Act, those who want to register as acupuncturists must take and pass the Common Acupuncture Qualifying Examination (CAQE). The CAQE syllabi and information for candidates were made public in the form of a booklet on 7 Jun 2000. Transitional arrangements have been planned for existing acupuncturists to

be granted full, partial or no exemption from the CAQE based on training qualifications and practising experience. An Acupuncture Upgrading Training Course (AUTC) was started in Sep 2000 to help existing acupuncturists who do not qualify for exemption prepare for the CAQE. The plan is to register all acupuncturists by 1 Jan 2002.

VI. 4th Nationwide Emergency Blood Exercise

The 4th Nationwide Emergency Blood Exercise (NEBE) was held from 14 to 17 Sep 2000, attracting 4,624 respondents and preceded by a publicity campaign to increase public awareness especially amongst first timers and females in donating blood during an emergency. Although the number of donors (3,572 donors) was slightly below the projected target, the percentage of female donors, at 34%, was well above the peacetime norm of female donors. There was a 5% increase in the number of female donors over the last NEBE.

Conducted at 6 community centres/clubs, 3 SAF camps, 2 institutes of higher learning, 5 corporate organizations and the National Blood Centre (NBC), the exercise provided the occasion for the Ministry and the Singapore Blood Transfusion Services (SBTS) to work together with People's Association, Civil Defence and Singapore Red Cross Society on emergency blood collection.

The post exercise survey found that the theme for the exercise, "Give blood because the one you save may be the one you love" struck a resounding chord amongst donors and Singaporeans with many people becoming more aware of the need and the procedures for emergency blood donation.

HEALTH

Snapshots

Population

Singapore's population as at 30 Jun 2000, reached 4.02 million compared to 3.95 million in 1999.

The mid-year resident population of Singapore grew marginally by about 1.3% from 3.22 million in 1999 to 3.26 million in 2000¹. The majority of the population was Chinese (76.8%), followed by Malays (13.9%) and Indians (7.9%). The proportion of population aged 65 years and above increased from 7.1% in 1999 to 7.3% in 2000. The median age of the population stood at 34.2 years, up from 33.7 years in 1999.

The rate of natural increase increased from 8.3 per 1,000 resident population in 1999 to 9.2^p per 1,000 resident population in 2000. There were 46,997^p births in 2000, which was an increase of 8.4% from 43,336 births in 1999. The Total Fertility Rate² correspondingly increased to 1.59^p births per woman in 2000 as compared with 1.47 births per woman in 1999. The Crude Death Rate³ remained at 4.5^p deaths per 1,000 resident population in 2000.

Table 3.1: Resident Population by Age Group & Sex
1990 & 2000

Age Group	1990			2000		
	Male	Female	Total	Male	Female	Total
Total	1,386.3	1,349.6	2,735.9	1,630.3	1,632.9	3,263.2
0 - 4	116.0	108.0	224.0	110.3	102.9	213.3
5 - 9	106.7	98.9	205.6	129.9	122.1	252.1
10 - 14	102.7	95.8	198.5	121.7	113.7	235.4
15 - 19	115.2	108.1	223.3	109.1	102.3	211.3
20 - 24	121.6	117.4	239.0	106.5	106.1	212.6
25 - 29	147.8	143.2	290.9	129.5	138.1	267.6
30 - 34	152.1	146.2	298.3	142.2	148.7	290.9
35 - 39	130.4	125.6	256.0	162.3	160.7	323.1
40 - 44	104.5	101.6	206.1	158.0	155.1	313.0
45 - 49	64.8	63.6	128.4	132.7	129.9	262.6
50 - 54	59.5	58.6	118.1	104.1	103.0	207.1
55 - 59	49.9	50.2	100.1	62.2	63.3	125.5
60 - 64	41.1	41.9	83.0	54.4	56.7	111.1
65 - 69	29.4	30.5	59.9	42.7	46.4	89.2
70 - 74	20.5	24.5	45.0	31.9	36.1	68.0
75+	24.1	35.4	59.4	32.8	47.8	80.5

Source : Department of Statistics, Ministry of Trade and Industry (MTI).

Note : Figures may not add up to totals due to rounding.

^p Preliminary

¹ Please see Table 3.1 for Population figure.

² Refers to the average number of children that would be born per female aged 15-44 years old.

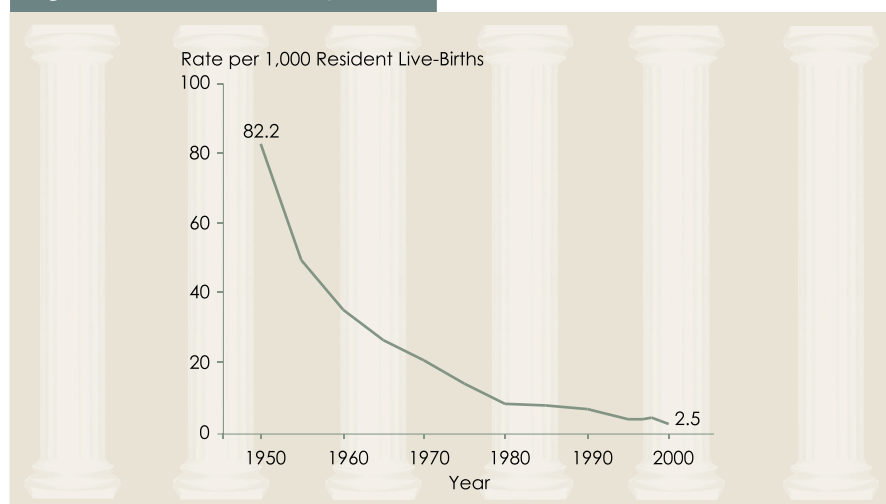
³ Refers to the number of deaths per 1,000 resident population.

Health Indicators

Infant Mortality

Singapore's infant mortality rate continued to remain low at 2.5 per 1,000 resident live births in 2000. This was lower than the rate of 3.3 per 1,000 resident live births reported in 1999.

Figure 3.1: Infant Mortality Rate

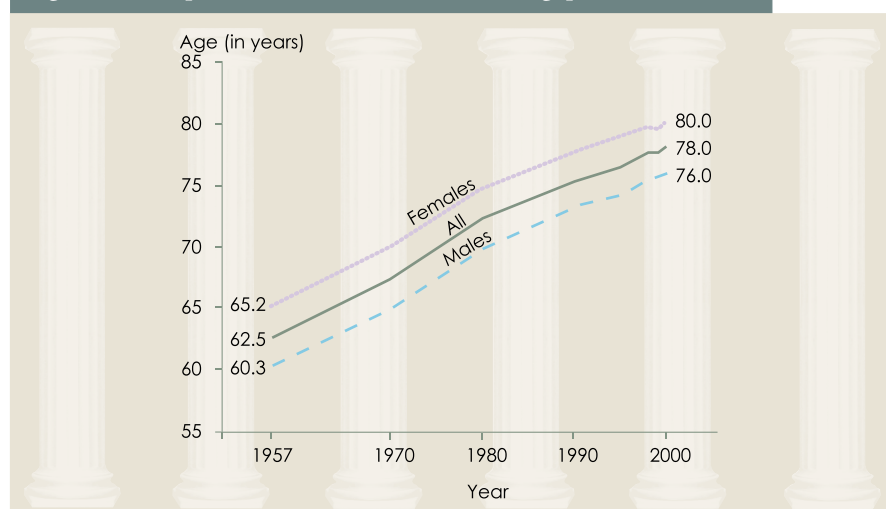


Life Expectancy

The average life expectancy at birth of Singapore residents was 78.0^p years in 2000, compared to 77.6 years in 1999.

Expectancy of life at birth in 2000 for males was 76.0^p years and that for females was 80.0^p years. The comparative figures in 1999 were 75.6 years and 79.7 years for males and females respectively.

Figure 3.2: Expectation of Life at Birth of Singapore Residents

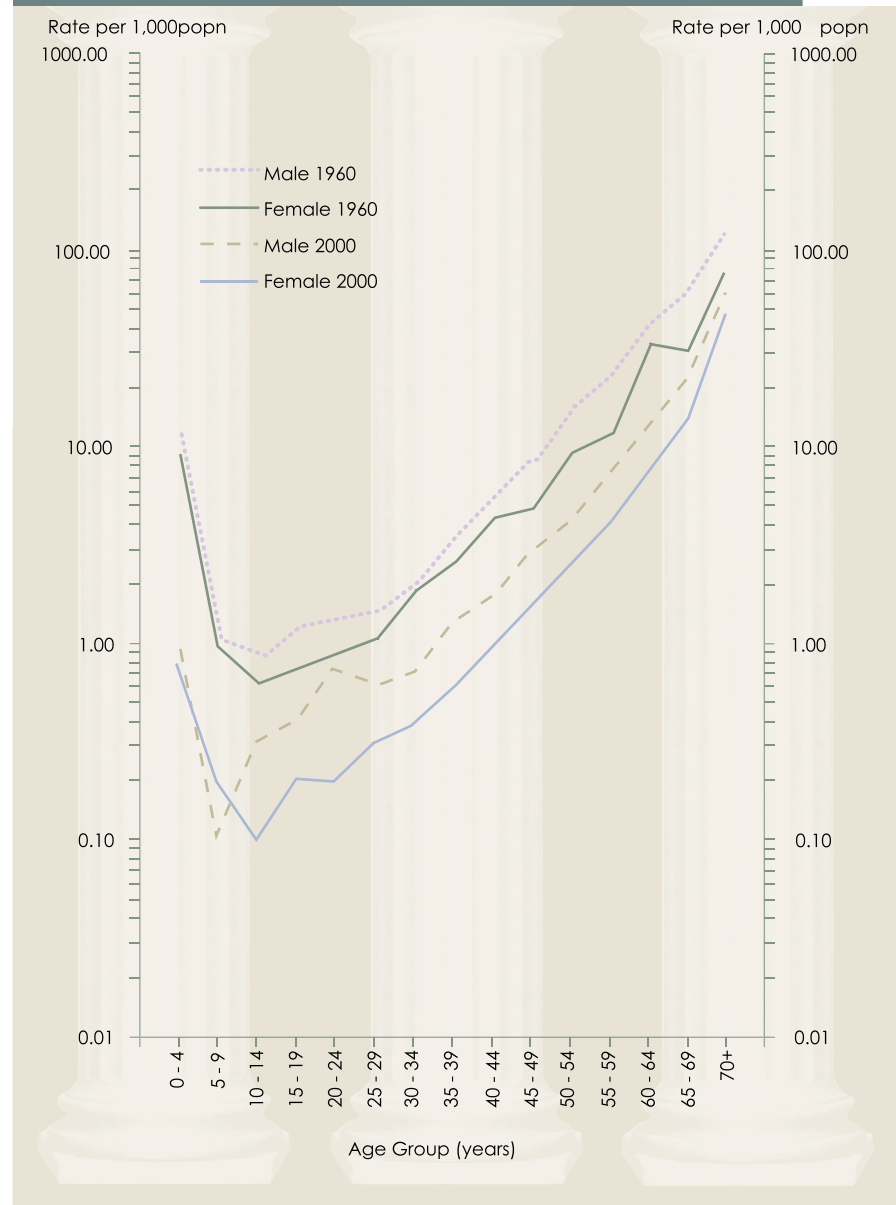


^p Preliminary

Age-Specific Death Rates

Since 1960, death rates have fallen for all age groups.

Figure 3.3: Age-specific Death Rates, 1960 and 2000 (Semi-log Scale)



Leading Causes of Death

The leading causes of death in Singapore continued to be cancer and heart disease. In 2000, these diseases constituted more than 50% of all causes of deaths in Singapore.

Table 3.2: Major Causes of Death, 2000^P

Rank	Cause of Death	Males	Females	Total
1	Cancer	28.3	25.5	27.0
2	Ischaemic and Other Heart Diseases	24.9	25.4	25.1
3	Pneumonia	10.6	12.4	11.4
4	Cerebrovascular Disease	8.1	13.2	10.4
5	Accidents, poisoning & violence	9.6	4.3	7.2
6	Diabetes Mellitus	1.8	2.9	2.3
7	Nephritis, Nephrotic Syndrome and Nephrosis	1.1	1.5	1.3
8	Disease of Arteries, Aterioles & Capillaries	0.9	0.6	0.8
9	Chronic Liver Disease & Cirrhosis	0.9	0.5	0.7
10	Bronchitis, Emphysema & Asthma	0.8	0.6	0.7
	All Other Causes	13.0	13.1	13.1
	Total	100.0	100.0	100.0

^P Preliminary

Appendix 2 shows the trend in mortality by broad disease groupings, between 1980 and 2000.

Notifiable Diseases

The trend in the number of notifications for specific notifiable diseases between 1980 and 2000 is shown in Appendix 3.

Three infectious diseases were added to the list of notifiable diseases under the Infectious Diseases Act on 1 Oct 2000, namely Hand, Foot and Mouth Disease, Legionellosis and Nipah virus infection. Between Oct to Dec 2000, there were 3,362 Hand, Foot and Mouth Disease cases and 19 cases of Legionellosis notified. No cases of Nipah virus infection were reported during this period.

The number of notifications for chickenpox in 2000 was 24,074, a reduction of 24% from 31,592 cases notified in 1999.

Total reported cases of dengue/ dengue haemorrhagic fever continued to decline from 1,355 cases in 1999 to 673 cases in 2000, a marked decrease of 50%.

Similarly, the number of new tuberculosis cases notified decreased by 10% from 2,419 in 1999 to 2,210 in 2000.

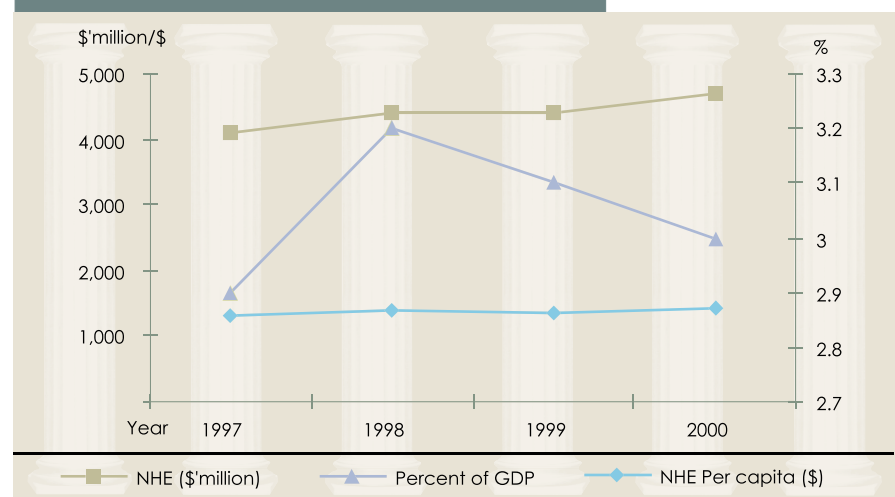
DOLLARS

and Sense of Health

Singapore's healthcare financing philosophy is based on individual responsibility, coupled with Government subsidies to keep basic healthcare affordable. Patients are expected to pay part of the cost of medical service that they use, and pay more when they demand higher levels of service in terms of comfort and ward amenities. The co-payment principle helps to avoid the pitfalls of a completely free medical system. Community and state help are made available to those in need, so that no Singaporean would be denied of essential medical treatment because of inability to pay.

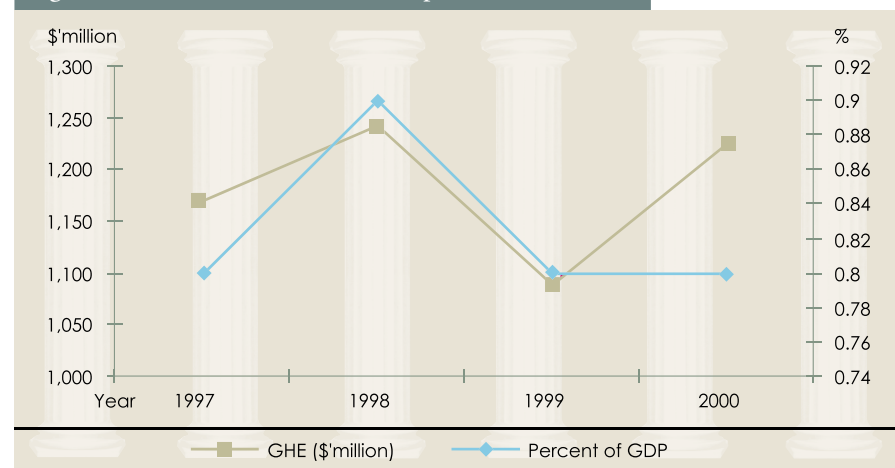
National Health Expenditure (NHE) increased from \$4.4 billion in 1999 to \$4.7 billion in 2000. As a percentage of GDP, NHE formed about 3%. Per capita health expenditure rose by about 6% from \$1,360 in 1999 to \$1,439 in 2000.

Figure 4.1: National Health Expenditure (NHE)



Government Health Expenditure (GHE) was \$1,224 million in 2000. As a percentage of GDP, GHE formed about 0.8%.

Figure 4.2: Government Health Expenditure (GHE)



Of the Government Health Expenditure (GHE), operating expenditure accounted for 89% and development expenditure accounted for 11%. The bulk of the operating budget (88%) was spent on services provided by restructured hospitals and institutions, polyclinics and Voluntary Welfare Organisations (VWOs), while the remaining 12% were spent on support services which included administration, information technology and service regulation.

Figure 4.3: Breakdown of GHE, FY2000

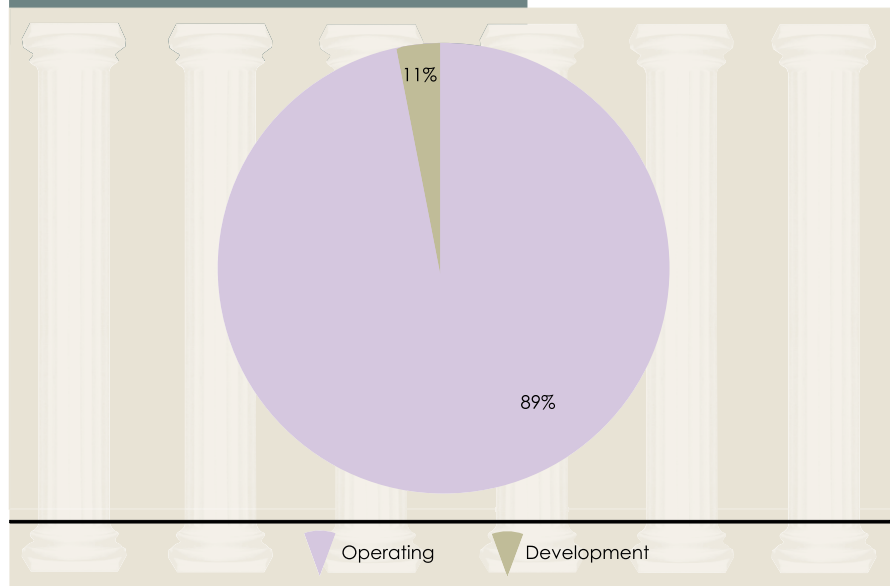
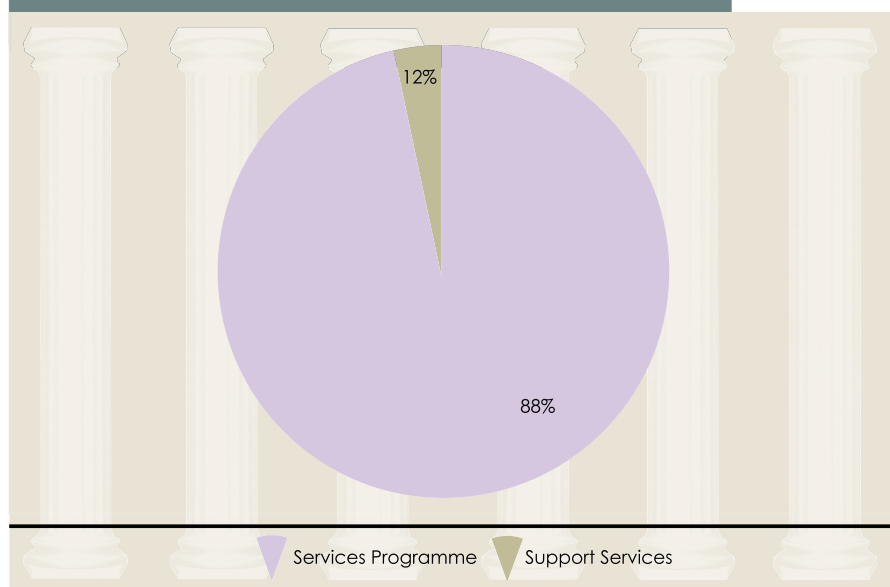


Figure 4.4: Breakdown of Operating Expenditure, FY2000



Financing Measures to Help Individuals Pay for Healthcare

The Government has put in place three major financing schemes to help Singaporeans pay for their share of healthcare expenses – Medisave, MediShield and Medifund.

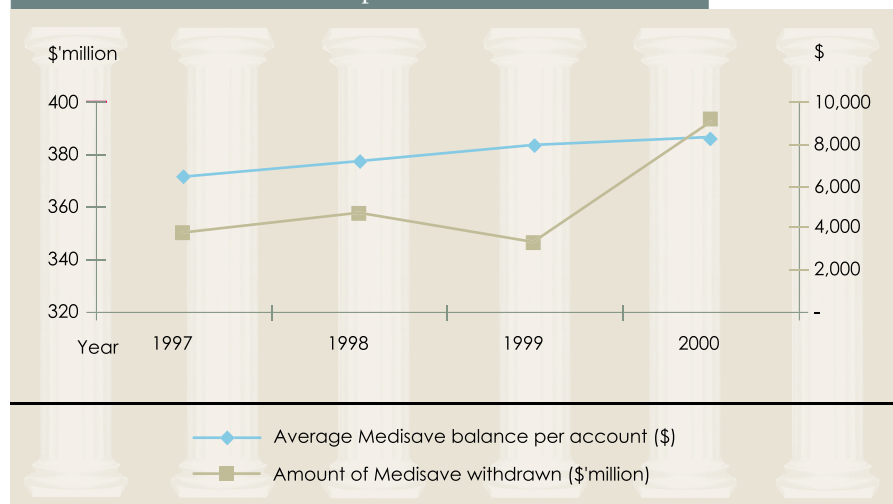
I. Medisave

Medisave is a compulsory savings scheme, introduced in 1984, to help Singaporeans save and pay for their hospitalisation expenses, especially for their retirement. Individuals put aside 6% to 8% of their monthly income into a personal Medisave account. As a savings scheme, Medisave provides incentive for Singaporeans to save and avoid unnecessary use of medical services.

As at 31 Dec 2000, there were 2.71 million Medisave accounts, an increase of 0.03 million (1%) over the previous year. The Medisave balance increased by 9% to \$22.7 billion in 2000.

The amount of Medisave withdrawn increased from \$346 million in 1999 to \$391 million in 2000, an increase of 13%. The average Medisave balance per account has also increased by 7% to \$8,300.

Figure 4.5: Amount of Medisave Withdrawn and Average Medisave Balance per Account



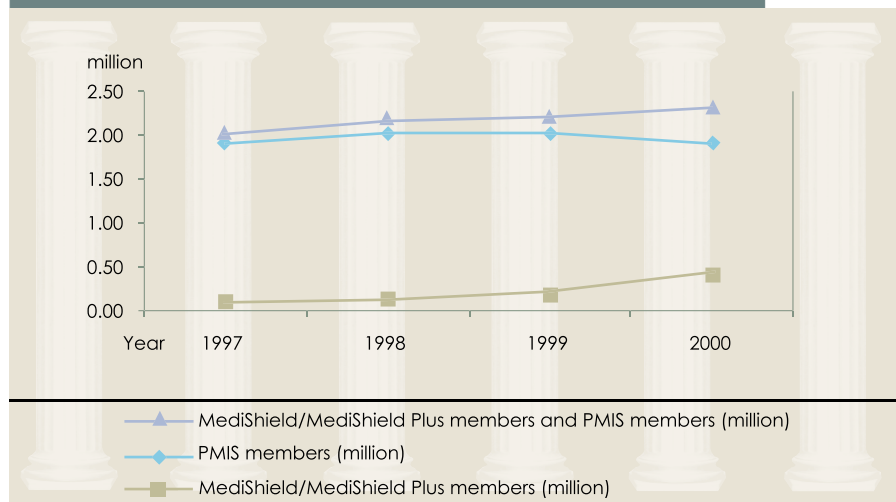
II. MediShield/MediShield Plus

To supplement Medisave, an affordable basic catastrophic illness insurance scheme called MediShield was introduced in 1990. MediShield is designed to help Singaporeans meet the medical expenses from major or prolonged illnesses which their Medisave savings might not be sufficient to cover. To avoid the problems associated with pre-paid insurance, MediShield operates on a system of deductibles and co-payment.

In 1994, the MediShield Plus schemes were introduced to cater to those using private hospitals or Class A or B1 wards in the public sector hospitals.

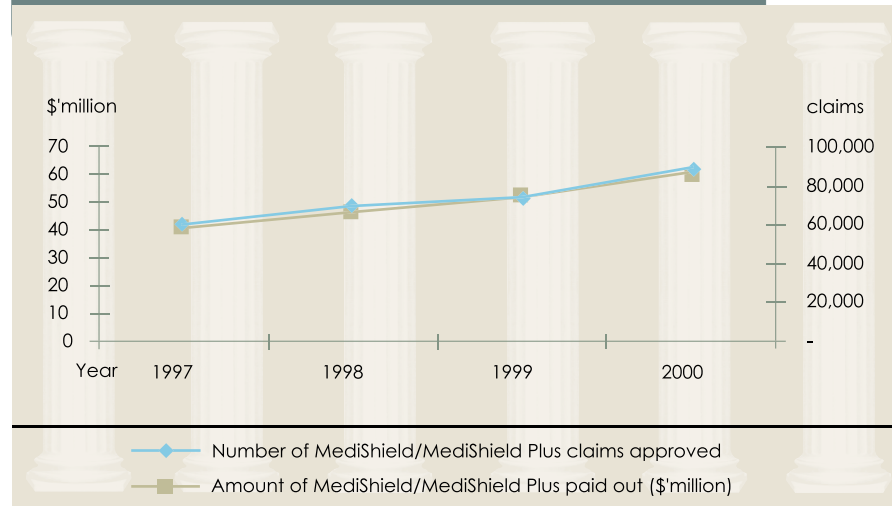
As at 31 Dec 2000, there were 1.9 million MediShield and MediShield Plus members, and 0.4 million members under the Private Medical Insurance Scheme (PMIS). Together, the MediShield, MediShield Plus and PMIS membership totalled 2.3 million.

Figure 4.6: MediShield/MediShield Plus and Private Medical Insurance Scheme (PMIS) members



In 2000, MediShield and MediShield Plus approved \$59.9 million for 87,252 claims.

Figure 4.7: Amount of MediShield/MediShield Plus Paid Out and the Number of Claims Approved

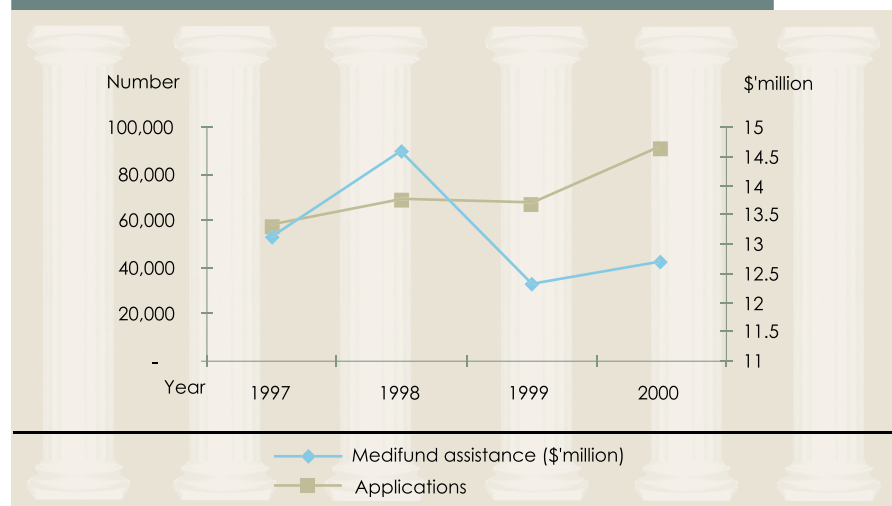


III. Medifund

In 1993, the Government established Medifund to help needy Singaporeans pay their medical bills. It provides a safety net for those who, despite help from government subsidies, Medisave and MediShield, are still unable to afford their medical expenses.

In FY2000, about 91,000 Medifund applications were considered, of which 99.5% were approved. Medifund assistance totalled \$12.7 million in FY2000.

Figure 4.8: Number of Medifund Applications and Amount of Assistance Given



Government Subvention

The Ministry provides funding to the restructured hospitals/institutions, and VWOs which offer a range of community and home-based medical and nursing care.

I. Hospital Subsidies

The subsidy accorded to each inpatient depends on the class of ward that the patient chooses to stay in. Patients in A wards pay the full cost, whereas other ward classes are subsidised, ranging from 20% of cost for B1 wards to 50% for B2+ wards, 65% for B2 wards and 80% for C wards. Financial counselling is provided by the hospitals to allow patients make informed choices between the different types of ward accommodation on admission.

The services provided at the public sector polyclinics are subsidised at 50% of costs for the elderly/child and 50% for adult.

Government subvention to the restructured hospitals and polyclinics amounted to \$693 million in FY2000. This was an increase of 19% as compared to the previous year.

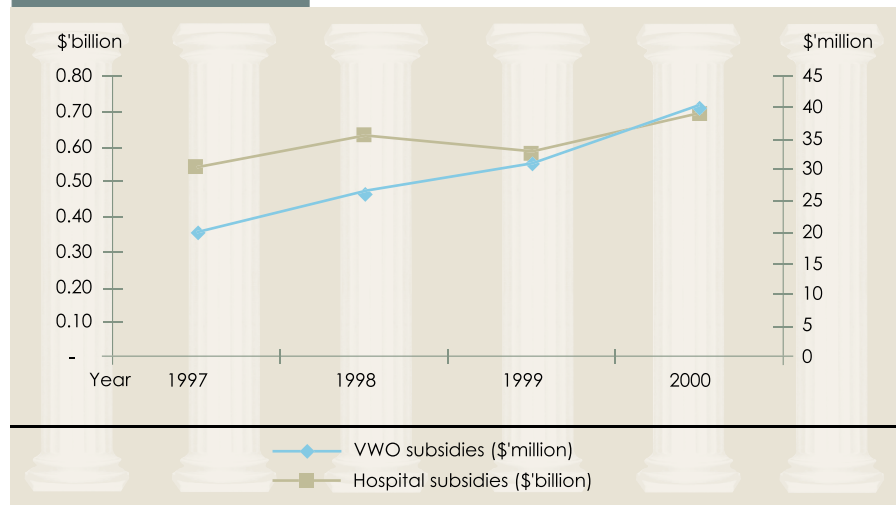
II. VWO Subsidies

Subsidies are also given to VWOs which provide healthcare services such as renal dialysis, nursing home care and hospice care. The Ministry funds 50% of the operating expenditure of these VWOs and 90% of their capital expenditure.

In Apr 2000, the Government established the ElderCare Fund to secure the future affordability of step-down care for households of low-and lower-middle income. The interest income the ElderCare Fund derives would be used to finance operating subsidies to community hospitals, hospices, nursing homes, day rehabilitation, home medical and home nursing care. In addition, the Government has committed to building up the capital sum of ElderCare Fund to \$2.5 billion by 2010. In 2000, the Government injected \$500 million as the capital sum of ElderCare Fund.

Subsidies to the VWOs amounted to \$40 million in FY2000. This was an increase of \$9 million (29%) over the previous year.

Figure 4.9: Subsidies



Casemix

Year 2000 was the first full year of Casemix-based funding for inpatients and day surgeries in public sector hospitals. In Jul 2000, the Ministry embarked on the next phase of Casemix implementation by piloting the collection of Casemix related data in the private hospitals. Data from both the public and private sector would be used to work out the framework for future initiatives such as Medisave withdrawal limits based on Casemix and balance billing. This is in line with the policy direction set in the 1993 White Paper on Affordable Healthcare which identified Casemix as a key policy initiative in the Ministry's mission to deliver a good quality and affordable healthcare system.

Casemix has provided clinicians and healthcare administrators with a common language for comparing clinical management, outcomes and resource utilisation. The Ministry published the inaugural Casemix Pilot Run Activity Report, based on data collected during the pilot phase from Oct 1998 to Sep 1999, so that healthcare professionals and administrators could maximise the potential of the information available in a Casemix environment.

HEALTHY

Living, Healthy Nation



All in favour of not smoking say "I"!

Chronic non-communicable diseases are the main causes of morbidity and mortality in Singapore. Health promotion activities were conducted during the year to educate the public on the prevention of chronic diseases through the reduction of behavioural risk factors such as smoking, a sedentary lifestyle, unhealthy diets, obesity and stress. Strategies used include:

- (a) Conducting campaigns and health education activities such as mass media education, talks, seminars, workshops and exhibitions. These programmes coincided with international dates for health e.g. World No Tobacco Day, World Mental Health Day, World AIDS Day etcetra to raise the profile of the programmes.
- (b) Distributing health education materials to schools, workplaces and community organisations to support health education efforts.
- (c) Providing consultation to health promotion facilitators and equipping them with the relevant skills to plan and conduct comprehensive and sustainable health promotion programmes.
- (d) Collaborating with partner agencies to promote health in the various settings.
- (e) Providing a supportive environment to facilitate healthy living.
- (f) Conducting cost-effective health screening and follow-up to detect and treat common diseases early to minimise complications.

Community Health Screening Programme

A nation-wide community health screening programme called "Check Your Health" was launched in Jul 2000 to screen Singapore residents 55 years and older for hypertension, diabetes and high blood cholesterol. The aim of the programme is to detect these diseases early so that treatment can be instituted to prevent and minimise complications and severe disabilities. This programme systematically reaches out to Singapore residents over a period of three years. In the first year, the "Check Your Health" Programme was conducted in 19 of 83 constituencies.

The screening was conducted on Sundays at community venues easily accessible to the public. Participants paid a low fee of \$5 as the programme was highly subsidised by the government. The Ministry worked closely with various voluntary welfare and grassroots organisations which assisted by reaching out and selling health screening tickets to the eligible elderly and providing a subsidy so that the screening was made even more affordable to them.

Participants with abnormal results were followed up with and advised to see their doctors. A central database ensured that those who missed their follow-up session were reminded through letters and telephone calls.



Retreat for teachers to train them to organise school-based health retreats as part of their TAF programme.



Guests Stretching at the Singapore "Helping Employees Achieve Life-Time Health (H.E.A.L.T.H.)" Award Presentation Ceremony.

National Healthy Lifestyle Programme

The National Healthy Lifestyle Programme was launched in 1992 to encourage Singaporeans to lead a healthy lifestyle that includes exercising regularly, eating a balanced diet, staying smoke free and managing stress effectively. The public is educated through the annual National Healthy Lifestyle Campaign, the workforce through the Workplace Health Promotion (WHP) programme and school children through the Trim and Fit (TAF) programme implemented by the Ministry of Education (MOE).

The Ministry worked with partner agencies e.g. Singapore Sports Council (SSC), National Trades Union Congress (NTUC) and other organisations to organise health promotion programmes throughout the year.

The National Healthy Lifestyle Campaign 2000 was launched on 7 Sep at the presentation ceremony of the Singapore "Helping Employees Achieve Life-Time Health (H.E.A.L.T.H.)" Award which recognises organisations with commendable workplace health promotion programmes. On "All Companies Together In Various Exercises (A.C.T.I.V.E.)" Day, companies organised activities involving mass participation by their staff.

The nutrition activities focused on the protective role of fruit and vegetables on the heart. The mass media education messages encouraged the public to eat "2 servings of fruit and 2 servings of vegetables" daily and to use less oil in cooking. To promote the availability of healthier menu choices for Singaporeans eating away from home, the "You can ask for..." programme was extended to include all 140 hawker centres and 16 food courts and over 100 restaurants and workplace canteens. Patrons were encouraged to ask for more vegetables, less salt, less sugar and/or less fats and oil in their food. Major supermarket chains also conducted nutrition educational activities for customers on healthier food choices. A three-day exhibition titled "Fruit, vegetables and wholegrains – the Colours of Life" was held in conjunction with World Heart Day and National Heart Week 2000.

Under the Workplace Health Promotion (WHP) Programme, the Ministry continued to work closely with the Singapore National Employers Federation (SNEF), the NTUC and the SSC to promote health at work. The Tripartite Committee on WHPs comprising the government represented by the Ministry, Ministry of Manpower (MOM) and Productivity & Standards Board (PSB), SNEF and NTUC made its recommendations to strengthen workplace health promotion.

The recommended key strategies were to:

- Integrate WHP into the productivity movement.
- Establish WHP standards and indicators linked to business outcomes.
- Recognise achievement and assist H.E.A.L.T.H. Awards recipients.
- Promote workplace health promotion by industry.
- Collaborate with the occupational safety and health movement.
- Create a comprehensive support infrastructure.
- Equip company personnel with skills to manage a programme.
- Establish a national intersectoral management committee.

The Ministry continued to train workplace health promotion facilitators to plan and implement health promotion programmes at their workplaces. It provided consultation to conduct and strengthen programmes and assisted workplaces with health education resources such as print materials and audio-visual aids.

The School Health Service (SHS) continued to work closely with MOE to strengthen the TAF Programme which aims to increase the physical fitness of students and lower obesity rates in schools.

National Smoking Control Programme



"Smoke's No Joke" travelling skit to a school.

The National Smoking Control Programme continued to focus on encouraging smokers to stop smoking by highlighting the harm of cigarette smoking to health. The Campaign was launched at a "Quit & Win" Seminar on 5 May. "Quit & Win" was organised in Singapore for the first time as part of the International Quit & Win Competition co-ordinated by the WHO Tobacco-Free Initiative and the National Public Health Institute of Finland. Smokers who stopped smoking successfully during the month of May stood to win prizes both locally and internationally.

Linked with the theme of World No Tobacco Day 2000: "Entertainment and the Tobacco Industry", a "Kick Butt" party drew public attention to the tactics used by the media and entertainment industry to influence people to smoke. Popular local celebrities made appearances to urge the young crowd to stay smoke-free.

The mass media education programme was adapted from a successful mass media campaign by the Australian National Tobacco Control Campaign "Every Cigarette is Doing You Damage". Graphic effects of smoking on the lungs, aorta and brain served to highlight the urgency to stop smoking and encourage smokers to call "Quitline", a telephone hotline, to get assistance to do so.



Dance away the urge to smoke!

To encourage youths to lead a smoke-free lifestyle, the School Health Service organised competitions using the arts for primary and secondary school students, and IT for post-secondary students. The "Peer Assisted Learning (PAL)" smoking prevention programme for secondary schools and the "Break Free Smoking Cessation" programme trained teachers to assist their students to stop smoking. Sports was promoted as an alternative to smoking. Travelling educational skit performances conducted in schools and Institutes of Technical Education informed students about the harmful effects of smoking and empowered them with the skills to refuse offers to smoke.

Facilitators from community youth organisations were trained to conduct a smoking prevention peer education programme. Facilitators from grassroots organisations, self-help groups and religious organisations were equipped with the skills to help smokers stop smoking.

257 retail outlets stopped the sale of cigarettes and other tobacco products on World No Tobacco Day.

Nutrition Programme



"Fruits, vegetables & wholegrains — the Colours of Life" exhibition held in conjunction with World Heart Day & National Heart Week 2000.

The Ministry continued to encourage the food industry to provide nutrition information on food labels to enable shoppers to make informed food choices. By the end of the year, there were 300 food products displaying the nutrition information panel, listing the energy value and content of 7 nutrients per serving and per 100g portions. More than 200 products had also been approved to carry the Healthier Choice symbol. The nutrition labelling programme also entered its second phase with the development of guidelines for use for nutrient claims such as 'sugar free', 'low fat', 'high fibre', and 'low salt'. These guidelines were distributed to all food manufacturers and suppliers.

Guidelines for dietary intakes formed the cornerstone of national food and nutrition policies. The recommendations had particular relevance for food supply, nutrition education and public health. The Singapore guidelines were developed in 1988 to reduce the risk of nutrient deficiency and for health and well-being. In the last decade, new scientific findings had emerged and locally relevant health and diet related data also became available. Globally, there was also a shift from the traditional focus on nutrients towards more food-based and behavioural approach to formulating dietary recommendations. It was thus timely to review the local dietary guidelines.

Towards the end of the year, a scientific workgroup represented by members from government and private healthcare institutions, the food industry and the academia was formed and tasked to review the Singapore guidelines. The revision is being carried out in consultation with experts in relevant areas, and the review process for the first set of guidelines for the general population is expected to be completed in mid 2002.

Breast Cancer Education Programme



President S R Nathan flagging off at the launch of the Breast Cancer Awareness Month.



The fleet of cars decorated with pink ribbons at the launch.

Breast cancer is the leading cause of death from cancer among women in Singapore. Public education activities were organised during the Breast Cancer Awareness Month in Oct 2000 highlighting the importance of early detection through mammography. The committee on Breast Cancer Awareness Month, which comprised representatives from the Breast Cancer Foundation, National Cancer Centre, Singapore Cancer Society and the Ministry, encouraged family members to support their loved ones aged above 50 years who are at a higher risk of breast cancer, go for mammography.

President S R Nathan launched the campaign by flagging off a fleet of cars and motorcycles decorated with pink ribbons, the international symbol for breast cancer awareness. The President also launched the Breast Cancer Foundation's Mammobus which brings mammographic screening to the community.

To make mammography more affordable, the Ministry implemented a subsidised mammography programme. Women are provided with 50% subsidy when they undergo screening mammography at the three polyclinics — Institute of Health Polyclinic, Tampines Polyclinic and Yishun Polyclinic.

AIDS Education Programme



AIDS education at a 'getai' road show.

The AIDS Education Programme educates Singaporeans about the risk factors and prevention of the disease. It also encourages those at risk to go for early screening and publicises the AIDS and Sexually Transmitted Diseases (STD) Helpline and testing sites. The slogan used in 2000 was, "To be safe, always use a condom. To be sure, abstain from casual sex."

Educational activities like talks and exhibitions were conducted throughout the year in schools, the community, workplaces and healthcare institutions. Popular 'getai' road shows which target the Chinese-speaking audience, were held at neighbourhoods in the new towns. The shows informed the audience about how HIV infection is spread and dispelled myths and misconceptions about the disease through skits, songs and oral quizzes.

The Cruise Centre, Tanah Merah Ferry Terminals and ferries carried educational pamphlets and posters on HIV/AIDS.



Public education messages on diabetes at a bus shelter.

Diabetes Education Programme

Continuing efforts in public education on diabetes raised awareness, and educated Singaporeans on the risk factors of diabetes, as well as encouraged those at risk to go for regular screening. In conjunction with World Diabetes Day on 14 Nov, the Diabetic Society of Singapore organised a public education event on the theme : "Living with Diabetes in the New Millennium". Advertisements in the four major language newspapers highlighted the risk factors of diabetes and the importance of screening.

Mental Health Education Programme

The theme of Mental Health Week 2000: "Be positive. Take charge." emphasised the importance of good mental health and adopting a positive mindset towards life's crises and challenges. The theme was highlighted in a series of talks, seminars and workshops organised by the Ministry and its partners – Institute of Mental Health, Singapore Medical Association, Singapore Association for Mental Health and Singapore Psychiatric Association.



HealthZone's mascot Maxx at the Children's Day Carnival 2000 organised by Singapore Press Holdings (SPH).

HealthZone

Health promotional activities like contests, quizzes, workshops, exhibitions and video screenings were organised throughout the year at HealthZone, a health exhibition centre, to raise public awareness on the importance of leading a healthy lifestyle and publicise the permanent health exhibition centre. Special educational sessions on nutrition, exercise, smoking, stress management and changes in puberty were introduced.

Stay Well Centre

The Stay Well Centre (SWC) provides consultation and training in lifestyle intervention programmes to organisations and individuals involved in helping people change their health behaviour. Topics included smoking cessation, weight management, stress management, women's health and health counselling skills for health promotion facilitators from healthcare institutions, workplaces and community groups.

SWC also collaborated with the Ministry of Community Development and Sports (MCDS) and the Institute of Public Administration and Management (IPAM) to develop and conduct the health module for the "Colours of Life" (COL) Programme. The ongoing COL imparts skills for civil servants to plan early and prepare for the different transitions in life including retirement from work.

PREVENTION

and Control of Diseases

The Epidemiology and Disease Control Division is responsible for the prevention and control strategies for the major communicable and non-communicable diseases in Singapore.

Non-communicable Diseases

Cancer and cardiovascular diseases, including stroke are the leading causes of death in Singapore, accounting for about 60% of all deaths in Singapore in 2000.

Due to our rapidly ageing population, cancer and cardiovascular diseases are expected to remain the major disease conditions affecting Singaporeans. The Ministry initiated a review of existing surveillance and control programmes, and tasked the Ministry Expert Advisory Committees to recommend comprehensive national disease programmes for the major disease conditions affecting Singaporeans today.

Cancer

Cancer has been the leading cause of death in Singapore since 1991. In 2000, it accounted for 26.9% of all deaths. The main cancers causing death among men during the year were cancers of the lung, colo-rectum, liver and stomach; and for women, cancers of the breast, lung, liver and colo-rectum.

Pap smears for cervical cancer and mammography for breast cancer are screening tests offered at polyclinics and hospitals. Three polyclinics – Tampines, Yishun and Institute of Health offer mammography at subsidised rates. In addition, Pap smear is available at private clinics. These screening programmes for cervical and breast cancers will be strengthened so that more affected women can be diagnosed early for effective treatment.

Cardiovascular Diseases

In 2000, cardiovascular diseases, including coronary heart disease and stroke accounted for about one third (34.8%) of all deaths.

Coronary heart disease is the major cardiovascular disease. It is the second leading cause of death, accounting for 20% of all deaths as well as 14,653 hospital admissions in 2000.

The rate of heart attacks among Singaporeans aged 20-64 years remained fairly stable over the last five years. In 1999, the rate was 85 cases per 100,000 residents. Indians have the highest risk of getting heart attacks, followed by Malays and Chinese.

Stroke, the second most important cardiovascular disease, is a major cause of adult-onset disability in Singapore. In 2000, it was the fourth leading cause of death accounting for 10.3% of all deaths and 10,267 hospital admissions.

People with a high risk of developing cardiovascular disease are encouraged to undergo tests to screen for risk factors. The three-year community health screening initiative "Check Your Health" programme was launched on 9 Jul 2000 to provide people aged 55 years and older with a chance to be tested for risk factors and counselled on the disease, at subsidised rates.

Diabetes Mellitus

Diabetes was the sixth most common cause of death in 2000, accounting for 351 deaths. It is also the leading cause of end-stage renal disease and blindness in adults. During the last five years, about 700 lower limb amputations were performed annually because of diabetic foot complications.

The Comprehensive Chronic Care Programme (CCCCP) was launched at Choa Chu Kang Polyclinic and Tampines Polyclinic on 1 Oct 2000. The programme aims to improve the management of these three common cardiovascular risk factors, namely diabetes, hypertension and high blood cholesterol. The benefit for patients in the CCCC is the personalised care given by a case manager who tracks and encourages each patient. This would facilitate patients' compliance to treatment and follow-up, thus ensuring good control and management of their medical conditions.

Myopia

Myopia is a major public health problem in Singapore. About one-third of primary one pupils had myopia. A National Myopia Prevention Programme, targeted to screen children at a young age, is being developed so that preventive actions can be taken to arrest the progression of myopia among them. The Ministry will work closely with the Ministry of Education (MOE) to develop a special programme for school children.

Mental Health

The major mental health disorders seen in Singapore are depression, anxiety disorders and schizophrenia. About one in ten persons have anxiety disorder. Depression can affect all groups of people, although the women and the elderly are more at risk. Schizophrenia is a severe but common mental health condition. It generates an immense economic burden due to the chronicity of the disease, which requires repeated admissions and long-term hospitalisations.

The Ministry will be implementing two nationwide prevention and control programmes on mental health. The national plan for the prevention and control of major mental health disorders aims to increase mental health awareness and promote good mental health. The Early Psychosis Intervention Programme which is a comprehensive and integrated treatment programme targets to reduce chronic disability among schizophrenic patients.

End-stage Renal Disease

Renal disease has been among the top 10 leading causes of death in Singapore since 1960. The number of new patients on dialysis nearly trebled between 1988 to 1999 from 70 to 203 cases per million population, and is projected to increase further. A national renal disease control plan is currently being developed. It involves strategies to reduce prevalence of risk factors like diabetes and hypertension; detect renal disease at its early stages; and ensure good clinical management of patients with chronic renal disease so that the progression to end-stage renal disease (ESRD) can be prevented.



Kyoto meeting on Poliomyelitis Eradication.

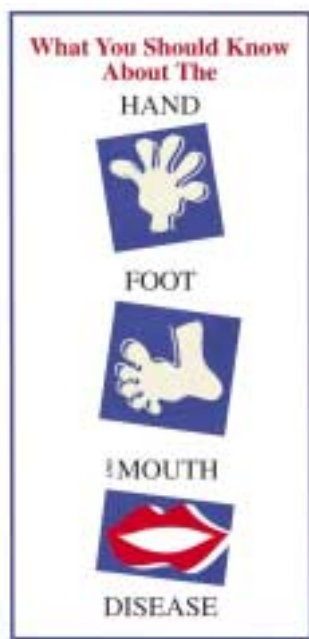
Communicable Disease

Childhood Diseases

The Childhood Immunisation Programme offers our children protection against nine important childhood diseases namely, tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis (Sabin), measles, mumps, rubella (MMR) and Hepatitis B. Diphtheria and measles immunisation are compulsory by law. All immunisations except Hepatitis B, are given free at the polyclinics and schools.

Poliomyelitis

The Western Pacific Region, of which Singapore is a member, was certified by the World Health Organisation (WHO) to be free of poliomyelitis (or polio) on 29 Oct 2000. After the Americas, this is the second region in the world to have achieved polio-free status.



"What You Should Know About The HAND, FOOT and MOUTH Disease" — an awareness brochure by the Ministry of the Environment (ENV).

Singapore was able to attain polio-free status as she met the WHO's stringent criteria for certification. The high level of vigilance over poliomyelitis will be maintained until polio is eradicated worldwide. Poliomyelitis immunisation, which is part of the National Childhood Immunisation Programme, received a high level of coverage over the past three decades. In 2000, the immunisation coverage for poliomyelitis in infants was 90%.

Hand, Foot And Mouth Disease

In Oct 2000, 2,511 Hand, Foot And Mouth Disease (HFMD) cases were reported with the majority of the cases occurring in the first two weeks of the month. Four children who developed complications succumbed to the disease. Following advice from an inter-ministry and multi-disciplinary HFMD Taskforce, immediate precautionary measures were taken to break the chain of transmission with the closure of all 557 childcare centres and 440 kindergartens in Singapore for about two weeks. Enterovirus 71 (EV71), a member of the enterovirus family commonly associated with HFMD, was the main cause of this outbreak.

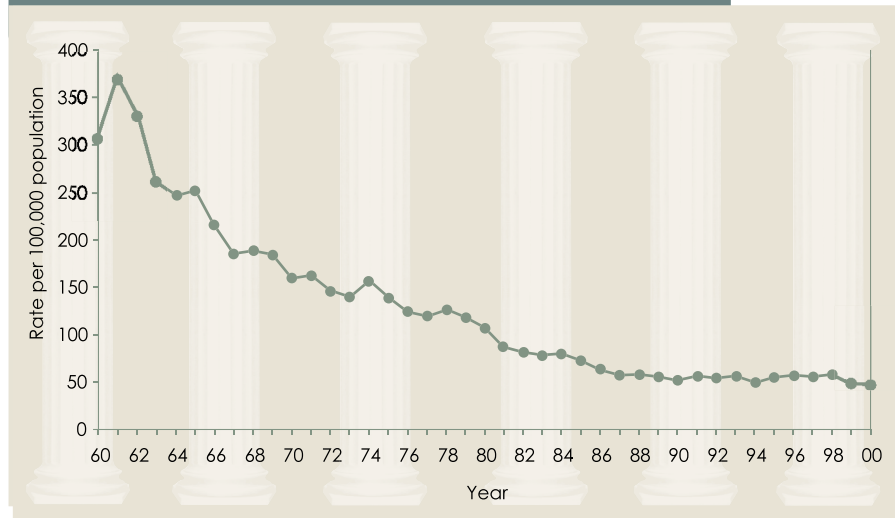
Singapore was well prepared to handle the outbreak situation. The availability of standard operating procedures, prepared well before the outbreak, and joint efforts by parents, staff of childcare centres and kindergartens, medical practitioners and staff of hospitals and clinics, enabled the HFMD Taskforce to interrupt the chain of disease transmission rapidly and control the situation effectively.

Tuberculosis

Since 1987, after more than a decade of stagnation, the rate of new tuberculosis cases declined from 57 per 100,000 in 1998 to 48 per 100,000 population in 1999. The rate continued its decline to 47 per 100,000 in 2000. This could be attributed to improved surveillance and treatment strategies adopted since 1997 under the Singapore TB Elimination Programme (STEP).

STEP was implemented in Apr 1997 to strengthen the existing TB Control Programme with the aim of eliminating the disease in fifteen years' time. Strategies include treatment of infectious TB cases, early detection (case finding), chemoprophylaxis for infected contacts, and prevention (BCG vaccination). The STEP Surveillance System was enhanced in 2000 to facilitate surveillance and monitoring of TB cases.

Figure 6.1: Rate of Tuberculosis in Residents, 1960 – 2000



The TB Control Unit (TBCU) which administers the TB Control Programme is responsible for the treatment of more than a third of the new TB cases in 1999. Of those managed at TBCU, the proportion on Directly Observed Treatment, Short (DOTS) Course improved from 36% in 1997 to 70% in 1999.

Hepatitis B

Reported cases of Hepatitis B infection in Singapore decreased from 140 cases in 1999 to 117 cases in 2000. In late 1999, a survey conducted by the Ministry found that 4.1% of Singapore residents aged 18 – 69 years were Hepatitis B carriers. The carrier state was more common among the males and the Chinese. The overall Hepatitis B immunity rate was 40%, with the young age group of 18-29 years having the lowest immunity rates.

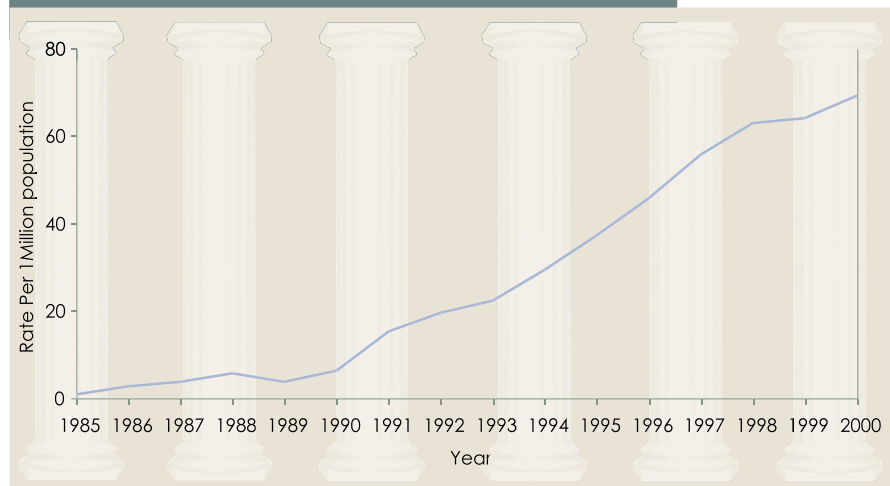
Prevention through immunisation is a key strategy in the Hepatitis B control programme in Singapore to prevent liver cancer. Over the last six years the coverage of infants who completed the full course of Hepatitis B immunisation has been about 90%.

In 2001, the Ministry will implement a four-year Hepatitis B immunisation programme for students born before 1987 and are not covered with Hepatitis B immunisation under the Childhood Immunisation Programme. The Ministry encourages Singaporeans who have not immunised themselves against Hepatitis B or are at risk of contracting the disease to be screened and immunised.

Human Immunodeficiency Virus & Acquired Immunodeficiency Syndrome

Since the first reported cases of Human Immunodeficiency Virus (HIV) infection in 1985, 1,362 Singaporeans were reported with HIV infection as at Dec 2000. Of these, 556 were asymptomatic carriers, 328 had Acquired Immunodeficiency Syndrome (AIDS) and 478 had died.

Figure 6.2: Rate of HIV Infection Among Singaporeans, 1985 – 2000



Over 95% of the cases were infected through sexual contact. Most of these were single males in the 20 – 49 age group.

The key to the control of AIDS in Singapore is prevention through health education. A multi-sectoral and multi-disciplinary approach has been adopted to disseminate the main message to the public, which is to remain faithful to one's spouse and to avoid casual sex as well as sex with prostitutes.

Sexually Transmitted Diseases

The incidence of sexually transmitted diseases (STDs) continued to decline from 1,013 per 100,000 population in 1980 to 156 per 100,000 population in 2000. Gonorrhea, non-gonococcal urethritis and syphilis remained the most common STDs. More males, usually in the younger 25-29 year age group, are affected.

The Department of STD Control is responsible for administering the National STD Control Programme. The main components of the STD Control Programme are early diagnosis and adequate treatment, contact tracing and health education. Special health education programmes were conducted for high-risk groups.

PRIMARY

Care for Your Health

Primary Health Services

Primary healthcare involves the provision of primary medical treatment, preventive healthcare and health education. In Singapore, primary healthcare is provided through an island network of outpatient polyclinics and private medical practitioners' clinics. About 20% of primary healthcare is provided through the 16 polyclinics, whilst the remaining 80% is provided through some 1,900 private medical clinics. Each polyclinic serves as a one-stop centre that provides outpatient medical care, follow-up of patients discharged from hospitals, maternal and child healthcare (including immunisation), health screening and education, diagnostic (such as laboratory and x-ray services) and pharmacy services. Selected polyclinics also provide dental care, rehabilitation services for the elderly and outpatient psychiatric services.

School Health Service

The School Health Service (SHS) provides health screening, immunisation and health promotion to students through school-based services. During health screening, students who require further assessment and management are referred to the Student Health Centre at the Institute of Health (IOH).

Immunisation continued to be an important focus of SHS' efforts to maintain a high level of protection of school children against diphtheria, tetanus, poliomyelitis, measles, mumps, rubella and tuberculosis. In 2000, SHS administered immunisation to 93% of the target groups.

A seroprevalence study in Singapore revealed that 60% of teenagers and young adults in Singapore, aged 15 to 24 years, were susceptible to Hepatitis B infection. Most children over the age of 13 years had not been immunised with the Hepatitis B vaccine as the vaccine was only included in the National Childhood Immunisation Programme in 1987. To protect these children from Hepatitis B infection and its potential long term complications of chronic Hepatitis and liver cancer, the Ministry will implement a Hepatitis B immunisation programme for students in secondary 3, junior college year 2 and centralised institute year 3, institutes of technical education, polytechnics, universities and full-time national servicemen over a four-year period from 2001 to 2004.



A nurse keying in health information directly into the SHS new School-based Health Programmes System.



School-based immunisation for Diphtheria/Tetanus.



RA Teo Chee Hean officiating at the launch of the CHERISH Award.

CHERISH Award

The "Championing Efforts Resulting in School Health (CHERISH)" Award was launched in Oct 2000. The Award is part of the health promoting school award scheme to motivate schools to take a more pro-active approach in nurturing physical and mental health and helping students adopt healthy behaviours and to recognise such efforts by the schools. The concept of a health promoting school, which was developed by the WHO, is one that constantly improves itself as a healthy setting for children and youth to study and play. It fosters good physical, social and mental health and healthy learning and involves staff, students, parents and the community.

State of Health of Students

The general health of the students remained good. The common health problems detected continued to be defective vision (mainly myopia) (54%), obesity (13%), asthma (9%) and underweight (8%).

The prevalence of defective vision in primary one students was 33%, an increase of 3% compared with 30% in 1999. The prevalence of defective vision increased from 62% in 1999 to 65% in 2000 among primary six students and from 63% to 64% among secondary four students.

Obesity rate increased slightly from 10.2% to 10.8% in primary one students, 13.5% to 14.7% in primary six students and 11.6% to 13.1% in secondary four students.

Dental Service

The Dental Service, comprising the School Dental Service (SDS) and the Community Dental Service (CDS) aimed to prevent the onset and spread of oral diseases, promote good oral health and treat oral conditions of school children and adults.



Toothbrushing Drill at Jervois Special School.

Community Dental Service

The Community Dental Service provided basic dental services to the public at ten polyclinic dental clinics. On 1 Oct 2000, with the re-organisation of the public healthcare delivery system, the Community Dental Service was restructured. Bedok, Geylang, Tampines and Queenstown Dental Clinics were restructured along with the polyclinics and joined SingHealth. Bukit Batok, Choa Chu Kang, Jurong, Hougang, Toa Payoh and Woodlands Dental Clinics joined NHG. The School Dental Services was integrated into the Health Promotion Division of the Ministry.



Student dental therapists practising operative techniques on 'dummy heads'.

School Dental Service

The School Dental Service (SDS) provides comprehensive dental care to school-going children through 184 primary school dental clinics, 6 mobile dental clinics and the School Dental Centre at IOH.

SDS also promotes dental health among the pre-schoolers, and reaches out to parents and teachers to raise awareness of the importance of dental health, the cause, prevention and treatment of oral diseases.

SDS embarked on a three-year upgrading programme of the primary school dental clinics, replacing old dental chairs and other dental equipment starting in FY2000. This was carried out in tandem with the Ministry of Education (MOE) primary schools building and upgrading programmes. During the year, seven new school dental clinics were commissioned and four were either up-graded or relocated to new sites.

For the continuation of dental care to all the school-going population, the dental programme will be extended to all secondary school children. This six-year programme beginning in 2001 will involve the acquisition of 20 mobile dental clinics and setting up of 53 field dental clinics in the secondary schools.

HOSPITALS

and Specialty Centres

Introduction

In Singapore, 21 hospitals and six specialty centres provide a complement of 11,798 beds, or 1 bed to 341 population in 2000. The 14 public sector hospitals and specialty centres accounted for 81% (9,556) of total hospital beds and provided treatment spanning 32 specialties. The six national specialty centres for cancer, eye, heart, neuroscience, skin and dental diseases complement the hospitals by providing specialist care for patients in the respective specialties. Of the six specialty centres, the three centres for eye, skin and dental conditions provide ambulatory care only. Patients who need inpatient care for their skin, eye and dental conditions are admitted to the respective hospitals to which they are affiliated.

The remaining 19% (2,242) of the hospital beds were distributed over 13 private hospitals.

Clustering of the Public Healthcare Delivery System

In Oct 2000, the public healthcare delivery system in Singapore was divided into two clusters, serving the Eastern and Western region of the nation respectively:

- | | |
|--|--|
| a. Singapore Health Services Pte Ltd
(SingHealth) | : 4 hospitals
7 polyclinics
4 National Centres |
| b. National Healthcare Group Pte Ltd
(NHG) | : 4 hospitals
9 polyclinics
2 National Centres |

The clustering of the healthcare delivery system would promise co-operation amongst the institutions within the cluster, foster vertical integration of services and enhance synergy and economies of scale. The friendly competition between the two clusters will spur them to innovate and improve the quality of care while ensuring that medical costs remain affordable.

Table 8.1: Bed Complement at Hospitals and Specialty Centres in the Eastern (SingHealth) and Western (NHG) Clusters of Singapore

Singapore Health Services Pte Ltd (SingHealth)		National Healthcare Group Pte Ltd (NHG)	
Public Sector Hospitals and Specialty Centres	Bed Complement	Public Sector Hospitals and Specialty Centres	Bed Complement
Singapore General Hospital (SGH)	1,434	National University Hospital (NUH)	957
Changi General Hospital (CGH)	801	Tan Tock Seng Hospital (TTSH) – includes CDC and TTSH Rehabilitation Centre at AMKCH	1,314
KK Women's and Children's Hospital (KKH)	898	Alexandra Hospital (AH)	404
National Cancer Centre (NCC)	85	Institute of Mental Health (IMH) / Woodbridge Hospital (WH)	3,114
National Heart Centre (NHC)	186	National Skin Centre (NSC)	—
Singapore National Eye Centre (SNEC)	—	National Neuroscience Institute (NNI)	—
National Dental Centre (NDC)	—		

Private Sector Hospitals

13 private hospitals complement the public healthcare clusters in providing healthcare services to the public. The table below lists the bed complement for each of these institutions.

Table 8.2: Bed Complement at Private Sector Hospitals

Private Sector Hospitals	Bed Complement
Mount Elizabeth Hospital (MEH)	505
Gleneagles Hospital (GEH)	328
Eastshore Hospital (ESH)	157
Mount Alvernia Hospital (MAH)	303
HMI Balestier Hospital (HMI BH)	62
Johns Hopkins Singapore Clinical Services	14
Thomson Medical Centre (TMC)	191
Ren Ci Hospital (RCH)	294
St Andrew's Community Hospital (SACH)	60
St Luke's Hospital for the Elderly (SLH)	224
Kwong Wai Shiu Hospital (KWSH)	30
Adam Road Hospital (ARH) – psychiatry	49
Raffles SurgiCentre	25

Service Coverage

In 2000, the eight public sector hospitals and three specialty centres (NCC, NHC and NNI) accounted for 78% of total hospital admissions (390,370), while the 13 private hospitals accounted for the remaining 22%. The number of admissions in 2000 was marginally higher (4%) as compared to 1999 (373,502).

Admissions to the public hospitals were mainly the young (0 to 4 years) and the elderly (65 years and above), all of whom were at rates well above 100 admissions per 1,000 population. KKH, the only women's and children's hospital, saw the highest number of admissions (68,430). SGH, the largest acute hospital, was second with 62,296 admissions.

Besides Ang Mo Kio Community Hospital (AMKCH) and Woodbridge Hospital, the remaining six public hospitals provide Accident and Emergency services. The Accident and Emergency (A&E) departments of these hospitals registered 556,583 attendances in 2000, 1% less than that in 1999 (561,598). Some 85% (474,922) were emergency cases, including 104,437 accident cases, of which 24% (28,924) were discharged; 18% (20,539) were work-site related; and 13% (14,051) were road traffic accidents.

The four private sector acute hospitals, Mount Elizabeth, Gleneagles, Mount Alvernia and Eastshore, operated 24-hour emergency clinics but did not cater for major trauma cases.

In 2000, the Specialist Outpatient Clinics (SOCs) from the public sector hospitals and the five specialty centres for eye, cancer, neuroscience, heart and skin diseases registered 2.74 million attendances or 682.8 per 1,000 population. This is 3% more than the 2.66 million attendances for 1999, or 672.2 per 1,000 population. Ophthalmology recorded the highest SOC attendances (342,953), followed by General Medicine (332,119) and Orthopaedic Surgery (286,097).

Step-down care was provided by the community hospitals (AMKCH, Ren Ci Hospital, St Andrew's Community Hospital, St Luke's Hospital and Kwong Wai Shiu Hospital).

AMKCH continued to be the only public sector community hospital. It provided convalescent and rehabilitative care for post-operative patients discharged from acute public hospitals and those suffering from acute episodes of illness such as stroke. Focus is on restoring patients' functionality to maximal independence through holistic treatment so that patients who return home can be re-integrated into the community easily.

Ren Ci Hospital, St Andrew's Community Hospital, St Luke's Hospital and Kwong Wai Shiu Hospital are step-down facilities operated by Voluntary Welfare Organisations (VWOs) with grants from the Government to provide community care for the aged and chronic sick.

The two national healthcare clusters, National Healthcare Group (NHG) and Singapore Health Services (SingHealth) were incorporated on 31 Mar 2001 to own and manage a cluster of vertically integrated public healthcare service providers.



NHG

NHG manages a network of hospitals, national specialty centres, polyclinics and business/service divisions. The institutions are :

Alexandra Hospital (AH)

National University Hospital (NUH)

Tan Tock Seng Hospital (TTSH)

Institute of Mental Health (IMH)/Woodbridge Hospital (WH)

National Neuroscience Institute (NNI)

National Skin Centre (NSC)

As a cluster, NHG has 9,500 staff. The Group accounts for half of the public sector healthcare volume and provides a full-range of medical specialties such as Cardiology, Diagnostics Imaging, Geriatric Medicine, Laboratory Medicine, Neonatology, Neurology, Obstetrics and Gynaecology, Oncology, Ophthalmology, Orthopaedic Surgery, Otolaryngology, Paediatric Medicine and Surgery, Pathology, and many other specialties.

Geographically, NHG is spread over two-thirds of Singapore, with presence in major new towns as Choa Chu Kang, Jurong, SengKang and Woodlands. The NHG cluster of institutions sees about 3 million outpatient attendees. About 120,000 patients are admitted to or operated on in its institutions per year. The new Western General Hospital, to be completed in 2005, will be part of NHG.

NHG's Vision, Mission and Values

Vision

Adding years of healthy life to the people of Singapore

Mission

To improve health and reduce illness through patient-centred quality healthcare that is

- Accessible and seamless;
- Comprehensive, appropriate and cost-effective; in an environment of continuous learning and relevant research.

Values

- Integrity
- Compassion
- Professionalism
- Respect
- Collegiality
- Social Responsibility

NHG's Highlights of the Year 2000

- Several initiatives were implemented by NHG in 2000:
 - Direct Access Scheme which allows patients at NHG Polyclinics to be transferred without hassle to NHG hospitals for admission or urgent specialist attention;
 - NetCare, an Internet portal providing a suite of online services designed to help both patients and doctors interact with NHG institutions to better manage patients' medical needs; and
 - NHG Cancer Programme, an integrated, patient-centred system aimed at decreasing cancer mortality and morbidity.
- Key Highlights of the NHG Institutions:
 - **Restructuring** was conducted in Oct 2000 for the following NHG institutions:
 - Institute of Mental Health/Woodbridge Hospital
 - Alexandra Hospital
 - NHG Polyclinics
 - **AH** started its *expansion of clinical services* in Oct 2000 as part of its efforts to become a full service hospital. It started with providing ophthalmology services in Oct 2000 and other new clinical services in the pipeline include mammography and podiatry services.
 - **NUH** entered a partnership with world-renowned institution, Johns Hopkins to form the Johns Hopkins-NUH International Medical Centre in Oct 2000 which aims to draw the best from both institutions to establish an academic medical centre of excellence which will develop and harness academic medicine to stay in the forefront of medicine.
 - **NUH** launched the clinical cancer genetics service in Oct 2000 to help patients identify their cancer risk, identify families at risk for hereditary cancer syndromes, provide genetic counselling and discuss genetic testing with selected families.



NNI Official Opening by Minister of Health, Mr Lim Hng Kiang (left to right: Mr Michael Lim, Mr Lim Hng Kiang, Prof. Richard Johnson and Mr Tan Tee How).

- **TTSH's** opening of the *Independent Living Centre*, in Sep 2000, a training and resource centre that displays aids and appliances that can assist patients/caregivers carry out the activities of daily living in a safer, more independent way.
- **TTSH's** *Nationwide Glaucoma Screening Programme* launched in May 2000, to redress the situation of five percent of Singaporeans aged 60 and above who suffer from undiagnosed glaucoma.
- **IMH's** new services which included the *Behavioural Medical Clinic* in Sep 2000, the *Community Psychiatry Services* in Nov 2000 and the *Early Psychosis Intervention Programme (EPIP)* in Dec 2000.
- **NNI's** official opening by Minister Lim Hng Kiang in Jul 2000 and organisation of the *2nd Stroke Conference* in Dec 2000.
- **NSC's** hosting of the *Laser and Cosmetic Dermatologic Workshop* in Oct 2000, which raised the profile of NSC as a regional dermatological training centre.
- **NHG Polyclinics'** *Comprehensive Chronic Care Programme (CCCCP)* implemented in Oct 2000, aimed at the good management of diabetes, hypertension and hyperlipidaemia as a major step towards improving the health of Singaporeans.
- **NHG Polyclinics'** participation in the *Primary Care Partnership Scheme (PCPS)* in Oct 2000 aimed at providing responsive primary healthcare to elderly Singaporeans who require subsidised care.

SingHealth

SingHealth comprises 4 hospitals, 4 national specialty centres for eye, heart, cancers and dental diseases, and 7 polyclinics. As the largest public healthcare service provider group in Singapore, SingHealth has a total staff strength of 9,553. The institutions are:

- Singapore General Hospital (SGH)**
- KK Women's and Children's Hospital (KKH)**
- Changi General Hospital (CGH)**
- Ang Mo Kio Community Hospital (AMKCH)**
- National Cancer Centre (NCC)**
- National Dental Centre (NDC)**
- National Heart Centre (NHC)**
- Singapore National Eye Centre (SNEC)**



Doctors and nurses attend to patients swiftly at an intensive care unit in Changi General Hospital.

SingHealth's Vision, Mission and Goals

Vision

SingHealth's vision is to be a renowned medical organisation at the leading edge of medicine, providing quality care to meet our nation's needs.

Mission

The mission of SingHealth is to deliver quality care to every patient through comprehensive, integrated clinical practice, innovation and lifelong learning. All SingHealth institutions are committed to upholding the three pillars of clinical services, training and research which form the core of the cluster's operations.

Goals

SingHealth is dedicated to meeting the expectations of our patients for excellence and cost-effective healthcare; our staff for continuing development and growth; and our nation to work in partnership to promote health.

SingHealth's Highlights of the Year 2000



Providing friendly care is important to staff at Changi General Hospital.

- **One-stop SGH Haematology Centre**

One-stop SGH Haematology Centre was officially opened on 2 Nov 2000 to offer a comprehensive range of haematological services for patients seeking specialised treatment for blood disorders. The centre provides consultation, laboratory investigations as well as chemotherapy services on an outpatient basis to its patients.

- **ENT (Ear, Nose and Throat) Centre, SGH**

ENT (Ear, Nose and Throat) Centre, SGH was officially opened on 17 Jun 2001 to provide a seamless service that focuses on enhancing the comfort and convenience of patients. The Centre houses the Vertigo, Voice, Cochlear Implant, Hearing, Tinnitus and Allergy Clinics. The diagnostic unit provides the various investigations and tests, while a treatment unit is equipped with a minor operating theatre and procedure room to allow for ambulatory surgical procedures under local anaesthesia.

- **Rehabilitation Medicine Unit, SGH**

Rehabilitation Medicine Unit, SGH was set up on 4 Sep 2000, to provide a multidisciplinary, intensive rehabilitation programme to help patients with disabling conditions such as stroke, brain injury, bone fracture or amputation and functional deficits maximise their functional abilities and hence their quality of life. Besides patient care, the unit aims to educate and train rehabilitation medicine specialists and paramedical staff to meet the impending rehabilitation needs of a rapidly ageing population. A new rheumatology service was added by its Internal Medicine to enhance the range of its services for patients, providing regular outpatient clinics and inpatient consultations.



Children with asthma are encouraged to take part in physical activities like swimming to keep fit. The commonest allergic airway condition affecting children, asthma affects one in five children below 16 in Singapore.

- **Shared Care Programme in Managing Childhood Asthma at KKH**

Shared Care Programme in Managing Childhood Asthma was developed by KKH to establish open communication between GPs and its specialists to provide a holistic approach in managing paediatric patients suffering from asthma.
- **New Dermatology and Sports Medicine Clinic at CGH**

New Dermatology and Sports Medicine Clinic at CGH added to the range of services provided for the convenience of patients staying in the eastern sector of Singapore. In addition, CGH has been actively introducing e-initiatives, including allowing patients to request for their medical reports on-line and book an appointment through the website.
- **Comprehensive Chronic Care Programme**

Comprehensive Chronic Care Programme (CCCP) for patients suffering from chronic disease conditions such as hypertension, diabetes mellitus and hyperlipidaemia was piloted in Tampines Polyclinic from Oct 2000 and will be rolled out to all polyclinics.
- **Primary Care Partnership Scheme**

Primary Care Partnership Scheme (PCPS) at two SingHealth Polyclinics – Institute of Health and Tampines – to form a network with interested private GPs operating in the Jalan Besar, Kreta Ayer and Simei areas to provide subsidised acute care to needy elderly residents.
- **Singapore's First Lung Transplant**

The first lung transplant under Singapore's Lung Transplant programme jointly run by NHC and SGH's Respiratory Medicine Unit was successfully performed by a team from SGH, NHC and NCC on 20 Nov 2000. The recipient, who was suffering from end-stage lung disease, has since shown remarkable improvement in his condition. He can walk and exercise without the need for oxygen therapy.
- **World's first Forearm Replantation to the Shoulder**

Using an innovative technique, SGH's Musculoskeletal Tumour service and the microsurgical reconstructive team performed what could be the world's first forearm replantation to the shoulder of an 8 year old girl in Mar 2000. The patient was suffering from stage 2b osteosarcoma of the proximal humerus, which had already involved the axillary neurovascular bundle. Such an operation using conventional techniques would have necessitated amputation of her forearm. The replanted hand showed promising return to sensation and finger flexor.



A smooth continuum of care for patients at the ENT Centre which organised its facilities and services around the patient.



Patients seeking specialised treatment for blood disorder enjoy an improved level of care and service with the opening of the Haematology centre.



Tumour Board Meetings are an integral part of the programme offered by the KK Gynaecological Cancer Centre.

- **First Bilateral Maxillo-mandibular Advancement Operation in Southeast Asia for Obstructive Sleep Apnea**

SGH carried out the first bilateral maxillo-mandibular advancement operation in Southeast Asia for obstructive sleep apnea. The ENT surgery involved a le Forte 1 osteotomy and bilateral sagittal split osteotomies, where the cranial bone graft is harvested to bridge the bone gaps that arise after maxilla and mandible advancement.

- **Minimally Invasive Unicompartmental Anthroplasty**

SGH's Orthopaedic Department pioneered the use of minimally invasive unicompartmental anthroplasty in the Asian region. The first case was carried out in Nov 2000.

- **Accreditation of KKH Gynaecologic Centre for International Training**

On 31 Aug 2000, the Royal Australian-New Zealand College of O&G (RANZCOG) accredited KKH's Gynaecologic Centre as a recognised training centre for the pursuit of the RANZCOG Certificate/Diploma of Gynaecological Oncology outside of Australia and New Zealand. This is a major achievement for KKH and attests to its coming of age as a comprehensive gynaecological cancer centre with academic and service standards comparable to the world's leading centres, of which the RANZCOG is one.

- **10th Anniversary for Heart Transplant Programme**

Singapore's Heart Transplant Programme under NHC reached its 10th anniversary in 2000. To date, 20 heart transplants were performed. The long-term survival of the transplant patients have been excellent. All have returned to their normal, active lifestyle and are gainfully employed in the community. Although the incidence of heart failure is fast rising, the number of heart transplants being carried out remains low. This is mainly due to the refusal to consent to organ donation. Concerted efforts is being put in to educate the public on organ donation for the benefit of patients who need a heart transplant to return to normal life.

- **Organsational Excellence**

SGH received the Public Service Award for Organisational Excellence at the PS21 Fifth Anniversary Symposium on 11 Jul 2000 for achieving all three Managing for Excellence (MFE) qualifying standards - the ISO 9000 certification, People Developer Standard and the Singapore Quality Class. KKH and NDC achieved the People Developer Standard in Jun 2000.

- **Excellence for Singapore Award 2000**

A/Prof Francis Seow Choen, Head of Colorectal Surgery, received the Excellence for Singapore Award 2000 for making Singapore's presence felt internationally in the field of Colorectal Surgery. The Award also recognises A/Prof Seow for his distinguished achievements as an internationally recognised colorectal surgeon and his outstanding contributions to the training of international surgeons, seminal research and surgical innovations.

- **Participation in Aeromedical Evacuation of SQ 006 Aircrash Victims**

SGH played a major role in the aeromedical evacuation and treatment of the Singapore burns victims in the Nov 2000 SQ 006 aircrash in Taipei. A team of doctors and nurses from the Department of Anaesthesia, Plastic Surgery and Emergency Medicine were mobilised at short notice to transport the three critically ill patients back to Singapore for treatment. The patients fully recovered and were discharged from the hospital.

- **Inaugural National Eye Care Day**

As part of SNEC's 10th Anniversary celebration, the Inaugural National Eye Care Day was launched by Minister Lim Hng Kiang on 9 Dec 2000. Aimed at promoting public awareness of the common blinding conditions and importance of preventive eye care, National Eye Care Day was a community project supported by the Ministry, with participation from NUH, CGH, Singapore Eye Foundation, Diabetics Society of Singapore, Rotary Club of Singapore West as well as 14 community centres and community clubs from all over Singapore. A series of interesting activities including free general eye screening, public talks and an exhibition on common eye conditions, fun quizzes and contests were organised for the public. In all, 1700 people from all walks of life participated in the eye and diabetes screening.

- **International Ophthalmology Congress**

SNEC successfully organised a major international congress on the theme "*Making a Difference*" in Singapore from 1–4 Dec 2000 to commemorate its 10th Anniversary. The 4-day Ophthalmology Congress featured invited lecturers, plenary sessions, symposia, eye banking workshop, scientific papers, posters, film festival, nursing and paramedical programmes, sponsored breakfast and scientific programmes, as well as a live surgery demonstration on the last day. Close to 800 participants from 31 countries, including Singapore, attended the Congress. The President of the Republic of Singapore, Mr S R Nathan and the First Lady graced the Gala Dinner held in conjunction with the Congress.

CARE for the Elderly

Affordable and Better Healthcare for the Elderly

A number of initiatives were implemented in 2000 to provide integrated and quality healthcare for the elderly while keeping the costs affordable and sustainable for the individual, the family and the nation. Other major activities undertaken in the year are given below.

The Ministry Headquarters

In Jun 2000, the Departments of Elderly Care, and the Elderly Policy and Development merged under the Division of the Elderly and Continuing Care (E&CC). The E&CC Division now oversees the provision of healthcare services for the elderly, the disbursement of funding for Voluntary Welfare Organisations (VWO), and is in charge of continuing care services for the terminally as well as the chronically mentally ill.

In line with the Ministry's focus on policy formulation, planning and regulation, the Care Liaison Service, which co-ordinated and facilitated the referral and placement of the elderly sick into nursing homes, was closed in Jun 2000. The role of co-ordination and placement will be undertaken by the healthcare institutions. The two clusters, SingHealth and NHG, will set up an Integrated Care Service, in place of the Care Liaison Service.

Healthcare Services

The range of healthcare services for the elderly is wide as it provides for their many needs. The range of services is shown in Table 9.1.

Table 9.1: Healthcare Services for the Elderly

Care Type	Service Provision
Primary Care	Private GP Clinics Government Polyclinics
Secondary and Tertiary Care	Hospitals & Specialty Centres
Intermediate Care	Community Hospitals
Residential Care	Nursing Homes
Community-based Day Care	Day Rehabilitation Centres Dementia Day Care Centres
Home-based care	Home medical care Home nursing care
Others	Counselling Services Independent Living Centres

In the past year, there were two new home medical/home nursing providers and two new home help service providers. The number of service providers for step-down services are listed in Table 9.2.

Table 9.2 : Step-down Services for the Elderly

Type	No.
Community Hospitals	4 hospitals with a total of 430 beds
Nursing Homes	24 VWO-run and 26 private nursing homes providing a total of about 5,700 beds in the ratio 67%:33% for VWO: Private beds.
Day Rehabilitation Centres (inclusive of senior citizens healthcare centres and multiservice centres)	23 centres
Dementia Day Care Centre	5 centres
Home Medical Service	6 VWO providers
Home Nursing Service	7 VWO providers
Home Help Service	6 VWO providers

Development Projects

Twelve development projects are being developed to meet the healthcare needs of the elderly and those with special needs. Of these, there are seven nursing homes, two community hospitals, two nursing homes for ex-psychiatric patients and one replacement home for ex-lepers. The Ministry will be funding 90% of the \$160 million capital cost for the construction and furnishing of these facilities:

List of development projects

- Ju Eng Home (Phase II)
- All Saints Home
- Man Fut Tong Home
- Bethany Methodist Home
- Bright Vision Hospital & Nursing Home
- Jamiyah Nursing Home
- Lions Home (Toa Payoh)
- Ren Ci Community Hospital
- Simei Community Hospital
- Sunlove Home (Ex-psychiatric patients)
- Sime Integrated Care (Ex-psychiatric patients)
- SILRA Home (Ex-lepers)

Review Committee for Community Hospitals

In view of the evolving role of community hospitals, a Review Committee was set up to review the role, services, provision norms and quality indicators for community hospitals. The recommendations of this Committee will apply to all future community hospitals, and upgrade the standards at these institutions.

Implementation of the Recommendations of the IMC on HealthCare for the Elderly

The implementation of the IMC on Healthcare for the Elderly continued into its second year and the following were achieved:

- (i) The Ministry initiated national disease management programmes to reduce stroke and amputations which are major causes of physical disability in the elderly
- (ii) 76 volunteers were trained to recognise potential problems in the elderly that may lead to disability, to facilitate earlier referrals to healthcare professionals
- (iii) A new booklet, "Common Health Concerns in Older Adults" was published and made available to the public
- (iv) A national community health screening programme was implemented to screen people aged 55 years and above for hypertension, diabetes and cholesterol
- (v) The 3rd graduate Diploma Course in Geriatric Medicine was conducted by the Graduate School of Medical Studies
- (vi) Two training courses were conducted to teach home caregivers skills on caring for the elderly at home
- (vii) Regular focus group meetings were held with stakeholders on healthcare for the elderly
- (viii) Guidebooks on nursing homes, day rehabilitation centres, home nursing, home medical and day care centres for the elderly are in preparation to guide the service providers of these centres

Major Initiatives in the Year

The proportion of the elderly in the population is expected to increase from 7.3% to an estimated 18.4% in 2030. At the same time, the number of economically active adults is expected to decrease during this period. Therefore, a major concern in providing health services for the elderly in the long term was whether the services would be accessible, affordable and sustainable. To achieve this, the Ministry initiated a number of measures in 2000.

3-Tier Subsidy And Means Testing For Nursing Homes

The 3-tier subsidy with means testing was implemented on 1 Jul 2000 in nursing homes whereby a decreasing level of subsidy was given to those with higher per capita household income (Table 9.3). This initiative provides subsidy to a wider proportion of the population, compared to the previous 2-tier subsidy of 75% for public assistance cases and 50% subsidy for those with household income less than \$2,000. Per capita household income removed the disadvantage faced by larger families.

Table 9.3: 3-Tier Subsidy and Means Testing

Subsidy Level	Per Capita Household Income
75%	\$0 - \$300
50%	\$301 - \$500
25%	\$500 - \$700

ElderCare Fund

An ElderCare Fund was set up in 2000 to finance the operating of subsidies to elderly care facilities and services run by VWOs. Currently, subsidies to nursing homes are paid from the government's annual budget. With the ElderCare Fund, operating subsidies will now be fully financed by the interest income of this endowment fund.

With a rapidly ageing population and a shrinking tax base due to a proportionately smaller working population, Singaporeans will find it harder to pay for the increasing healthcare needs of the elderly population after 2010. By putting aside funds now, our future subsidies for the elderly will be secured without having to depend on tax increases. \$500 million capital sum has been injected to the fund so far and the Government targets to provide \$2.5 billion to the fund by 2010.

Framework for Integrated Health Services for the Elderly

In Jul 2000, the Ministry announced the Framework for Integrated Services for the Elderly, to encourage affiliation of various eldercare health services for a more seamless delivery of care. This is to ensure that the elderly are cared for in the most appropriate and cost-effective facility, as well as to upgrade services to one that is more uniform and of a higher quality. Within the framework, the geriatric departments of regional hospitals will take on professional leadership to develop and upgrade step down service in their respective zones i.e. the east, west and central zones. Funding will be provided to selected community hospitals and nursing homes, so that their services can be expanded to include outpatient rehabilitation, home medical and home nursing.

Sites for Private Nursing Homes

To meet the future needs of the more affluent elderly, the Ministry worked with the Urban Redevelopment Authority (URA) to set aside 17 sites for private nursing home development till 2010. One site at Toa Payoh was tendered in 2000 and a nursing home with 250 beds will be built by end 2002. For the next 7 to 8 years, at least 2 sites will be available for tender annually. The aim is to bring the number of private nursing home beds from the current 1,800 to 3,520 beds, or 40% of the national requirement, which is targeted by 2010.

Home Carers Programme

The Ministry followed the recommendation of the Inter-Ministerial Committee by conducting training courses for home carers at grassroots settings.

Forty-three volunteer nurses from the restructured hospitals and polyclinics were trained by the lecturers from Nanyang Polytechnic and Tsao Foundation to conduct the home carers course.

The Home Carers programme was launched at the Kim Seng Community Centre in Jan 2000. During the year, two courses were conducted and 47 home carers were trained. The courses will be made available in other community centres.

Regulatory Activities

Introduction

The regulation and enforcement of high standards of healthcare services and facilities were under the purview of the Service Regulation Division before the re-organisation of the Ministry. In Jun 2000, these functions came under the newly formed Health Regulation Division which comprises three branches: the Licensing and Accreditation Branch, Clinical Quality Branch and the Traditional & Complementary Medicine Branch.

(i) Licensing and Accreditation Branch

The Licensing & Accreditation Branch (L & A) is responsible for the licensing and regulation of healthcare institutions to ensure high standards in the delivery of medical care.

As at 31 Dec 2000, 2,549 healthcare institutions were licensed under the Private Hospitals and Medical Clinics Act (Table 10.1). Ongoing surveillance and inspection of licensed healthcare institutions was conducted throughout the year to ensure compliance with statutory requirements.

Table 10.1: Healthcare Institutions Licensed Under the Private Hospitals and Medical Clinics Act, 2000

Private Healthcare Institutions	Number Licensed
Hospitals	27
Nursing Homes	50
Medical Clinics (including Dental Clinics)	2,404
Clinical Laboratories (independent)	68
Total	2,549

Clinical laboratories which perform HIV testing, malarial parasite testing, ABO Group/Rhesus (D) Type testings and acid fast bacilli testing were accredited based on proficiency testing. Healthcare institutions were accredited before they can provide specialised services such as renal dialysis and ambulatory surgery.

During the year, ad-hoc compliance audits were also conducted on selected healthcare institutions providing yellow fever vaccinations and termination of pregnancy services.

The Branch investigated 45 complaints against healthcare institutions in 2000. Warning letters were issued to two healthcare institutions for contravention of the Private Hospitals and Medical Clinics Act and Regulations, and six healthcare institutions for contravention of the Advertising Guidelines. Legal actions were also initiated against one nursing home and two medical clinics.

(ii) Clinical Quality Branch

The mission of Clinical Quality Branch is to ensure high standards of patient care in healthcare institutions through the regulation of their quality improvement programmes. The Branch aims to drive the professional development of clinical audit at the national level, develop a culture of self-audit among healthcare professionals and improve patient care in healthcare institutions through the use of systematic performance assessments and benchmarking.

The National Medical Audit Programme, first launched in 1998, provides a comprehensive framework by which the quality of patient care provided nationally is measured and evaluated.

In year 2000, as part of this programme, Clinical Quality Branch audited the classification of complicated myomectomy operations performed in Singapore between Jun and Dec 1998. The concern was that simple procedures erroneously classified as complicated would result in patients being overcharged. The results, however, showed that the problem of myomectomy misclassification was not sizable. Only 15.3% of myomectomies were inappropriately classified as complicated.

The Branch also audited the prescribing of Viagra by general practitioners as a follow up to a similar audit done the previous year. There was no indication of systematic non-compliance or serious contravention of the guidelines.

Reports from hospitals on serious adverse events that had occurred, as well as complaints from the public alleging clinical care deficiencies, were reviewed to identify and correct any systemic deficiencies.

From Apr 2000, all acute care hospitals in Singapore formally participated in the Quality Indicator Project (QIP). Hospitals are required to monitor some or all of seven hospital-wide clinical performance measures selected from the QIP set of indicators. The indicators monitored are:

- Inpatient mortality
- Perioperative mortality
- Unscheduled return to operating theatre
- Unscheduled readmission within 15 days
- Unscheduled admissions following ambulatory procedure
- Inpatient admissions following unscheduled returns to A&E Department
- Device utilisation and device-associated infection in the ICU.

These measures provide broad clinical performance data that are analysed by hospitals and used to improve the quality of care provided. The hospitals also submit reports of their activities to the Clinical Quality Branch. These are reviewed closely to ensure that any problems highlighted are addressed and corrected where necessary. The preliminary data have proven to be useful as a first step towards critical analysis and have enabled a number of hospitals to drill down to specific problem areas and effect changes towards quality improvement.

(iii) Traditional and Complementary Medicine Branch

The Traditional and Complementary Medicine Branch is responsible for the regulation of Traditional Chinese Medicine (TCM) practitioners, implementation of tighter control on Chinese Medicinal Materials (CMM) and building up of baseline information on the status of the various forms of complementary medicine in Singapore.

The TCM Practitioners Act 2000 was passed by Parliament on 14 Nov 2000 to provide for the registration of TCM practitioners in phases, starting with acupuncturists. Under the Act, those who want to register as acupuncturists must take and pass the Common Acupuncture Qualifying Examination (CAQE). The CAQE syllabi and information for candidates were made public in the form of a booklet on 7 Jun 2000. Transitional arrangements were planned for existing acupuncturists to be granted full, partial or no exemption from the CAQE based on training qualifications and practising experience. An Acupuncture Upgrading Training Course (AUTC) was started in Sep 2000 to help existing acupuncturists who do not qualify for exemption prepare for the CAQE. The plan is to register all acupuncturists by 1 Jan 2002.

Complementary medicine is a relatively new area of healthcare that needs to be looked into. Since Jun 2000, the Branch started collecting information on complementary medicine and plans to have a good overview of current practices of complementary medicine in Singapore, and possibly abroad.

Support Services

Introduction

The Health Sciences Authority-Autonomous Agency (HSA-AA) applies pharmaceutical, medical and specialised scientific expertise to serve as the national regulatory and scientific agency in the health sciences. Its role encompasses the evaluation and approval of pharmaceuticals and medicinal products and medical devices; radiation protection; the provision of specialised forensic and scientific services; and the provision of transfusion medicine and blood banking services.

HSA-AA comprises five departments, namely National Pharmaceutical Administration, Centre for Drug Evaluation, Product Regulation Department, Institute of Science and Forensic Medicine and Singapore Blood Transfusion Service.



Dr John Lim, Director, National Pharmaceutical Administration, represented Singapore in "The 18th meeting of the ASEAN Working Group on Technical Cooperation in Pharmaceuticals" in Hanoi.

(i) National Pharmaceutical Administration

The National Pharmaceutical Administration (NPA) is the national body administering the regulation of drugs and health-related products to safeguard public health. It is also the national source of unbiased drug information.

Highlights of Activities in NPA in 2000

(a) Accession to Pharmaceutical Inspection Co-operation Scheme (PIC/S)

On 1 Jan 2000, Singapore became the first Asian country to be accorded membership of the Pharmaceutical Inspection Co-Operation Scheme (PIC/S), which is the international body that sets international benchmarks for pharmaceutical Good Manufacturing Practice (GMP) standards.

As a member of PIC/S, the GMP inspection reports issued by the Singapore authority are accepted by other PIC/S members, including Australia, UK and many other EU members. This reduces costs and time for pharmaceutical manufacturers based in Singapore. In addition, it facilitates Singapore's objective of establishing mutual recognition agreements with other developed countries such as Australia and Japan.

(b) Phase 2 Control of Chinese Proprietary Medicines

The regulatory framework for Chinese Proprietary Medicines (CPM) was put in place in 1999 to ensure that CPM sold in Singapore are safe, of good quality and appropriately labelled. The control measures for CPM include licensing of CPM importers, wholesalers, manufacturers and assemblers; pre-market assessment and approval of CPM before they are allowed to be sold in Singapore, and mandatory labelling requirements.

The regulation of CPM is being implemented in three phases over 3 years as follows:

Table 10.2: Regulation of Chinese Proprietary Medicine (CPM) in Phases		
	Type of CPM	Effective Date
Phase 1	Tablets Preparations	from Sep 1999
Phase 2	Liquid Preparations	from Sep 2000
Phase 3	CPM in other dosage forms	from Sep 2001

The year 2000 saw the commencement of phase 2 CPM control, covering oral and external liquid preparations. 2,946 CPM liquid preparations were approved and 134 dealers were licensed by Sep 2000.

From Sep 2000, the Chinese Proprietary Medicines Unit started to process applications for licences and product approvals for products which would be regulated in phase 3. These would include CPM in pill, powder, granule, and cream dosage forms.

(c) Medicinal Product Withdrawal/ Suspension in 2000

During the year, preparations containing the following drugs were suspended or withdrawn from the Singapore market arising from concerns on their inherent health risks:

- Cisapride
- Phenylpropanolamine (PPA)

Due to the rare but serious adverse reaction of cisapride causing life threatening arrhythmias (irregular heart rhythm), product licences for all cisapride-containing products were suspended from 14 Oct 2000. As the drug might still be useful for some patients, the drug is available on a named-patient basis for a few restricted indications. Under this scheme of supply, the doctor has to carefully assess the benefits against the risks of prescribing cisapride for each patient. Before initiating treatment, the doctor has to confirm that the patient does not have other medical conditions or is not taking other medications, which are contraindicated with cisapride.

A study conducted by Yale University concluded that Phenyl-propanolamine (PPA) contained in slimming products could be linked to haemorrhagic stroke in young women. The conclusion of the report prompted the US FDA to call for the withdrawal of PPA containing products from the US Market. Although only PPA- containing cough and cold preparations are available locally, in view of the very serious nature of the adverse effect and the availability of other alternative drugs, drug companies of products containing PPA were requested to voluntarily withdraw the products from the market.

(d) Additional Controls Imposed on Preparations Containing Aristolochia Herbs

Overseas reports on the serious adverse reactions associated with long term use of preparations containing Aristolochic Acid prompted the Ministry to impose tighter controls on Chinese Proprietary Medicines (CPM) containing herbs of the Aristolochia genus. From Oct 2000, CPM containing Aristolochia herbs were required to be labeled with cautionary information. Importers and wholesale dealers are also required to keep purchase and sale records of Aristolochia herbs. For other non-traditional products such as health supplements containing Aristolochic acid, they have to be registered with the licensing authority before they can be sold in Singapore.

Regulatory Activities Performed By NPA

(a) Pre-market Evaluation and Approval of Medicinal Products

During the year, 187 new products were evaluated and approved for registration. In addition, 1,334 and 999 product licences were renewed and amended respectively. At the end of Dec 2000, there were 7,522 registered products in Singapore. The majority of the registered products (68%) were regulated as Prescription-Only-Medicines, with 14% as Pharmacy Medicines and the remaining 18% on the General Sales List.

(b) Control of Medicinal Product Imports via TradeNet

All imports of medicines and other related products are routinely screened through the TradeNet System to ensure that only registered products are imported into Singapore. In 2000, 38,256 consignments containing 150,129 medicinal products and related substances were screened and approved for importation into Singapore.

(c) Licensing of Pharmaceutical Manufacturers and Other Premises

The GMP and Licensing Unit carries out inspection and licensing of pharmaceutical manufacturers and importers/wholesale dealers in accordance with the international GMP and Good Distribution Practice (GDP) standards respectively. The objective of the inspection and licensing activities are to ensure the production of good quality medicine and the preservation of their quality down the supply chain from the manufacturers to the distributors and retailers.

In the year 2000, 51 Manufacturer's or Assembler's Licences were issued; 27 for western products, 3 for cosmetic products, 20 for Chinese Proprietary Medicines and 1 for Controlled Drugs. 240 Wholesale Dealer's Licences were also issued; 84 for western medicinal products; 116 for Chinese Proprietary Medicines and 40 for Controlled Drugs. For retail pharmacies, 289 pharmacy certificates were issued.

(d) Quality Surveillance of Medicinal Products in the Market

The Inspectorate routinely sampled medicinal products from the market for quality testing to ensure that they meet the approved specifications. In the year 2000, 1,086 products were sampled and tested; 4 products were found to be defective and they were immediately recalled from the market. Appropriate legal action was taken against the companies involved.

360 Chinese Proprietary Medicines were also sampled and tested. Twenty-four products were found to be adulterated with substances controlled under the Poisons Act, or containing Western medicinal ingredients or toxic heavy metals above permissible limits. Action was taken against the companies involved.

During the year, 35 product recalls were carried out on CPM, western medicines, tendered products and cosmetic products. In cases where safety was of grave concern, for example, CPM adulterated with codeine, press statements were issued in order to alert the public.

(e) Adverse Drug Reaction Monitoring

The spontaneous reporting of Adverse Drug Reactions (ADRs) by doctors and other health professionals is one of the most important tools used in the monitoring of drug safety after marketing approval has been given.

From Jan - Dec 2000, 373 ADR reports were received from doctors and other health professionals. While the number of reports received in the year 2000 was 14% lower than the previous year, the quality of the reports have improved significantly. The number of serious/fatal ADRs increased from 8% in 1999 to 12% in the year 2000. To ensure that ADRs caused by medicine are detected in a timely manner, the ADR Monitoring and reporting system will be strengthened in the coming years.

(f) Compliance Inspection of Medical Clinics and Chinese Medical Halls

121 medical clinics were inspected, resulting in 40 cases found to be non-compliant. Warning letters were issued to doctors or dentists for discrepancies relating to improper recording or improper handling of medicines. The rest were given verbal warnings or advice.

During the year, 200 premises dealing in Chinese Proprietary Medicines and 4,000 products were inspected. One non-listed oral wash CPM was found during the inspections at 2 Chinese medical halls and the supplier was compounded \$1,000.

(g) Investigation and Prosecution Cases

The Inspectorate conducts investigation on illegal use and supplies of medicinal products. Examples of cases handled are given below:

- An advertisement in the local press that "Placenta Extract Cosmetic Product" from Switzerland was available for sale prompted an investigation resulting in compounding of a beautician for illegal possession of a medical product without a licence. The beautician was compounded \$1,000 for the offence. A doctor was censured and fined \$4,000 by the Singapore Medical Council for having administered an unregistered medicinal product to patients.
- Two illegal sellers of Viagra were prosecuted for sale of a medicinal product without a valid licence. One was fined \$1,400 and the other was sentenced to 2 weeks' imprisonment. Another person illegally selling Viagra was also prosecuted and sentenced to 2 months' imprisonment.
- Investigation was also carried out on illegal sales of codeine cough mixtures. One person was charged in court for the illegal sale of poison under the Poisons Act.

Enforcement of the Smoking (Control of Advertisements and Sale of Tobacco) Act 1993

In the year under review, 7 companies were compounded and 53 companies prosecuted for various offences under the Smoking (Control of Advertisements and Sale of Tobacco) Act 1993. The offences comprised illegal sale of cigarettes to under-aged youth, illegal advertisements and sale of cigarettes with tar content exceeding permissible limits. A tobacco retailer who was convicted twice for selling tobacco products to an under-aged youth was suspended.

In Aug 2000, 4,975 retailers renewed their licences to sell tobacco products while 58 retailers were found to have infringed the law by selling cigarettes without valid licences.

The Smoking Control inspectors continued to conduct surveillance of public places to detect under-aged smokers. During the year, 1,455 under-aged youths were caught smoking or for having cigarettes in their possession. First time offenders were given warning letters while 903 were compounded and 161 were prosecuted. Parents and school principals were also kept informed of the offences.

In addition, 390 cigarette samples from the local markets were analysed for tar and nicotine content. Of these, 7 samples were found to have tar/nicotine contents above the legal limits and the manufacturers responsible were charged and fined by the court for the offences.



Dr Clarence Tan, DDMS (HS) addressing the participants at the Drug Evaluation Seminar.

(ii) Centre for Drug Evaluation

The Centre for Drug Evaluation (CDE) is complementary to the regulatory role of NPA in the evaluation of new therapeutic substances. CDE is developing an incremental capability for the evaluation of new drugs which have yet to obtain marketing approval in other developed countries. In the year 2000, CDE completed the evaluation of 6 new drug applications with approval by the Medical Advisory Council.

CDE organised a Regional Drug Evaluation Seminar from 5 - 6 May 2000 that brought together 150 experts from the USA, Europe and the region to share their experiences in drug evaluation and regulation; and to discuss regional and international harmonization issues. The proceedings of the Seminar were published as a CDE publication entitled "Drug Evaluation in the New Millennium: Regional & Global Networking".

(iii) Product Regulation Department

The Product Regulation Department spearheaded the development of the regulatory framework for the safety, quality and efficacy of medical devices. The Medical Devices Control Programme has been planned for progressive implementation, and a fully regulated market is targeted for 1 Apr 2003, after the enactment of the necessary legislative provisions.

The Department also administered the Contact Lens Practitioners Act through the registration and licensing of contact lens practitioners and the enforcement of the Act and its regulations. As at 31 Dec 2000, there were 372 licensed contact lens practitioners.



(iv) Institute of Science and Forensic Medicine

The Institute of Science and Forensic Medicine (ISFM) provided scientific services and forensic medicine services in support of health, safety and law enforcement. These services were provided through the Department of Scientific Services and the Department of Forensic Medicine.

(a) Department of Scientific Services

The Department of Scientific Services (DSS) provided radiation protection services, forensic science services, narcotics analysis, food and drug testing, cosmetics analysis and toxicological analysis to both government departments and the private sector. Special emphasis was placed on the delivery of cost-effective services and on training, proficiency testing and quality management.

Various innovations were implemented in the different laboratories of all 3 divisions of DSS, namely the Radiation Science Division, Forensic Science Division and Health Science Division. The range of innovation included the acquisition of new enabling technologies, research and development, process innovations to enhance productivity and effectiveness and organisational improvements that resulted in more responsive service and shorter turn-around times of services.

(b) Department of Forensic Medicine

The Department of Forensic Medicine (DFM), ISFM supported the State Coroner, Police Attorney-General's Chambers and the Courts. In addition, it provided medico-legal consultation not only to public sector hospitals and institutions but also to the Ministries of Manpower and Community Development and Sports. DFM was actively involved in the teaching of medical undergraduates and post-graduates, police personnel and nurses.

In the area of forensic pathology, DFM investigated 3,450 Coroner's cases and performed 2,136 Coroner's post-mortem examinations in 2000.

In the specialty of clinical forensic medicine, DFM provided consultation to clinicians, particularly in cases of medico-legal significance, such as suspected child abuse. In the area of paternity testing, 124 cases were received in 2000, of which 8 cases were referred by the Police. Requests for laboratory examinations for sexual assault amounted to 355 cases in 2000 and these included 301 female victims, 17 male victims and 37 male alleged offenders.



(v) Singapore Blood Transfusion Service

The Singapore Blood Transfusion Service (SBTS) is responsible for ensuring an adequate and safe national blood supply. For more than 50 years, it has been the primary agency involved in the collection, processing and distribution of blood and blood components to all public and private sector hospitals in Singapore.

SBTS, which has been conferred the status of WHO Collaborating Centre in Transfusion Medicine for the Western Pacific region since 14 Jan 1992, acted as a reference centre for immunohaematology and tissue typing in transfusion medicine in the region. It conducted research to upgrade blood bank techniques, improved screening tests for infectious agents and provided training programmes for blood transfusion services for the Western Pacific region. It hosted two visits from the regional representatives of WHO to affirm ties and collaborations.

(a) Blood Collection

In 2000, SBTS saw 65,681 blood donations collected from 47,394 donors. From these donations, 156,428 units of components were processed and 120,102 units were used by hospitals.

As part of the recognition for their altruistic act and continuous support for the National Blood Programme, different levels of awards were given to blood donors. In 2000, there were 89 male Champion Blood Donors (who achieved 50 blood donations), 19 male Gift-of-Life Donors (who achieved 100 blood donations), 15 female Champion Blood Donors (who achieved 35 blood donations) and 2 female Gift-of-Life Donors (who achieved 70 blood donations).

(b) New Screening Technology

The world-wide focus on blood transfusion transmitted diseases has resulted in a sharp increase in infectious disease testing technology and an expanding role of possible organisms that can be spread through transfusion.

In 2000, SBTS introduced the PRISM to replace the ELISA testing for HIV, Hepatitis B and Hepatitis C. This provided a faster turnaround time for blood supply to all hospitals in Singapore.

A significant milestone in the enhancement of blood safety was the introduction of Nucleic Acid Testing for HIV and HCV in Oct 2000. This has shortened the window period for HIV from 22 days to 11 days, i.e., 50% reduction; and HCV from 82 days to 23 days, ie, 72% reduction.

(c) Provision of on-going training on blood transfusion services

SBTS conducted various training activities to different health personnel of local and regional healthcare institutions as well as the Red Cross staff and volunteers from the region. Topics ranged from specialized blood transfusion development, blood collection and processing to blood donation.

On 20 - 21 Oct 00, it co-hosted a symposium, "Evolving Issues in Blood Transfusion Medicine", with the American Red Cross and the Singapore Society of Haematology. It also organised the National ABO Group and Rhesus Type Proficiency Testing Programme for all hospital and private laboratories performing blood grouping. The results of the Proficiency Testing Programme were used in accreditation of laboratories by the Ministry for blood grouping. In the year 2000, SBTS introduced an external proficiency testing programme in pre-transfusion testing for hospital transfusion laboratories, which included blood group testing, red cell antibody screening and cross-matching.

Highlight of Activities in 2000

(a) World Health Day 2000

The theme of the World Health Day 2000 was, “Safe blood starts with me - Blood saves lives”, and SBTS collaborated with the Singapore Red Cross Society (SRCS) and conducted various activities that were held from 7 Apr to 7 May 2000.

In the ceremony to commemorate World Health Day 2000 on 7 Apr 2000, the Minister for Health announced a new partnership between SBTS and SRCS. The SRCS, with its strong community ties and tradition of humanitarian work, would bring refreshing and new strengths to the National Blood Donor Recruitment Programme. This would allow the SBTS to focus on the professional and technical aspects of collecting, processing and testing blood and promoting high standards of blood transfusion practice. SBTS would then be in a better position to meet the challenge of maintaining an adequate and safe national blood supply to support the needs of the population.

(b) National Emergency Blood Exercise 2000

The blood collection and processing capability during national emergency was tested in the National Emergency Blood Exercise (NEBE) held on 14–17 Sep 2000. The Exercise was held on a nationwide scale for the fourth time to reach out to all available and eligible members of the Singapore population to donate blood.

With the Ministry taking the lead, SBTS was the key agency which took part in the nation-wide exercise with the other bodies such as the Singapore Red Cross Society, People's Association, Singapore Civil Defence Force and Singapore Armed Forces. All participating agencies were made familiar with the operational procedures in an emergency blood collection.

Training

A number of training activities for nurses took place in 2000.

I. Training of Enrolled Nurses

In Jan 2000, the training of Enrolled Nurses was transferred from the School of Nursing under the Ministry to the Institute of Technical Education (ITE). Moving Enrolled Nurse training to the mainstream education system will enable nursing to compete with other courses for the large pool of school leavers.

The new curriculum prepares the Enrolled Nurses for role expansion and employability in a variety of healthcare settings. On graduation, the Enrolled Nurses would be awarded the National Certificate in Nursing.

II. Certificate in Bridging Studies for Enrolled Nurses

The Certificate in Bridging Studies conducted by Nanyang Polytechnic provides an opportunity for Enrolled Nurses to upgrade to Registered Nurses. The first batch of Enrolled Nurses successfully completed the Certificate in Bridging Studies for Enrolled Nurses and 32 of them are now pursuing the 3-year Diploma in Nursing Course.

III. Skills Redevelopment Programme

The Skills Redevelopment Programme (SRP) aims to equip trained nurses with advanced skills to meet the standards required of them in the 21st century. The SRP is funded by the Ministry of Manpower and managed by the National Trade Union Congress (NTUC). As the SRP requires national certification, the Singapore Nursing Board accredits the nursing course curricula and the training centres.

IV. Other Programmes

The Ministry facilitated the development of the following programmes:

- **Advanced Skills Programme**

To enhance the competency and expand the job scope of Registered and Enrolled Nurses, the hospitals and institutions conduct Advanced Skills Programmes (ASP). The ASP prepares Registered Nurses to function with greater autonomy, and to be lead agents in co-ordinating care. The role of the Enrolled Nurse will be expanded so that they can take on more basic nursing duties.



Nurses involved in "Return-to-Nursing" Training Scheme

• "Return- to-Nursing" Training Scheme

In view of the shortage of nurses, the Ministry initiated the "Return-to-Nursing" training scheme to equip nurses with knowledge and skills so that they can return to work with confidence. Nurses receive a pre-employment allowance for attending the course, on the condition that they return to nursing either on a full-time or part-time basis. Employers are given a funding incentive for conducting the training.

The programme was piloted in Changi General Hospital, KK Women's and Children's Hospital, and National Heart Centre.

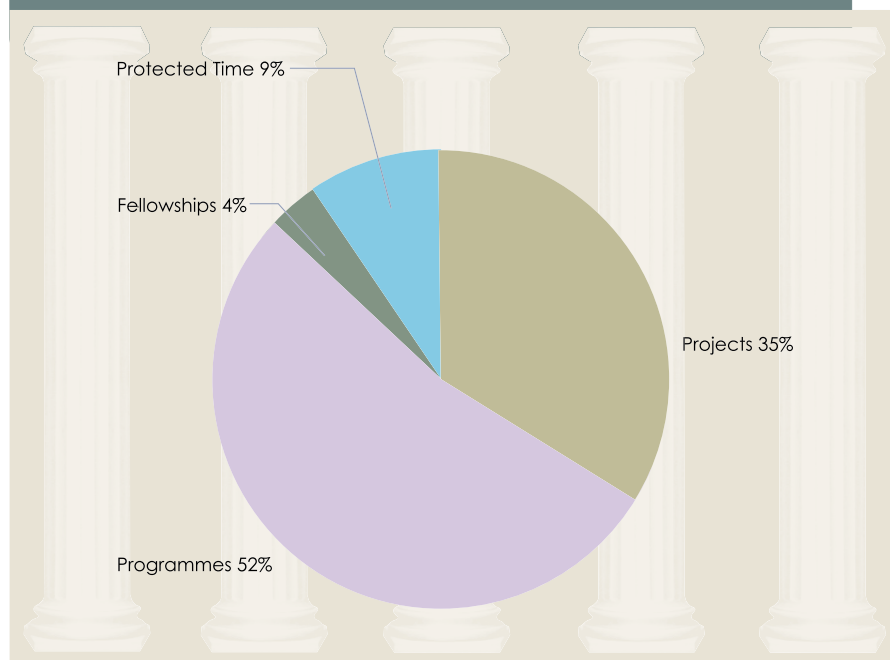
Medical Research

I. National Medical Research Council

The aim of the National Medical Research Council (NMRC) is to improve the health of Singaporeans through promoting and supporting clinical research that leads to the acquisition of new medical knowledge in the restructured institutions, national specialty centres and the university.

In FY2000, \$18.24m was committed for research projects, \$27.28m for research programmes, \$1.83m for fellowships and \$4.87m for protected time (Fig. 11.1).

Figure 11.1: Proportion of Funds Spent on the Various National Medical Research Council(NMRC) Programmes



(i) New Council

The Ministry appointed a new Council on 3 Feb 2000. Professor Lim Yean Leng chairs the current council with members comprising local and overseas medical experts and representatives from the National Science & Technology Board, National University of Singapore, Nanyang Technological University and Kent Ridge Digital Laboratories.

(ii) Fellowship Programme

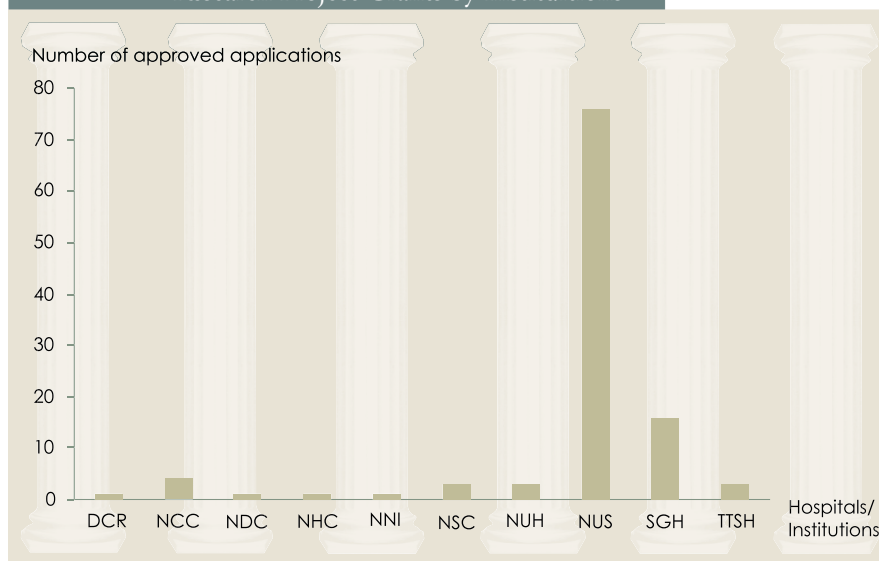
Fifteen fellowships and one scientist award were awarded in FY2000.

(iii) Research Projects

The NMRC had received 1,285 applications for grants for research projects since FY1994. In FY2000, 286 applications were received, of which 109 were approved.

A wide variety of projects (individual and institutional) in the various specialties were undertaken. These projects included the analysis of gene expression profiles for human undifferentiated nasopharyngeal carcinoma, presymptomatic molecular diagnosis of adenomatous polyposis and detection of Herpes Simplex Virus in erythema multiforme by PCR. Other studies examined the functional mechanical properties of large conduit arteries and their potential therapeutic impact in cardiovascular disease, the molecular genetics of Alzheimer's disease and the pharmacokinetics of atropine eye drops for retardation of myopia progression.

Figure 11.2: Number of Approved Applications for Research Project Grants by Institutions



II. Research Programmes

In addition to providing grants to individual researchers, the NMRC also provides funds for the operational expenditure of the various research institutions through the Institutional Block Grant Scheme.

(i) Clinical Trials and Epidemiology Research Unit

The Clinical Trials and Epidemiology Research Unit (CTERU) continued its effort in actively seeking collaboration with local and overseas institutions. This effort would further strengthen the unit's position as an established collaborative centre in South East Asia.

(ii) National Cancer Centre (NCC)

A unit was set up to organize and oversee the clinical research activities in NCC. The three main areas of research under the purview of the unit are clinical trials, clinical pharmacology and epidemiological research.

(iii) National Neuroscience Institute (NNI)

The NNI's clinical and laboratory research programmes focus on innovative prevention, diagnosis and treatment of neurological disease. In particular, a research project for the development of a neurosurgical intra-operative stereo system was approved by the NMRC for funding. The NNI also co-ordinated various multi-centre clinical trials and initiated local epidemiological studies for diseases such as dementia, stroke and epilepsy.

(iv) Singapore Eye Research Institute (SERI)

The SERI's research programme focuses on eye disease prevalence in Asia. It includes epidemiological studies, visual psychophysics, drug development, genetics, clinical evaluations, optical engineering and multi-national studies. Its main research in FY2000 was in glaucoma and myopia.

(v) Singapore General Hospital (SGH)

A foundation grant was given for the establishment of a Human Cognition Laboratory for a period of 3 years. The laboratory will focus on bilingualism, conflict resolution in task scheduling and development of functional Magnetic Resonance Imaging (fMRI) methodology.

(vi) Department of Clinical Research (DCR), SGH

The DCR provides laboratory facilities, scientific manpower and statistical services to researchers in government and restructured medical institutes doing basic science, clinical and epidemiological research. The DCR continues to support small research projects with start-up funds.

(vii) Department of Experimental Surgery (DES), SGH

Researchers at the DES conducted 32 research projects in 2000. The Clinical Skills Laboratory was upgraded in 2000 and DES will be upgraded into an open laboratory the following year. An animal husbandry and hospital will also be set up. The realisation of these projects is expected to reap more distinctions in biomedical research for the DES.

(viii) National University of Singapore (NUS)

The NUS Block Grant funded by the NMRC was utilised for the funding of research projects and formation of strong research training programmes to enhance the standards of researchers. Most of the research projects were done at a molecular level. These included genetic sequencing, cell regulations at molecular level, identification of cancer markers and gene expression of cancer cells.

Other research programmes funded by the NMRC included nursing research, mental health research and acupuncture research.

(ix) Nursing Research

Funds provided from NMRC were used to maintain the Ministry's Nursing Research Resource Centre, to research studies and to develop clinical practice guidelines.

Increasingly more research studies were conducted to improve patient care and for nursing development. Some of the studies were presented at international conferences, and published in peer review journals. The research studies funded by NMRC were:

- Work demands, incentive systems and work effort: Exploring the dimensions of the inducements-contribution exchange
- Nurses' perception on physical restraints
- Parents' willingness and actual participation in the care of their child's activity of daily living during hospitalisation
- Retrospective study of sharp injuries amongst healthcare workers and trainees
- Extending the use of peripheral intravenous catheter and administration sets from 72 hrs to 96 hrs
- Nurses' perception of nursing
- Public's and young adults' perception of nursing
- Nursing home staff's perception of the needs of elderly residents
- A survey on the needs as perceived by elderly in residential homes
- Nurses' attitudes towards the mentally ill in a psychiatric hospital

The clinical practice guideline on "Prediction and Prevention of Pressure Ulcers in Adults" was completed and would be published for distribution to all nurses.

Health Manpower Development Plan

Experts from internationally renowned medical centres were also invited under the Health Manpower Development Plan (HMDP) programme to conduct teaching sessions and update professionals in various fields. 50 experts were invited in 2000. The expenditure for HMDP experts for FY2000 was \$542,000.



MOH-Cleveland Clinic Foundation Update
"Update on Dermatology Surgery".

Medical Updates

Medical updates are regularly organised by the Ministry as part of the Continuing Medical Education programmes. The 9th MOH-Mayo Clinic Foundation Update was held in Apr 2000 with the theme, "Cancer". The 11th MOH-Cleveland Clinic Foundation Update with the theme "Update on Dermatologic Surgery" was held in Oct 2000.

Health Service Development Programme

The development of new medical capabilities in our healthcare institutions is necessary to maintain and improve the high standards of our public healthcare system as well as to attain medical excellence.

The Health Service Development Programme (HSDP) funds the following three categories of medical capabilities:

- (i) new cutting-edge medical technology,
- (ii) advanced or experimental treatments which require a period of evaluation, and
- (iii) major augmentations of existing management capability for key diseases.

The HSDP will fund pilot programmes in any of categories mentioned in the context of the provision of a health service. An annual exercise will be held to select projects proposed by the two healthcare clusters for funding under the HSDP. At the end of the pilot periods, each project will be evaluated against its objectives and good projects may be considered for recurrent funding.

GLOBAL

Links

The Ministry continues to enjoy good relations with health authorities and health organisations worldwide. Relations are established through bilateral visits and the Ministry's active participation at international meetings.

Key visits to the Ministry

The Ministry hosted many visiting foreign delegations throughout the year.

Dr E K Yeoh, Secretary for Health & Welfare and Dr William Ho, Chief Executive of Hospital Authority led the Conjoint Visit of the Health and Welfare Bureau of the Hong Kong Special Administrative Region (SAR) and the Hospital Authority Board to Singapore from 23 to 24 Feb 2000. The delegation paid a courtesy call on Mr Moses Lee, Permanent Secretary and was briefed on the healthcare policies, healthcare management and clinical service reforms. The delegation also visited the Singapore General Hospital (SGH), Hougang Polyclinic and Ang Mo Kio Community Hospital (AMKCH).

Dato Seri Laila Jasa Haji Ahmad bin Dato Paduka Matnor, Permanent Secretary of the Ministry, Brunei Darussalam visited the Ministry from 5 to 9 Mar 2000. Dato Ahmad Matnor was accompanied by his wife, Datin Hajah Fatimah and five officials. He paid a courtesy call to Mr Moses Lee, Permanent Secretary. The Brunei delegation was briefed on the National Medical Audit Programme, Hospital Quality Assurance Programme and Public Health Services. During the 4-day visit, the delegation toured SGH, AMKCH, Ang Mo Kio Senior Citizens' Health Care Centre, READYCARE Centre, Lentor Residence (private nursing home), Institute of Health (IOH), HealthZone, IOH Polyclinic and the Ministry of the Environment.



Visit by Her Royal Highness Princess Chulabhorn Mahidol of the Kingdom of Thailand to Singapore from 12 to 17 Apr 2000.

Her Royal Highness Princess Chulabhorn Mahidol of the Kingdom of Thailand made an official visit to Singapore from 12 to 17 Apr 2000, in her capacity as President of the Chulabhorn Research Institute. The visit was at the invitation of Minister Lim Hng Kiang. Her Royal Highness paid a courtesy call on President S R Nathan and met with the Deputy Prime Minister and Minister for Defence, Dr Tony Tan. She visited the National Cancer Centre, Institute of Molecular & Cell Biology, Centre for Natural Product Research, National University of Singapore and Johns Hopkins Singapore.



Dr. Peter Davis, Professor of Public Health, Christchurch School of Medicine NZ, 28 Apr 2000.

Dr Peter Davis, Professor of Public Health, Christchurch School of Medicine, New Zealand and spouse of New Zealand Prime Minister the Rt Hon Helen Clark accompanied the New Zealand Prime Minister on an official visit to Singapore from 27 to 28 Apr 2000. Dr Davis visited the Ministry on 28 Apr 2000. He was given an overview of the healthcare delivery system in Singapore and held discussions with the Ministry's officials on how the results of the National Health Survey are translated into policies and programmes.



Dato' Chua Jui Meng, Malaysian Minister for Health, 3 to 5 May 2000.

Dato' Chua Jui Meng, the Malaysian Minister for Health, led a 10-member delegation on a working visit to Singapore from 3 to 5 May 2000. The delegation was briefed on the healthcare delivery system and healthcare financing. The delegation visited KK Women's and Children's Hospital, Woodbridge Hospital, the Veterinary Public Health Laboratory at the Agri-food and Veterinary Authority of Singapore.

The Myanmar Minister of Health, HE Maj-Gen Ket Sein visited Singapore from 24 to 27 May 2000. He paid a courtesy call on Minister Lim Hng Kiang on 25 May 2000.

Mr Yang Han Yan, Deputy Director-General of the State Bureau of Foreign Expert Affairs, People's Republic of China led a five-member delegation to Singapore from 12 to 14 Jun 2000. They met Mr Willie Tan, Deputy Secretary and visited Tan Tock Seng Hospital.

Mr Shen Mingde, Vice Chairman of the Suzhou Industrial Park Administrative Committee (SIPAC), People's Republic of China, led a delegation comprising 19 officials from Suzhou Municipality and SIPAC to Singapore from 19 to 29 Jun 2000. The delegation was briefed on Singapore's healthcare policy and financing at the Ministry and toured the IOH Polyclinic and Toa Payoh Polyclinic.



Meeting with Zhu Qingsheng, Vice Minister for Health, PRC, at the "International Congress on Traditional Medicine" on 22 Apr 2000, Beijing.

Prof Zhu Qingsheng, Vice Minister for Health, People's Republic of China, led a five-member delegation to Singapore from 21 to 25 Aug 2000 to attend the First Meeting of the Sino-Singapore Committee on Traditional Chinese Medicine Cooperation. Prof Zhu paid a courtesy call on Minister Lim Hng Kiang. The delegation was briefed on Singapore's healthcare financing framework. The delegation also visited the SGH and Geylang Polyclinic.

Mr Jeff Hunter, Member of Parliament, New South Wales, Australia visited Singapore on 15 Aug 2000. He was briefed on health issues related to drug use and preventive strategies for HIV AIDS, Hepatitis C and Tuberculosis.



Dr. Hanspeter Georgi, Saarland Minister for Economic Affairs, 28 Aug 2000.

The Saarland Minister for Economic Affairs, Dr Hanspeter Georgi led a 23-member business delegation to Singapore from 27 to 30 Aug 2000 to participate in a business matchmaking event organised by the Singapore Productivity and Standards Board. Dr Georgi called on the Parliamentary Secretary, Mr Chan Soo Sen on 28 Aug 2000.

Senator Susan Knowles, who was part of an Australian Parliamentary Delegation to attend the ASEAN Interparliamentary Organisation General Assembly in Singapore, visited the Ministry on 13 Sep 2000. She was briefed on the treatment of ailments related to drug use.

The Speaker, House of Representatives, Indonesia, HE Akbar Tandjung, made an official visit to Singapore from 15 to 18 Sep 2000. He was accompanied by his wife, Ibu Nina Tandjung. Minister Lim Hng Kiang hosted a dinner in his honour on 17 Sep 2000.

Overseas Visits



Visit to the Suzhou TCM Hospital, on 27 Apr 2000, with Director of Suzhou TCM Hospital, Ren Guanrong.

Mr Chan Soo Sen, Parliamentary Secretary led a delegation comprising Mrs Chuo-Ng Peck Hiang, Deputy Director, Traditional Chinese Medicine (TCM) and members of the TCM community in Singapore to participate at the International Congress on Traditional Medicine in Beijing from 22 - 24 Apr 2000. The delegation also visited leading TCM institutions in Nanjing and Suzhou.

Mr Moses Lee, Permanent Secretary visited Hong Kong from 25 to 27 Sep 2000 under the Singapore-Hong Kong Officials Exchange Programme.

International Collaboration with WHO

Thirteen health and health-related departments have been designated as WHO Collaborating Centres. These Centres work with WHO to carry out field studies and serve as reference and training centres for the region.

International Meetings

The Ministry supported a series of international meetings that were held in Singapore during the course of the year. In addition, officers from the Ministry participated at various international/world conferences.

The Ministry actively pursues programmes and activities that translate into service improvements and the promotion of staff well being. These programmes and activities are co-ordinated and implemented via the the Ministry's Quality Service, Organisational Review, ExCEL and Staff Well Being Committees.

I. Quality Service Committee

In year 2000, the Quality Service Committee continued to drive its departments and institutions to improve the level of service provided to customers and patients. It worked closely with the Quality Service Managers of these organisations to ensure that service excellence and continuous service improvements are the responsibilities of every staff.

The Ministry participated in the Quality Service Exhibition organised as part of the PS21 5th anniversary celebrations in 2000. The week-long exhibition titled 'Innovate My Life!' was held at Suntec City and Plaza Singapura on 11-12 Jul and 14-16 Jul respectively. Major public service innovations from all 15 Government Ministries were showcased at the exhibition.

Amongst the innovations featured were Changi General Hospital (CGH)'s 'Fit for Life' website and National University Hospital (NUH)'s 'Netcare' project. CGH's website provided a personalised on-line health report and health advice service. With the service, the user no longer requires to visit a hospital or clinic just to know his health status. With the use of the 'Fit for Life' website, he is only required to answer a health questionnaire and key in his clinical measurements before being informed of his general health status.

NUH's Netcare project was featured as one of the innovations for the next millennium. The project is essentially an Internet portal to allow making and changing clinic appointments, bill payment and transaction of other services on-line both for NUH patients and its partners, e.g. GPs and polyclinics. NUH implemented the pilot healthcare Internet portal in Jul 2000. If successful, NetCare will be extended to cover all National HealthCare Group (NHG) institutions in 2001.

Other quality service initiatives that were implemented at the hospitals included:

- (a) the Q-system at Specialist Clinic at CGH : patients at the Specialist Clinic suggested that the hospital consider implementing an electronic Q-system. This will enable patients to better manage their time at the clinics since they will have a better idea of when the consultation is likely to take place.
- (b) KK Women's and Children's Hospital's (KKH) collaboration with Singapore National Eye Centre (SNEC) to set up a Paediatric Ophthalmology Clinic in the Children's Hospital : a one-stop clinic providing a comprehensive range of services including general paediatric ophthalmology, strabismology, amblyopia treatment, retinopathy of prematurity screening and treatment, eye screening for paediatric syndromes, treatment of paediatric glaucoma, cataract and ocular tumour.
- (c) Singapore General Hospital's (SGH) implementation of the Internet Quotation System where purchases and services required by SGH are advertised through its website. This system has helped SGH in its sourcing efforts as it now has an additional medium to reach out to more suppliers in the market. This has resulted in a higher participation rate and more competitive pricing. The new system means that suppliers no longer need to travel to SGH to view the items required. Neither do SGH staff need to contact suppliers directly to request them to quote for specific items.
- (d) The School Health Service (SHS) replaced its Field Module System (implemented since 1990) with the School-based Health Programmes System (SHPS) in Jan 2000. The new system is faster, easier and more efficient than the previous system in capturing health and immunisation data from the programmes conducted in schools. SHPS is a wireless web-based computer system that allows for greater sharing and accessibility of information online amongst the field staff besides facilitating the subsequent transfer of information between the school and SHS HQ. The system allows relevant health reports, certificates and referrals for students to be printed in the school following the screening and immunisation programmes. Summary reports for parents and teachers and statistical reports can also be generated. The system has greatly enhanced the efficiency and productivity of the SHS field teams and staff. Errors have also been reduced, thereby resulting in more accurate information being captured.



PS browsing through the Roadshow displays.



Distinguished Training Effort (Department) Award – 3rd prize, Ministry of Health, Headquarters.



Annual EXCEL Presentation 2000.

II. ExCEL Committee

Work Improvement Teams

With the restructuring of Woodbridge Hospital (WH) and Alexandra Hospital (AH) on 1 Nov 2000, the number of Work Improvement Teams (WITs) in the Ministry reduced from 239 to 105 teams. However, the participation of our officers in WITs activities remained at 100%. 47 projects were implemented by WITs in the Ministry HQ and the two statutory boards, resulting in cost savings of \$47,850 for the year.

The Ministry HQ continued to provide quarterly critique sessions for our WITs to prepare them for National WITs Conventions. 38 teams participated in the National Quality Circle Conventions and PS21 ExCEL Convention, out of which 11 bagged Gold Awards, and 15 won Silver Awards.

The Ministry's own Annual ExCEL Presentation 2000 was held on 16 Nov 2000. In-line with its theme of "Innovation - The Cutting Edge", the Ministry gave away 4 awards which were previously given by the PS21 Public Sector WITs Convention, namely the Distinguished WITs Effort (Department) award, the Distinguished Effort (WIT) award, the Outstanding WITs Facilitator award, and the Outstanding WITs Leader award. This signified our appreciation of the departments' and individuals' efforts in promoting and participating in WITs activities.

Staff Suggestion Scheme

Since the implementation of the Staff Suggestion Scheme (SSS) in 1995, staff participation has increased from 60% in 1999 to 79% in 2000. The staff suggestion ratio, defined as the number of suggestions received out of the total staff strength, has shown a significant increase, from 1.57 in 1999 to 2.71 in 2000.

Another area that has shown a significant improvement is the quality of the suggestions. The suggestion implementation ratio, defined as the number of suggestions implemented out of the total number of suggestions received, increased from 0.29 in 1999 to 0.46 in 2000.

To allow for greater transparency in the suggestion evaluation cycle, the web-based Automated Suggestion Submission, Evaluation and Tracking System (ASSETS) was enhanced with new features. Staff is now able to see the comments given by evaluators if their suggestions are not accepted.

Training

The Staff was introduced to a new online training system called Training Administration System on Intranet (TRAISI) in Oct 2000. The Ministry of Education and Public Service Division conceptualised the system, and the Ministry was among the first few ministries to implement the system.

With TR AISI, staff could view up-to-date course details. They could also apply and submit their class applications on-line, as well as complete course evaluations and reviews. Officers could also monitor their own training status and hence, take a more pro-active role in their training.

Year 2000 saw an increase in the number of staff trained. 91% of the staff was trained in 2000, compared to 77% in 1999. This was due in part to the Corporate Training Road Maps that were introduced last year as staff made a conscious effort to attend the core training programmes mapped out for their scheme of service. The Critical Enabling Skills Training (CREST) modules continued to be part of the Ministry's core skills training programme.

For a summary of the new initiatives implemented in 2000, please refer to (Table 13.1)

Table 13.1: New Initiatives Implemented in 2000

Activities	New Initiatives	Benefits
WITs	1. Every completed project awarded \$50	Rewards teams for their effort
	2. WITs allocated a maximum of \$100 refreshment allowance for WITs meetings for every completed project	
	3. IQ Bank - WITs/SSS Electronic Newsletter	Better communication with officers on WITs/SSS activities
	4. IQ Quizzes for staff participation	Encourages flexibility and creativity of thoughts in our staff
SSS	1. Enhanced Automated Suggestion Submission, Evaluation and Tracking System (ASSETS)	Allows greater transparency in our suggestion evaluation cycle
	2. Active Division and Suggester awards presented by PS	Recognition given by the management
Training	1. Training Administration System on Intranet (TRAISI) - Users can search for course information, apply for courses and complete evaluations and course reviews on-line.	The system allows for quicker processing time for class applications as all applications are submitted on-line. Staff are also prompted by the system to complete their pre- and post- course reviews.
	2. Monthly Brain Teasers	These were introduced to encourage staff to come up with novel ideas.
	3. Training Logbook	The logbook provides the staff with important information like training definitions and training roadmaps for the various schemes of service. It also makes them responsible for keeping track of their own training record.

III. Staff Well Being Committee

The Ministry PS21 Committee on Staff Well Being reviews, suggests and promotes policies and programmes that provide for the well being of all the Ministry employees.

The Committee currently comprises representatives from the various divisions. It maps out directions for the institutions to plan and organise suitable staff well being activities for their employees according to specified categories.

Staff Well Being Activities

A wide selection of activities ranging from informative talks on health related topics, annual Dinner and Dance, to short trips to Malacca and other parts of Malaysia were organised to meet the welfare and recreational needs of our employees.

In 2000, 1,484 activities were organised with an average attendance rate of 58% recorded. The proportion of employees taking part in at least one of the activities was 47%.



MOH HQ staff participating in A.C.T.I.V.E. Day mass workout organised by the MOH Health Promotion Committee.

Healthy Lifestyle Programme

Other than implementing policies to support the National Healthy Lifestyle Programme and encouraging employees to stay healthy, the Ministry also organised a mass activity, the "All Companies Together In Various Exercises" (A.C.T.I.V.E.) Day on a day towards the end of each month. On this day, participants including the senior management, swing to the beat of various exercises as one united workforce. A.C.T.I.V.E. Day serves as a regular reminder to staff that they should habitually incorporate exercise in their lives.



Singapore H.E.A.L.T.H. (Helping Employees Achieve Life-time Health) Award 2000

Singapore Helping Employees Achieve Life-time Health (H.E.A.L.T.H.) Award is an annual award initiated in 1999 to give national recognition to workplaces in Singapore that have commendable health promotion programmes for their employees. The award is administered by the Ministry and organised by the Committee on Healthy Lifestyle.

The Ministry, Woodbridge Hospital/Institute of Mental Health and the Institute of Science and Forensic Medicine received silver awards in 2000. The Singapore Blood Transfusion Service received a bronze award.

Community Involvement Programme

A Sub-Committee on community involvement was set up to spearhead and engage employees in community awareness and activities. Voluntary service to the community will provide avenues for our employees to broaden their awareness, reap a sense of fulfillment and live more wholesome lives.

IV. Organisational Review Committee

Following the formation of the clusters, the Organisational Review Committee (ORC) was reconstituted in late Aug 2000 and members were re-appointed for a two-year term.

In the period from Jan 2000 to Dec 2000, the work of the ORC was in the following areas:

eCitizen

A service package "Being a Teenager" was successfully developed and prototyped in Mar 2000. It was then transferred to Health Promotion Division for further development and roll-out. The package was targeted for completion in Mar 2001. Focus group studies have been intended after completion to ensure acceptability by the target audience.

The concept of HealthTown was revisited and a review was carried out to determine the future direction of the Town. Funding approval from the Ministry of Finance was obtained for a revamp of the portal. This project will be continued into the new year.

Rules Review

The Main PS21 ORC identified rules review as an important thrust. The Ministry ORC conveyed the various initiatives (e.g. ZIP, EMPOWER, STENT ...etc) to different units within the Ministry. This thrust is now being handled by the Ministry.

NATIONAL

Day Awards 2000

In recognition of their dedicated services, the 259 officers were awarded the National Day Awards in 2000.

National Day Awards 2000

Name of Award

No. of Recipient(s)

- (A) The Public Administration Medal (Gold)
- (B) The Public Administration Medal (Silver)
- (C) The Public Administration Medal (Bronze)
- (D) The Commendation Medal
- (E) The Efficiency Medal
- (F) The Long Service Medal

1
1
2
2
31
222

The Investiture Ceremony for the Commendation, Efficiency and Long Service Medals was held on 28 Nov 2000 and was attended by Minister Mr. Lim Hng Kiang and Parliamentary Secretary Mr. Chan Soo Sen.

(A) The Public Administration Medal (Gold)

Name	Substantive Grade	Institution	Designation
A/Prof Low Cheng Hock	Snr Consultant & Head	Tan Tock Seng Hospital	Dept of General Surgery/Associate Dean

(B) The Public Administration Medal (Silver)

Mr Long Foo Yee	Head, Dept of Psychology	Woodbridge Hospital
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(C) The Public Administration Medal (Bronze)

Ms Cheang Siew Lian Neo Sylvia	Administrator Nursing	Singapore General Hospital
Mr Chong Ket Min Stephen	Director, Radiation Science Division	Institute of Science & Forensic Medicine

(D) The Commendation Medal

Mr Wong Toh Jui	Chief Radiation Physicist	National Cancer Centre
Mr Tyrone Goh	Director, Operations Clinical Support Services	National University Hospital

(e) The Efficiency Medal

Name	Substantive Grade Designation	Institution
Ms Boon Juag Fong	Nursing Service Officer Grade IVA	MOH (HQ)
Mdm Chong Foong	Nursing Service Officer Grade IVA	MOH (HQ)
Mrs Goh Agnes nee Koh Gake Eng	Management Support Officer Grade III	MOH (HQ)
Miss Hng Boon Choo	Corporate Support Officer Grade II	MOH (HQ)
Ms Shantha Sockalingam	Corporate Support Officer Grade II	MOH (HQ)
Mdm Quek Loo Lian	Nursing Service Officer Grade IVA	Alexandra Hospital
Ms Chen Yin Yin	Senior Nursing Officer	Ang Mo Kio Community Hospital
Mdm Chan Lin Thai	Senior Nursing Officer	Changi General Hospital
Mdm Wong Pey Wah	Laboratory Supervisor	Changi General Hospital
Mdm Lai Yee Khim	Nursing Service Officer Grade IVA	Health Promotion Division
Mr P R V Rajagopal	Corporate Support Officer Grade II	Health Promotion Division
Mrs Mun-Tan Lee Eng	Laboratory Officer (Health) Grade IIA	Institute of Science & Forensic Medicine
Mdm Teo Ai Huay	Nursing Officer I	KK Women's & Children's Hospital
Mdm Chan Moh Yee	Nursing Officer	National Cancer Centre
Ms Kwok Hong Har Veronica	Senior Nursing Officer	National Heart Centre
Ms Ang Mui Kwee Daisy	Corporate Support Officer Grade II	National Pharmaceutical Administration
Mdm Lim Lee Foon	Pharmacy Manager	National Skin Centre
Mdm Chia Soon Noi	Senior Manager, Nursing	National University Hospital
Mdm Ong Bee Eng	Clinical Specialist	National University Hospital
Mdm Tan Soh Chin	Senior Manager, Nursing	National University Hospital
Mrs Chua Chye Leng nee Ong	Nursing Service Officer Grade IVA	Singapore Blood Transfusion Service
Mdm Chong Poo Lee	Nursing Officer	Singapore General Hospital
Mdm Chua Yan Hong	Manager, Training	Singapore General Hospital
Mdm Khoo Rosie	Senior Nursing Officer	Singapore General Hospital
Mdm Tan Chui Hoon	Senior Nursing Officer	Singapore General Hospital
Ms Tan Swee Lin Margaret	Unit Manager, General Clinic/Outpatient Nursing	Singapore National Eye Centre
Mdm Choo Hwee Tiang	Unit Nursing Officer	Tan Tock Seng Hospital
Mdm Ruth Manorama Samuel	Unit Nursing Officer	Tan Tock Seng Hospital
Mr Ow Chung Kin	Manager, Diagnostic Radiology	Tan Tock Seng Hospital
Mr Ong Seng Hong	Nursing Service Officer Grade IV	Woodbridge Hospital
Ms Galistan Therese Ann	Nursing Service Officer Grade IV	Woodbridge Hospital

(F) The Long Service Medal

222 officers were awarded the Long Service Medal.

APPOINTMENTS

for 2000

Minister

Mr Lim Hng Kiang

Parliamentary Secretary

Mr Chan Soo Sen

Permanent Secretary

Mr Moses Lee

Director of Medical Service

Dr Chen Ai Ju (till 31 May 2000)

Prof Tan Chorh Chuan (from 1 Jun 2000)

Elderly & Continuing Care

Deputy Director of Medical Services

Dr Ling Sing Lin

Director, Elderly Care

Dr Uma Rajan (till 30 Oct 2000)

Deputy Director, Elderly Care

Dr Lim Hui Chuan (from 1 Nov 2000)

Director, Elderly Policy & Development

Dr K Vijaya (till 30 Oct 2000)

Deputy Director, Continuing Care

Dr Kwek Poh Lian (from 1 Nov 2000)

Professional Standards & Development

Director

Dr Andre Wan (from 8 Jun 2000)

Health Services Development

Director

Dr U Bandara (till 7 Jun 2000)

Dr Arthur Chern (from 8 Jun 2000)

Deputy Director, Clinical Standards & Technology Assessment

Dr Kwek Poh Lian (till 31 Oct 2000)

Chief Nursing Officer

Mrs Han Guek Choo

Health Regulation

Deputy Director of Medical Services

Dr Tan Chor Hiang (from 8 Jun 2000)

Director, Medical Unit and Accreditation

Dr Ho May Ling (till 30 Apr 2000)

Deputy Director, Licensing & Accreditation

Dr Ong Bee Ping (from 8 Jun 2000)

Deputy Director, Clinical Audit

Dr Voo Yau Onn (from 8 Jun 2000)

Director, Traditional and Complementary Medicine

Dr Wong Kum Leng

Epidemiology & Disease Control

Director

Dr Chew Suok Kai

Deputy Director, Non-Communicable Diseases

Dr Jeffery Cutter

Deputy Director, Communicable Diseases

Dr Lyn James

Deputy Director, Biostatistics & Research

Mrs Tan Bee Yian

Head, Emergency Planning

Dr Chay Swee Onn (till 28 Feb 2000)

Dr Daniel Leong (from 1 Mar 2000)

Hospitals

CEO, AH Mr Liak Teng Lit (from 1 Feb 2000)

Medical Director, AH

Prof Aw Tar Choon (till 31 Jan 2000)

Chairman, Medical Board

Dr C Rajasoorya (from 1 Oct 2000)

CEO, WH/Institute of Mental Health

Dr Daniel Leong (till 28 Feb 2000)

Prof Kua Ee Heok (from 1 Mar 2000)

Medical Director, WH/Institute of Mental Health

Dr Ang Ah Ling (till 30 Jun 2000)

Prof Kua Ee Heok (from 1 Jul 2000)

Health Sciences

Deputy Director of Medical Services

Dr Clarence Tan (from 8 Jun 2000)

Director, Centre for Drug Evaluation

A/Prof Ng Tju Lik

Director, Product Regulation

Mr Wong Yew Sin

Director, National Pharmaceutical Administration

Mrs Tan Shook Fong (till 6 Aug 2000)

Dr John Lim (from 7 Aug 2000)

Chief Pharmacist

Mrs Tan Shook Fong

Director, Special Projects

Mrs Tan Shook Fong (from 7 Aug 2000)

Director, Institute of Science & Forensic Medicine

Dr Clarence Tan

Director, Singapore Blood Transfusion Service

A/Prof Patrick Tan

Health Promotion

Deputy Director of Medical Services

Dr Lam Sian Lian (from 8 Jun 2000)

Director, Family Health Services

Dr S C Emmanuel (till 30 Oct 2000)

Director, National Health Education

Dr Theresa Yoong

Director, Department of Nutrition

Mrs Tan Wei Ling

Director, School Health Service

Dr B Vaithinathan

Director, Dental Service

Dr Chan Yee Wing (till 3 May 2000)

Dr Eu Oy Chu (Acting Director – from 4 May 2000)

Policy & Corporate Group

Deputy Secretary

Mr Willie Tan

Director, Planning & Development

Ms Chang Hwee Nee

Director, Corporate Services

Mr Cheong Fu Yan

Director, Human Resource

Dr Tan Chor Hiang (till 31 Dec 2000)

Director, Infocomm

Ms Tan Swee Hua (till 7 Jun 2000)

Mr Willie Tan (from 8 Jun 2000)

Appendix 1: Singapore Population and Vital Statistics

Year	Population	Natural Increase	Live-Births	Deaths	Still-Births	Infant Mortality	Neonatal Mortality	Perinatal Mortality	Maternal Mortality
Number									
1950	1,022,100	34,059	46,371	12,312	807	3,813	1,383	1,668	86
1960	1,646,400	51,565	61,775	10,210	886	2,158	1,093	1,747	28
1970	2,074,507	35,217	45,934	10,717	451	942	671	998	15
1980	2,282,125	28,712	41,217	12,505	264	483	366	556	2
1990	2,795,400	37,251	51,142	13,891	206	341	238	376	1
1998	3,174,800	28,007	43,664	15,657	133	183	106	213	6
1999	3,221,900	27,820	43,336	15,516	125	150	86	180	4
2000 ^P	3,263,200	31,304	46,997	15,693	143	137	82	204	8
Annual Growth (%)									
					Rate per 1,000				
1950	4.4	33.4	45.4	12.0	17.1	82.2	29.8	35.4	1.8
1960	3.5	31.3	37.5	6.2	14.1	34.9	17.7	27.9	0.4
1970	1.7	17.0	22.1	5.2	9.7	20.5	14.6	21.5	0.3
1980	1.3	12.7	17.6	4.9	6.4	8.0	8.9	13.4	0.0
1990	2.2	13.5	18.4	4.8	4.0	6.6	4.7	7.3	0.0
1998	1.7	8.5	13.2	4.6	3.0	4.1	2.4	4.9	0.1
1999	1.5	8.3	12.8	4.5	2.9	3.3	2.0	4.2	0.1
2000 ^P	1.3	9.2	13.7	4.5	3.0	2.5	1.7	4.3	0.2

Source : Registry of Births and Deaths, Singapore Immigration & Registration (SIR)
Department of Statistics, Ministry of Trade and Industry (MTI)

Note : From 1980, figures for population, annual growth, crude rate of natural increase, crude birth rate, crude death rate and infant mortality rate refer to Singapore residents (citizens and permanent residents) residing in Singapore

^P Preliminary

Appendix 2: Mortality By Broad Disease Groupings, 1980, 1990, 1998 – 2000

Cause of Death	1980	1990	1998	1999	2000 ^p
Infective and Parasitic Diseases	3.4	2.5	2.3	2.0	1.7
Neoplasms	21.0	23.8	26.1	26.9	27.1
Endocrine, Nutritional and Metabolic Diseases	2.9	2.8	2.6	2.9	2.9
Diseases of Blood and Blood-Forming Organs	0.2	0.4	0.2	0.3	0.3
Diseases of the Nervous System and Sense Organ	1.1	1.0	0.7	0.7	0.7
Diseases of the Circulatory System	34.4	37.1	36.5	37.4	36.2
Diseases of the Respiratory System	15.7	15.2	16.5	15.2	15.7
Diseases of the Digestive System	2.9	2.7	2.7	2.7	2.0
Diseases of the Genito-Urinary System	2.9	2.5	3.1	3.0	3.1
Congenital Anomalies	1.5	1.4	0.7	0.6	0.5
Perinatal Complications	1.8	0.9	0.4	0.3	0.3
Accidents, Poisonings and Violence	7.2	7.2	7.1	6.9	4.3
Other Causes	5.0	2.5	1.1	1.1	5.2 ⁺
Total	100.0	100.0	100.0	100.0	100.0

Source : Registry of Births and Deaths, SIR

^p Preliminary

⁺ Includes causes of death that are pending Coroner's decision

**Appendix 3: Notifications of Specific Notifiable Infectious Diseases,
1980, 1990, 1998 – 2000**

Notifiable Diseases	1980	1990	1998	1999	2000 ^p
Chickenpox	910	18,934	27,183	31,592	24,074
Cholera	18	26	31	11	10
Dengue Fever/DHF	253	1,733	5,258	1,355	673
Diphtheria	—	1	—	—	—
Enteric Fever	255	231	80	63	101
Hand, Foot and Mouth ¹	NA	—	1,344	1,408	6,402
HIV Infection (Residents)	—	17	199	206	226
Legionellosis ²	NA	32	37	79	65
Leprosy	66	36	19	22	18
Malaria	200	216	405	316	266
Measles	490	143	114	65	141
Poliomyelitis	—	—	—	—	—
Tuberculosis	2,710	1,591	2,747	2,419	2,210
Viral Hepatitis	1,001	440	367	248	211
Viral Encephalitis	36	4	1	18	4
(Japanese Encephalitis)	(21)	(3)	(1)	(1)	(0)

Source : Ministry of Environment (ENV)

NA: Not applicable

^p Preliminary

¹ Between Oct to Dec 2000 was 3,362

² Between Oct to Dec 2000 was 19

Appendix 4: Hospital Beds, 1980,1990, 1998 – 2000

Hospital	1980	1990	1998	1999	2000
Public Sector Hospitals (Total)	8,078	7,922	9,277	9,560	9,556
Singapore General Hospital	1,397	1,663	1,708	1,438	1,434
Changi General Hospital ¹	—	—	801	801	801
K K Women's & Children's Hospital	687	490	898	898	898
National Heart Centre ²	—	—	—	188	186
National Cancer Centre ³	—	—	—	85	85
National University Hospital ⁴	—	696	957	957	957
Tan Tock Seng Hospital ⁵	1,563	1,432	1,219	1,312	1,314
Alexandra Hospital	503	397	400	404	404
Woodbridge Hospital ⁶	3,126	2,750	3,114	3,114	3,114
National Neuroscience Institute ⁷	—	—	—	185	185
Ang Mo Kio Community Hospital ⁸	—	—	180	178	178
Toa Payoh Hospital ⁹	412	350	—	—	—
Changi Hospital ¹⁰	202	144	—	—	—
Sembawang Hospital ¹¹	64	—	—	—	—
St Andrew's Hospital ¹²	80	—	—	—	—
Middle Road Hospital ¹³	44	—	—	—	—
Private Sector Hospitals (Total)	1,492	1,827	2,112	2,187	2,242
Adam Road Hospital	30	60	56	54	49
East Shore Hospital	21	135	157	157	157
Gleneagles Hospital	121	132	328	328	328
HMI Balestier Hospital ¹⁴	—	—	62	62	62
John Hopkins ¹⁵	—	—	—	14	14
Kwong Wai Shiu Hospital	425	454	30	30	30
Mt Alvernia Hospital	326	321	300	303	303
Mt Elizabeth Hospital	264	485	505	505	505
Raffles SurgiCentre ¹⁶	—	—	25	25	25
Ren Ci Hospital ¹⁷	—	—	174	234	294
St Andrew's Community Hospital ¹⁸	—	—	60	60	60
St Luke's Hospital for the Elderly ¹⁹	—	—	224	224	224
Thomson Medical Centre	77	160	191	191	191
Westpoint Family Hospital ²⁰	—	—	—	—	—
Youngberg Hospital ²¹	72	40	—	—	—
Jurong Hospital ²²	62	40	—	—	—
Eye Clinic ²³	22	—	—	—	—
Gentle Nursing & Health Centre ²⁴	22	—	—	—	—
St Andrew's Mission Hospital ²⁵	50	—	—	—	—
Total	9,570	9,749	11,389	11,747	11,798

Note :

1 Started functioning wef Jan 1997;
Renamed Changi General Hospital
wef 28.3.98

2 Started functioning wef 1.1.99

3 Started functioning wef 1.5.99

4 Started functioning wef 24.6.85

5 Includes CDC

6 View Road Hospital became a unit under
Woodbridge Hospital wef Jan 97

7 Started functioning wef 1.6.99

8 Started functioning wef 28.6.93

9 Closed wef 15.3.97

10 Closed wef Feb 97

11 Closed wef 31.3.83

12 Closed wef 31.12.87

13 Closed wef 9.12.88

14 Started Functioning wef 1.10.91

15 Started Functioning wef 26.4.99

16 Started Functioning wef 18.10.96

17 Started Functioning wef 1.9.94,
includes 60 beds in TTSH wef
1.6.99

18 Started Functioning wef 19.2.92

19 Started Functioning wef 1.3.96

20 Started Functioning wef
24.10.96 and closed its
inpatient services wef 1.8.98

21 Closed its inpatient ward wef
1.3.95

22 Closed wef 19.10.92

23 Closed wef 31.12.89

24 Closed wef 1.2.84

25 Closed wef 22.4.82

Appendix 5: Bed Complement of Public Sector Hospitals by Speciality, 2000

Speciality	Total
General Medicine	1,995
General Surgery	783
Obstetrics	296
Gynaecology	320
Paediatrics	307
Paediatric Surgery	116
Neonatology	232
Orthopaedic Surgery	678
Psychiatric Medicine	3,188
Cardiology	193
Renal Medicine	58
Urology	72
Infectious Diseases	94
Colorectal Surgery	67
Haematology/Oncology/Radiotherapy	146
Dermatology	25
Geriatric Medicine	212
Rehabilitation Medicine	154
Otorhinolaryngology	75
Ophthalmology	57
Burns	54
Plastic Surgery	35
Hand Surgery	18
Neurology/Neurosurgery	295
Cardiothoracic Surgery	86
Total	9,556

Appendix 6: Utilisation of Public Sector Health Services, 1980, 1990, 1998 – 2000

Notifiable Diseases	Rate per 1,000 population				
	1980	1990	1998	1999	2000
Admissions	97.1	85.2	72.4	73.6	76.0
Specialist Outpatient Clinic Attendances	528.3	477.8	618.1	672.4	682.8
Accident & Emergency Attendances	156.2	175.1	132.3	134.9	133.7
Polyclinic Attendances	1663.4	921.2	747.9	740.3	679.1
Dental Clinic Attendances	454.9	364.0	264.2	258.5	227.2

Appendix 7: Hospital Admissions, 1980, 1990, 1998 – 2000

Hospital	1980	1990	1998	1999	2000
Public Sector Hospitals (Total)	234,502	259,541	283,953	290,706	305,532
Singapore General Hospital	58,637	80,643	74,324	61,807	62,296
Changi General Hospital	—	—	32,065	33,587	34,959
K K Women's & Children's Hospital	53,437	36,172	63,544	65,157	68,430
National Heart Centre	—	—	—	9,713	9,468
National Cancer Centre	—	—	—	2,325	3,412
National University Hospital	—	42,720	42,375	43,570	45,835
Tan Tock Seng Hospital ¹	43,746	46,351	47,900	46,774	49,356
Alexandra Hospital	34,841	20,142	15,497	14,886	14,244
Woodbridge Hospital	5,841	6,074	6,687	6,646	6,607
National Neuroscience Institute	—	—	—	4,450	9,005
Ang Mo Kio Community Hospital	—	—	1,561	1,791	1,920
Toa Payoh Hospital	31,937	22,513	—	—	—
Changi Hospital	4,113	4,926	—	—	—
Sembawang Hospital	1,076	—	—	—	—
St Andrew's Hospital	192	—	—	—	—
Middle Road Hospital	682	—	—	—	—
Private Sector Hospitals (Total)	31,326	77,562	85,577	83,684	84,838
Total	265,828	337,103	369,530	374,390	390,370

¹ Includes CDC

Appendix 8: Hospital Admission Rates by Age and Sex, 2000^P

per 1,000 resident population									
Age	Public Sector			Private Sector			Total		
	Males	Females*	Total*	Males	Females*	Total*	Males	Females*	Total*
0 - 4	168.6	142.1	155.7	57.9	45.4	51.8	226.6	187.4	207.6
5 - 9	27.8	21.4	24.7	5.4	4.2	4.8	33.3	25.5	29.5
10 - 14	23.2	17.9	20.6	2.2	1.4	1.8	25.4	19.3	22.4
15 - 19	41.8	34.9	38.5	2.6	3.8	3.2	44.4	38.7	41.7
20 - 24	63.2	52.8	58.0	3.0	12.7	7.9	66.2	65.5	65.9
25 - 29	36.2	62.5	49.7	3.4	46.6	25.7	39.5	109.1	75.4
30 - 34	37.6	59.2	48.6	4.3	52.5	28.9	41.9	111.7	77.5
35 - 39	41.3	49.8	45.5	4.3	29.0	16.5	45.6	78.7	62.1
40 - 44	51.8	48.3	50.1	5.2	15.1	10.1	56.9	63.5	60.2
45 - 49	65.5	62.3	63.9	6.7	12.2	9.4	72.2	74.5	73.3
50 - 54	88.3	75.2	81.8	8.3	10.9	9.6	96.6	86.2	91.4
55 - 59	123.7	91.6	107.5	12.0	11.3	11.6	135.7	102.9	119.2
60 - 64	161.5	122.2	141.5	13.3	14.7	14.0	174.8	136.9	155.5
65 - 69	226.2	180.7	202.3	18.4	20.2	19.3	244.6	200.9	221.6
70 & above	369.4	328.6	346.6	31.8	39.1	35.9	401.1	367.7	382.5
Total	79.2	75.9	77.0	10.1	22.4	16.3	88.1	98.4	93.3
^P Preliminary * Rate excludes admissions for normal delivery & legalised abortion									

**Appendix 9: Inpatient Discharges from Public Sector Hospitals by Specialty/
Clinical Department, 1980, 1990, 1998 – 2000**

Speciality	1980	1990	1998	1999	2000
General Medicine	55,680	60,623	59,446	59,530	62,703
General Surgery	43,472	42,096	35,141	36,115	38,238
Obstetrics	39,267	30,377	24,597	24,141	25,319
Gynaecology	23,126	17,697	16,322	17,607	17,242
Paediatrics	18,218	20,127	22,149	20,294	22,047
Paediatric Surgery	-	2,486	5,583	6,205	6,580
Neonatology	15,441	15,499	16,020	16,394	17,252
Orthopaedic Surgery	12,919	21,891	25,665	26,064	28,130
Psychiatric Medicine	5,563	6,864	8,461	8,451	8,580
Cardiology	904	7,163	13,528	15,169	15,552
Renal Medicine	-	1,608	4,172	4,708	5,030
Urology	-	2,436	3,771	4,328	4,806
Infectious Diseases	7,171	2,091	3,366	2,012	1,527
Colorectal Surgery	-	2,163	4,186	4,575	4,661
Haematology	-	806	1,683	1,865	1,886
Medical Oncology	-	555	6,117	6,610	6,454
Radiotherapy	-	548	116	50	15
Nuclear Medicine	-	-	109	124	143
Dermatology	784	718	567	691	754
Geriatric Medicine	-	1,017	4,229	5,054	5,145
Rehabilitation Medicine	515	343	1,028	1,216	1,307
Otorhinolaryngology	1,498	5,186	5,783	6,380	6,088
Ophthalmology	3,427	7,555	2,605	2,637	2,572
Burns	648	243	346	330	322
Plastic Surgery	988	1,261	1,410	1,336	1,286
Hand Surgery	-	1,002	2,599	2,869	2,625
Neurology	737	714	8,039	8,672	10,002
Neurosurgery	3,391	4,102	4,533	4,600	5,669
Cardiothoracic Surgery	967	1,465	2,068	2,230	2,501
Chronic Medicine*	154	161	1	2	-
Others	-	396	666	775	772
Total	234,870	259,193	284,306	291,034	305,208

* Chronic Medicine WH handed over to Ren Ci Hospital wef 1.9.94

Appendix 10: Specialist Outpatient Clinic Attendances at Public Sector Hospitals and Institutions, 1980, 1990, 1998 – 2000

Hospital	1980	1990	1998	1999	2000
Singapore Health Services	672,547	678,026	1,297,703	1,448,938	1,501,149
Singapore General Hospital	370,453	440,047	650,323	585,536	571,117
Changi General Hospital	—	—	170,340	206,647	212,709
K K Women's & Children's Hospital	193,771	158,238	342,641	378,293	394,908
Singapore National Eye Centre	—	3,826	134,399	158,909	165,170
National Heart Centre	—	—	—	70,111	70,538
National Cancer Centre	—	—	—	49,442	86,707
Toa Payoh Hospital	91,528	64,074	—	—	—
Changi Hospital	16,795	11,841	—	—	—
National Healthcare Group	374,113	777,959	1,126,477	1,207,774	1,242,164
National University Hospital	—	239,726	333,501	362,256	378,721
Tan Tock Seng Hospital ¹	189,059	231,045	338,106	342,374	351,822
Alexandra Hospital	103,352	63,757	64,488	70,852	72,497
Woodbridge Hospital	81,702	93,806	146,987	144,982	142,667
National Skin Centre	—	149,625	243,395	269,639	263,471
National Neuroscience Institute	—	—	—	17,671	32,986
Sembawang Hospital	725	—	—	—	—
Middle Road Hospital	227,875	—	—	—	—
Total	1,275,260	1,455,985	2,424,180	2,656,712	2,743,313

¹ Includes CDC

Appendix 11: Specialist Outpatient Clinic Attendances at Public Sector Hospitals and Institutions by Speciality, 1980, 1990, 1998 – 2000

Speciality	1980	1990	1998	1999	2000 ^a
General Medicine	160,037	173,305	286,562	321,385	332,119
General Surgery	96,398	116,326	174,337	173,817	180,221
Obstetrics	152,204	146,113	191,236	198,165	200,787
Gynaecology	108,060	119,798	159,729	175,967	190,266
Paediatrics	)		86,786	91,972	91,282
	) 94,002	78,999			
Neonatology	)		22,426	21,902	22,151
Paediatric Surgery	—	7,265	28,520	38,945	45,476
Orthopaedic Surgery	114,423	160,939	248,058	271,871	286,097
Psychiatric Medicine	81,702	103,865	172,432	174,478	173,932
Cardiology	4,231	32,288	86,798	103,122	107,935
Renal Medicine	—	19,852	28,796	28,532	30,220
Urology	—	9,948	27,409	47,691	48,540
Infectious Diseases	156,375	35,150	43,248	44,975	37,871
Colorectal Surgery	—	6,613	19,376	21,527	20,501
Haematology	—	8,714	17,933	18,923	22,416
Medical Oncology	—	3,497	30,684	35,086	39,557
Surgical Oncology	—	—	—	7,784	21,900
Radiotherapy	—	26,326	38,034	37,681	39,469
Nuclear Medicine	—	—	3,286	2,978	2,596
Dermatology	128,181	141,565	224,446	250,539	245,824
Geriatric Medicine	—	4,037	15,240	16,614	18,172
Rehabilitation Medicine	1,533	1,182	4,737	6,223	6,791
Otorhinolaryngology	64,141	83,628	113,381	126,596	120,507
Ophthalmology	80,980	128,862	294,880	328,904	342,953
Burns	)	578	342	353	337
	) 16,083				
Plastic Surgery	)	17,084	16,996	17,924	18,329
Hand Surgery	—	7,420	34,560	33,309	31,172
Neurology	6,493	10,153	36,740	40,835	45,599
Neurosurgery	7,178	7,273	9,579	10,247	12,144
Neuroradiology	—	—	—	103	194
Cardiothoracic Surgery	3,239	5,205	7,629	8,264	7,955
Total	1,275,260	1,455,985	2,424,180	2,656,712	2,743,313

Appendix 12: Workload of Dental Clinics

Type of Treatment	CDS* Total	SDS Total	Grand Total
Filling/Inlay, Crown & Bridgework	26,833	215,584	242,417
Extraction	18,378	120,722	139,100
Operation	0	1	1
Denture	705	70	775
Orthodontics	0	222	222
Scaling/Polishing	26,017	475,321	501,338
Oral Hygiene Instruction	5,440	407,770	413,210
Others	30,971	83,021	113,992
Total	108,344*	1,302,711	1,411,055

* CDS Total Procedures as at Aug 2000

Appendix 13A: Attendances at the Accident & Emergency Departments of Public Sector Hospitals, 1980, 1990, 1998 – 2000

Case Type	1980	1990	1998	1999	2000
Emergency	201,093	321,611	427,725	459,862	474,922
Non-Emergency	175,929	211,960	91,089	73,054	62,420
Total	377,022	533,571	518,814	532,916	537,342

Appendix 13B: Types of Accident Cases Treated at the Accident & Emergency Departments of Public Sector Hospitals, 1980, 1990, 1998 – 2000

Types of Accidents	1980	1990	1998	1999	2000
Road Traffic	15,025	16,339	13,631	14,943	14,051
Home	15,168	27,357	26,291	28,924	28,620
Work Site	18,179	26,452	23,364	22,064	20,539
Sports	4,570	8,261	7,434	8,378	7,512
Others	50,623	59,591	43,322	43,106	33,715
Total	103,565	138,000	114,042	117,415	104,437

Appendix 14: Blood Donations and Transfusions, 1980, 1990, 1998 – 2000

	1980	1990	1998	1999	2000
No. of Donors	36,276	43,383	42,808	43,510	45,414
Total Blood Donations Received (in units)	53,813	61,403	61,025	63,010	70,733
Apheresis Donations Received ¹ (in units)	—	—	4,832	4,697	4,350
Total Blood Transfusions Given (in units)	46,729	57,683	53,980	56,523	58,885

NB: One unit of blood is approximately 430 millilitres
 Above figures do not account for blood donated and issued at the blood bank in Mt Alvernia Hospital
¹ Apheresis donations have been collected at National Blood Centre wef 1991

Appendix 15: Attendance at Polyclinics and Student Health Centres, 1980, 1990, 1998 – 2000

	1980	1990	1998	1999	2000
Polyclinics	3,942,905	2,806,948	2,933,348	2,924,918	2,728,377
SingHealth	—	1,502,671	1,313,988	1,243,879	1,074,777
National Healthcare Group	—	1,304,277	1,619,360	1,681,039	1,653,600
Student Health Centres	65,565	106,857	173,689	172,586	179,541
Total	4,008,470	2,913,805	3,107,037	3,097,504	2,907,918

Appendix 16: Abortions and Sterilisations, 1980, 1990, 1997 – 2000

	1980	1990	1997	1998	1999	2000
Abortion	18,219	18,669	13,827	13,838	13,753	13,734
Public	11,280	3,345	2,660	2,694	3,056	3,108
Private	6,939	15,324	11,167	11,144	10,697	10,626
Sterilisation	6,266	4,535	5,506	5,067	5,180	4,983
Male	458	134	143	179	191	162
Female	5,808	4,401	5,363	4,888	4,989	4,821

Appendix 17: Health Personnel¹, 1980, 1990, 1998 – 2000

Health Personnel	1980	1990	1998	1999	2000 ^P
Doctors	1,976	3,573	5,148	5,325	5,577
Public	855	1,831	2,416	2,535	2,586
Private	1,052	1,593	2,489	2,606	2,809
Not in Active Practice	69	149	243	184	182
Dentists ²	346	672	914	942	1,028
Public	161	185	180	167	193
Private	177	466	696	726	755
Not in Active Practice	8	21	38	49	80
Pharmacists	368	587	998	1,043	1,098
Public	58	106	204	219	238
Private	310	410	610	598	638
Not in Active Practice	NA	71	184	226	222
Nurses and Midwives	8,324	10,238	15,568	15,947	16,611
Public	5,357	6,150	8,681	8,692	8,927
Private	1,801	2,610	3,827	3,872	4,166
Not in Active Practice	1,166	1,478	3,060	3,383	3,518

¹ Refer to health personnel registered with the four Health Professional Boards in Singapore : the Singapore Medical Council, Dental Board, Pharmacy Board and the Singapore Nursing Board.

² Refer to Div I Dentists

^P Preliminary



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