Annual Report

2003

Ministry Of Health Malaysia

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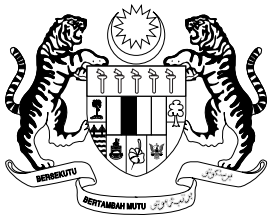

MINISTRY OF HEALTH MALAYSIA

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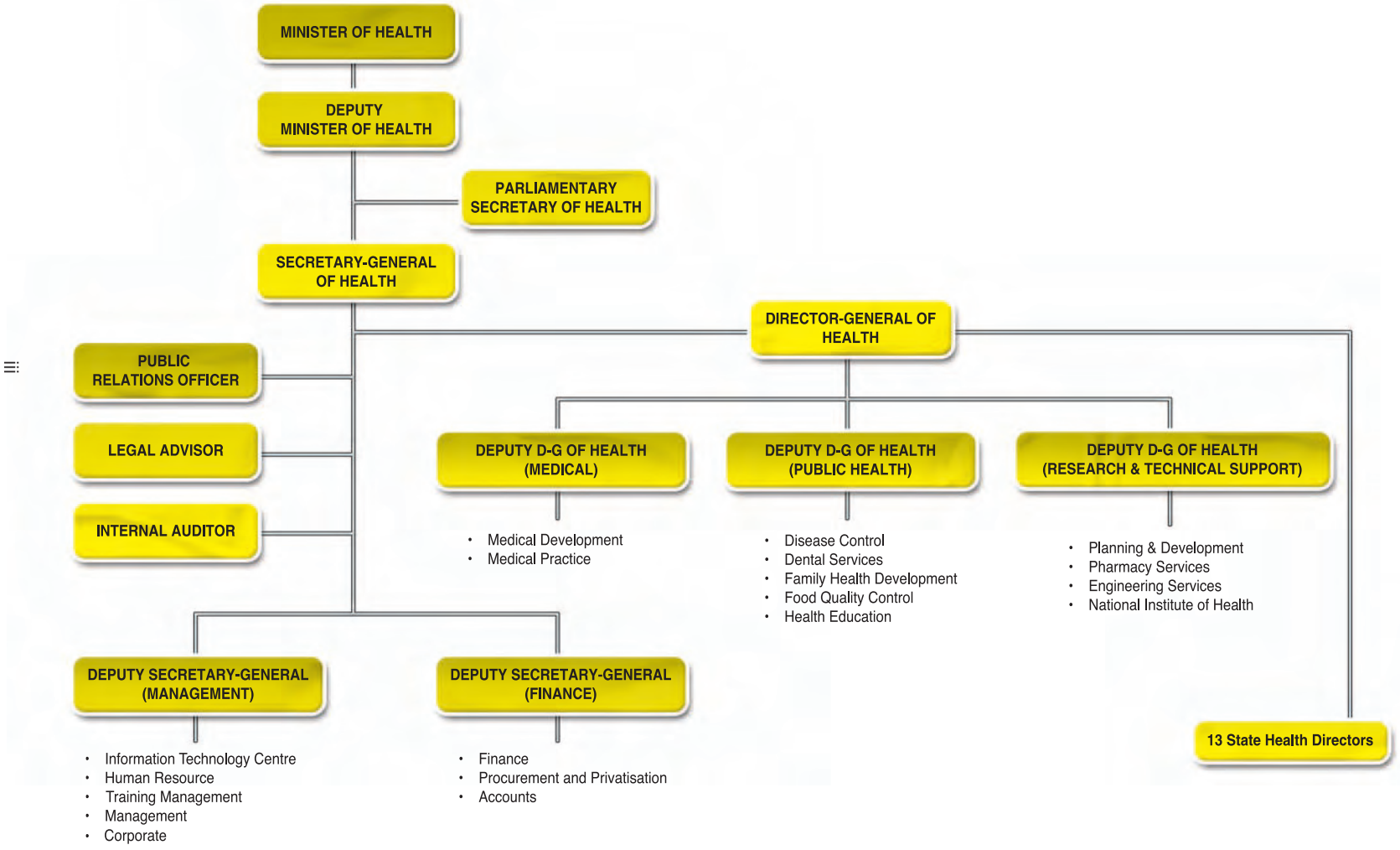
OF THE MINISTRY OF HEALTH, MALAYSIA



VISION FOR HEALTH

Malaysia is to be a nation of healthy individuals, families and communities, through a health system that is equitable, affordable, efficient, technologically appropriate, environmentally adaptable and consumer-friendly, with emphasis on quality, innovation, health promotion and respect for human dignity and which promotes individual responsibility and community participation towards an enhanced quality of life.

MISSION
OF THE MINISTRY OF HEALTH

The mission of the Ministry of Health is to build partnerships for health to facilitate and support the people to :

- **Attain fully their potential in health.**
- **Motivate them to appreciate health as a valuable asset.**
- **Take positive action to improve further and sustain their health status to enjoy a better quality of life.**

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HEALTH STATUS

Health Status

MALAYSIANS from all walks of life have enjoyed higher income growth as well as better quality of life in 2003. Higher economic growth in 2002 bolstered optimism for a stronger economic performance in 2003 in anticipation for an improved world economic outlook.

With Malaysia moving towards the achievement of developed nation status, emphasis was given to health development program to improve the quality of life of the people while simultaneously inculcating positive values and self-reliance.

POPULATION SIZE

The population of Malaysia stood at 25,048,300 people in 2003. With an average population growth rate of between 2.1% to 2.8% between 1992 and 2003, this works up to an average of slightly over 500,000 additional persons each year. However, compared to 2003, there was an increase of 2.1% or 521,800 persons.

This two odd percent growth in the population for a country with a geographical area of 330,252 square kilometres and a current Gross Domestic Product of around RM394 billion is considered somewhat healthy, if not entirely ideal. The present strength of Malaysia's economy could easily support more than this many people.

POPULATION STRUCTURE

Overall, the population density which looks scanty with a mere 76 persons to a square kilometre of space belies the true picture. By contrast, densities by territory actually vary from as low as 18 persons per square kilometre in Sarawak to as high as 6,180

persons per square kilometre in metropolitan Kuala Lumpur the nation's capital city. Within the urban confines, human congestion is not yet as acute as traffic congestion. Table 1 shows the situation existing in 2003.

The population of generally young people below 20 years old is around 43% of the total population in 2003. By contrast, the proportion of old people 60 years and over is about 6% with the in-between, that is people aged above 21 years to below 60 years making up the remaining 50% of the total population. Hence the pool of the economically-productive or working-age population, classified as persons aged 15-64 years, is a sizeable 15 million people or 62.5% of the total population. The economically-dependent, that is people aged below 15 years and above 64 years, is about half of this (37%). With an estimated 9.15 million employed persons (economically-active) in 2003, the labour force participation rate is thus about 65.2% (number of persons economically-active as a percentage of total number in the working-age population).

TABLE 1
Population Density by State, Malaysia, 2003

State	Population ('000)	Area (Sq. Km)	Density (Per Sq. Km)
Perlis	217.9	795	274
Kedah	1,778.2	9,425	189
Penang	1,416.9	1,030	1,376
Perak	2,194.0	21,005	104
Selangor*	4,498.1	7,979	564
F.T. Kuala Lumpur	1,501.8	243	6,180
Negeri Sembilan	913.3	6,657	137
Malacca	687.1	1,652	416
Johore	2,959.4	18,987	156
Pahang	1,372.5	35,965	38
Terengganu	966.1	12,955	75
Kelantan	1,453.0	15,020	97
Sabah	2,795.1	73,997	38
F.T. Labuan	80.6	92	876
Sarawak	2,214.3	124,450	18
Malaysia	**25,048.3**	**330,252**	**76**

Note : *Includes Wilayah Persekutuan Putra Jaya
Source : Department of Statistics, Malaysia

The population in respect of sex ratio showed near parity between the sexes. There were 12.75 million males and 12.30 million females in 2003. Population by gender, particularly gender by age groups, assist in health services planning. Breakdown of the population into their ethnic components will help in identifying the group or groups who is or are in greatest need of health services. In 2003, about 61.29% of the total population are Malays and Other Bumiputeras (the indigenous), while the Chinese makes up 23.94%, Indians 7.04% and a minority 1.25% compose of other races. Foreigners at any one time make up a whooping 6.48% of the population; this comes up to approximately 1.3 million or the size of the population of any one of these cities - Kuala Lumpur, Penang, Pahang or Kelantan. About 62% of the total population lives in urban areas and 38% in rural areas. This again will determine where the health dollar will eventually go, not forgetting the fact that there too is a group called the 'urban poor' living in towns and cities.

Table 2 gives some common demographic features of the Malaysian population in 2003.

TABLE 2
Demographic Indicators, Malaysia, 2002-2003

Indicator	2002		2003	
	Number (thousands)	% of Total Population	Number (thousands)	% of Total Population
Population of Males	12,487.1	50.9	12,751.9	50.9
Population of Females	12,039.4	49.1	12,296.4	49.1
Population of Youths (Below 20 years old)	10,648.5	43.4	10,784.1	43.1
Population of Elderly (Above 60 years old)	1,554.1	6.3	1,599.7	6.4
Economically-Productive Population (Aged 15-64 years)	15,318.3	62.5	15,702.3	62.7
Economically-Dependent Population (Aged below 15 years & above 64 years)	9,208.0	37.5	9,346.0	37.3
Urban Population	15,310.7	62.4	15,687.0	62.6
Rural Population	9,215.8	37.6	9,361.3	37.4

Source : Department of Statistics, Malaysia

NATALITY, MORTALITY AND NATURAL INCREASE

In 2003, 541.9 thousand live births were recorded. The crude birth rate was 21.9 per 1,000 population. With the crude death rate at 4.7 per 1,000, the rate of natural replacement was 17.2 per 1,000 population.

VITAL STATISTICS

Mortality rates of the perinatal, neonatal, infants, toddlers and pregnant mothers singly continues to manifest itself favourably in the year 2003. They were as low as they could possibly reach. The reason is obvious - favourable health policies of the government and prevailing community awareness that quality of life begins with good health. Table 3 shows these mortality rates for 2003.

TABLE 3
Vital Rates, Malaysia, 2002-2003

Indicator	2002	2003
Crude Birth Rate per 1,000 population	21.7	21.9
Crude Death Rate per 1,000 population	4.5	4.7
Perinatal Mortality Rate per 1,000 total births (live births and stillbirths)	5.9	NA
Neonatal Mortality Rate per 1,000 live births	4.5	3.2
Infant Mortality Rate per 1,000 live births	6.2	6.3
Toddler Mortality Rate per 1,000 population aged 1-4 years	0.6	0.5
Maternal Mortality Rate per 1,000 per live births	0.3	0.3
Expectation of Life at Birth (Age in Years, Pen. Malaysia) Male: Female:	 70.4 75.3	 71.0 75.5

Source : Department of Statistics, Malaysia

LIFE EXPECTANCY

Expectation of life for the average Malaysian continues to stay at around 71.0 years for males and 75.5 years for females. In the elderly population, life expectancy of those aged 60 years and above remain at around 20 years.

MORBIDITY AND MORTALITY BY CAUSE

Morbidity and mortality status of Malaysians is still by and large reflected by government hospital statistics. Statistics from private medical establishments are sadly lacking.

Based on Ministry of Health statistics, the main cause of admissions into hospitals for the year 2003, discounting normal delivery, still stem from complications of pregnancy, childbirth and the puerperium followed closely by accidents. However, the single major cause of deaths still comes from septicaemia and heart disease and diseases of pulmonary circulation.

Owing to the lack of up-to-date mortality data from the Department of Statistics, it is thus not possible to say what proportion the medically certified (hospital) death constitutes in relation to total deaths in the country.

Table 4 and 5 gives the ten principal causes of hospitalization and deaths in MOH Hospitals in 2003 respectively.

TABLE 4
Ten Principal Causes of Hospitalization in Ministry of Health Hospitals in 2003

10 Principal Causes of Hospitalization	Percentage
1. Normal Deliveries	16.68%
2. Complications of Pregnancy Childbirth and the Puerpeirum	11.82%
3. Accidents	9.16%
4. Diseases of the Circulatory System	7.09%
5. Diseases of the Respiratory System	6.73%
6. Certain Conditions Originating in the Perinatal Period	5.84%
7. Diseases of the Digestive System	4.80%
8. Diseases of the Urinary System	3.47%
9. Ill-defined conditions	3.38%
10. Malignant Neoplasms	2.80%
Total Discharges (1,715,152)	**100.00%**

TABLE 5
Ten Principal Causes of Death in Ministry of Health Hospitals in 2003

10 Principal Causes of Death	Percentage
1. Septicaemia	15.63%
2. Heart Diseases & Diseases of Pulmonary Circulation	14.41%
3. Malignant Neoplasms	9.34%
4. Cerebrovascular Diseases	8.27%
5. Accidents	6.29%
6. Pneumonia	5.32%
7. Certain Conditions Originating in the Perinatal Period	4.46%
8. Diseases of the Digestive System	4.29%
9. Nephritis, Nephrotic, Syndrome and Nephrosis	3.78%
10. Chronic Lower Respiratory Diseases	2.90%
Total number of deaths (36,354)	**100.00%**

Source : Ministry of Health, Malaysia

MANAGEMENT AND FINANCE PROGRAMME

Health Manpower

OBJECTIVE

THE objective of the Human Resource Division (HRD) is to ensure that the Ministry of Health (MOH) has a well-organized structure with an optimum number of productive and quality personnel that will be able to assist the organization in implementing its activities efficiently and effectively.

PROFILE

The HRD consists of 2 sections namely the Organizational Development Section and the Human Resource Management and Development Section, and both sections are divided into 11 units as follows :

A. **Organizational Development Section**

i) Scheme and Allowance Unit
ii) Establishment Unit (1)
iii) Establishment Unit (2)
iv) Human Resource Management Information System (HRMIS) Unit
v) Counseling Unit

B. **Human Resource Management and Development Section**

i) Management and Professional Unit
ii) Paramedic and Auxiliary Unit
iii) Common User and Support Unit
iv) Promotion Unit (Management and Professional)
v) Promotion Unit (Support)
vi. Disciplinary Unit

The HRD is lead by an Under Secretary with the assistance of 2 Deputy Under Secretary and 151 officers and staff. This division is responsible for activities related to organizational development such as review of service, scheme and allowance including other personnel management matters like filling of post, recruitment of support staff under the delegation of power by the Public Service Commission (PSC), promotion and disciplinary actions.

ACHIEVEMENTS

In 2003, the HRD has achieved the following :

i) **Scheme and Allowance Review**

The Scheme and Allowance Unit is responsible in exploring possibilities to improve and enhance the term of service in MOH. In 2003, the Community Nurse and Attendant scheme has been improved involving upgrading of the service to a higher grade. Other improvements are the introduction of critical allowance for Pharmacists and introduction of incentive payment for Health Attendants serving at the mortuary, increment of incentive payment for personnel who are dealing with dangerous diseases like Tuberculosis and Leprosy, and payment for Off Office Hours Incentive to Midwife and Rural Nurses who are serving in Rural Clinics.

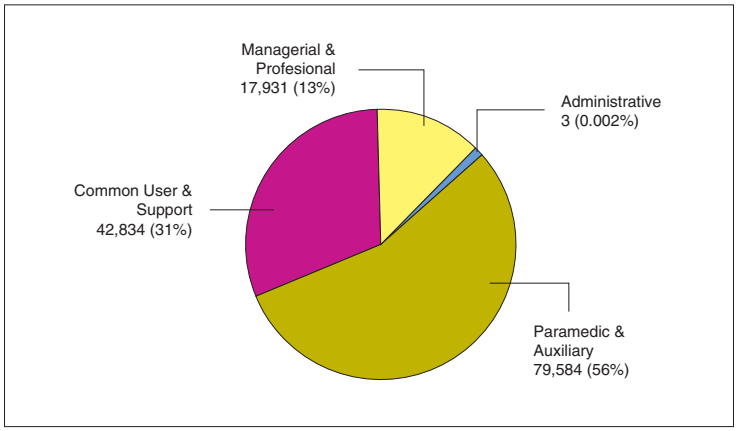
ii) **Reinforcement of Structural Organization**

The Establishment Unit has carried out 21 reviews in which 18 reviews has been executed while the remainder are still under consideration of the Central Agency. The reviews that has been done including the reinforcement of the Management Programme, the reorganization of the Institute of Medical Research, the re-grading of State Health Director and Hospital Director posts, the reinforcement of the Dental Health Division, and the restructuring of the Medical Division.

iii) **Establishment**

As of 31 December 2003, there are a total of 140,352 posts in the MOH. These posts are grouped into 4 categories; i.e. Administrative (3), Managerial and Professional (17,931), Paramedic and Auxiliary (79,854) and Common User and Support (42,834). These figures represent an increase of 7,743 posts (5.84%) as compared to 2002. Establishment according to category of post is shown in Figure 1.

FIGURE 1
Distribution of Post by Category, 2003



iv) Post Filled

As of 31 December 2003, a total of 118, 096 (84.14%) posts has been filled. The overall figure is shown in Table 1 whereas details according to groups are shown in Table 2, 3 and 4.

Efforts have been taken by MOH to reduce the shortage of Medical Officer as well as Specialist and Dental Officer by hiring contract officers from foreign countries mainly India, Myanmar, Pakistan, Indonesia, Bangladesh, Sri Lanka and Egypt. As of 31 December 2003, a total of 536 contract Medical Officers, Specialists and Dental Officers have been hired.

Efforts have also been made to overcome the shortage of Paramedics by hiring 173 paramedics who have reached their mandatory retirement age on contractual basis.

TABLE 1
Posts Filled According to Groups, 2003

Groups	Number of Post	Filled	% Filled
Administrative	3	3	100.00
Managerial and Professional	17,931	12,800	71.38
Paramedic and Auxiliary	79,584	66,035	82.98
Common User and Support	42,834	39,258	91.65
Total	**140,352**	**118,096**	**84.14**

TABLE 2
Managerial and Professional Posts Filled, 2003

Post/Grade	Number of Post	Filled	% Filled
Medical Administrative Officer	903	493	54.6
Medical Specialist	2,164	1,256	58.0
Medical Officer	10,293	7,715	75.0
Dentist Administrative Officer	169	112	66.3
Dental Specialist	104	67	64.4
Dentist	1,153	680	59.0
Pharmacist	1,189	632	53.2
Others	1,956	1,845	94.3
Total	**17,931**	**12,800**	**71.4**

TABLE 3
Paramedic and Auxiliary Posts Filled, 2003

Post/Grade	Number of Post	Filled	% Filled
Nurse	31,194	27,386	87.8
Physiotherapist	539	344	63.8
Occupational Therapist	325	217	66.8
Radiographer (Diagnostic)	1,007	792	78.6
Medical Assistant	6,691	5,785	86.5
Assistant Environmental Health Officer	2,110	1,819	86.2
Medical Laboratory Technologist	3,298	2,885	87.5
Pharmaceutical Assistant	2,736	2,403	87.8
Dental Nurse	2,162	1,803	83.4
Dental Technician	717	551	76.8
Rural Nurse	12,278	10,248	83.5
Assistant Nurse	7,322	4,576	62.5
Others	9,205	7,226	78.5
Total	**79,584**	**66,035**	**83.0**

TABLE 4
Common User and Support Posts Filled, 2003

Post/Grade	Number of Post	Filled	% Filled
Assistant Administrative Officer	332	245	73.8
Assistant Administrative Officer (Medical Record)	219	200	91.3
Administrative Assistant (Clerical/Operational)	6,085	5,747	94.0
Telephone Operator	820	775	94.5
Typist	836	552	66.0
Driver	5,239	5,006	95.5
Health Attendant	20,644	18,876	91.4
General Worker	783	781	99.7
Cook	1,573	1,456	92.6
Junior General Assistant	3,715	3,545	95.4
Others	2,588	2,075	80.2
Total	**42,834**	**39,258**	**91.7**

v) **Recruitment**

HRD is also responsible in the recruitment of support staff group under the delegation of power by PSC. The number of staff recruited in 2003 is shown in Table 5.

vi) **Service**

In 2003, 8,843 confirmation of date of appointment, 6,238 confirmation of appointment, 2,617 emplacements in pensionable scheme, 17,983 transfers/ postings, 383 application of various types of leaves and 336 optional retirement applications have been approved.

In addition, a total of 1,928 officers in various post and grade from the Management and Professional group and 2,985 staff of the Support Group have been promoted. Apart from that, 1,092 application of acting from the Management and Professional group and 2,584 from the Support Group have been approved.

TABLE 5
Number of Support Staff Recruited, 2003

Post/Grade	Total
Health Attendant, Grade U3	1,221
Administrative Assistant, Grade N17	1,009
Driver, Grade R3	628
General Worker, Grade R1	273
Telephone Operator, Grade N11	124
Cook, Grade N1	107
Junior General Assistant, Grade N1	106
Hostel Steward, Grade N17	89
Assistant Public Health, Grade U11	69
Autoclave Operator, Grade R3	21
Total	**3,647**

vii) Disciplinary Action

In 2003, the Disciplinary Board has taken disciplinary action to 44 staff, 1 from the Management and Professional Group and 43 from the Support Group.

Training Management

INTRODUCTION

THE Training Management Division (TMD) provides management services in human resource development in the Ministry of Health, Malaysia (MOH) which includes the management of the training of Allied Health Science Personnel (AHSP) in MOH's training colleges.

Throughout the year 2003, the TMD has implemented various training activities, reviewed certain training policies and also has developed or restructured and evaluated the curriculum and examination of some of the Basic and Post Basic training programmes. These plan of actions were taken to meet the demand from new health care services and facilities that have developed rapidly and extensively under the Eight Malaysian Plan. The training colleges of MOH have also expanded in line with efforts to improve the quality of health service.

The TMD has continued its effort to develop the capacity of the training colleges to enable them to increase the intake of AHSP trainees and also to ensure that their teaching and training functions are carried out effectively to produce quality graduates to meet the critical manpower needs in the health care sector.

The TMD manages 43 training colleges, which conduct training in 13 different disciplines. Table 1 shows the number of colleges according to the disciplines.

OBJECTIVE

The objective of the TMD is to provide training management services professionally, competently and effectively in developing and enhancing the professionalism of the health care sector. This encompasses the training of AHSP. The TMD emphasizes on continuous improvement in all its activities to meet the needs of stakeholders and towards achieving the mission and vision of MOH.

TABLE 1
Number of Colleges According to the Disciplines of AHSP

No.	Disciplines of AHSP	Total Colleges
1.	Assistant Environmental Health Officers	2
2.	Occupational Therapist	1
3.	Physiotherapist	1
4.	Radiography & Radiotherapy	2
5.	Nursing	19
6.	Community Nursing	9
7.	Dental Nursing	
8.	Dental Technician	1
9.	Dental Surgical Assistant	
10.	Medical Laboratory Technologist	2
11.	Pharmacy Assistant	1
12.	Medical Assistant	4
13.	Public Health Assistant	1
	Total	**43**

STRATEGIES

In achieving the objective of the TMD, its strategies in the year 2003 are as follow :

i) Strengthen the linkages between manpower planning and the development of the health care services.
ii) Interact actively with central agencies and discuss issues on human resource development of the health care sector.
iii) Ensure that the intake and the output of AHSP trainees meet the target.
iv) Increase or upgrade facilities and infrastructure to meet the increasing intake of trainees.
v) Improve the teacher-trainee ratio of the training colleges as an attempt to enhance the effectiveness of learning and teaching.
vi) Produce trained AHSP who are knowledgeable, skilful and inculcated with excellent work culture based on the values of caring, team-work and noble professionalism.
vii) Continuously expand and diversify training programmes, decentralising Post Basic training programmes and increase opportunities for continuous education through the concept of life long learning and credentialing.

viii) Periodically review the on-going training programmes, including the curriculum to meet current and future demands and needs.

ix) Consolidate and strengthen the evaluation process to ensure the production of quality trainees.

x) Increase training opportunities for the personnel of MOH.

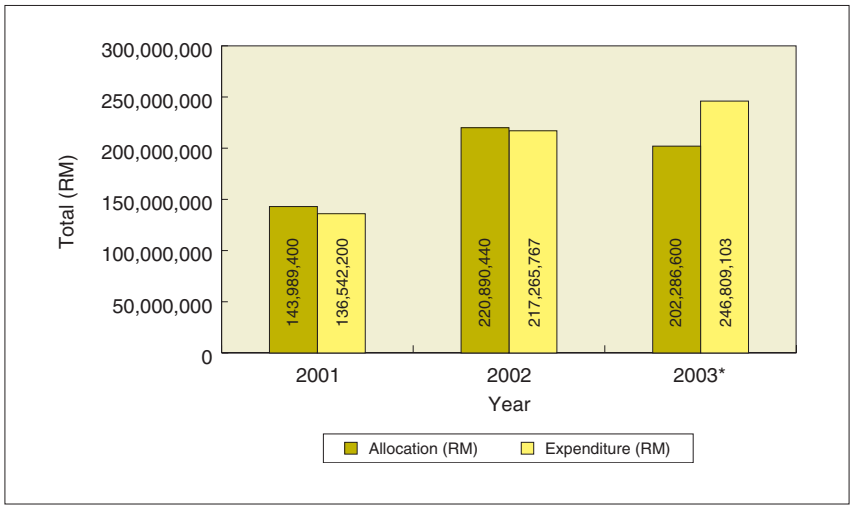
MANPOWER

In the year 2003, the TMD has 1,231 posts approved under the training management program (1,126 posts of tutors and 105 posts in the TMD) and 772 of the post were filled. From the total posts that were filled, 76 were for various posts in the TMD, whilst 696 were for the posts of tutors in the training colleges.

FINANCIAL

The approved financial allocation for the year 2003 under the Operating Budget amounted to a total of RM202,286,600 and RM246,809,103 was spent. The Treasury had authorized the excess expenditure. Figure 1 shows the allocation and expenditure of the TMD from 2001 to 2003.

FIGURE 1
Allocation and Expenditure by the TMD, 2001-2003



*Excess Expenditure was authorized by the Treasury Secretary General

ACTIVITIES AND ACHIEVEMENTS

Health Care Sector Manpower Forecast

The TMD has reviewed the manpower requirement forecast of the health care sector for the period of 2003 to 2020. In this contact, the review has focused on the forecast of the supply and demand of Medical Officers, Dental Officers, Pharmacists, Medical Specialists and paramedics and auxiliaries for the second-half of the Eight Malaysian Plan (2001-2005). The forecast has also been extended beyond the Eight Malaysian Plan period until 2020. Figure 2, 3 and 4 show the forecast for national requirement and stock of Medical Officers, Dental Officers, and Pharmacists.

FIGURE 2
National Requirement and Stock Forecast of Medical Officers, 2003-2008

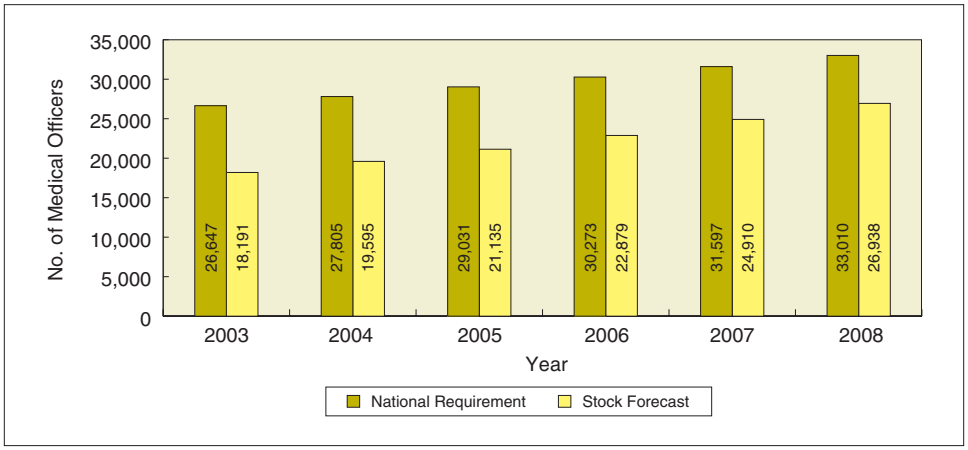


FIGURE 3
National Requirement and Stock Forecast of Dental Officers, 2003-2008

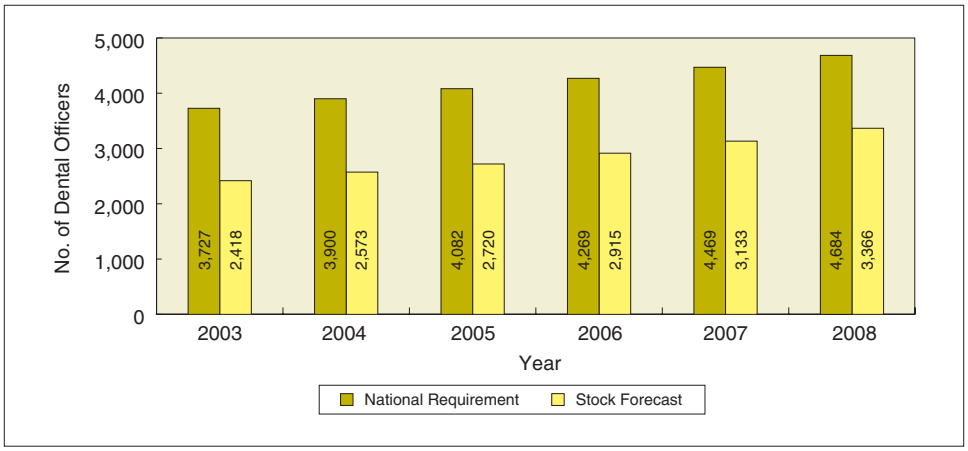
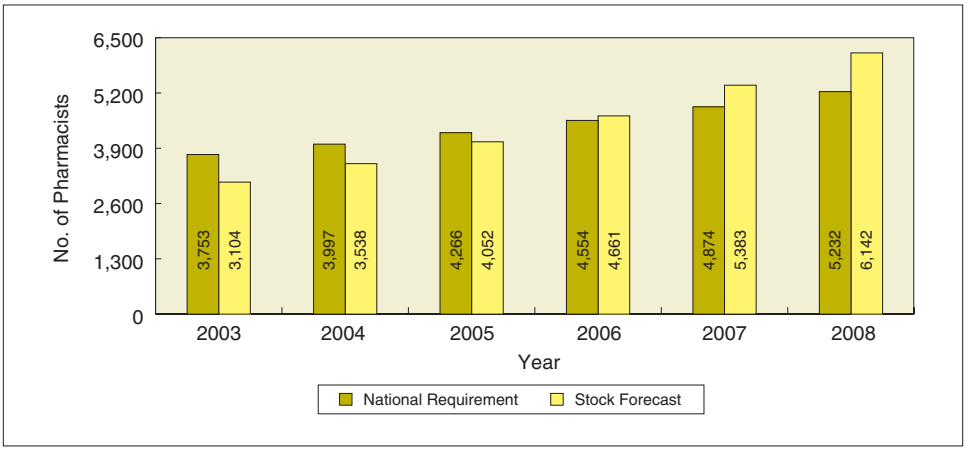


FIGURE 4
National Requirement and Stock Forecast of Pharmacists, 2003-2008



Training

Training is a continuing investment to produce trained and competent manpower in the various health care fields. For the year 2003, the intakes for training according to the different categories are as follow :

TABLE 2
Types of Training

Types of Training	No. Accepted
Basic Training for Paramedics and Auxiliaries	5,095
Post Basic Training	2,473
Basic Specialist Training	384
Sub-Specialist Training	79
Master / Doctorate courses	20
Short Term In-service courses	237
In-Service Conversion courses	165
Induction courses	10,059

In the year 2003, a total of 237 personnel of the MOH have attended short-term in-service courses financed from MOH's operating budget or sponsored by other agencies and international bodies or foreign governments. Details of such short-term in-service courses are as follows :

TABLE 3
Short Term In-Service Courses

Sponsor	No. Accepted
Ministry of Education	60
Public Service Department	65
World Health Organisation (WHO)	35
Japan International Cooperation Agency (JICA)	25
Other Organisations	52
Total	**237**

For the career advancement of assistant and community nurses, the following are details of the in-service conversion courses conducted :

TABLE 4
In-Service Conversion Courses

No.	Conversion Course	No. Accepted
i.	Assistant Nurses to Nurses - Conversion (1 1/2 years)	26
ii.	Community Nurses to Nurses - Conversion (1 year)	139
	Total	**165**

Development of Curriculum

In the management of curriculum for the year 2003, the TMD has merged the curriculum of the Medical Assistants and Nursing to meet the needs of current and future developments. The curriculum was completed and is pending the approval of the Malaysian Nursing Board and the Malaysian Medical Assistants Board.

The TMD also supervised the implementation of the basic training programmes to the credit system in the following training programmes : Diploma in Medical Assistant, Diploma in Assistant Pharmacist, Diploma in Medical Laboratory Technology, Diploma in Physiotherapy, Diploma in Occupational Therapy, Diploma in Radiography and Radiotherapy and Diploma in Environmental Health.

The TMD has also restructured the nursing and community nursing's curriculum according to the credit system but it has not been implemented as it is still pending the approval of the Malaysian Nursing Board. The TMD has also improved the curriculum of Dental Nursing, Dental Technicians and Public Health Assistants (PHA) to the credit system for the July 2004 intake. With the implementation of the credit system, the PHA course will become a pre-service course in line with all the courses conducted by the TMD. In restructuring the curriculum and the implementation of Post Basic training, the TMD had undertaken the following activities :

i) Developed three (3) new Post Basic curriculum in the following disciplines : Diabetics Management, Neurosurgery and Rehabilitation Medicine.

ii) Restructured five (5) Post Basic curriculum using the telehealth system. The five (5) disciplines are : Ophthalmology Medicine, Perioperative Medicine, Paediatric Medicine, Intensive Care and Psychiatry Medicine.

MANAGEMENT OF EXAMINATION

The examination system was consolidated and further strengthened in the year 2003 through the unification of the information system in relation to the banking of questions, examination candidates, examination results and the evaluation system.

EVALUATION OF TRAINING PROGRAMMES

The TMD has evaluated the degree programme undertaken by the MOH's AHSP teaching personnel in participating private institutions of higher learning. There were meetings with the private institutions of higher learning to discuss on matters regarding the competency of MOH's AHSP teaching personnel throughout their degree program. The institutions involved are :

i) International Medical University (IMU)
ii) Selangor Industry University (UNISEL)
iii) MARA Educational Foundation (YPM)
iv) Nilai College
v) Islamic College of Selangor (KISDAR)
vi) Unity College
vii) L & G Twintech
viii) Open University

The TMD has monitored the outsourced training programme of Nurses, Pharmacy Assistants and Medical Laboratory Technologist in 14 private training institutions. The TMD has also continued to monitor the teaching and training in MOH's training colleges to ensure that they meet the needs and standards set. The monitoring was carried out randomly from time to time.

Two (2) quality assurance performance studies on the basic training program of MOH's training colleges were carried out, each for the period of January-June 2003 and July-December 2003 respectively. The studies have evaluated the level of compliance of MOH's training colleges to the quality assurance indicators set.

CONCLUSION

The number of trained health care manpower in the years to come will still be inadequate to meet the needs of the nation. However, the increase in intake of students in various health care disciplines by local Institutions of higher learning (public and private) and also the increase in the intake of paramedic trainees by the training colleges of MOH will help reduce the deficit in the supply of manpower to the health care sector. In meeting the growing needs for trained personnel consequence to the expansion of health care services and the development in health care technologies, the TMD will continue its effort in developing flexible training action plans that are adaptable to changes.

Financial Allocation and Expenditure

FOR the year 2003, the Federal Budget was RM109,801,554,460 showing and increase of 9.24% or RM9,283,048,340 as compared to the 2002 Federal Budget.

The Ministry of Health (MOH) has been approved an allocation of RM7,556,006,400 representing 6.88% of the 2003 Federal Budget. This represents an increase of 19.95% or RM1,256,932,630 as compared to the 2002 Federal Budget.

For the year 2003, MOH was the fourth largest recipient of allocation after Ministry of Education, Ministry of Finance and Ministry of Defence. The financial allocation flow for MOH as compared to the Gross National Product (GNP) and the Federal Budget is shown in Table 1.

OPERATING BUDGET

Allocation

The Operating Allocation that has been approved for MOH for the year 2003 was RM5,765,836,400. There was a slightly increase of 18.06% as compared to previous year. This amounting to 76.31% from MOH budget 2003. The Expenditure Target (ET) was RM4,766,531,937 @ 82.67% from operating allocation.

As compared to 2002, the allocation for all programmes projected to increase except for New Policies which amounted to RM239,259,400 or a decreased of 15.48% (Table 2).

TABLE 1
Annual Budget Allocation for Ministry of Health, 2000-2003

Year	MOH Annual Allocation		National Budget	National Budget	Gross National Product (GNP)	GNP	Allocation Per Capital
	Development (RM)	Operating (RM)	(RM)	(%)	(RM)	(%)	(RM)
2000	908,153,000	4,023,162,300	78,025,291,600	6.32	190,324,000,000	2.59	212.10
2001	1,220,146,010	4,545,407,400	91,046,791,410	6.33	195,052,000,000	2.96	248.10
2002	1,415,253,000	4,883,820,770	100,518,506,120	6.27	200,634,000,000	3.14	256.82
2003	1,790,170,000	5,765,836,400	109,801,554,460	6.88	212,248,000,000	3.56	301.66

TABLE 2
Operating Budget Allocation by Programme, 2003

Program Code	Program	Allocation (RM)	Expenditure (RM)	Expenditure (%)
010000	Management	567,949,700	627,333,734	110.46
020000	Public Health	1,208,738,870	1,397,577,498	115.62
030000	Medical	3,494,177,530	3,970,194,303	113.62
040000	Technical Support Service	91,772,830	103,496,426	112.77
050000	New Policy	239,259,400	41,593,302	17.38
060000	One-Off	163,938,070	154,503,270	94.24
	Total	**5,765,836,400**	**6,294,698,533**	**109.17**

The allocation of Emolument was the major component of Operating Budget Expenditure amounting to RM2,623,596,420 representing an increase of 21.83%. The incremental of this expenditure was due to 141,216 new posts as well as for salary adjustments under the new salary scheme, *"Sistem Saraan Malaysia (SSM)"*.

The largest allocation was allocated to Supplies and Services which was projected to increase by 14.87% to RM2,799,212,055 while the allocation for Asset was projected to decrease by 7.36% to RM198,654,070.

The allocation under Fixed Payment and Grants was projected to record the largest increased by 88.24% to RM143,986,255. This amount was increased particularly for scholarship given to the increasing number of nurses each year. The allocation for Other Expenditure also increased slightly by 2.00% to RM387,600 due to other expenditures under Detail Object (DO) 52000.

Expenditure

The total operating expenditure for Operating Budget 2003 was RM6,294,698,533 which showed an increase of 22.26% as compared to the expenditures in year 2002.

Medical Programme spent RM3,970,194,303 representing an increased of 21.99% while Technical Support Service Programme presented the same performance which showed an increase of 23.96% to RM103,496,426.

One-off Programme showed the most increment in expenditure of RM154,503,270. This was due to the outbreak of *Severe Acute Respiratory Syndrome* (SARS), which required a large amount in line with Government's effort to control the outbreak of the disease. This included the expenditure incurred in organizing the *ASEAN + Health Ministers and Senior Official Special Meeting on SARS* held in Kuala Lumpur on 25-26 April 2003. The New Policy Programme was the only programme that showed a decreased in the expenditure of 73.62% to RM41,593,302.

As a summary, Public Health and Medical Programme reflected the largest expenditure made amounting to RM1,397,577,498 or 22.20% and RM3,970,194,303 or 63.07% respectively. Table 2 shows the Operating Budget Allocation as compared to the expenditure by Programme for the year 2003 while Table 3 shows the Operating Expenditure Performance for the year 2000 until 2003.

DEVELOPMENT BUDGET

Allocation

For the year 2003, the Development Allocation has been increased by 20.94% to RM1,990,170,010 representing 23.69% of the 2003 MOH Budget.

TABLE 3
Operating Expenditure Performance, 2000-2003

Year	Allocation (RM)	Expenditure (RM)	Expenditure (%)
2000	4,023,162,300	4,131,017,483	102.68
2001	4,545,407,400	4,671,304,560	102.77
2002	4,883,820,770	5,151,645,477	105.48
2003	5,765,836,400	6,294,698,533	109.17

The largest portion was allocated for New Hospital Project amounting to RM889,352,000 or 44.69%. This allocation showed an increase of 15.49% as compared to the year 2002. The total allocation of RM595,093,000 or 29.90% was allocated for Hospital Facilities Project, which represents an increase of 21.73%. This project emphasized on master planning, upgrading and renovation of hospitals.

The allocation of Public Health Project was increased by 26.00% to RM371,120,000 which was for urban and rural clinics, *'Bekalan Air dan Kebersihan Alam Sekeliling'* (BAKAS), health centres and laboratories. The allocation for Training Project was decreased by 6.17% to RM94,605,000 while allocation for Feasibility Study and Consultancy Services Project was increased by 40.00% to RM4,200,000.

The allocation for Renovation, Upgrading and Maintenances Project was decreased by 41.54% to RM25,500,010 while Procurement and Land Maintenances Project was also decreased by 28.01% to RM10,300,000 (Table 4).

TABLE 4
Development Allocation and Expenditure by Project Heading, 2003

Project Detail	Project	Allocation (RM)	Expenditure (RM)	Expenditure (%)
00100	Training	94,605,000	85,285,777	90.15
00200	Public Health	371,120,000	329,437,814	88.77
00300	Health Facilities	595,093,000	538,957,621	90.57
00400	New Hospitals	889,352,000	1,704,664,978	191.67
00500	Feasibility Study and Consultancy Services	4,200,000	2,459,544	58.56
00600	Renovation, Upgrading and Maintenances	25,500,010	20,097,967	78.82
00700	Procurement and Land Maintenances	10,300,000	10,526,482	102.20
	Total	**1,990,170,010**	**2,691,430,183**	**135.24**

Expenditure

For the year 2003, MOH Development Expenditure has increased by 77.82% to RM2,691,430,183 as compared to the year 2002. The largest expenditure was spent to build for (4) committed projects, which is to build new hospitals. The second largest expenditure was by Hospital Facilities Project which showed an increased of 29.69% to RM538,957,621. The expenditure focused more on master planning,

upgrading and renovation of hospitals. While the third largest expenditure was by Public Health Project which is increased substantially by 44.32% to RM329,437,814. The expenditure was for the implementation Urban and Rural Health Services, BAKAS and Laboratory Projects as well as for health centers.

The expenditure for Feasibility Study and Consultancy Services Project was increased by 25.07% to RM2,459,544 while the expenditure for Training Project decreased by 4.43% to RM85,285,777.

The expenditure for Renovation, Upgrading dan Maintenances Project decreased by 17.58% to RM20,097,967 while Procurement and Land Maintenances Project slightly increased by 1.29% to RM10,526,482. Table 4 shows the Development Allocation and Expenditure by Project Detail for year 2003 and Table 5 shows the Performance of Development Expenditure from year 2000 until 2003.

TABLE 5
Development Expenditure Performance, 2000-2003

Year	Allocation (RM)	Expenditure (RM)	Expenditure (%)
2000	908,153,000	1,271,974,940	140.06
2001	1,220,146,010	1,569,959,407	128.67
2002	1,415,253,000	1,513,611,553	106.95
2003	1,990,170,010	2,691,430,183	135.24

Based on the number of project completion, Public Health Project contributed the largest portion, which consists of 18 committed projects while the remaining 22 were for new projects. For the year 2003, there were 59 projects completed comprising 36 and 23 committed projects and new projects respectively. Table 6 shows the Number of Projects completed in year 2002 and 2003.

The increased in the Development Expenditure in Health Sector of 77.82% is due to the Government's Vision to upgrade the quality of health services including the construction and upgrading of hospitals, health centers and rural clinics as well as urban clinics.

TABLE 6
Number of Project Completed for the Year 2002-2003

Project Detail	Project	Committed		%	New		%
		2002	2003		2002	2003	
00100	Training	10	3	-70.00	1	0	-100.00
00200	Public Health	211	18	-91.47	32	22	-31.25
00300	Health Facilities	56	11	-80.36	1	1	0.00
00400	New Hospitals	6	4	-33.33	0	0	0.00
00500	Feasibility Study and Consultancy Services	0	0	0.00	0	0	0.00
00600	Renovation, Upgrading and Maintenance	0	0	0.00	0	0	0.00
00700	Procurement and Land Maintenance	0	0	0.00	0	0	0.00
	Total	**283**	**36**		**34**	**23**	

Information Technology in Health

MATERNAL AND CHILD HEALTH SYSTEM (MCHS)

MATERNAL and Child Health System is an online client server network system connecting all government health clinics in Perlis, Kangar Hospital and Perlis State Health Director's Office (Director's and Family Health Officer's room).

In December 2003, an exercise under Operating Budget 2002/2003 to replace part of the existing hardware and software system was carried out. However, only part of the equipment was replaced due to the limited allocation approved.

Subsequent installation of the application system could not be carried out as the changes as required from the vendor have not been completed and the application system found to be unstable. The changes which have not been handed over to the Ministry of Health Malaysia specifically to PTM are Appointment and Report modules.

MOH Steering Committee Meeting 3/2003 which met on the 14th of July 2003 decided that evaluation study of this project be carried out and the evaluation report presented in the committee meeting to decide whether to proceed or not with the project.

COMMUNICABLE DISEASE CONTROL INFORMATION SYSTEM (CDCIS)

Communicable Disease Control Information System (CDCIS) is a network application system linking the record offices of hospitals and Communicable Disease Control Unit of District Health Offices to the State Health Offices via the ministry's network, HMIS2.

Monitoring of the usage performance of the application system CDCIS throughout year 2003 showed that the main problem faced by the users is the slow response time and the instability of the connection in most hospitals and District Health Offices connected to the ministry's network especially in the states of Terengganu, Selangor, Pahang and Penang. A series of meetings and visits were made to these sites together with the vendor in charge of the network maintenance, Brilliance Information Sdn. Bhd. and the line provider, Telekoms Malaysia Sdn. Bhd. to identify the root source of the problem. The team managed to overcome the problem in October 2003 and the same solution applied to all the states and direct feedback from the users confirmed the results.

To further establish the usage and acceptance of this application system by the users at all levels, a number of activities were carried out. An evaluation study of the implementation of the project was conducted between March and May 2003 through a questionnaire sent out to all users at the various levels, hospitals, district health offices and state health offices and also headquarters to obtain feedback on usage, problems and suggestions for improving the system. The evaluation report was later presented together with the proposal paper to use CDCIS as the base for all notification inputs for the disease control activity and a proposal to expand the scope of notification to all health facilities public and private in Malaysia and these proposals were accepted and approved by the ministry's ICT Steering Committee in its meeting 2/2003 in May 2003.

Efforts to integrate the CDCIS application with the other ministry's applications have also been taken. Such activities include the integration of CDCIS into THIS hospitals like Putrajaya Hospital and Selayang Hospital where this system can be used direct from the wards. Preliminary discussions have also been conducted to include the requirements of CDCIS in the Teleprimary Care project so that notification of communicable disease cases can come in direct from that system through email from the health clinics to the nearest district health office.

In 2003, a new version of the application system CDCIS was released to the users which includes all the functions required under phase 1 and all improvement suggestions or enhancements to the earlier version as received from the users. This version was released to all users during the CDCIS Annual Meeting 2003 held in Equatorial Hotel, Penang from 14 to 17 December 2003. In this meeting, the states of Perlis and Malacca were chosen to implement online notification through CDCIS and no longer dependent on manual reporting.

MEDICAL CARE INFORMATION SYSTEM (HMIS - SMRP MC ICD 10)

This system was developed inhouse in 1998 to capture and analyse inpatient data based on the international classification standard of disease coding (ICD 10). The system was developed by Information Technology Centre (PTM) with input from

the Information and Documentation System Unit of Planning and Development Division, Ministry of Health Malaysia.

Throughout the year 2002 and 2003, focus was given to maintenance and monitoring as well as support service to the users. At the same time, briefings and user training were also conducted as and when requested by the users. Feedback and user comments were obtained throughout this period and enhancements incorporated into the coming version 3.3.5. However, this version has not been released yet as it is still in the testing stage. It is expected to be released in 2004 after PTM and IDS are satisfied with the results of the tests on the enhancements and changes made.

INPATIENT MANAGEMENT SYSTEM (IPMS)

In-patient management system (IPMS) is an online system which is design for patient care management and revenue collections. This system enables the Nurses, Paramedic, Record Officers, Dietrician and revenue officers to register and update patient records, making diet order, generate bills and manage payment and collections.

In the middle of year 2003, the system programs have been amended according to the *Akta Fee Pindaan 2003* which involves changes in test, treatment and charges for foreigners.

TELEPRIMARY CARE PROJECT

Teleprimary Care (TPC) is a pilot project carried out at all sites in state of Johore and Sarawak.

This project was executed through a tender and was awarded to a contractor in January 2003. The contractor performed the installation of the infrastructure this year. The status of the installation is done by analyzing the need of the users at the respective sites. For this reason, frequent meetings and workshops are being carried out between the contractor and Ministry of Health to gather their feedback and to fulfill their requirements.

The scope of this application includes the following modules :

i) Person Management System (PMS), Fixed Asset Management & Human Resources.
ii) Consultation - Clinical Notes, Order Management, Histories, Pharmacy.
iii) Maternal and Child Health (MCH) & Others Wellness.
iv) Epidemiology.
v) Administration & Security.

PROCUREMENT OF TENDERS AND QUOTATIONS

PTM has handled 4 tenders and 2 quotations for the year 2003. This process involves the preparation of technical specification, confirmation of the specification, delivery to Procurement and Privatisation Division for advertisement purposes, technical evaluation process and the preparation of reports of the technical specifications.

MAMPU APPROVAL UNDER JPRK APPLICATION

Information Technology Center has received 14 applications for the year 2003. All the applications will be submitted to MAMPU after a screening process by PTM.

WEB PAGE OF MINISTRY OF HEALTH MALAYSIA

For the year 2003, few activities related to web page has been implement such as :

i) **Web Page Development Course**

The aim of the course is to develop skill and knowledge for all web page coordinators from each division and state health, Ministry of Health. All web page coordinators are from administrative and professional team and also support team.

The course was held in two sessions which is started from 28 September 2003 until 3 October 2003 at Riveira Bay Resort, Tanjung Kling, Malacca and from 7 December 2003 until 13 December 2003 at Hotel Seri Malaysia, Bayan Baru, Penang. This two course session was involved 75 participants and they were given an effective and efficient course to develop a good web page.

ii) **MOH Web Page Competition**

At Ministry level, PTM has organised a competition on web page for division, state health department and hospital. The competition was implementing to give an exposure and also to ensure those agencies to produce a good and informative web page.

The competition was held for the third time at the ministry and after the evaluation, the judges decide and the result were as follows :

1st place - Institute for Medical Research
2nd place - Food and Quality Control Division
3rd place - Penang State Health Department

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PUBLIC HEALTH PROGRAMME

Oral Health

INTRODUCTION

THE Oral Health Division is the lead agency for oral health in the country. It is one of five divisions under the Department of Public Health of the Ministry, with the following main roles : policy development, management of national oral health (dental) services, oral health promotion, and the enactment and enforcement of laws related to dentistry in the country. The Oral Health Division is instrumental in ensuring collaborative efforts between dental and non-dental agencies, from both the public and private sectors. The Division together with the Malaysian Dental Council, which is also located on the same premises, handles matters regarding the practice of dentistry in the country.

While the formulation of strategies, planning of programmes, monitoring and evaluation activities are carried out at the Division level, implementation is carried out by the state dental services. Linkage with the state dental departments is direct, and feedback and interaction is continuous through frequent meetings, collation of data from the states and regular visits to oral health departments and clinics throughout the country.

The Ministry of Health strategies for oral health in the country are :

i) Increasing oral health awareness of the community through oral health promotion and education.
ii) Fluoridating public water supplies at an optimum level of 0.5 - 0.7 ppm.
iii) Providing clinical preventive oral healthcare services to all school children in need.
iv) Improving inter-agency and inter-sectoral collaboration and co-operation.
v) Providing quality oral health services, which are easily assessed, suitably utilised and technologically appropriate.

vi) Providing maximum coverage to identified priority (target) groups.
vii) Rendering the maximum number of school children orally-fit.
viii) Providing specialist oral health care to those in need of these services and
ix) Collecting and analysing data, as well as undertaking research aimed at improving the quality of the oral healthcare services provided.

ACTIVITIES AND ACHIEVEMENTS

PROFESSIONAL DEVELOPMENT

In October 2003, the post-graduate degrees of Master in Clinical Dentistry in Oral Surgery, Periodontology, Restorative Dentistry (Conservative), Restorative Dentistry (Prosthetic), Oral Pathology and Oral Medicine and Pediatric Dentistry from the University of Malaya were granted recognition. With this, holders of these qualifications are deemed specialists in the Ministry of Health. The post-graduate degree of Master in Community Medicine (Oral Health) from University Sains Malaysia was also recognized in the same year. Recognition of other degrees is also being pursued.

For auxiliaries, the post-basic dental nursing curriculum on Oral and Maxillofacial Surgery was developed in 2003 by the Dental Training College Malaysia, Pulau Pinang. The six-months training for this category of staff will commence in 2004.

The Oral Health Division encourages its entire staff to go for training as part of continuing professional development. A trial implementation of the Credit Point System for Healthcare Professionals was introduced in 2003 for dental officers, dental nurses and dental technicians at the Division. Each category of personnel has to acquire a minimum set of credit points for the year.

ORAL HEALTH PROMOTION

A roadshow of the exhibition on the history of dentistry in Malaysia was continued from the previous year. In 2003, the exhibition was brought to the following state museums :

i) Kuala Terengganu state museum (1.2.2003 – 15.3.2003).
ii) Kota Bharu state museum (23.3.2003 – 8.6.2003).

The Oral Health Promotion Unit at the Oral Health Division collaborated with agencies in the Ministry of Health. Amongst them, discussions were held for the launch of a Cleanliness Campaign to prevent the spread of SARS, input was provided for the Anti-Smoking Campaign *("Tak Nak")*, input was given for the training

module of *Program Doktor Muda*, help was provided in preparation of a training module for *Panel Penasihat Kesihatan,* and work was done on the proposal for setting up of a *Galeri Kesihatan* or *Muzium Kesihatan KKM.*

There was also collaboration with other Ministries (e.g. Ministry of Education and Ministry of Information). The *"Kuiz Kesihatan Sekolah Rendah Peringkat Kebangsaan 2003"* was held in Pulau Pinang on 28 – 31 July 2003. Five workshops for the preparation of questions were held prior to the quiz, in which questions on oral health were contributed. Oral health sessions were aired over national radio in 2003, and seven topics and the respective speakers for these were identified. The Unit also worked with several Non-Governmental Organisations (NGOs) to organise talks for mothers and childcare providers on care of children's oral health.

Exhibitions were held, which included an exhibition on Oral Cancer held in Negeri Sembilan in August, 2003 coinciding with the time when World Health Organisation (WHO) Oral Cancer consultant, Prof. Newell Johnson was with the Division.

Pamphlets were produced and distributed, amongst them, on *"Perkhidmatan Pergigian Sekolah"* and on Dental Amalgam. Also, banners on *"Kesihatan Pergigian Sepanjang Hayat"* and *ISO 9001 : 2000* and VCDs on *"Kerjaya Dalam Bidang Pergigian"*.

The following publications were printed and distributed :

i) *"Garispanduan Keselamatan dan Kesihatan Pekerja di Makmal Pergigian"*.
ii) Position Statement on Use of Dental Amalgam.
iii) Guidelines : Oral Healthcare for the Elderly in Malaysia.
iv) Guidelines: Primary Prevention and Early Detection of Oral Pre-cancer and Cancer.
v) Guidelines : Oral Healthcare for Pre-school Children.
vi) Guidelines for a School-Based Fissure Sealant Programme, 2nd edition.
vii) Coffee Table Book : "Through the Dental Mirror – History of Dentistry in Malaysia".

Monitoring of Oral Health Promotion Activities

Oral health promotion activities carried out in the states are by dental officers and dental nurses. Dental health talks (DHT), toothbrushing drills (TBD), slide/film/puppet shows, exhibitions, campaigns, and talks over radio/TV were conducted for the various target groups. For year 2003, the total number of activities carried out is as shown in Table 1. Overall there was a drop of about 5.2% in the total number of oral heath promotion activities carried out in the year, as compared to 2002.

TABLE 1
Dental Health Education Activities, 2002-2003

Type Of Activity	2002	%	2003	%
TBD	213,464	50.41	201,195	50.1
DHT	166,888	39.41	153,218	38.15
Slide shows	4,993	1.18	5,609	1.40
Puppet shows	1,779	0.42	1,805	0.45
Exhibitions/ campaigns	1,434	0.34	1,519	0.38
In-service training	322	0.08	392	0.10
TV/ radio	103	0.02	191	0.05
Film shows	48	0.01	47	0.01
Others	34,437	8.13	37,616	9.37
Total	**423,468**	**100.00**	**401,592**	**100.00**

Source : Information and Documentation System Unit, MOH

TBDs were the most commonly performed activity, accounting for half of the oral health promotion activities of 2003. Next were dental health talks (DHT). Table 2 shows the total number of participants at TBD and DHT in 2003.

TABLE 2
Number of Participants at TBD and DHT, 2003

Target Group	TBD	DHT
Pre-schoolchildren	1,093,630	839,430
Primary Schoolchildren	4,299,633	2,819,728
Seconday Schoolchildren	8,650	525,733
Ante-natal mothers	922	61,336
Adults	1,478	59,941
Total	**5,404,313**	**4,306,168**

Source : Information and Documentation System Unit, MOH

The oral health programme for trainee school teachers is carried out in all the states. The aspiration is for teachers to aid in improving oral health of school children by complementing the efforts of oral health personnel in the School Dental Service (SDS). The trainee teachers are given talks on oral health, the SDS and the roles required of them in oral health. They are also given an oral health examination, learn how to conduct a toothbrushing drill and are involved in group work to produce lesson plans incorporating oral health messages.

FLUORIDATION OF PUBLIC WATER SUPPLIES

Water fluoridation is a primary prevention programme against dental caries. In the country, water in the public water supplies is fluoridated at the optimum level of 0.5 – 0.7ppm. Prior to 1996, the programme was targeted towards provision of fluoride feeders to all water treatment plants with a capacity of more than 0.5 mgd (million gallons per day). In 1996, a consensus was reached with the Public Works Ministry that water treatment plants with less than 0.5 mgd should also be targeted for installation of fluoride feeders. This move, as expected, has helped solve the problem of dilution of fluoride levels due to mixing of fluoridated and non-fluoridated water supplies.

Water Treatment Plants with Fluoride Feeders

Since the implementation of water fluoridation in Malaysia, there has been an increase in the number of water treatment plants with fluoride feeders. Consequently, there has been an increase in the proportion of the population receiving fluoridated water. There has also been an effort to increase the capacity of existing water treatment plants and to replace plants with small outputs with larger plants to increase supply and coverage.

A number of small plants have been consolidated into larger ones. Thus, there has been a continual increase in the percentage of population receiving fluoridated water, without a similar increase in number of water treatment plants. The number of water treatment plants supplying fluoridated water by state, from 1995 to 2003, is shown in Table 3. In 2003, there were an additional three new plants, each in Johore, Malacca and Negeri Sembilan while a few plants in Sabah, Pahang and Sarawak were found to be inactive.

Budget Allocation for the Fluoridation Programme

Prior to 1993, expansion of the programme was borne under the annual operating budget. In 1993, the fluoridation programme was awarded a special allocation of RM2 million under "New Policy/One-Off" of the Ministry of Health Malaysia. Since then, RM2 million has been incorporated into the annual operating budget for the programme for the acquisition of chemicals as well as for maintenance and repair of fluoride feeders. However, no budget is allocated for private water departments.

Under the Eighth Malaysia Plan (8MP) 2000-2005, several fluoridation projects involving supply and installation of fluoride feeders were approved. The amount allocated for the programme under the 8MP up to the year 2003 was RM550,000.

TABLE 3
Number of Water Treatment Plants with Active Fluoride Feeders by State

State	No. of Water Treatment Plants with Active Fluoride Feeders, 1996 - 2003						
	1996	1998	1999	2000	2001	2002	2003
Perlis	2	2	2	2	2	2	2
Kedah	12	14	14	16	16	20	20
Penang	10	10	10	11	11	10	10
Perak	14	26	27	28	28	34	34
Selangor & F.T. K.Lumpur	20	27	28	29	29	32	32
Negeri Sembilan	17	17	17	17	17	17	18
Malacca	2	4	3	3	3	3	4
Johore	22	22	21	22	22	25	26
Pahang	36	45	42	41	41	44	42
Terengganu	9	14	13	13	0	0	0
Kelantan	0	0	0	0	0	0	0
Pen. Malaysia	**144**	**181**	**177**	**182**	**169**	**187**	**188**
Sabah	3	12	12	12	12	10	7
Sarawak	23	29	29	30	30	33	31
Malaysia	**170**	**222**	**218**	**224**	**211**	**230**	**226**

Source : State Oral Health Departments

Fluoridation Programme Population Coverage

In 2003, an increase in coverage (62.4%) of the population receiving fluoridated water supplies can be seen as compared to the previous year (Table 4). This may be due to the installation of additional fluoride feeders in the water treatment plants.

The fluoridation programme in Kelantan and Terengganu was discontinued in 1995 and 2000 respectively, and to date, the programme in these states have not been re-instituted.

The water fluoridation programme has helped to decrease caries in the country and the programme will continue to be expanded so that the coverage of fluoridated water supplies is to most of the population.

TABLE 4
Population Receiving Fluoridated Water Supplies, 1998-2003

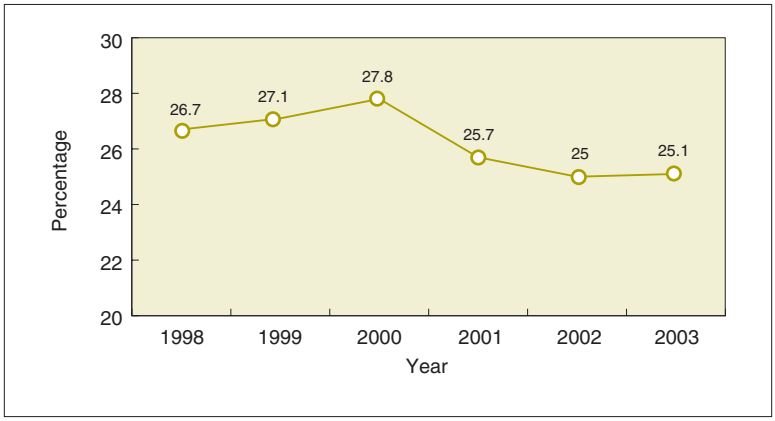
Year	1999	2000	2001	2002	2003
Population	15,594,075	16,138,356	16,275,985	14,390,829	15,627,772
Percentage	68.7	72.7	68.4	59.0	62.4

Source : Oral Health Division, MOH
Information and Documentation System Unit, MOH

PRIMARY ORAL HEALTHCARE

The utilisation of primary oral healthcare facilities by the Malaysian population, can be seen through the new attendances recorded. In 2003, the total population who utilised primary oral health care facilities numbered 5,645,605 (25.1%). Utilisation had been showing a trend of increase from 1998 to 2000. It, however, dropped from 27.8% in 2000 to 25.7% in 2001 and then to 25.0 in 2002 (Figure 1).

FIGURE 1
Primary Oral Healthcare Utilisation by the Population, 1998-2003

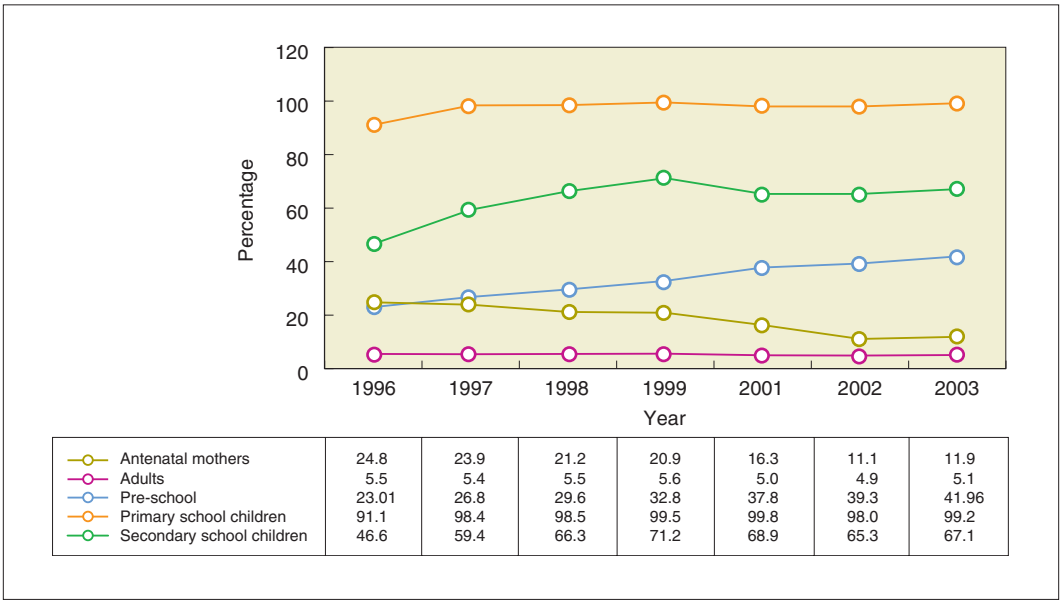


Source : Information and Documentation System Unit, MOH

From 1996, most of the target groups had been showing an increasing trend of utilisation, which has plateaud-off (Figure 2). The drop in population utilisation coincides with the drop in utilisation by the ante-natal group. The reason may be due to manpower shortage, thus this group may not be focused on fully.

For the various target groups (pre-school children, primary and secondary school children, ante-natal mothers, the elderly and children with special needs), programmes have been planned and implemented to ensure the best possible oral health outcome is achieved.

FIGURE 2
Utilisation of Primary Oral Healthcare by Target Groups, 1996-2003



	1996	1997	1998	1999	2001	2002	2003
Antenatal mothers	24.8	23.9	21.2	20.9	16.3	11.1	11.9
Adults	5.5	5.4	5.5	5.6	5.0	4.9	5.1
Pre-school	23.01	26.8	29.6	32.8	37.8	39.3	41.96
Primary school children	91.1	98.4	98.5	99.5	99.8	98.0	99.2
Secondary school children	46.6	59.4	66.3	71.2	68.9	65.3	67.1

Source : Information and Documentation System Unit, MOH

Pre-school children

Dental caries is a common condition afflicting children, which can have lifetime health consequences if left untreated. Dental caries, however, is preventable through good habits. Many studies have reported that health-related behaviours are established in the pre-school years. Both parents and pre-school teachers should play an important role in cultivating good oral health behaviour among the pre-schoolers to prevent caries and other dental diseases.

The Oral Health Division has produced Guidelines on Oral Healthcare for Pre-school Children, with the objective of instilling oral health awareness amongst these children. The Guidelines were ready in August 2003 and distributed to all dental officers and dental nurses.

The main thrust of the pre-school programme is preventive in nature. Clinical intervention such as the Atraumatic Restorative Technique (ART) was introduced following recommendations of the National Oral Health Survey of School Children (NOHSS) 1997 and National Epidemiological Survey of Pre-schoolchildren 1995.

New pre-school children attendees have shown a gradual increase (Table 5). The proportion receiving primary oral health care (POHC) in 2003 was about 42.0%.

TABLE 5
Pre-school Children Receiving Primary Oral Health Care, 1996-2003

Year	1999	2000	2001	2002	2003
Pre-school children receiving POHC	325,867	356,390	364,654	399,083	426,118
% Pre-school children receiving POHC	32.8	36.5	37.8	39.3	42.0

Source : Information and Documentation System Unit, MOH

Primary and Secondary School Children

The SDS is the principal activity for oral healthcare in the Ministry of Health. The services are provided at the following facilities : school clinics, mobile dental clinics, dental clinics and by mobile dental teams. The mobile dental teams comprise an effective mix of operating personnel consisting of dental officers, dental nurses, dental surgery assistants and health attendants.

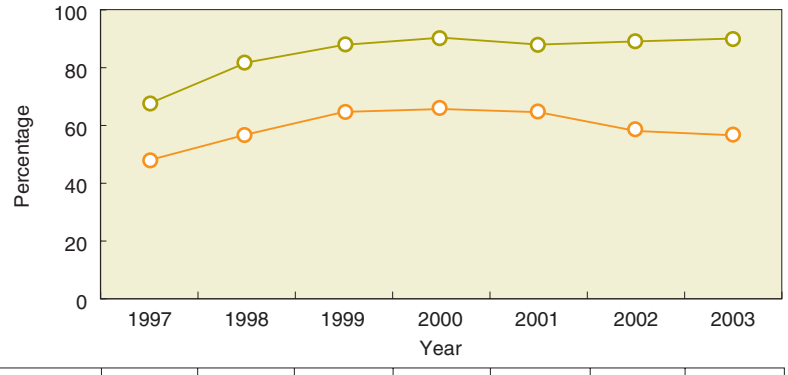
The success of the SDS is attributed to the Incremental Dental Care Programme, a systematic and comprehensive programme for school children with the objective of achieving orally-fit status for the children. Extensive coverage of school children has been possible using an outreach mode. Both preventive and curative care are provided. Preventive activities include toothbrushing drills, oral health education and oral examination.

Primary school coverage, in general, has shown a steady increase over the last six years from 67.6 % in 1997 to 90.1 % in 2003 (Figure 3). The coverage for primary schools exceeded 90% for most states except for Federal Territory (FT) Labuan, Sabah and Sarawak. Meanwhile, coverage for secondary schools in 2003 was 56.6%. It was below 40% for Kedah, Terengganu, Kelantan, Sarawak and Sabah.

In terms of school children coverage, it was 91.6% for primary school children, while for secondary school children, the coverage was 56.9% for. Only the states of Terengganu, Sarawak and Sabah did not achieve 90% coverage for primary school children. Meanwhile, secondary school children coverage, in general, was low except for FT Labuan, Malacca, Johore, FT Kuala Lumpur and Perlis which managed to achieve above 90% coverage.

Several impact indicators for oral health are monitored by the Oral Health Division. The proportion of 6-year-olds with caries-free mouths has been increasing from 14.3% in 1996 to 27.3 % in 2003. Likewise, the proportions of 12-year-olds and 16-year-olds with DMFX=0 have shown a gradual increase (Figure 4). The percentage of 12-year-olds with DMFX < 3 has also increased from 81.6 % in 1996 to 86.2% in 2003.

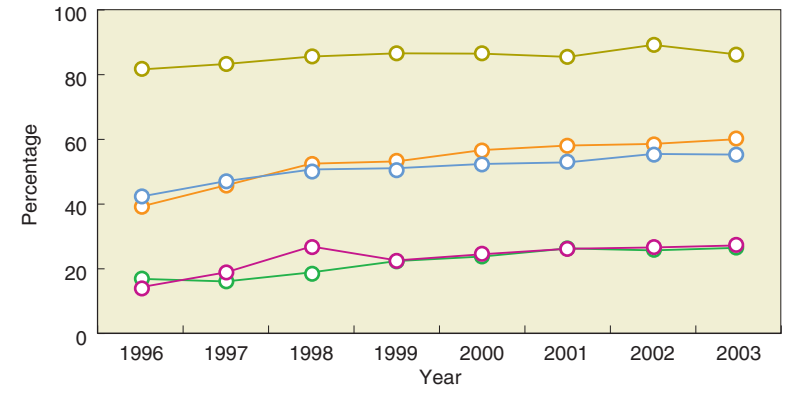
FIGURE 3
School Coverage in Malaysia, 1997-2003



	1997	1998	1999	2000	2001	2002	2003
Primary school children	67.6	81.8	87.9	90.4	88.0	89.1	90.1
Secondary school children	48.0	56.9	64.7	65.7	64.6	58.1	56.6

Source : Information and Documentation System Unit, MOH

FIGURE 4
Impact Indicators for School Dental Service, 1996-2003



	1996	1997	1998	1999	2000	2001	2002	2003
% of 12 yrs-old DMFX < 3	81.6	83.3	85.6	86.6	86.5	85.5	89.2	86.2
% of 6 yrs-old with caries free mouth (CFM)	14.3	18.9	26.9	22.6	24.5	26.2	26.6	27.24
% of 12 yrs-old with DMFX = 0	42.3	47.1	50.7	51.1	52.4	52.9	55.5	55.3
% of primary school children with NTR	39.2	45.8	52.5	53.2	56.7	58.1	58.6	60.1
% of 16 yrs-old with DMFX = 0	16.9	16.1	18.9	22.4	23.8	26.3	25.7	26.5

Source : Information and Documentation System Unit, MOH

Even though 60.1% of primary school children were found not to require any treatment, the proportion of 6-year-olds with caries-free mouths in 2003 at 27.3% is still quite low. With the implementation of a more structured pre-school programme, it is hoped that there will be further improvements to the oral health status of school children.

Ante-natal Mothers

Mothers can be agents of change for oral health at home, by imparting their acquired oral health knowledge to their young and by stimulating positive behavioral change amongst family members. This forms the basis of the ante-natal oral health programme. The main thrust is thus creating and reinforcing awareness of the mothers. All ante-natal mothers are also given free oral health treatment, with the exception of fees for the fabrication of prostheses. The ante-natal mothers who attend the Maternity and Child Health Clinics are referred to the nearest dental clinics for routine examination. Oral health promotion sessions are then scheduled and appointments for treatment are given, if required.

The coverage of ante-natal mothers was 11.9% in 2003. This is a minimal increase from 11.1% in 2002. The highest coverage for year 2003 was seen in Perlis (25.3%)and Negeri Sembilan (25.2%), while lowest was in Sabah (4.0%).

Adults

Apart from providing outpatient oral health care, there is no structured programme dedicated to adults. Oral health care for adults is provided based on demand and the more complex cases are referred to dental specialists for further management. In 2003, the estimated Malaysian population of adults was 15,871,224 and only 813,405 (5.1 %) of adults sought primary oral health care at the public dental clinics. The higher proportions of new attendances of adults are seen in the states of Perlis (10.8 %), Terengganu (9.9%) and Negeri Sembilan (9.6%).

Of the total attendances of adults, the breakdown according to ethnic groups was highest for Malay (63.6%), followed by Chinese (16.8%), Indians (7.7%) and the remaining fall into the "Others" category. The treatment sought was extraction, scaling or the fabrication of prostheses.

The Elderly

The life span of Malaysians is increasing. Age should not be a limiting factor in terms of appearance and socialisation for the individual. Hence, good oral health will help in achieving better quality of life. A set of guidelines has been formulated to ensure that this group is not neglected. Services are provided not

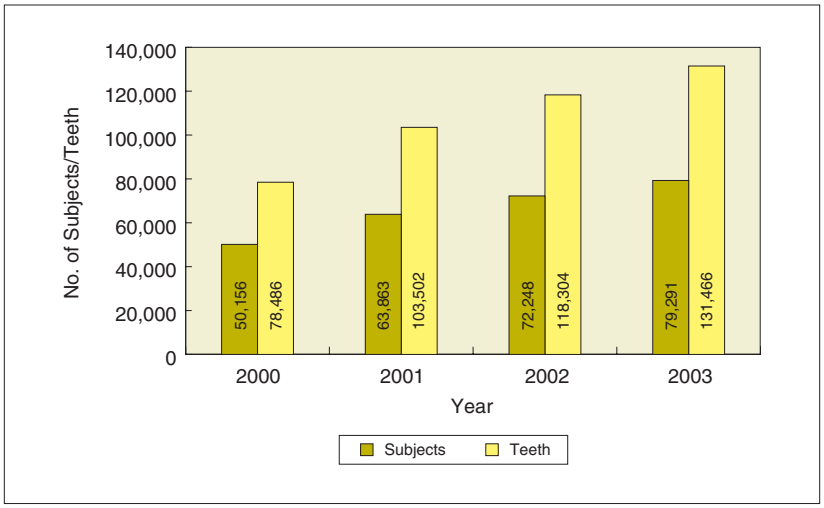
only at the dental clinics, but also outreach services to institutions, community or day-care centers, and for the future, provision of domiciliary care at residential homes. An attempt at data collection through issuance of tailored forms to the states has been done.

THE SCHOOL BASED FISSURE SEALANT PROGRAMME

The national guidelines on the conduct of a school-based fissure sealant programme, was previously formulated in 1999. This was revised in year 2002. The programme focuses on Year 1 and Year 2 school children as well as those at high-risk. In 2003, of the primary schoolchildren who needed sealants, 77.7% were provided with sealants. When considering the teeth involved, 77.1 % of the total number of teeth requiring fissure sealants were sealed. This programme has been expanded to provide more schoolchildren with fissure sealants as shown by the increase in trend for fissure sealant provision both by numbers of subject and teeth among primary school children (Figure 5).

The provision of fissure sealants is an integral part of incremental oral health care for primary schoolchildren. If resources are available, in line with the strategy, continuous emphasis of the programme for Year 1 and Year 2 schoolchildren is essential.

FIGURE 5
Number of Subjects/Teeth Fissure Sealed, 2000-2003



Source : State Oral Health Departments

PRIMARY PREVENTION AND EARLY DETECTION OF ORAL PRE-CANCER AND CANCER PROGRAMME

The programme on Primary Prevention and Early Detection of Oral Pre-cancer and Cancer was originally implemented in 1996. This programme was reviewed in 2001 and the protocol revised in 2002. The new protocol focuses on primary health care using the high-risk strategy. In February 2003, a state co-ordinators' meeting was held to assist in data collection and data-entry based on the new protocol. New guidelines were distributed to all states for implementation. Echo-training and standardisation of dental officers was carried out at state level.

The Oral Health Division was granted financial assistance for a population-based programme for oral cancer by the WHO in 2002. Consultancy was carried out by visiting Professor Newell Johnson during 18 August – 29 August 2003 with the following terms of reference :

i) Assist in developing a protocol for conduct of a population survey on awareness of risk habits, and signs and symptoms of oral cancer and pre-cancer lesions.
ii) Review the guidelines in terms of implementation and sustainability of the community programme.
iii) Assist in organising a comprehensive population-based oral cancer programme.
iv) Provide consultancy on criteria for clinical examination and diagnosis of oral mucosal lesions.
v) Provide technical expertise in training sessions for oral surgeons and field health workers for oral mucosal lesions.

These were achieved through briefing on the programme, provision of relevant documents, visits to estates in the states and assisting in training and standardisation sessions, screening, and dental health education. At the end of the period, a presentation of the consultant's findings and recommendations was given to the protocol working group, Oral Health Division personnel and academics from the Faculty of Dentistry, University of Malaya.

An Oral Cancer Conference with the theme 'Fitting Pieces Together' was held in Penang on 25th August 2003 coinciding with Prof. Johnson's visit. It involved more than 65 participants from various government agencies and universities. A clinico-pathological discussion on oral pre-cancer and cancer was also conducted jointly by the Oral Health Division and the Dental Faculty, University of Malaya (UM) on 28 August 2003.

SPECIALIST ORAL HEALTH CARE

The total number of dental specialists in the Ministry of Health increased from 188 in year 2002 to 201 in year 2003. (Table 6). Amongst the clinicians, the oral surgeons and orthodontists numbered 34 and 28 respectively while there were smaller numbers (10, 8, 4) for the specialty disciplines of Paediatric Dentistry, Periodontics and Oral Medicine/Oral Pathology.

TABLE 6
Dental Specialists by Discipline, Ministry of Health Malaysia, 1999-2003

Discipline	Number of Specialists				
	1999	2000	2001	2002	2003
Oral Surgery	28	32	30	31	34
Orthodontics	28	28	26	27	28
Paediatric Dentist	6	8	10	10	10
Periodontist	7	8	7	7	8
OM/OP	1	2	3	3	4
Total Clinical Specialists	**70**	**78**	**76**	**78**	**84**
Public Health	96	102	103	110	117
Grand Total	**166**	**180**	**179**	**188**	**201**

Source : Oral Health Division, MOH

About seventy dental officers are undergoing training in the various post-graduate disciplines. The first of this group will report for duty in 2004. In addition, new dental specialty fields for the Ministry of Health will be restorative dentistry and forensic dentistry.

Specialists were involved in expert panels for the production of Clinical Practice Guidelines (CPG). In the Plan of Action for year 2003, 10 CPG topics were proposed to be developed (Table 7). Topics which were submitted to the CPG Council received approval for development. The "Management of Pericoronitis" will be incorporated into the CPG for "Management of Impacted Wisdom Tooth". The CPG on "Antibiotic Prophylaxis for Surgical Wound Infection", begun much earlier, was printed and distributed in 2003.

Health technology assessment (HTA) was conducted on "Pre-fabricated Pre-orthodontic Appliance for Children". The Orthodontic specialist group also continued with developing the Referral Guidelines for Orthodontic Cases.

TABLE 7
Topics for Clinical Practice Guidelines Development for 2003

No.	CPG Topic	Discipline
1.	Management of Unerupted and Impacted Lower Third Molar Teeth	Oral Surgery
2.	Management of Unilateral Condylar Fracture of the Mandible	Oral Surgery
3.	Management and Prevention of Dry Sockets	Oral Surgery
4.	Management of Anterior Crossbite in the Mixed Dentition	Orthodontics
5.	Management of the Unerupted Maxillary Central Incisor	Orthodontics
6.	Management of the Palatally Ectopic Maxillary Canine	Orthodontics
7.	Management of Early Childhood Caries	Paediatric Dentistry
8.	Management of Periodontal Abscess	Periodontology
9.	Initial Therapy in Chronic Inflammatory Periodontal Disease	Periodontology

Source : Oral Health Division, MOH

Core Competencies of each individual specialty discipline was an area looked at, for the purposes of documenting these for the country. A listing of procedures required for credentialing and privileging was drawn up by the oral surgeons from both the public and private sectors.

A course for Dental Surgery Assistants attached to Dental Specialist Clinics was conducted from 13 to 16 July, 2003 in Kuala Lumpur. The participants were divided into 4 groups : Oral Surgery, Orthodontics, Periodontics and Paediatric Dentistry. Specialists were involved as lecturers and facilitators. Workshop sessions were conducted for the participants in the various specialty fields, with the objective of gaining knowledge and skills in the delivery of care at the specialist clinics. A dialogue session was also held to find out qualms and streamline services at these clinics.

A "Basic Surgical Skills" Course was conducted by the Malaysian Association of Oral and Maxillo-facial Surgeons from 3 to 5 October, 2003 at Manipal Medical College, Malacca. Fifteen dental officers were sponsored to attend the course. The officers were selected by the respective State Deputy Directors of Health (Dental) for the course, mainly from those posted at hospitals. Course lectures were delivered by oral surgeons, physicians, general surgeons, anaesthetists, physicians, pathologists, radiologists and oncologists. Apart from lectures, the participants also benefited from exposure to clinical skills stations where auscultation of heart/ breath sounds, IV techniques, urinary catheterisation, airway management, etc. were taught to them.

Monitoring of Specialist Oral Health Care Programme

i) *Oral Surgery*

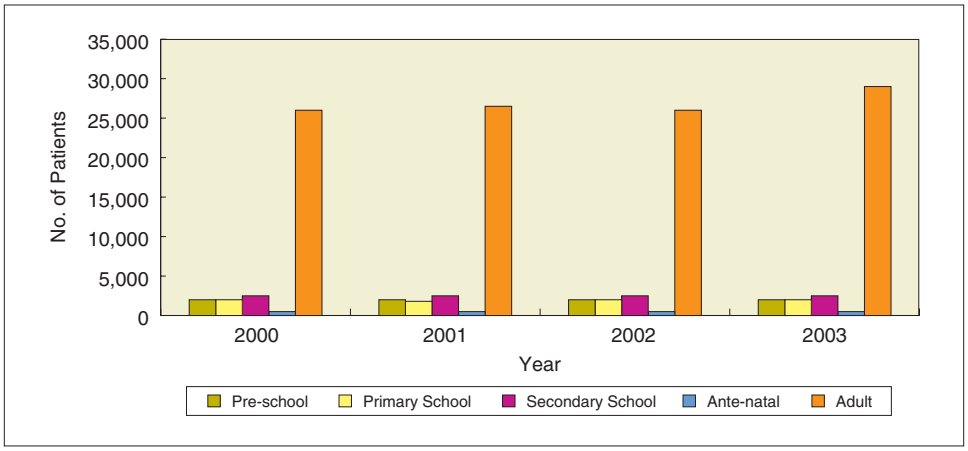
The number of patients (based on new attendances) at the oral surgery clinics has increased (Table 8). Adults have been, and still is, the largest group seeking oral surgery specialist care followed by secondary school children, pre-schoolers, primary school children and ante-natal mothers (Figure 6). Patients are referred for care from dental clinics or medical clinics, and are seen as both in-patients and out-patients. Care provided includes extractions, surgery, biopsies, fracture management, restorative care, prosthetics, and management of the temporo-mandibular joint.

TABLE 8
Oral Surgery Specialist Care, 2002-2003

Category of Patients	No. of Patients		Total Attendance	
	2002	2003	2002	2003
Pre-school	1,247	1,254	2,598	2,847
Primary School	1,197	1,158	3,072	3,124
Secondary School	2,102	2,229	6,314	7,228
Ante-natal	185	213	288	395
Adult	25,829	28,598	72,422	80,655
Total	**30,560**	**33,452**	**84,694**	**94,249**

Source : Information and Documentation System Unit, MOH

FIGURE 6
Patients at Oral Surgery Clinics, 2000-2003



Source : Information and Documentation System Unit, MOH

ii) ***Orthodontics***

For orthodontics, the number of patients recorded was more than the previous year. (Table 9). The total attendances were also found to have increased. There were 4.0 visits per patient. The main utilisers (total attendances) for orthodontic care are secondary school children (Figure 7).

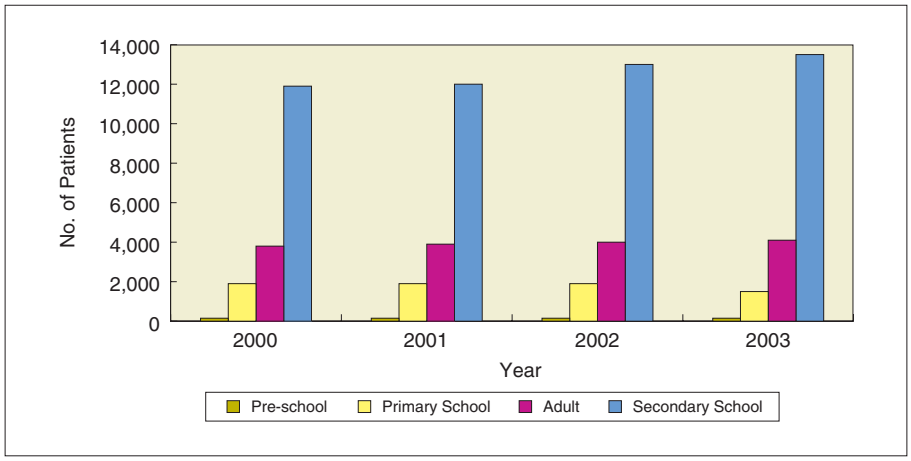
The care provided by orthodontists include counselling, provision of removable and fixed appliances, adjustment for both types of appliances, and change of archwire for fixed appliances. For the country, active treatment completed by orthodontists was 2,844 cases, while review/retention cases seen were 8,675. Breakdown for some items of orthodontic care provided is seen in Table 10.

TABLE 9
Orthodontic Specialist Care, 2002-2003

Category of Patients	No. of Patients		Total Attendance	
	2002	2003	2002	2003
Pre-school	142	160	262	311
Primary School	2,603	2,156	6,097	5,672
Secondary School	13,287	13,607	52,460	55,058
Adult	5,467	5,596	23,693	25,733
Total	**21,499**	**21,519**	**82,512**	**86,774**

Source : Information and Documentation System Unit, MOH

FIGURE 7
Patients at Orthodontic Clinics, 2000-2003



Source : Information and Documentation System Unit, MOH

TABLE 10
Types of Orthodontic Care Provided, 2003

Removable Appliances	New No. of Patients Adjustment	6,981 4,778 11,777
Fixed Appliances	New No. of Patients Adjustment Change of archwire	5,433 3,654 52,596 19,332
Active Treatment Completed		2,844
Review/Retention Cases		8,675

Source : Information and Documentation System Unit, MOH

iii) ***Periodontology***

The periodontic clinics registered an increase in number of patients for 2003 from the previous year (Table 11). The patient clientele for periodontists is mainly the adult group as periodontal problems are mainly experienced by the older age groups (Figure 8).

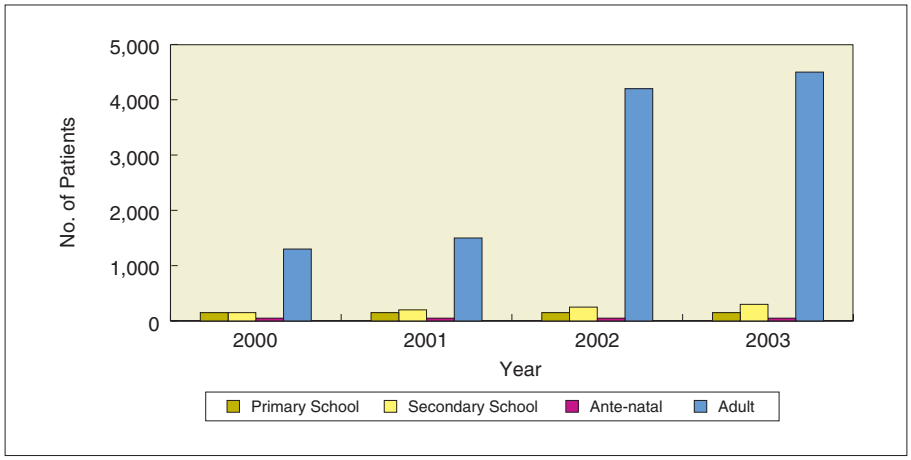
Periodontic care is classified into several broad categories : restoration/extraction, inlay/crown & bridge, endodontic, surgical, prevention, prosthetic and others. Surgical procedures include flap surgery, gingivectomy, graft placement, frenectomy, root amputation, guided tissue regeneration, crown lengthening and surgery for implant placement. Prostheses provided are full dentures, partial dentures, implants and others. Other treatment given includes occlusal adjustment, splinting of teeth and laser treatment.

TABLE 11
Periodontic Specialist Care, 2002-2003

Category of Patients	No. of Patients		Total Attendance	
	2002	2003	2002	2003
Primary School	82	99	145	271
Secondary School	180	351	381	795
Ante-natal	60	38	92	82
Adult	4,510	4,855	9,620	13,313
Total	**4,832**	**5,343**	**10,238**	**14,461**

Source : Information and Documentation System Unit, MOH

FIGURE 8
Patients at Periodontic Clinics, 2000-2003



Source : Information and Documentation System Unit, MOH

In 2003, there were 11,621 cases examined with charting done, while 9,164 were consultation/counselling cases. There were 654 completed periodontic cases. There were 2.7 visits per patient in 2003.

iv) ***Paediatric Dentistry***

Children below the age of 16 years who are difficult to manage or require complex oral health care are referred to paediatric dental specialists based at hospitals from medical units, paediatric surgical units, wards, Accident and Emergency Departments and out-patient departments in hospitals, as well as private and public medical and dental clinics.

The children may be those with dental problems, may be those medically-compromised, or those with special needs. There are also cases presenting with traumatic injuries (soft tissue injuries or dento-alveolar complex injuries), or fractures of the basal bones. Some may present with oral medicine and oral pathology problems. Some children require dento-alveolar surgery e.g. removal of supernumeraries, apicectomies, and exposure of unerupted teeth. Early childhood caries in the very young are amongst the cases attended to.

In 2003, the number of patients and the total attendances at paediatric dental specialist clinics are seen to have increased (Table 12).

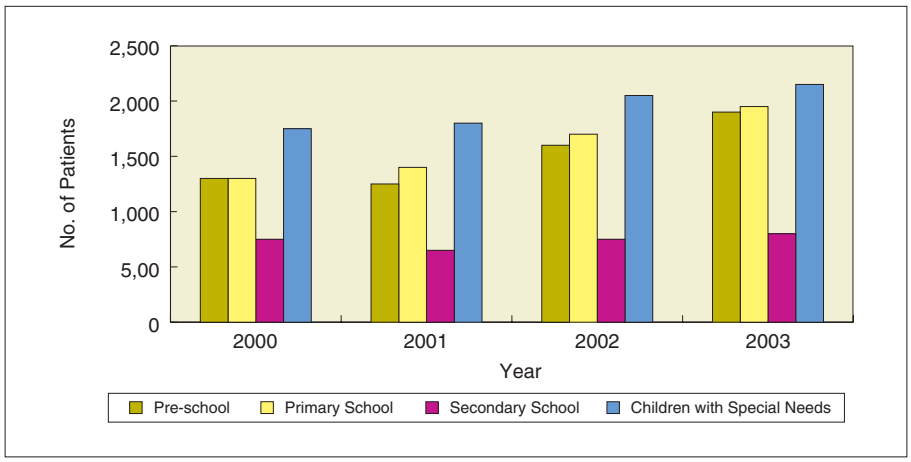
It is observed there is a trend of increase in number of patients for four categories for Paediatric Dental Specialist services (Figure 9).

TABLE 12
Paediatric Dental Specialist Care, 2002-2003

Category of Patients	No. of Patients		Total Attendance	
	2002	2003	2002	2003
Pre-school	1,588	1,901	5,140	5,872
Primary School	1,661	1,976	6,278	6,643
Secondary School	776	859	2,775	3,080
Children with Special Needs	2,057	2,133	8,656	8,638
Total	**6,082**	**6,869**	**22,849**	**24,233**

Source : Information and Documentation System Unit, MOH

FIGURE 9
Utilisation of Paediatric Dental Specialist Clinics, 2000-2003

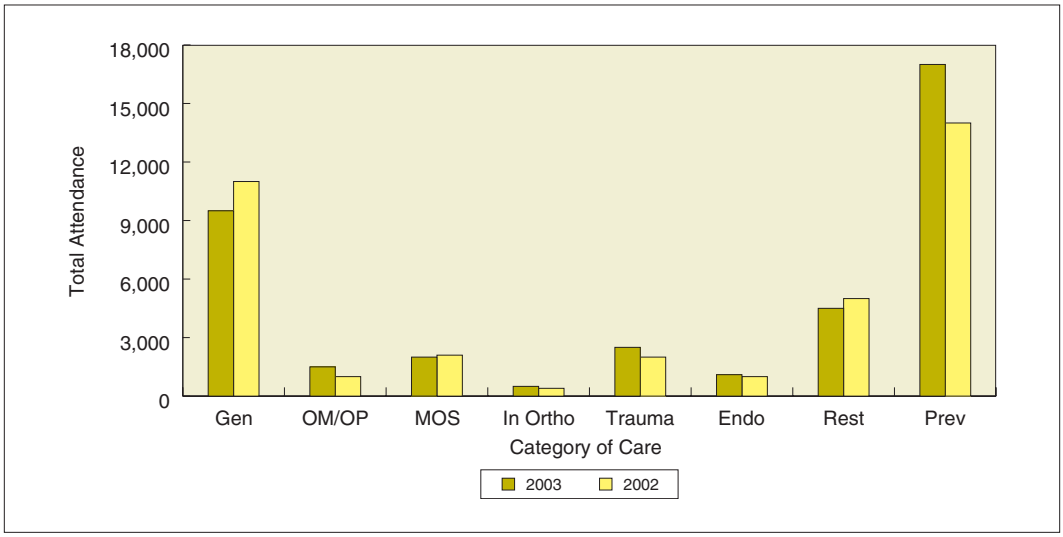


Source : Information and Documentation System Unit, MOH

The care provided fall into the following categories : pulpal therapy, trauma, interceptive orthodontics, prosthesis provision, extraction, oral surgery, oral medicine/pathology, general anaesthesia cases, sedation cases, other cases and those orally fit during re-examination. Preventive care provided includes oral hygiene instruction and prophylaxis, diet counselling, topical fluoride therapy and fissure sealant application. Meanwhile, restorative care includes amalgam restorations, tooth-coloured (composite/glass ionomer cement) restorations, and also provision of inlays, crowns and veneers.

Total attendance by category of care shows that the highest was for preventive care while the lowest was for interceptive orthodontics (Figure 10). There were 3.5 visits per patient.

FIGURE 10
Care Provided by Paediatric Dental Specialists, 2002-2003



Source : Information and Documentation System Unit, MOH

RESEARCH

NOHSA 2000

Following the preliminary report entitled "Oral health status, impacts and treatment needs of Malaysian adults' published in 2001, the services of a statistician was obtained in 2002 to produce a three-part report pertaining to 'Oral Health Status', Oral Health Perception' and 'Cross-tabulation of Oral Health Status versus Perception'. This three-part report was finalised in January 2003. Tabulation of 'weighted' and 'unweighted' data was undertaken in March 2003 with follow-through discussion with the statistician.

It has been intended that NOHSA 2000 be a two-volume report with the first volume on "Oral Health Status' and the second on 'Oral Health Perception and Impacts of Oral Health'. Editorial board members produced preliminary drafts on oral conditions/ impacts by November 2003.

Identifying Risk Factors for Fluorosis among 16-Year-Olds

This is a spin-off from the 1999 study on 'Fluoride Enamel Opacities among 16-year-olds'. Further analysis on the data was done using logistic regression on the possible risk factors for fluorosis. The draft report was ready in December 2003. The final report is intended for publication in an international journal.

Cost Analysis of Private Primary Care Services in Malaysia

The 'Cost Analysis Study on Private Primary Care Services in Malaysia' was conducted in 2002 in collaboration with the Medical Practice Division, MOH, UKM and the Primary Care Doctors' Organization of Malaysia (PCDOM). Data on capital and recurrent costs as well as charges for items of care as specified in the Malaysian Dental Association (MDA) Fee Schedule was collected. Data analysis began in December 2002 and continued into 2003.

The preliminary results were taken for incorporation as part of the Dental Fee Schedule under the Regulations of the Private Healthcare Facilities and Services Act 1998. A consensus on the proposed fee schedule was reached after discussions between officers of the Oral Health Division, members of the Malaysian Dental Association (MDA) and Malaysian Private Dental Practitioners' Association (MPDPA).

Cross-Cultural Adaptation and Validation of the English Version Geriatric Oral Health Assessment Index (GOHAI) for use in Malaysia

This is a collaborative project between three agencies – the Oral Health Division, the Clinical Research Centre of the MOH and the Dental Faculty, UM. Following translation of the English version GOHAI into Bahasa Melayu (BM) in 2002, two pretests on the BM version were held : in January 2003 (15 bilingual volunteers) and in November of the same year (12 bilingual volunteers). Analysis of the first pre-test data was held in April 2003. A second pre-test was decided based on proposals and suggestions made by respondents. Decision on the final equivalent BM version of the English GOHAI was made in December 2003.

Clinical Pathways in Oral Healthcare

The Oral Health Division initiated the study on clinical pathways in collaboration with the University of Malaya Community Dentistry Department. A two-day meeting on 'Clinical Pathways (cpaths) for Dental Procedures' was held in May 2003 with the objective of building pathways of care for the following procedures :

i) scaling and prophylaxis
ii) restorations
iii) extractions
iv) fissure sealants
v) full and partial acrylic dentures
vi) laboratory procedures pertaining to full and partial acrylic dentures.

The task was divided to the various states. The formulated cpaths were presented to the Director of Oral Health and State Deputy Directors of Health (Dental) in June 2003 and pre-test conducted from July to September 2003. Data was collected

on personnel, material and duration associated with each procedure. All hard copies of the pre-test were channeled to the Division by December 2003 and data entry will continue into 2004.

Oral Health Knowledge, Attitudes, Perception and Behaviour of Young Adults

This study is a collaboration with the Health Systems Research (HSR) Division of the Ministry. The aim is to plan and conduct a survey into knowledge, attitudes, perception, behaviour as well as sources of, or barriers to, oral healthcare among young adults aged 18 to 29. Members of the protocol workgroup met in March to September 2003 to formulate the methodology and intended questionnaire. It was decided by the National Steering Committee that a pilot study be held in FTKL prior to the national survey. The training of Dental Public Health officers from FTKL on conduct of the pilot study began in December 2003.

Assessment of Blood and Urine Mercury Levels in Dental Personnel

This collaborative study with the Environmental Health Research Centre (EHRC) of the Institute for Medical Research has an ultimate objective of periodic continued surveillance on dental mercury hygiene practice among dental personnel of the MOH. This is in line with the 'Code of Practice for Dental Mercury Hygiene' contained in the 'Position Statement on Use of Dental Amalgam in Malaysia'. The project will compare urine mercury levels between dental and health personnel, the latter acting as controls. A flow chart for handling of dental amalgam was formulated in January 2003. Several demonstration sessions on different mercury analysers followed this.

The National Burden of Disease Study

Data on dental caries and periodontal disease was contributed for the 'National Burden of Disease' study by the Public Health Institute

Evaluation of Fissure Sealant as an Integrated School Dental Programme : A Longitudinal Study

Protocol for this study was drawn up.

Ministry of Health Research Dialogue for 2004

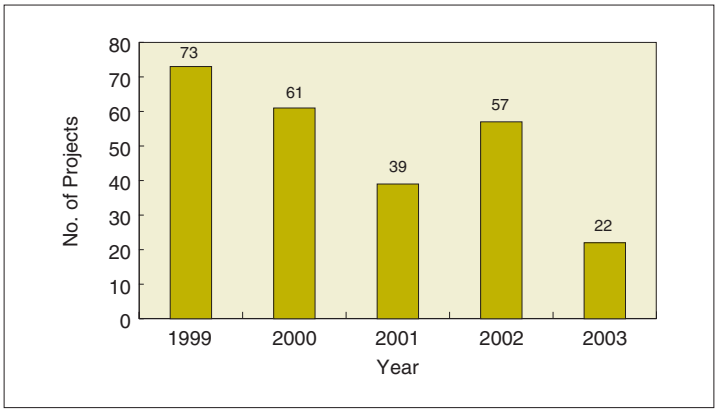
Two projects were submitted :

i) to develop an assessment index for referrals of orthodontic cases to ease the long waiting lists.
ii) to explore providers' and consumers' views on expected basic care procedures, expected charges and profit margins pertaining to basic oral healthcare package(s) serving the interests of both groups.

Monitoring of State Health Systems Research (HSR) Projects

Many projects have been identified at district and state levels as HSR Projects, although the numbers vary from year to year (Figure 11). The majority of projects take up to two years from initiation to final report.

FIGURE 11
HSR Projects Undertaken by States, 1999-2003



Source : Oral Health Division, MOH

CHALLENGES AND FUTURE DIRECTION

The Oral Health Division will continue to strive for the best in oral health care for the nation. While human resource may still be insufficient, efforts towards increasing dental officers will continue. The compulsory service of 3 years for all newly registered practitioners has helped to ease the vacuum in certain areas. New graduates from additional new local dental faculties of University Kebangsaan Malaysia and in future, Universiti Sains Malaysia, will help to increase delivery of care in in remote areas.

The target groups for care have long been identified. However, although the SDS is a service that Malaysia can be proud of, care to other target groups, especially to antenatal mothers needs to be improved. Coverage for community fluoridation also has to be heightened and for the states of Kelantan and Terengganu, be re-instituted.

Quality improvement initiatives need to be continously undertaken and excellence in care delivery ensured. It is hoped that with ISO 9000 certification for which the Division and many dental departments and clinics, have achieved and others are working towards, the public's expectations can be met. The use of new technology,

too, is always encouraged. However, this has to be appropriate to the needs of the country. The information technology arena with regards to data and information management is an area to contend with. Efforts will continue towards good data management for efficiency in dental services.

As the Malaysian society continues to be more knowledgeable and demanding, continuing education with training of the personnel will be emphasised. This will help meet and hopefully satisfy expectations of the public.

Oral health has to be recognized as an integral part of general health and that good oral health is a main contributor towards optimum general health. Awareness of this and joint efforts with others beyond the oral health realm is essential to achieve wellness of all.

Family Health Development

INTRODUCTION

THE Family Health Services in Malaysia began in 1956 with the Maternal and Child Health Programme. Since 1995, this programme was expanded to Family Health Development Division (FHD). Three main sections under the division are Family Health, Nutrition and Primary Health Care. The Division is headed by a Director and supported by three Deputy Directors from the three sections.

The FHD is responsible for delivering services to all levels of the community through primary health care. The aim is to provide services from womb to tomb, using the eight health goals as a guide. This Division is responsible in planning, implementation, monitoring and evaluation of the activities related to family health, nutrition and primary care conducted at all levels.

VISION AND MISSION

The vision of the Division is "Towards healthy families that enjoy a quality life throughout."

The mission of the Division is that in order to establish healthy families. This Division will :

i) Develop a comprehensive and integrated Family Health Programme to every individual, family and the community.
ii) Encourage community participation in health care through increasing awareness among every individual, family and the community.
iii) Establish rapport and collaboration with various sector and government as well as non-government organizations (NGO's) in the implementation of the family health activities.

PROGRAMME OBJECTIVES

General Objective

To promote and maintain the physical, mental and social health of every family.

Specific Objectives

i) To promote and maintain the health of women in the reproductive age group.
ii) To promote and maintain the health of infants and children up to school going age.
iii) To promote and maintain the health of adolescents and young people.
iv) To promote and maintain the health of women besides their maternal and reproductive health.
v) To promote and maintain the health of the elderly members in the family.
vi) To provide preventive, promote curative and rehabilitative health services to all members of the family at the first point of contact.
vii) To promote healthy nutrition practices and improve the nutritional status of the community.

Programme Strategies

i) Expanding the scope of Family Health Programme to cover adolescent and elderly health, the provision of rehabilitative care and mental health services through the development of plans of action and training modules.
ii) Strengthening antenatal, postnatal and perinatal care through the adoption of risk approach, district-team problem solving approach, safe motherhood projects, maternal mortality reviews and setting up of Alternative Birthing Centres (ABC).
iii) Strengthening infant and child care through implementation of new activities such as Early Child Development and Stimulation, Hib and MMR immunization, expansion of the screening programme for Congenital Hypothyroidism.
iv) Advocating school to take up initiatives in promoting health related activities in the school and its environment through the Health Promoting Concept.
v) Strengthening the expanded scope programmes through implementation of activities such as counselling training and the development of the Standard Operating Procedure for Adolescent Health, introduction of new format for Registration and Placement of Children with Special Needs and introduction of new programme for home care for mentally ill alongside with the follow-up management of stable mental patients and Psychosocial Rehabilitation.
vi) Strengthening intersectoral collaboration in nutrition planning, promoting and intervention through formulation of the National Plan of Action for Nutrition, Malaysia.

vii) Intensifying breastfeeding promotion through the reassessment of the baby-friendly hospitals, while continue evaluating new hospital to be awarded as Baby-Friendly Hospital.
viii) Strengthening nutrition promotion through healthy eating practices and development of healthy recipes.
ix) Strengthening the prevention and control of micronutrient deficiencies especially iodine deficiency disorders and anaemia.
x) Strengthening Primary Health Care (PHC) activities with the integration of various health activities implemented at the primary health care level.
xi) Strengthening family medicine through upgrading of infrastructure and facilities and realigning the roles and functions of the Family Medicine Specialist as the team leader in PHC.
xii) Strengthening the scope of service of Public Health Nursing through reviewing guidelines and procedure in Midwifery Services, preparation of Standard Operating Procedures, and drafting the policy on homecare nursing.
xiii) Strengthening the scope of service of Medical Assistants through development of Standard Operating Procedures, and in-service training.
xiv) Strengthening the infrastructure, support services and information technology for the primary health care.
xv) Intensifying evaluation process of PHC services with development of new indicators for Quality Assurance Programme with new approaches measuring process and outcome.
xvi) Strengthening Information Technology in PHC with development of the Teleprimary Care.
xvii) Implementation of new operational policy such the pilot project of Private General Practitioners Services at Health Centres.
xviii) Strengthening the Traditional/Complementary Medicine by drafting of the Act while continuing with the registration of T/CM Practitioners.

ACTIVITIES AND ACHIVEMENTS

FAMILY HEALTH

Antenatal Care

Antenatal care is reflected in the annual returns for the total national coverage which is 73.6% although the antenatal coverage for new cases to the public health facilities reduced from 69.1% in 2002 to 56.7% for 2003. However, the average antenatal visits per mother to public health facilities in 2003 remains steady at 8.8 times. In 2003, the national coverage for tetanus toxoid immunisation for pregnant mothers (completion dose) was at 84.4% (Table 1).

TABLE 1
Average Antenatal Visits Per Mother and Tetanus Toxoid Immunisation Coverage 1990, 2000-2003

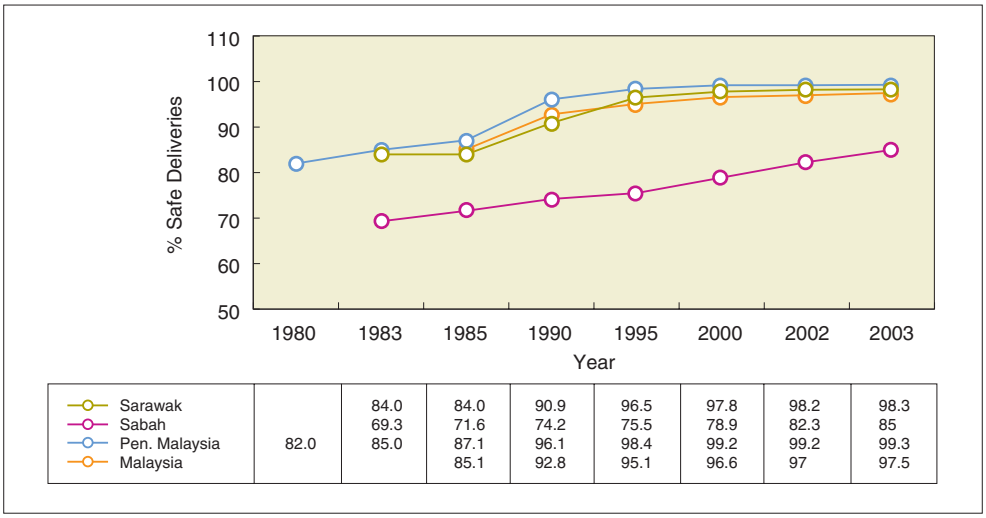
Region	Average Antenatal Visits per Mother					Tetanus Toxoid Immunisation Coverage				
						Completed Immunisations (2nd & Booster Dose)				
	1990	2000	2001	2002	2003	1990	2000	2001	2002	2003
Pen. Malaysia	6.7	8.7	8.9	9.1	9.1	316,375 80.0%	337,043 82.9%	316,548 81.5%	317,731 82.9%	311,870 82.7%
Sabah	5.2	7.3	7.6	7.7	7.7	54,205 88.6%	59,887 97.5%	59,370 95.4%	52,515 92.3%	48,328 92.5%
Sarawak	7.3	8.3	8.3	8.4	8.4	43,865 86.4%	52,678 113.0%	40,035 86.4%	40,007 93.4%	38,988 89.6%
Malaysia	**6.6**	**8.5**	**8.6**	**8.8**	**8.8**	**414,445 81.7%**	**449,608 86.8%**	**415,953 83.7%**	**410,253 84.9%**	**399,186 84.4%**

Note : Estimated Livebirth as Denominator for Tetanus Toxoid Coverage
Source : Information and Documentation System Unit, MOH
Division of Family Health Development, MOH

Deliveries and Postnatal Care

The total number of registered births in Malaysia decreased from 507,900 in 2000 to 406,853 in 2003. The trend for safe deliveries in Malaysia, increased in all regions and overall in Malaysia it increased from 96.6% in 2000 to 97.5% in 2003 (Figure 1).

FIGURE 1
Percentage of Safe Deliveries in Malaysia, 1980-2003



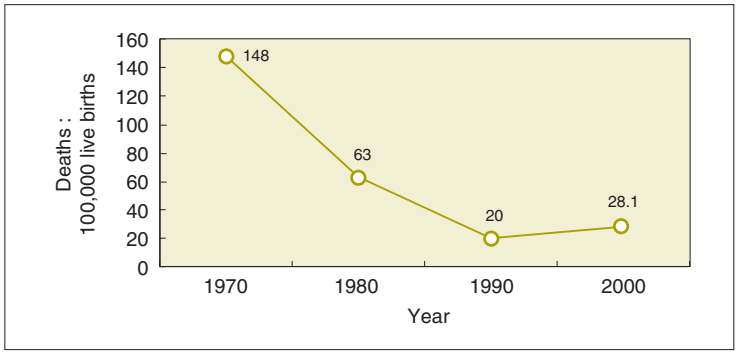
	1980	1983	1985	1990	1995	2000	2002	2003
Sarawak		84.0	84.0	90.9	96.5	97.8	98.2	98.3
Sabah		69.3	71.6	74.2	75.5	78.9	82.3	85
Pen. Malaysia	82.0	85.0	87.1	96.1	98.4	99.2	99.2	99.3
Malaysia			85.1	92.8	95.1	96.6	97	97.5

Source : Information and Documentation System Unit, Ministry of Health Malaysia

Maternal Mortality

Maternal mortality ratio (MMR) has declined dramatically since independence. Preliminary analysis of maternal deaths by the Confidential Enquiries into Maternal Deaths from 1997-2000 showed that Postpartum haemorrhage still remains the main cause of maternal deaths in Malaysia (Figure 2).

FIGURE 2
Maternal Mortality Rate in Malaysia, 1970-2000

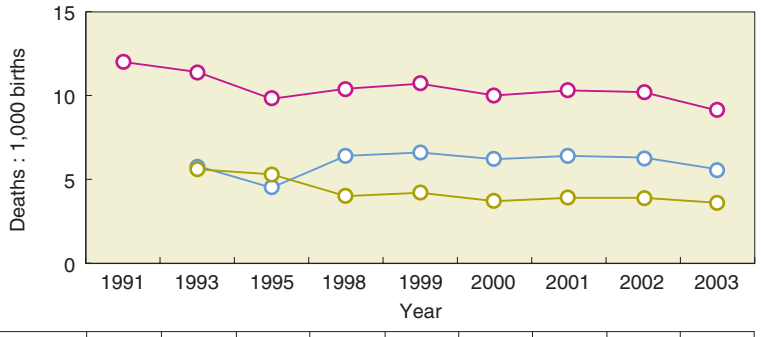


Note : Data for 1970 and 1980 are only for Peninsular Malaysia
Data for 2000 is from Confidential Enquiry into Maternal Death, MOH
Source : Department of Statistics, Malaysia

Perinatal Mortality

The perinatal mortality rate has decreased from 12 per 1000 births in 1991 to 9.1 per 1000 births in 2003 (Figure 3).

FIGURE 3
Components of the Perinatal Deaths Rates based on HMIS and PNM, 1991-2003

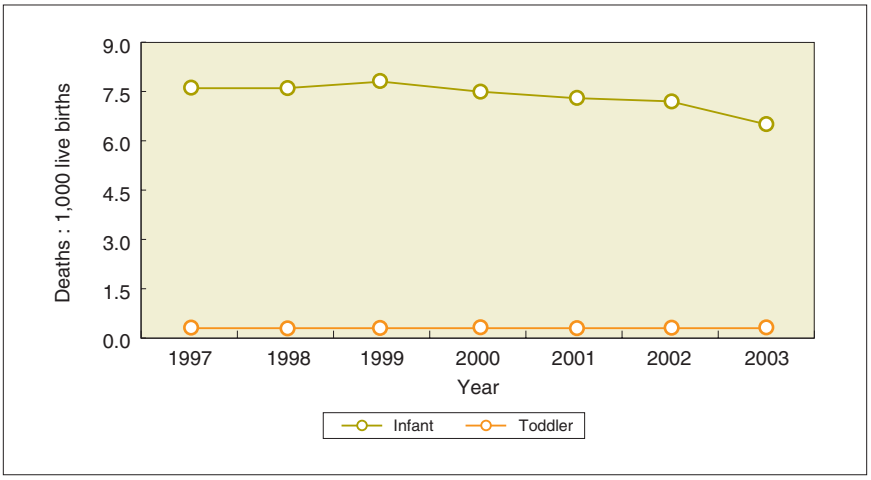


Early Neonatal Mortality Rate		5.6	5.3	4.0	4.2	3.7	3.9	3.9	3.6
Perinatal Mortality Rate	12.0	11.4	9.8	10.4	10.7	10.0	10.3	10.2	9.1
Stillbirth Rate		5.8	4.5	6.4	6.6	6.2	6.4	6.3	5.6

Infant and Toddler Mortality

The infant mortality rate in 2003 is 6.5 per 1000 live birth and the toddler mortality rate was 0.3 per 1000 live births. Figure 4 shows the trend of the infant and toddler mortality year, 1997-2003. Sabah reported the highest infant mortality (10.3 per 1000 live births) and Perak has the highest toddler mortality rate that is 0.6 per 1000 live births.

FIGURE 4
Infant and Toddler Mortality Rate, Malaysia, 1997-2003



Source : Information and Documentation System Unit, MOH

Immunisation

Immunisation is provided to all eligible children as an integral part of the overall package of Maternal and Child Health Services. It is available at all government health facilities where child health clinic services are provided, both in rural and urban areas. This service is supplemented by the private sector through private clinics and hospitals. Malaysia has achieved 93.4% coverage for OPV 3rd dose and the coverage for Hepatitis B 3rd dose is 90.9%.

National Congenital Hypothyroidism Screening

Screening for Congenital Hypothyroidism was initiated in 1998 as one of the activities to reduce morbidity and mortality among children. By 2002 all 14 state hospitals and all district hospitals in Malacca, Negeri Sembilan, Johore, Perak and Kedah have the screening programme. This involved about 50 hospitals and about 48.3% of the total births are screened. Till 2003, 79 cases have been detected to have Congenital Hypothyroidism and they are under follow up by the respective paediatrician. This screening programme will be extended to all hospitals in the future.

Early Child Development and Stimulation

This programme is being implemented at certain chosen clinic only due to logistic problems, inadequate budget, and shortage of skilled health staff. However, review of the checklist shows that the checklist needs further refinement so as to provide for easy and friendly utilization by both parents and health providers. This screening programme will be implemented in more clinics in the future.

'Integrated Management of Childhood Illness (IMCI)'

IMCI was introduced by WHO in 1997. The strategy is to reduce the morbidity and mortality significantly so as to improve children's health, especially the under 5. This can be done by ensuring the combined treatment of the major childhood illnesses, speedy and urgent treatment of the seriously ill children, involvement of parents in the effective care of their children at home, whenever possible, emphasis of the prevention of diseases through immunization, improved nutrition and exclusive breastfeeding. The main diseases include pneumonia, diarrhea, malaria, measles and malnutrition. In 2003, training for the facilitators was carried out involving 25 participants from Pahang, Perak, Kuching and Selangor. The IMCI modules used during this training are based on the adaptation done for Sabah in 2001. For implementation of the programme in the Peninsular, the modules need to be reviewed and modified.

School Health Services Coverage

School Health Services covers all the primary and secondary school under Ministry of Education. In 2003, the examination coverage by nurses for both primary (Table 2) and secondary (Table 3) schools have consistently reached more than 95% as compared to coverage by doctors. The difference is mainly due to shortage of doctors in the School Health Team.

TABLE 2
Primary School Health Coverage by the Nurses and Doctors from 1997-2003

Year	Examination by Public Health Nurses (%)		Examination by Doctors (%)	
	Standard 1	Standard 6	Standard 1	Standard 6
1997	96.4	97.6	46.6	55.6
1998	96.0	98.5	52.9	52.6
1999	97.9	97.6	50.8	44.3
2000	97.7	96.8	41.4	41.3
2001	97.6	98.5	37.1	36.8
2002	97.8	98.7	43.0	37.4
2003	99.1	98.4	43.3	34.8

Source : Information and Documentation System Unit, Ministry of Health

TABLE 3
Secondary School Health Coverage by Nurses and Doctors from 1997-2003

Year	Secondary School		Form 3 Pupils	
	No	% Covered	% Examined by Nurses	% Examined by Doctors
1997	1,637	97.4	92.7	44.9
1998	1,615	99.3	97.4	39.4
1999	1,729	99.8	93.8	37.3
2000	1,744	99.5	97.9	29.9
2001	1,804	99.8	97.1	28.1
2002	1,810	97.0	96.8	28.8
2003	1,919	98.5	96.0	31.1

Source : Information and Documentation System Unit, MOH

Morbidity Pattern Among the School Children

Table 4 shows the morbidity pattern among the school children which had been detected by the School Health Team. The common health morbidity among the school children visual defect, carries, head lice infestation, scabies and other skin condition. The trend for visual defect is increasing from Standard 1 to Standard 6 and Form 3.

Immunisation Among School Children

Immunisation for primary and secondary school children include Double Antigen Booster, Oral Polio and Rubella immunisation for female students. Table 5 shows the school health immunisation coverage for Malaysia in 1994, 2001, 2002 and 2003. Immunisation coverage for Malaysia as a whole has been maintained above 90%.

Adolescents Health Services

In 2003, 341(39%) health clinics were reported to carry out health services for adolescents as compared to 238 (20%) clinics in the year 2002. The number of adolescents receiving treatment at the adolescent health clinics through out the country have also increased from 361,864 in 2002 to 508,292 in 2003. These clinics provide health promotion, screening, counseling and curative care for the adolescent population. The National Adolescent Health Policy is another commitment by Ministry of Health to further develop and strengthen the Adolescent Health Programme and Services. The plan of action on Adolescent Health Programme needs to be developed in line with the strategies outlined in the National Adolescent Health Policy to ensure optimum health care services for the adolescent population.

TABLE 4
Morbidity Pattern Among the School Children, Malaysia, 1994-2003

Health Problem	Incidence Rate per 1,000 Children Examined								
	Standard 1			Standard 6			Form 3		
	1994	2002	2003	1994	2002	2003	1994	2002	2003
Head lice infestation		39.8	36.4	92.5	33.0	30.1	13.5	4.3	4.02
Worm Infestation	107.8	2.9	3.59	21.9	3.1	3.4	9.9	1.3	1.52
Scabies	30.0	5.5	5.2	6.1	5.8	5.4	3.6	4.4	3.3
Other skin condition	6.1	27.4	32.0	45.5	44.4	42.9	36.7	29.1	34.6
Visual defect	27.9	49.5	52.2	52.0	73.6	71.9	51.5	67.7	72.5
Anaemia	30.0	0.1	0.67	0.3	0.2	0.71	0.3	0.4	0.53
Hearing defect	0.6	0.2	0.42	0.8	0.2	0.32	0.8	0.2	0.22
Heart disease	0.6	1.1	1.0	1.7	1.0	1.0	1.6	0.7	0.76
Skeletal deformity	0.3	0.2	0.17	0.2	0.1	0.11	0.2	0.1	0.10
Slow learner	2.7	1.8	1.71	1.5	1.1	1.3	0.4	1.5	0.39

Source : Information and Documentation System Unit, MOH

TABLE 5
Immunisation Coverage Among the School Children, Malaysia 1994-2003

State	Standard 1								Form 3			
	Polio Booster (%)				Double Antigen Booster (%)				Tetanus Toxoid (%)			
	1994	2001	2002	2003	1994	2001	2002	2003	1994	2001	2002	2003
Pen. Malaysia	96.4	95.3	97.8	94.2	97.1	97.4	97.7	94.1	95.1	94.3	96.8	98.9
Sabah	94.5	97.0	96.4	96.4	94.6	95.5	96.4	96.4	90.6	97.0	96.9	94.4
Sarawak	89.2	87.7	94.3	89.6	89.2	92.9	94.3	89.6	78.2	87.7	91.7	87.5
Malaysia	**95.5**	**96.8**	**97.3**	**94.1**	**96.0**	**96.8**	**97.3**	**94.0**	**93.4**	**94.9**	**96.4**	**97.5**

Source : Family Health Development Division, MOH

Health Care for the Elderly

Till December 2003, 522 (60.8%) health clinics, all over the country have implemented the health care services for the elderly. However, of this number, only 229 run rehabilitation services (43.9%) due to inadequate instruments and lack of trained staff.

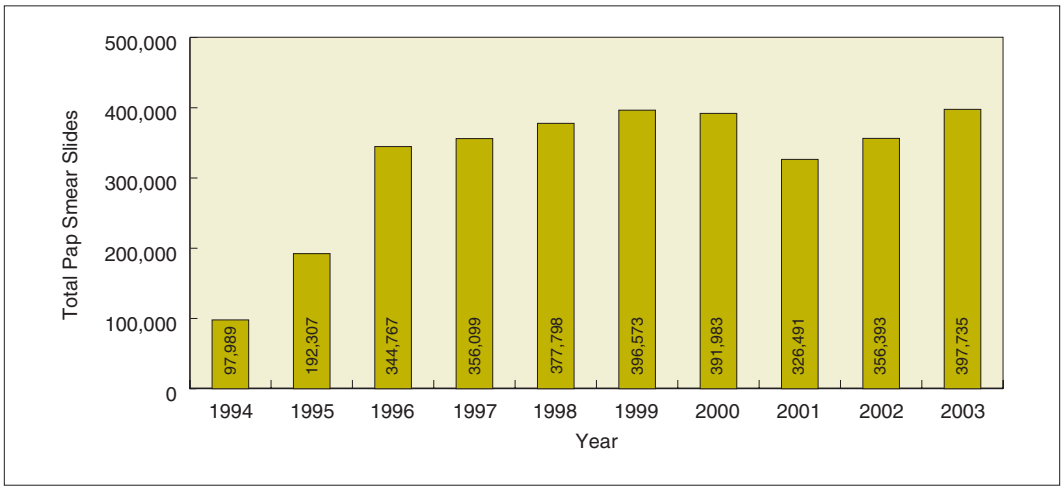
Family Planning

In 2003, the number of new acceptors recruited by all health facilities under MOH has slightly decreased from 65,352 (2002) to 65,209 (2003). Sarawak reported decreasing trend as 10,192 and 7,177 acceptors, respectively in 2002 to 9,481 and 5,589 in 2003. Data shows that the most popular method of family planning among new acceptors is oral pills (72.6%), followed by condom (10.9%), injectables (6.8%), intrauterine contraceptive devices (4.5%), sterilisation (3.5%) and others 1.3%.

Pap Smear

Since 1995, pap smear screening was made available for all females aged between 20 and 65 years. In 2003, the age group of women with the highest percentage who had pap smear done was between 20 to 49 years (80%) However, the number of pap smears taken from women aged more than 50 years was still very small. Figure 5 shows the overall trend of pap smear slides taken from 1994-2003 whereby there is a drop in 2001 but later revived with an increasing trend until 2003 with 397,735 of slides taken.

FIGURE 5
Pap Smear Slides Taken in Malaysia, 1994-2003



Source : Information and Documentation System Unit, MOH

Community Mental Health

In the year 2003, the Mental Health promotion focused on handling stress for school children 10 to 12 years of age with activities such as "Walk for Health", health exhibitions, indoor and out door games, seminar and skills training on handling stress and anger management.

The World Mental Health Day Campaign 2003 had the theme **"Emotional & Behavioural Disorders Of Children And Adolescents"**. The objective of the campaign was to increase public awareness and education on children and adolescents' mental health and also to garner support from all related agencies which are involved in children and adolescents mental health care. The Community Mental Health Unit has developed a training module **'Child and Adolescent Mental Health Training Module for Specialists'** and subsequently, a training for specialists was carried out in Mac 2003. The promotion of Women's Mental Health and prevention of suicide was highlighted for the first time in the year 2003.

The care for the mentally ill in the community at primary health clinic has increased from 33.1% (257 health clinics) in 1998 to 82.1% (704 health clinics) in 2003. The total number of new cases seen also increased by 10.6% (3,135) in 2003. To strengthen the care for the mentally ill at the health clinics, 2 documents were developed namely; **Guidelines for the follow-up of the mentally ill at health clinics** and **Standard operating procedure for the follow-up of the mentally ill at health clinics**. Modular training for implementers were carried out in May 2003 with the cooperation of the Public Health Institute.

The total number of new cases attending Psychosocial Rehabilitation (PSR) in health clinics also increased by 22.5% in 2003. Subsequently, to improve the implementation of the psychosocial services, the health staff had been given an attachment training in the psychiatry department and a national training on PSR was carried out in December 2003. However, to increase management care and support for mentally stable patients a Family Support Group for carers had been developed and a training was carried out in August 2003.

Health Care for Persons with Disabilities

Health care for persons with disabilities include both programmes of care for children with special needs and programmes on the prevention and control of blindness and deafness.

i) ***Children with Special Needs***

Six manuals on the management of children with special needs have been developed. Thus far training of core trainers have been carried out on the

management of children with gross motor delay, fine motor delay and problems with Activities of Daily Living. Training on the management of children with visual impairment was carried out with funding from UNICEF from 9th to 12th December 2003 at Dynasty Hotel, Kuala Lumpur.

ii) ***Care of Eye and Prevention and Control of Blindness***

The Manual on Eye Care for Primary Health Care Personnel was developed in 1999 and later distributed to the state Ophthalmologists in 2001 for annual training of Community Health Nurses. Vision screening kit based on the Sheridan Gardner kit for children under 5 years of age is currently being prepared for use in training.

iii) ***Blindness Prevention and Control Program on Deafness***

The Manual on the Care of Ear and Hearing is currently being developed. A population based study on the prevalence of deafness will be carried out in 2004 with National Health Institute as the principal investigator.

iv) ***Rehabilitation Service in Health Centers***

Eleven health centers were provided with rehabilitation equipment to carry out rehabilitation services. To date there are 104 health centers providing rehabilitation services. In 2003 a total of 1,828 new cases of children with disabilities were confirmed and 1,851 children received rehabilitation services through the health centers.

PRIMARY HEALTH CARE

Primary Health Care (PHC) Structure

By the end of 2003, the total number of primary health care facilities increased to 3,054, i.e. 864 community polyclinics, 95 maternal and child health clinics, 1,927 community clinics and 168 mobile clinics (Table 6).

Human Resource in PHC

Despite the shortage in human resources, the role of the PHC staff has expanded and their teamwork was very encouraging, especially in implementing the expanded and extended scope of PHC High vacancy rates exists especially amongst medical officers, pharmacists, radiographers and laboratory personnel (Table 7). The physiotherapists and occupational therapists are the new categories of staff introduced.

TABLE 6
Number of Public Health Facilities under the Ministry of Health, Malaysia by State, Malaysia, 2002 and 2003

State	Community Polyclinic		Maternal and Child Health Clinic		Community Clinic		Mobile Clinic	
	2002	2003	2002	2003	2002	2003	2002	2003
Perlis	9	9	1	0	30	30	0	0
Kedah	56	57	7	8	220	222	0	0
Penang	30	30	6	6	62	62	0	0
Perak	81	78	7	10	249	253	8	6
Selangor	59	60	8	7	133	132	0	0
FT Kuala Lumpur*	15	15	0	0	0	0	0	0
Negeri Sembilan	38	38	5	5	104	105	1	1
Malacca	28	29	1	0	62	61	1	1
Johore	90	91	3	3	270	269	0	0
Pahang	65	65	8	8	246	246	19	19
Terengganu	42	42	2	2	131	131	0	1
Kelantan	58	59	3	3	200	199	11	11
Sarawak	196	197	24	24	21	21	120	120
Sabah	90	93	18	18	195	185	8	9
FT Labuan	1	1	1	1	11	11	0	0
Malaysia	858	864	94	95	1,934	1,927	168	168

* including Putrajaya
Source : Information and Documentation System Unit, MOH

Family Medicine Specialist (FMS)

Since 1997, the country has produced 143 FMS with an average of 15 per year. As of December 2003, a total of 108 FMS were posted to the health clinics, 28 to universities and 7 to the private sector.

In 2003, 23 applications for gazettement were received and these make up a total of 80 (78.4%) of FMS gazetted as specialists. 30 FMS were also appointed as Professional Assessors (Clinical Supevisors) for their respective states except Sarawak which is still using a State Physician for this purpose.

TABLE 7
Human Resource Status at Primary Health Care Clinic

Category	No. of Posts	No. of Post Filled	Vacancies
Medical Officer	1,674	1,013 (60.5%)	661 (39.5%)
Medical Assistant	2,120	1,928 (90.9%)	192 (9.1%)
Staff Nurse	4,090	3,619 (88.5%)	471 (11.5%)
Community Nurse/ Assistant Nurse/ Midwives	9,855	7,701 (78.1%)	2,154 (21.9%)
Pharmacist	157	58 (36.9%)	99 (63.1%)
Dispenser	1,228	1,003 (81.7%)	225 (18.3%)
Radiographer	95	64 (67.36%)	31 (32.64%)
Medical Lab Technologist	881	673 (76.4%)	208 (23.6%)
Physiotherapist	28	4 (14.3%)	24 (85.7%)
Occupational Therapist	15	4 (26.7%)	11 (73.3%)

	No. of Health Clinics (HC)	No. of HC with FMS	No. of HC with no FMS
Family Medicine Specialist (FMS)	864	108 (12.5%)	765 (87.5%)

Source : PHC data 2003

i) ***The 7th FMS Scientific Meeting (25-27 August 2003)***

The meeting was held in Shah Alam, Selangor and the theme was "Communicable Disease". Response from the public and private sectors as well as the universities was very good. A public forum on "HIV/AIDS Management" was held on the first day.

ii) ***Sub-speciality (Area of Interest)***

2 FMS were approved to go for further training in Geriatric Health in Australia and Psychosocial Rehabilitation in United Kingdom.

iii) ***FMS Survey***

For the first time, a FMS evaluation study was carried out in August 2003 to evaluate the effectiveness of FMS services. It is expected to complete by December 2004.

Implementation of Expanded Scope of Primary Health Care Service

The existence of the FMS has opened up new opportunities to further develop primary health care services, especially the specialized care such as psychosocial rehabilitation, appropriate diabetic management, care for children with special needs and quit smoking clinic (Table 8). Five Home Care Nursing Teams were approved from the New Policy Budget and the services will be piloted in Malacca and Johore.

Public Health Medical Assistant

The Public Health Medical Assistant has always performed excellently in their duties. They are involved in carrying out the vision and mission of the Ministry of Health together with other health staff, especially in those rural health clinics where there are no Medical Officers.

Public Health Nursing

A new salary scheme for *Jururawat Desa* (JD) was approved. The JPA circular dated 7 November 2003, upgraded the JD from U17 and U22 to U19, U24 and U26. With effect from the date of this circular, JD will be known as *Jururawat Masyarakat* (JM).

Pathology Service

By December 2003, 675 (78.1%) of the community polyclinics have pathology laboratories. The number of tests done were mainly chemical pathology and chemical haematology. There were 665 Medical Laboratory Technologists (MLT) working in the community polyclinics in the year 2003, an increase of 55% from the previous year. Among them, 29 were MLT, grade U32.

Pharmacy Services

The cost for drug and non-drug procurement in the year 2003 increased by 27.5% and 51.39% respectively compared to the previous year. Procurement of List A drugs comprises 23.35% of total procurement of that year. Average number per prescription was 2.87 and the average cost per prescription was RM5.86. The total number of Pharmacy Assistants working in the Ministry's primary health care facilities in December 2003 was 1,057, i.e. 91.9% of total posts. The proportion of staff per polyclinic is 1.33.

Diagnostic Imaging Service

The number of X-ray examinations done in the community clinics is increasing year by year. Nearly 80% of them were Chest X-rays followed by examination of the extremities. Compared to the previous year, the number of polyclinics with X-ray units has increased by 18.3% (Table 9).

TABLE 8
Number of Health Clinics Implementing Expanded Scope Activities, 2003

State	Activities																		
	Mental	Elderly	Adolescent	Rehabilitation	Wellness	Women's Health	Alternative Birthing Centre	Ultrasound	Occupation Health	Home Nursing	FMS Training	QA Diabetes	QA Asthma	QA Referral	QA CFC	QA Xray	Quit Smoking	HIV	Blindness
Perlis	9	9	9	6	0	9	1	3	9	9	0	9	9	9	9	2	0	0	0
Kedah	14	45	5	7	12	28	14	17	43	41	2	40	36	3	51	1	17	15	9
Penang	26	27	19	9	28	32	0	12	11	25	2	14	12	2	21	1	0	0	0
Perak	74	78	26	26	61	84	14	41	26	67	2	29	43	2	40	4	6	0	0
Selangor	20	36	10	16	23	35	4	22	19	31	15	30	24	8	36	6	0	0	0
Negeri Sembilan	12	25	10	10	1	3	2	17	2	21	1	17	16	5	19	0	0	0	0
Malacca	7	5	5	5	4	0	0	1	1	0	3	6	6	10	9	0	0	0	0
Johore	36	29	11	16	25	18	4	20	6	24	9	29	22	14	26	5	0	0	0
Pahang	34	44	39	36	35	54	33	12	24	0	2	54	54	0	63	0	0	0	0
Terengganu	28	36	33	17	30	33	21	22	18	15	2	34	37	32	41	4	0	0	0
Kelantan	46	46	31	23	12	14	36	16	10	34	19	25	20	4	17	2	0	0	0
Sabah	48	69	38	11	0	5	19	12	4	2	2	5	4	0	21	1	0	0	0
Sarawak	147	35	0	22	14	43	184	22	1	162	2	7	8	0	77	11	0	0	1
FT Kuala Lumpur	4	1	0	1	2	1	0	1	0	1	0	10	9	1	10	1	0	0	0
FT Labuan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**505**	**485**	**236**	**205**	**247**	**359**	**332**	**218**	**174**	**432**	**61**	**309**	**300**	**90**	**440**	**38**	**23**	**15**	**10**

Source : PHC, 2003

TABLE 9
Number of X-ray Unit in the Community Polyclinics by States, Malaysia, 1998-2003

State	1998	1999	2000	2001	2002	2003
Perlis	1	1	1	2	2	2
Kedah	5	5	7	9	11	13
Penang	3	3	3	4	7	7
Perak	4	4	7	7	16	18
Selangor	6	6	11	11	13	11
FT Kuala Lumpur	0	0	0	0	1	2
Negeri Sembilan	6	8	9	11	13	15
Malacca	2	2	3	3	7	5
Johore	5	5	5	8	9	20
Pahang	1	1	1	3	4	5
Terengganu	2	3	4	5	6	6
Kelantan	2	3	4	10	5	9
Sarawak	9	10	10	20	20	22
Sabah	1	4	4	5	5	5
FT Labuan	-	-	-	-	1	2
Total	**47**	**55**	**69**	**98**	**120**	**142**

Source : PHC Data 2005

Health Clinic Advisory Panel

All states have implemented this programme including the 2 Federal Territories of Kuala Lumpur and Labuan. There were a total of 594 out of 854 (69.6%) health clinics with advisory panels. A National Convention was held from 2-5 October 2003 in Port Dickson, Negeri Sembilan and was officiated by the Honourable Minister of Health. The theme was *"Panel Penasihat: Warga Sihat Tanggungjawab Bersama"*. 350 participants, comprising of panel members and health staff attended the Convention.

Traditional/Complementary Medicine (T/CM)

Till the end of 2003, the total number of local practitioners registered was 4,028: (Malay 237, Chinese 2,100, Indian 500, complementary medicine 491 and homeopathy 700).

i) ***Application Related to T/CM***

By November 2003, 95 applications have been received, in which 90.5% were to bring in expatriates, 1.1% for opening business premises and 8.4% for company registration. Applications related to Traditional Chinese Medicine amounted to 55.8%, Complementary Medicine 25.3%, Traditional Indian Medicine 12.6%, Traditional Malay Medicine 5.3% and Homeopathy 1.1% Out of the 95 applications received, 44% were approved, 20% were incomplete submissions, 19% had no response from the umbrella body and 17% were rejected.

ii) ***T/CM Bill***

The Technical Working Group (T/CM Bill) convened 3 times on 8-11 January, 15 -18 April and 8-11 October 2003. The draft of the T/CM Bill was updated and reviewed. During the last 2 sessions, the Regulation was also drafted.

iii) ***T/CM Division***

The Ministry of Health (MOH) agreed to the idea of setting up a separate division for T/CM. The task was given to the Deputy Director General Of Health (Research and Technical Support). Several meetings were held and the proposal paper was submitted to the Public Services Department for approval.

iv) ***Seminar and Workshop for Homeopathy***

A National Seminar on Homeopathy was co-organised by the Ministry of Health, (MOH) and the *"Majlis Perubatan Homeopathy Malaysia"* (MPHM) on 22 August 2003 in Kuala Lumpur. It was officiated by the Honourable Minister of Health, with the theme *"Kecemerlangan Homeopathy Malaysia"*. The Seminar was followed by a workshop from 23-24 August 2003 in which 100 practitioners were assisted to streamline the varied curricula in Homeopathy by facilitators from University Sains Malaysia (USM) and University Kebangsaan Malaysia (UKM).

Collaboration with the Universities in PHC Delivery

The collaboration between the MOH and UKM in the provision of health services to develop a model district as a center of excellence in public health and primary care was continued. The Lease Agreement between the MOH and UKM was drafted and will be signed by both parties when it is ready. A few policy issues need to be settled before it can be implemented.

Collaboration with the Academy of Family Physician of Malaysia

The application of FRACGP/MAFP for recognition status was put on hold. The Academy of Family Physician of Malaysia was advised to review the structure and curriculum of the vocational training programme (Family Medicine). The training programme will complement the FMS programme and will attract takers from the General Practitioners.

Collaboration with the Public/Private Institute of Higher Learning

The MOH worked closely with its counterpart both in the public and private sectors, especially to ensure the standards and the quality of the training programme are maintained. Up to date, 17 universities/colleges are involved in training medical undergraduates and 25 colleges are involved in training allied health groups. To facilitate the process, a Memorandum of Understanding (MOU) will be signed by both the MOH and the universities/colleges before they can utilize our hospitals /health clinics for their practical posting.

Quality Assurance Programme

The year 2003 focused mainly on improving the skills of health providers in the usage of the software. States conducted echo trainings and closely monitored the usage of the software.

Counter Service Quality Award

The competition was carried out for the third consecutive year in 2003. Registration counters of the community polyclinics and outpatient pharmacy counters of the hospitals were the focus in 2003. The panel of judges found that the standard of the competition at the zone and national level was improving.

Teleprimarycare Project

The development of the Teleprimarycare System was started in January 2003. The National Steering Committee and National Technical Committee were formed to monitor the progress of the project. The State Implementing Committee was also formed in the respective states. 2 states were involved in the pilot project, i.e. Johore and Sarawak. 48 facilities, including 2 referral hospitals will be involved. The facilities will be networked with their respective District Health Office and State Health Departments.

By the end of 2003, the equipment was installed while the communication system was functioning. Software development was started with the System Requirement Specification. Besides the officers from the Public Health Department and the Information Technology Center of the MOH, several categories of staff from Johore and Sarawak were also involved in the studies.

Maintenance Services for the Public Health Facilities

In the year 2003, the total amount of RM65.5 million was allocated for this service, compared to RM60.5 million in the previous year. A major portion was used for building maintenance (41.1%), followed by mechanical and electrical maintenance (28.0%), cleansing and landscape maintenance (22.3%), biomedical equipment maintenance (8.4%) and laundry (0.2%).

Estate Health

The total number of estates is 408 with an estimated total population of 110,106 (including workers and their family members). Health services are provided by estate clinics (in 40% estates), subsidiary MCH clinics (in 65% estates) and outpatient mobile clinics (in 12% estates). The total number of attendances to estate clinics, subsidiary MCH clinics and outpatient mobile clinics was 169,869, majority of which is from estate clinics (92.7%). For the year 2003, there were 917 health visits by the health staff. In general, the states reported that the health status of the estate population was good and satisfactory.

New Activities Carried Out in 2003

i) ***Routine Medical Examination for Civil Servants Aged 40 and Above***

The new policy on routine medical examination for public servants aged 40 and above was introduced following a Service Circular No. 3/2003 issued by the Public Service Department. By the second half of 2003, 326 departments and 15,278 staff were examined. The number of staff with medical problems was 3,837.

ii) ***National Service Programme***

The MOH carried out medical examination on the first batch of 85,000 youth (17 years and above) before they commenced their National Service Programme in February 2004.

iii) ***Credentialling/Privileging***

A workshop was carried out to create an awareness of credentialing and privileging in patient safety procedures, 50 participants (FMS, Medical Officers, Medical Assistants and Staff Nurses) attended the workshop and identified the procedures to be credentialed/privileged.

Training

This Branch of the Family Health Development Division conducted the following training :

i) Second Annual Technical Meeting for Pharmacists and Pharmacy Assistants from the community polyclinics was conducted on 25-27 September 2003 in Penang. 16 Pharmacists and 32 Pharmacy Assistants attended the meeting.
ii) Orientation Course for Medical Assistants, Medical Laboratory Technologists and Pharmacy Assistants was done on 14-17 October 2003 in Terengganu. 105 participants attended.
iii) Second Annual Technical Meeting for Medical Laboratory Technologists from the community polyclinics was conducted on 30 November - 2 December 2003 in Langkawi, Kedah. 41 Medical Laboratory Technologists attended the meeting.

Publication

In the year 2003, the following were published :

i) *Panduan Penyediaan Poliklinik Komuniti: Keperluan Perubatan Poliklinik Komuniti (Semua Jenis) untuk Rancangan Malaysia Kelapan.*
ii) *Panduan Penyediaan Poliklinik Komuniti: Senarai Peralatan Piawai Poliklinik Komuniti dan Klinik Desa untuk Rancangan Malaysia Kelapan.*
iii) Guidelines on Radiological Examinations for Primary Healthcare Doctors.
iv) *Procedur Amalan Piawai: Perkhidmatan Pengimejan Diagnostik (Poliklinik Komuniti).*
v) Quality Assurance Programme Manual: Diagnostic Imaging Service (Community Polyclinic).

NUTRITION

Nutrition Planning & Development

4 Technical Working Groups (TWG) have been set up at the national level to assist in the implementation of the National Plan of Action for Nutrition of Malaysia (NPANM).

i) ***TWG (Training)***

2 Nutrition modules *"Diet Seimbang"* and *"Gaya Hidup Sihat"* were updated. 2 new modules *"Pemakanan Bayi"* and *"Pemakanan Kanak-kanak Sekolah"* are in the process of being developed.

ii) ***TWG (Research)***

Data collection of the National Food Consumption Study (2002/2003) was completed in June 2003 and currently this study is in the phase of data entry.

iii) ***TWG (Dietary Guidelines)***

The TWG is in the process of updating, reviewing and comparing the Recommended Dietary Allowances (RDAs) to develop the new RDA for Malaysians as well as a nutrition dietary guideline for infants from birth to 1 year old.

(iv) ***TWG (Policy)***

The draft of the National Nutrition Policy was endorsed by the Cabinet in December 2003.

Nutrition Surveillance

Table 10 shows the nutritional status of children less than 5 years in 2003. The percentage of children with severe malnutrition in Malaysia is 0.7%, moderate malnutrition is 9.9% and overweight is 2.7%. Sarawak (1.4%) has the highest percentage of severe undernutrition and Malacca and Johore the lowest percentage (0.2%). Pahang (15.0%) has the highest moderate undernutrition while the Federal Territory (2.4%) has the lowest rate of moderate undernutrtion.

Nutrition Promotion

Breastfeeding Promotion

i) ***World Breastfeeding Week (1-7 August 2003)***

The World Breastfeeding Week themed "Breastfeeding in a Globalised World for Peace and Justice" was launched by the Honourable Minister of National Unity and Social Development on 1st August 2003 at the Pantai Medical Center, Kuala Lumpur. It was jointly organized by the Malaysia Advisory Association (PPPIM) and Pantai Medical Center. Various activities were organized and implemented during the week throughout the country. At the national level, the World Breastfeeding Week Conference "Linking Women To Women" was also held at Pantai Medical Center on 1st and 2nd August 2003. An exhibition on Breastfeeding was displayed to educate and create awareness amongst the participants.

TABLE 10
Nutritional Status of Children Aged less than 5 Years by State, 2003

State	Number of Children Weighed	Nutritional Status of Children (weight for age)			
		Over Weight (%)	Normal Weight (%)	Moderate Underweight (%)	Severe Underweight (%)
Perlis	2,628	3.0	84.1	11.9	0.9
Kedah	23,724	1.5	84.6	13.1	0.8
Penang	16,914	2.6	88.9	7.9	0.6
Perak	25,604	1.2	89.7	8.4	0.7
Selangor	45,296	4.3	84.5	10.6	0.5
Federal Territory	1,726	13.0	84.1	2.4	0.5
Negeri Sembilan	12,696	3.9	86.4	9.2	0.6
Malacca	11,220	1.3	91.9	6.6	0.2
Johore	36,011	1.1	95.3	3.3	0.2
Pahang	29,897	3.9	79.9	15.0	1.2
Terengganu	17,166	4.2	85.8	9.4	0.6
Kelantan	27,604	2.2	85.7	11.5	0.6
Sabah	27,467	1.0	89.3	8.9	0.8
Sarawak	49,567	3.3	82.4	12.9	1.4
Malaysia	**318,520**	**2.7**	**86.7**	**9.9**	**0.7**

Source : Information and Documentation System Unit, MOH

ii) ***Baby Friendly Hospital Initiative (BFHI)***

Till December 2003, 114 out of 116 (98%) government hospitals in the Ministry of Health were designated as Baby-Friendly Hospitals. To ensure that all the hospitals maintained this status, the reassessment of the hospitals is undertaken. Till December 2003, 105 Baby-Friendly Hospitals were reassessed. The BFHI Recognition Committee met 3 times in February, August and November 2003 to evaluate the reassessment feedback. On August 2003, Slim River Hospital, Perak, which is a new government hospital, gained the Baby-Friendly status.

iii) ***Code of Ethics for Infant Formula Products***

- *Vetting of Materials Related to Infant Formula Products*

  In 2003, the Vetting Committee on the Code of Ethics for Infant Formula Products received 112 materials, of which 76 were product labels (inclusive of can inserts and artwork for metallic lid printing), 35 educational material and 1 trade brochure. All new submissions were taken to the Vetting Committee Meeting whereas resubmissions were checked for compliance to the recommended amendments by the Secretary of the Vetting Committee before approval was given. A total of 94 approval codes were issued this year, both for new materials received this year as well as some new materials received last year (2002).

- *Violation of the Code*

  The Disciplinary Committee on the Code of Ethics for Infant Formula Products received 11 direct complaints on articles which may possibly violate the Code. The majority of the complaints were from the Infant Formula Industry itself. The activities involved 6 Infant Formula Companies. All the complaints were forwarded to the Disciplinary Committee to the year 2004, as there was no meetings in the latter part of 2003, due to unexpected changes in the schedule of events.

- *Annual Dialogue with the Infant Formula Industry*

  A meeting was held on 20 August 2003. Among the various issues being discussed were (1) low cost supply of Infant Formula Products to hospitals (2) method of supplying Infant Formula Products to hospitals (3) inclusion of baby foods under the revised code and (4) Ministry's stand on the minimum age for introduction of complementary foods.

- *Proposed Guidelines on Sponsorships and Giving of Donations by the Infant Formula Industry to the Health Care System*

  A meeting was held on 24 May 2003 between Ministry of Health, professional associations, non-governmental bodies and the Infant Formula Industry to discuss the above Guidelines.

- *Dialogue with the Association of Private Hospitals of Malaysia (APHM) on the proposal to incorporate Baby-Friendly Hospital accreditation as a prerequisite for licensing of private hospitals under the Private Healthcare Services facilities Act (1998)*

  A dialogue was held between Ministry of Health and APHM on the 20 August 2003 to discuss the above proposal.

Healthy Community Kitchen Project (HCKP)

The HCKP was initiated in KD Maju Jaya, Johore in 1998. It was meant as a smart partnership between the Johore Health Department and the Women's Affair Department of Johore (HAWA) to build a healthy, developed and productive community. In 2003, this project was adopted and became a new policy of the Ministry of Health. Till December 2003, 17 HCKP were developed throughout the country. Many new projects are under construction and renovation.

Nutrition Rehabilitation

i) ***Nutrition Rehabilitation for Malnourished Children***

In 2003, 6,942 children from all states in Malaysia, including those in the Federal Territory of Kuala Lumpur were recipients of the Food Basket Programme (Table 11). Out of these, 5,084 had started receiving the food baskets from previous years and 1,858 were new recipients who had begun receiving their food baskets in 2003. The new recipients in 2003 comprised 968 (52%) severely underweight children (weight-for-age more than 3SD below the median of NCHS), 820 (44%) moderately underweight children (weight for age between 2SD-3SD below the median of NCHS), 18 (1%) with clinical signs and symptoms of malnutrition and 52 (2.8%) were those chronically ill (Figure 6).

Throughout 2003, 1,805 children had stopped receiving the food basket. Out of the 1,805 children terminated from the programme, 889 (49.3%) were rehabilitated (Table 12), 450 (25.0%) had gone to school and 456 (25.3%) due to other reasons such as relocation, death, refusal and family no longer considered poor. There were 5,137 children still receiving the food basket on 31 December 2003 (Table 11).

Overall, the states of Sabah, Sarawak, Kelantan and Perak have registered the most number of cases. Johore, Federal Territory Kuala Lumpur and Malacca were the states with the lowest number of recipients.

ii) ***Prevention and Control of Iodine Deficiency Disorders (IDD)***

The intervention activities are as follows:

- *Distribution of iodised salt*

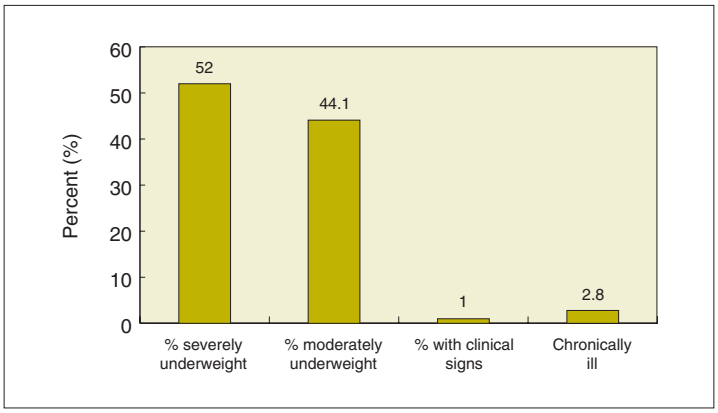
  In states with IDD problem, iodised salt were distributed to malnourished children who received food baskets under the Nutrition Rehabilitation Programme for Malnourished Children and pregnant women attending government clinics. In 2003, 351,902 kilograms iodised salt had been distributed to 155,446 recipients throughout Malaysia (Table 13).

TABLE 11
Distribution of the Food Basket Program Recipients by States, 2003

States	Number of new recipients (1)	Total numbers of recipients for the year (2)	Number of recipients stopped in 2003 (3)	Number of recipients still receiving food basket in December 2003 (2-3)
Perlis	6	56	14	42
Kedah	61	185	38	147
Penang	22	63	19	44
Perak	245	808	208	600
Selangor	15	104	14	90
FTKuala Lumpur	6	17	2	15
Negeri Sembilan	29	99	39	60
Malacca	20	37	9	28
Johore	8	21	8	13
Pahang	92	399	85	314
Terengganu	115	331	129	202
Kelantan	182	981	181	800
Sabah	461	2,065	626	1,439
Sarawak	596	1,776	433	1,343
Malaysia	**1,858**	**6,942**	**1,805**	**5,137**

Source : Information and Documentation System Unit, MOH

FIGURE 6
Percentage of New Cases by Nutritional Status, 2003



Source : Information and Documentation System Unit, MOH

TABLE 12
Number and Percentage of Recipients Rehabilitated at Termination of Food Basket Programme

States	Number of recipients stopped (1)	Number of recipients rehabilitated at termination of Food Basket Programme (2)	Percentage of recipients rehabilitated at termination of Food Basket Programme (2/1)*100
Perlis	14	2	14.2%
Kedah	38	13	34.2%
Penang	19	5	26.3%
Perak	208	180	86.5%
Selangor	14	1	7.1%
Federal Territory	2	1	50.0%
Negeri Sembilan	39	20	51.3%
Malacca	9	8	88.9%
Johore	8	5	62.5%
Pahang	85	14	16.5%
Terengganu	129	66	51.1%
Kelantan	181	74	40.9%
Sabah	626	294	47.0%
Sarawak	433	216	49.9%
Malaysia	**1,805**	**899**	**49.8%**

Source : Information and Documentation System Unit, MOH

- *Installation of iodinators*

  In 2003, 1,411 units of new iodinators have been installed in schools, longhouses, community water supplies, villages and health clinics in Sarawak. Since 1999, the total number of iodinators installed throughout Malaysia were 3,566 units (Table 13).

- *Nutrition Education*

  Educational materials on the proper use of iodised salt, the use of iodised water, the correct ways of preparing foods high in goitrogens had been printed and distributed to the people around the endemic areas.

TABLE 13
Achievement in IDD Programme, 2003

States	Iodised Salt		Iodinator		
	Number of recipient	Amount of salt distributed	Number of iodinator installed	Total number of iodinator installed (1999 - Sept. 2003)	Number of Rhodifussed lode replaced
Perlis	2,270	1,525	-	-	-
Kedah	5,995	5,187	-	515	0
Perak	11,137	11,505	9	194	169
Pahang	17,509	21,503	61	269	179
Kelantan	36,744	22,048	5	287	49
Terengganu	19,924	30,230	12	696	696
Sabah	18,888	10,885	261	194	67
Sarawak	-	126,576	-	587	-
Total	**112,467**	**229,459**	**348**	**2,742**	**1,160**

- *Gazettment*

  The whole of Sabah was gazetted as an IDD endemic region on 18 November 1999. In Sarawak, 15 districts and 4 sub-districts were gazetted since 25 August 1990. Through the gazettment, only iodised salt can be distributed and sold in these areas.

iii) ***Rehabilitation Programme for Pregnant Women***

In 2003, a new revised format for Hb status for pregnant women was implemented and the denominator used was the total number of pregnant mothers with known Hb status at 36 weeks gestation. With the change of the denominator, the percentage of moderate (Hb 9-<11gm %) and severe anaemia (Hb<9 gm%) increased to 39.5% and 4.2% respectively (Table 14).

Overall, the Federal Territory had the highest percentage of severe anaemia followed by Negeri Sembilan, Sabah and Pahang. For moderate anaemia, the highest percentage was in Perlis, followed by Malacca, Selangor and Negeri Sembilan.

TABLE 14
Haemoglobin Level Among Pregnant Women Attending Government Clinics, 2003

States	Hb <9 gm% % (no.)	9-<11 gm% % (no.)	>11 gm% % (no.)	Total
Perlis	3.2 (45)	50.5 (709)	46.0 (646)	1,405
Kedah	1.9 (294)	41.8 (6,593)	56.3 (8,883)	15,770
Penang	4.1 (374)	42.7 (3,879)	53.2 (4,825)	9,078
Perak	3.5 (654)	42.4 (7,876)	54.0 (10,031)	18,561
Federal Territory	32.1 (1,080)	27.8 (936)	28.6 (963)	3,368
Selangor	2.9 (1,424)	44.9 (22,279)	52.2 (25,904)	49,607
Negeri Sembilan	8.4 (659)	44.9 (3,536)	46.7 (3,678)	7,873
Malacca	4.7 (289)	49.4 (3,028)	45.8 (2,808)	6,125
Johore	2.3 (584)	30.6 (7,817)	67.1 (17,139)	25,540
Pahang	5.9 (1,655)	43.9 (12,257)	50.2 (14,016)	27,928
Terengganu	0.9 (105)	32.9 (3,638)	66.1 (7,313)	11,056
Kelantan	2.8 (240)	40.2 (3,385)	57.0 (4,800)	8,425
Sabah	6.2 (1,783)	35.3 (10,237)	58.5 (16,943)	28,963
Sarawak	3.4 (635)	29.8 (5,572)	66.8 (12,480)	18,687
Malaysia	**4.2 (9,821)**	**39.5 (91,742)**	**56.1 (130,429)**	**232,386**

Source : Information and Documentation System Unit, MOH

Training

The Nutrition Section and the Public Health Institute jointly coordinated the following trainings :

i) National Assessor Training for Baby-Friendly Hospital for health personnel on 2-5 June 2003 at the Dynasty Hotel, Kuala Lumpur.
ii) Breastfeeding Counseling Course (40 hours) for health personnel on 23-28 June 2003 at Grand Continental Hotel, Kuala Lumpur.

Implementation of MS ISO 9001:2000 Quality Management System in BPKK (For KKM)

Efforts to implement MS ISO 9000 Quality Management System in the Family Health Development Division started in 1996. As instructed by MAMPU in 2002, all the government agencies changed their MS ISO 9000:1994 Quality Management System to 9001:2000 version. The Division had also changed all the available documents

to MS ISO 9001:2000 version. 28 procedures and 28 work instructions had been documented.

SIRIM conducted Adequacy Audit MS ISO 9001:2000 in March 2003 and Compliance Audit on 24 and 25 July 2003. The following scopes had been audited :

i) *Perancangan Pembangunan Projek*
ii) *Perancangan Pelaksanaan Projek*
iii) *Pelaksanaan Projek*
iv) *Pemantauan and Penilaian Projek*

There were six 'Non-Conformance Reports' (NCR) and five 'opportunities for improvement'. The answers for the NCR were sent to SIRIM on 15 August 2003.

Disease Prevention and Control

VACCINE-PREVENTABLE DISEASE

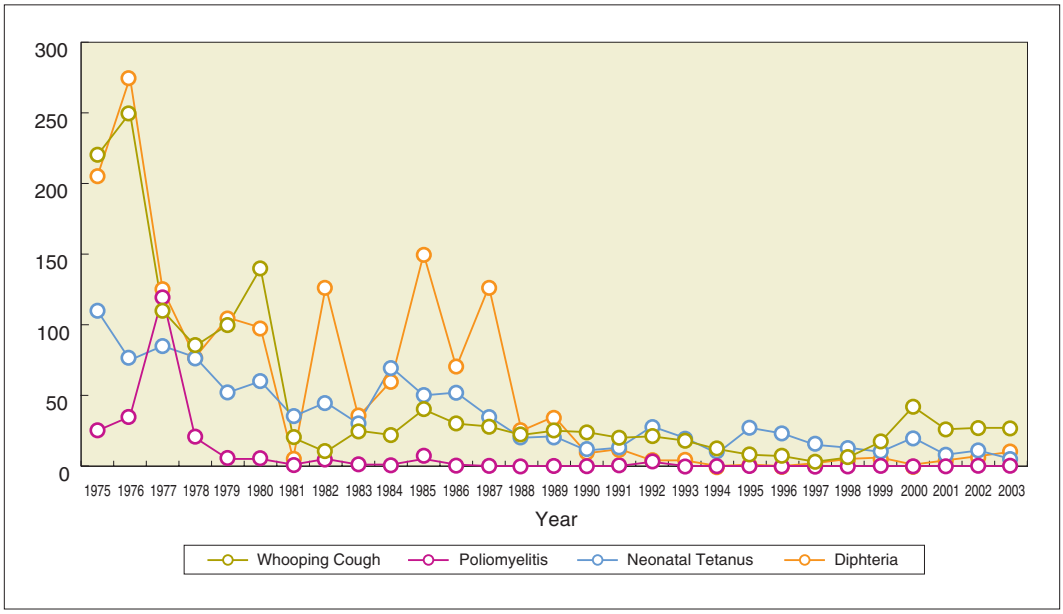
WITH the introduction of the various national vaccination programmes a real significant decrease in the incidence of specific vaccine-preventable diseases was observed. Vaccine-preventable diseases includes those grouped under the Expanded Programme on Immunisation (EPI) like diphtheria, pertussis or whooping cough), neonatal tetanus, acute poliomyelitis, measles, hepatitis B and also those non-EPI diseases like adult tetanus, rabies, meningococcal meningitis, influenza, Japanese encephalitis, Yellow Fever, typhoid and other related diseases. Currently there are several national childhood vaccination programmes preventing diseases like tuberculosis, diphtheria, pertussis, neonatal tetanus, acute poliomyelitis, measles, haemophilus influenza type b (Hib), mumps, rubella and hepatitis B.

Since the last two decades there has been a noticeable decrease in the incidence of the various childhood vaccine-preventable diseases and this has been due primarily to strategies directed to sustaining preventive control and vaccination coverage efforts. The incidence of most of the childhood diseases except for measles and hepatitis B have attained satisfactory levels of control namely below internationally accepted 1/ 100,000 population (Figure 1). Nevertheless some of these diseases have off late displayed a re-emerging trend and this has been attributed to the breakdown of primary preventive health services in certain geographical areas, increased virulence of pathogenic disease agents and the rapid globalisation phenomenon which has manifested in movement of high risk population groups of unvaccinated children of immigrants.

Vaccination coverage for children have achieved targets of Universal Child Immunisation (UCI) goals. Reported vaccination coverage for all the vaccine-preventable diseases have sustained reported levels of more than 90%. Vaccine against measles has improved from alow 81.1% in 1994 to 93.9% in 2003. Similarly

coverage for completed primary series for DPT was 98.7%, 93.4% for Oral Polio (OPV3) and 90.9% for the third dose of Hepatitis B. In order to further improve vaccination coverage as per requirements adhering to *Quality Assurance Indicators*, coverage of 90% or more has been adopted as the minimum standard in 2000. This is in keeping to recommendations and strategies of EPI, the Mid-Decade Goals for Children and the Millennium Development Goals.

FIGURE 1
Incidence of Selected Childhood Vaccine-Preventable Diseases in Malaysia, 1975-2003



Close collaboration and cooperation between the public and the private sectors needs to further strengthened to collectively respond to these emerging new challenges as a result of the rapidly changing vaccine-preventable disease scenario. International disease control initiatives spearheaded by WHO in polio eradication, measles and neonatal tetanus elimination and hepatitis B reduction needs sustained attention as a national priority. Existing consultative and communication networks needs to be sustained in order to react as a early warning mechanism against impending outbreaks and appropriated response initiated. The reemergence of vaccine-preventable diseases needs to be managed in a coordinated manner by all parties to effect a response of maximum impact.

FOOD AND WATERBORNE DISEASES

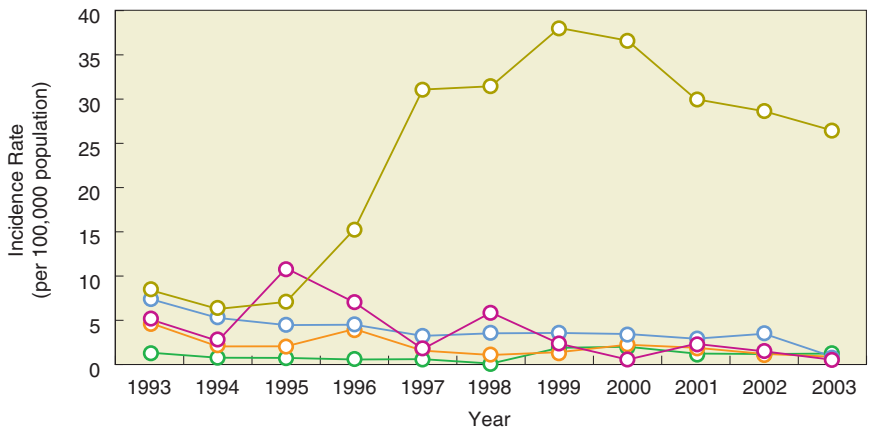
In Malaysia, food and waterborne diseases monitored through the notification system under the Prevention and Control of Infectious Diseases Act 1988 (Act 342) include cholera, typhoid, food poisoning, hepatitis A and dysentery. The incidence of these

diseases has shown a declining trend. Over the past five years from 1999 to 2003, the average incidence of cholera, typhoid, hepatitis A and dysentery was less than 5 cases per 100,000 population. The occurrence was found to be sporadic with occasional outbreaks that were confined to a few areas only. The incidence rate of food poisoning in 2003 was 26.44 per 100,000 population. The incidence rate food and waterbome diseases is shown in Figure 2.

The epidemiology of food and waterborne diseases is rapidly changing as newly recognised pathogens emerge and well recognised pathogens increase in prevalence or become associated with new food vehicles. Emerging foodborne disease threats occur for a number of reasons. These include globalization of the food supply, advances in food production and processing technologies, changes in agricultural and animal husbandry practices, emergence of new foodborne pathogens, antimicrobial resistance, demographic changes and changes in lifestyle.

The surveillance, response and control of food and waterborne diseases has been gradually strengthened with the introduction of the communicable diseases control information system (CDCIS), laboratory based surveillance, provision of updated guidelines and discussions on the feasibility of setting up a food and waterborne diseases surveillance centre.

FIGURE 2
Incidence Rate for Food Poisoning, Cholera, Typhoid/Paratyphoid, Hepatitis A and Dysentry in Malaysia, 1993-2003



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Food Poisoning	8.44	6.28	7.08	15.29	31.08	31.45	38.04	36.61	29.99	28.63	26.45
Cholera	5.13	2.67	10.88	7.02	1.75	5.88	2.36	0.56	2.34	1.49	0.54
Tyhoid/Paratyphoid	7.43	5.27	4.46	4.50	3.24	3.53	3.57	3.45	2.92	3.48	0.89
Hepatitis A	4.72	2.05	2.06	4.01	1.57	1.08	1.40	2.24	1.90	1.20	0.89
Dysentry	1.35	0.77	0.75	0.57	0.61	0.11	1.89	2.01	1.24	1.19	1.24

VIOLENCE AND INJURY PREVENTION PROGRAM (VIP)

The Injury Prevention Program was established in 1996 with the objective to prevent and minimize the impact of injury.

Since its establishment, several activities were carried out and starting from March 2003, the scope of the program was expanded to include violence prevention activities. Since then the unit is known as the Violence and Injury Prevention Unit (VIP).

Violence and Injury Prevention Unit (VIP), formerly known as the Injury Unit, is one of many others under the Disease Control Division of the Department of Public Health. It was renamed as such following the appointment of this unit as the focal point for violence prevention activities in the Ministry of Health during the special Director General Meeting in June 2003. Under its new name, the unit is now responsible for coordinating, formulating, monitoring and evaluating activities related to injury and violence prevention of the Ministry of Health.

The Violence and Injury Prevention Program will carry out activities under the whole spectrum of disease prevention in order to reduce the incidence of both injuries and violence in this country and to reduce their impact. In view of the multi-sector approach and multifaceted aspect of the prevention of both type of injuries, the activities run under the VIP program are complementary to those run by various other sectors which carry out the same goal.

Mission

To increase health and quality of life of the population by preventing violence and injuries and reducing their impact.

General Objectives

To reduce mortality, morbidity and disability due to violence and injury.

Specific Objectives

i) To reduce the incidence of injury and violence.
ii) To strengthen the management of violence and injury cases.

Strategies

i) Formulate a national policy on the Violence and Injury Prevention Program of the Ministry of Health.
ii) Establish an Advisory Committee for both Injury Prevention and Violence Prevention Programmes.

iii) Provide secretariat, policy assistance and support to other national committees.
iv) Undertake nationally focused public awareness activities and support other similar activities run by other agencies.
v) Develop indicators for performance in violence and injury prevention activities.
vi) Develop and support national violence and injury data collection and surveillance.
vii) Pilot, develop and evaluate nationally applicable activities that show promise of effectiveness and efficiency.
viii) Promote and actively participate in evidence-based research and best practices.
ix) Develop and strengthen partnerships and links within and outside the Ministry of Health; within and across MOH jurisdiction, portfolios and with non-governmental agencies.

Priority Areas of Violence and Injury Prevention Program

Based on the Epidemiology Study conducted by the Ministry of Health in 1996, current existing data and the World Report on Violence and Health, the Advisory Committee for Violence and Injury Prevention Program has identified the following areas to be the focus for Violence and Injury Prevention Program of the Ministry of Health :

i) ***Injury Prevention Program***

The injury Prevention Program will focus on activities for the children and adults. The Epidemiology Study reveals that the most common setting for injuries to occur are the road, home and recreational areas. As such, the scope of the injury prevention programme will capture safety and injury prevention on the road, at home and at the playground.

ii) ***Violence Prevention Program***

The World Health Report on Violence and Health has divided Violence into three types; self-inflicted, interpersonal and collective violence. As collective violence is mainly under the jurisdiction of Police Department, the Violence Prevention Program of the Ministry of Health will focus only on Self-inflicted and Interpersonal Violence.

Achievements in 2003

i) Appointment as the focal point for Violence Prevention Program of the Ministry of Health in June 2003.
ii) Launching of Malaysian Response for The Global Campaign for Violence Prevention by the Honorable Deputy Minister of Health in August 2003.
iii) Several trainings on Violence Prevention and Management were conducted at state and national levels.

iv) Injury Prevention Week was held in September 2003 in which several activities related to injury prevention and control were carried out including mass CPR training. 1,032 participants were successfully trained in the session and this event was recorded in the Malaysian Book of Record as the largest participation in a CPT training session.

HIV/AIDS EPIDEMIC IN MALAYSIA 2003

As of December 2003, 58,012 cumulated cases of HIV infection had been reported to the Ministry of Health, Malaysia. Out of this, 8,294 were AIDS cases and 6,130 AIDS deaths. In the year 2003, 6,756 HIV cases, 1,076 AIDS cases and 700 AIDS death cases have been reported. There was slight reduction of 3.2% from 6,978 to 6,756 of reported numbers of HIV infections and reduction of 9.8% from 1,193 to 1,076 cases in year 2003 as compared to the previous year (Figure 3 & 4). The annual reported AIDS cases are also seem to be leveling off during last five years, a condition that possibly reflect the effect of ARV treatment in delaying the onset of AIDS in people with HIV infections, as also been reported in most developed countries.

Although the main bulk of the cases still male at the age of 20 to 39 years old and most of them are injecting drug users (IDU), infection among women still remain at the alarming level as compare to last year reported case (Figure 5), through heterosexual transmission. The increase of HIV among women is more significant after 1998, upon implementation of routine HIV screening among pregnant mothers through PMTCT program at public health clinics, which each year comprised about 20% of the cases among women.

FIGURE 3
Number of Reported HIV Infections (including AIDS) in Malaysia, 1986-2003

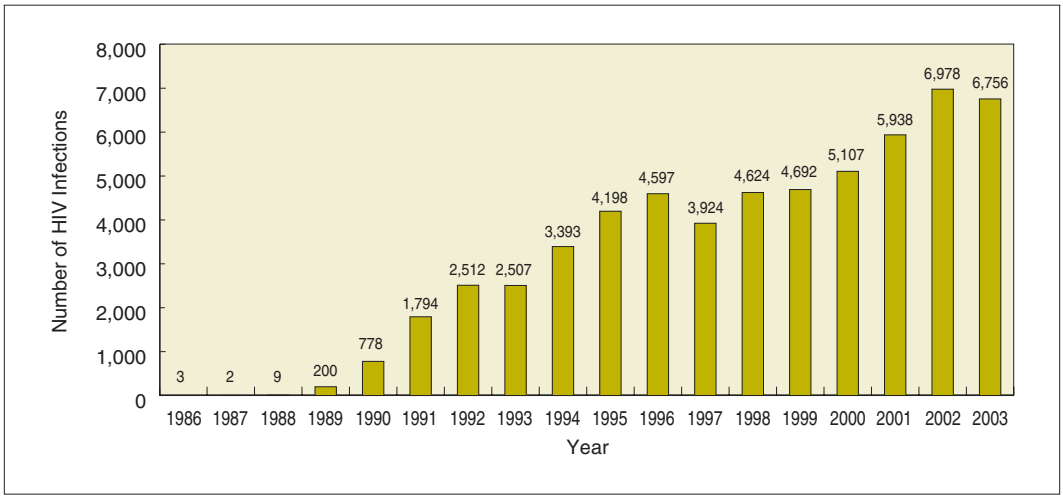


FIGURE 4
Number of Reported AIDS Cases in Malaysia, 1986-2003

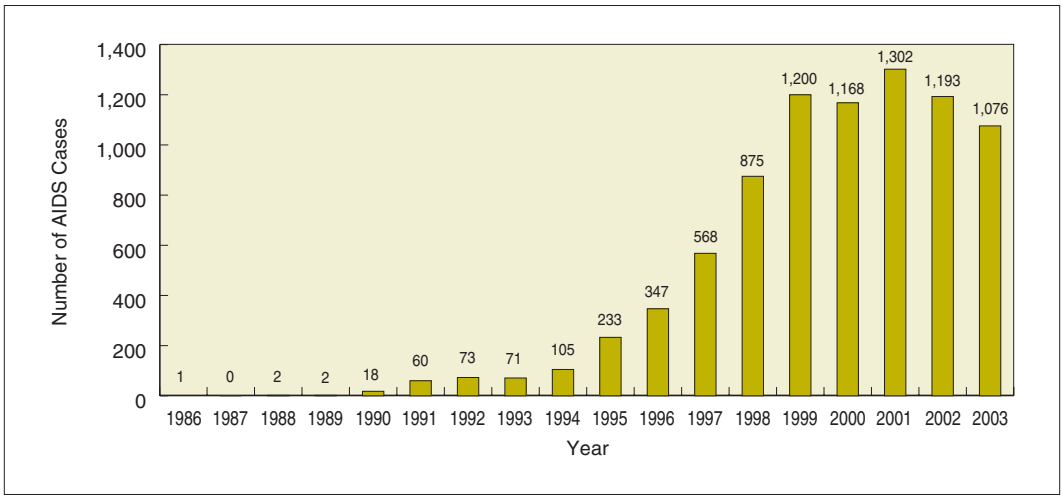
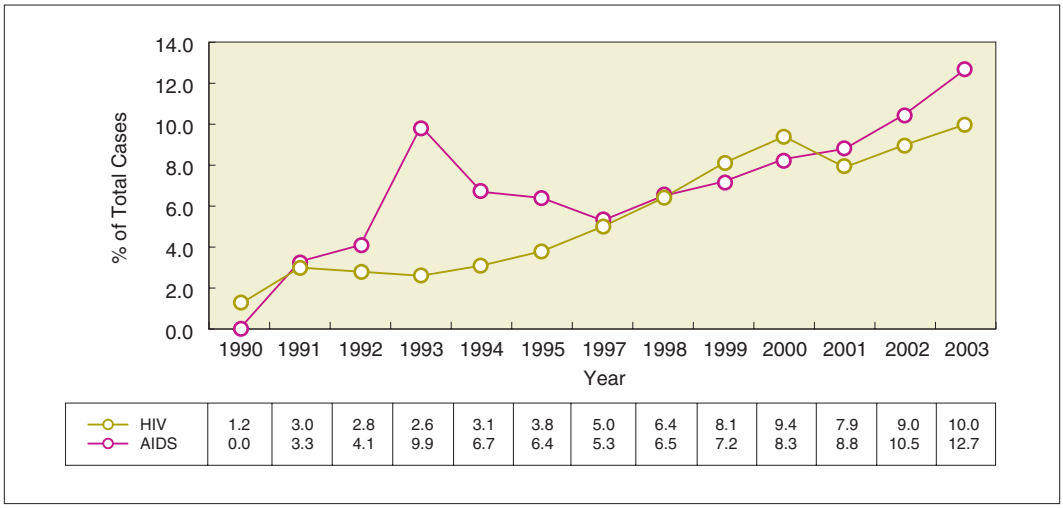


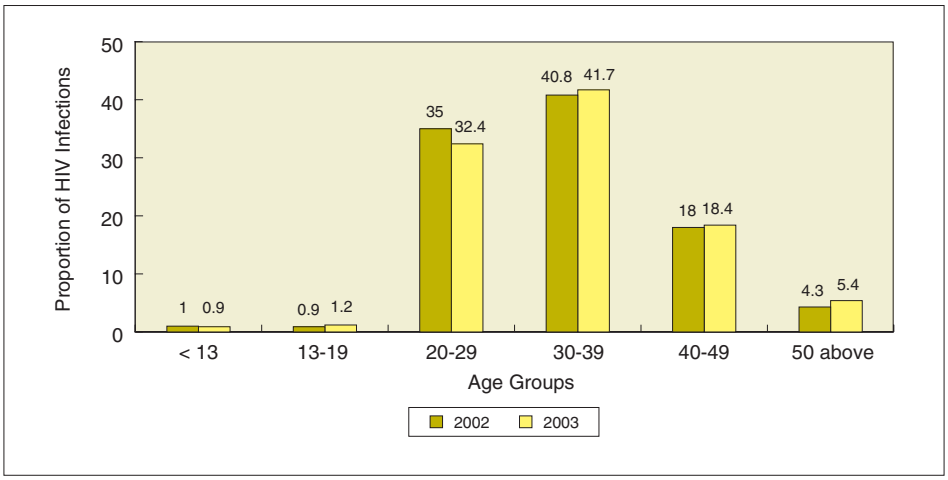
FIGURE 5
Proportion of Reported HIV and AIDS Cases Among Women, Malaysia, 1990-2003



HIV	1.2	3.0	2.8	2.6	3.1	3.8	5.0	6.4	8.1	9.4	7.9	9.0	10.0
AIDS	0.0	3.3	4.1	9.9	6.7	6.4	5.3	6.5	7.2	8.3	8.8	10.5	12.7

HIV infection was still predominant among young people aged 20-29 years and 30-39 years as previous year i.e. 79.4% and 65.7% respectively and 72.7% occur among Malays. There were a reduced proportion of reported HIV cases in 20-29 age groups but an increased pattern in the 30-39 age groups (Figure 6). This may be due to the fact that infections are mainly among IDUs who are mostly young people aged 20-39 years as well as sexually active.

FIGURE 6
Proportion of Reported HIV Infections by Age Groups, 2002-2003



By reported numbers, majority of HIV transmission is still attributed to infection via injecting drug uses in year 2003 i.e. 75.7% from 58,012 HIV cases dan 60.6% from 8,294 AIDS cases. However, sexual transmission has shown an increased pattern, which 7.3% in heterosexual cases and nearly 200% in homosexual cases. Transmission through contaminated blood transfusion has reduced tremendously from 5 in the year 2002 to only one case in 2003 (Table 1 & Figure 7).

From the 6,756 HIV cases reported in the year 2003, Selangor has reported the highest number of HIV infection in year 2003, i.e 1,155 cases (16.6%) followed by Johor, 1020 cases (15.1%) (Figure 8). It may reflect the place where the infection been diagnosed (mostly from DRC and prisons) and not by the residence. However, as compared to previous year, Kuala Lumpur has reported more cases compared to

TABLE 1
Reported HIV Infections by Risk Factors, Malaysia, 2001-2003

Risk Factors	Reported Cases			% Increment	
	2001	2002	2003	2001-2002	2002-2003
Injecting drug use (IDU)	4,724	5,176	4,796	+9.6	-7.3
Heterosexual	834	1,218	1,307	+46.0	+7.3
Homo/bisexual	44	51	151	+15.9	+196.4
Vertical	57	60	62	+5.3	+3.3
Blood recipient	1	5	1	+400.0	-80.0
Unknown	278	468	439	+68.3	-6.2
Total	**5,938**	**6,978**	**6,756**	**+17.5**	**-3.2**

FIGURE 7
Reported Number HIV of Infections by Risk Factors, Malaysia, 1986-2003

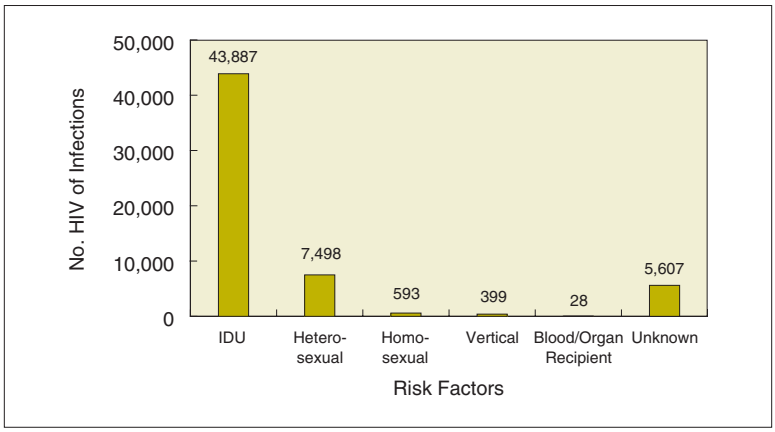
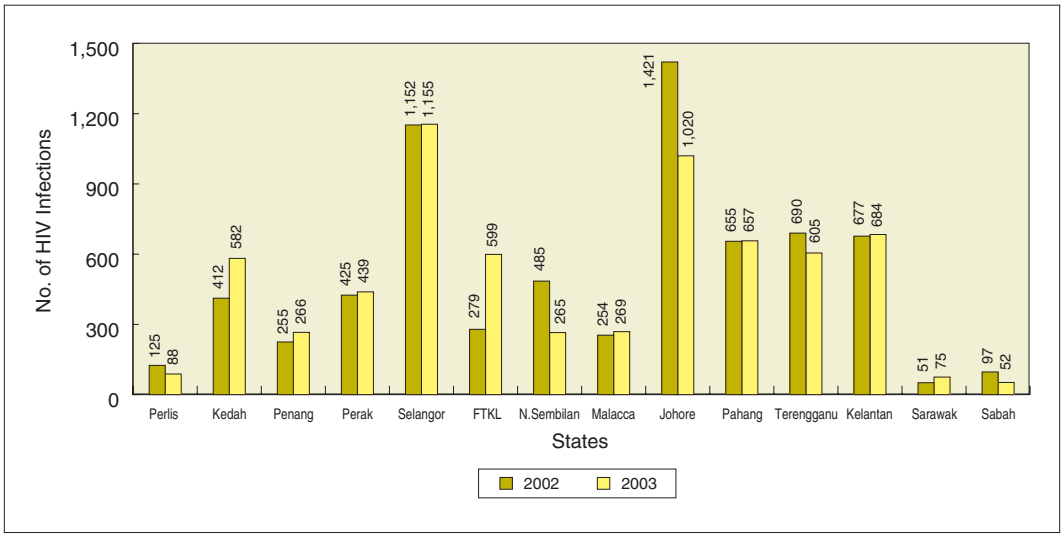


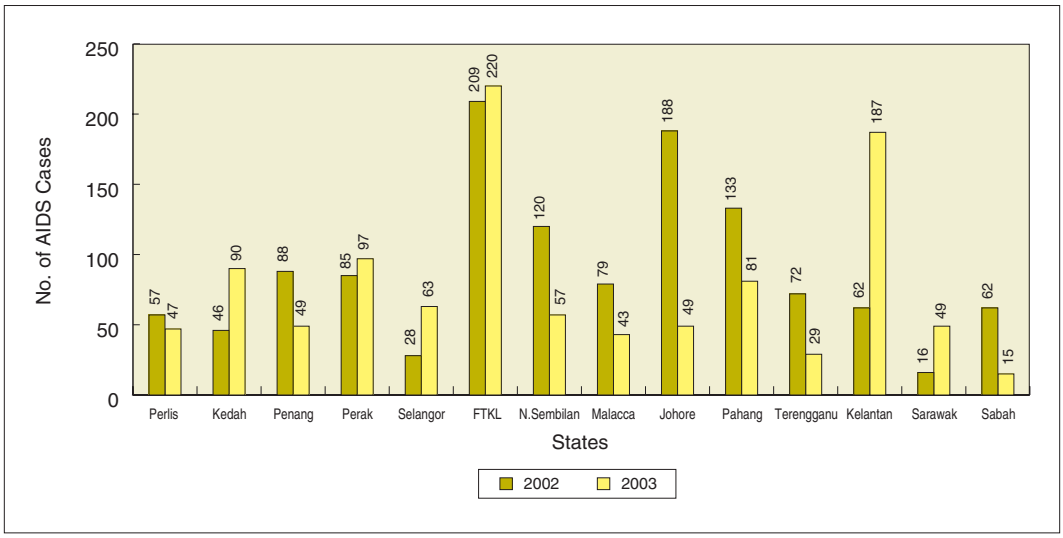
FIGURE 8
Reported HIV Infections by States, Malaysia, 2002-2003



the previous year (increased by 115%), followed by Sarawak (47%) and Kedah (41%). The frequency distribution pattern of HIV cases by states generally follows that of registered drug users. The apparent low cases in Sabah and Sarawak were due to low IDU population in these two states.

Figure 9 shows that Kuala Lumpur and Kelantan had reported the highest number of AIDS cases, i.e 220 (20.4%) and 187 (17.4%) respectively. Higher number of AIDS cases reported in these two states maybe due to the availability of medical treatment and referral centers for AIDS patients, i.e Hospital Kuala Lumpur and Hospital Kota Bharu.

FIGURE 9
Reported AIDS Cases by States, Malaysia, 2002-2003



INTERNATIONAL HEALTH/QUARANTINABLE DISEASES

Table 2 shows the achievement of plaque and yellow fever prevention activities at international entry points in Malaysia for the past five years as stipulated under the International Health Regulations (IHR 1969). Based on the information in Table 2, it was noted that, both the international ports and airports in Malaysia were not free from vector breeding places, as there was an increase in the number of vectors for plaque and yellow fever in the year 2001. Thus, strengthening aedes and rodent control activities should be carried out at all entry points in Malaysia.

Based on the information in Table 3, it was noted that medical examinations for foreign workers carried out by FOMEMA shows a declining trend of "Unfit" workers from 1998 to 2001 and subsequently increasing from 2002 to 2003. This shows that a well coordinated medical examination for foreign workers is capable of detecting cases of "Unfit" workers. All those found to be unfit were not allowed to renew their work permit in Malaysia, thus reducing the risk of spread of infectious diseases among both the workers and the locals.

Table 4 showed that majority of foreign workers considered to be unfit during the screening was due to Hepatitis B (surface antigen), VDRL Test, abnormal chest X-ray/ TB infection. Table 5 shows that the agriculture sector has the highest percentage of unfit workers (35%) followed by the manufacturing sector (25%).

TABLE 2
Vector Control Activities of International Health at the Entry Points in Malaysia (1998-2003)

No.	Type of Activities	Achievement					
		1998	1999	2000	2001	2002	2003
A.	**International Ports**						
1.	Number of Ports	10	10	10	10	10	15
2.	Flea Index	0.18	0.19	0.08	0.53	0.16	0.59
3.	Ovitrap Index (A. aegypti)	0.1	0.02	0.4	0.4	0.8	0.1
4.	Number of DC issued	3	3	47	5	9	23
5.	Number of DEC issued	1,754	1,896	1,749	2,455	2,202	1,783
6.	Number of extension of DC issued	2	10	0	5	2	0
7.	Number of extension of DEC issued	63	47	43	45	80	39
B.	**International Airports**						
1.	Number of Airports	8	8	8	8	8	8
2.	Flea Index	0.08	0.07	0.01	0.34	0.01	0.1
3.	Ovitrap Index (A. aegypti)	0.2	0.12	0.1	0.1	0.1	0.02
4.	Number of passengers quarantined for Yellow Fever	152	176	183	144	301	209

Source : International Health Unit, MOH

TABLE 3
Percentage and Total Number of Unfit in Sabah and Peninsular Malaysia between 1997 until 2003

Year	Total Examined	Results of Examination		
		Fit	Unfit	% Unfit
1997	5,339	5,128	211	4
1998	565,737	541,322	24,415	4.39
1999	545,222	531,292	13,930	2.55
2000	525,681	515,143	10,538	2.0
2001	500,133	490,869	9,264	1.85
2002	402,831	394,005	8,826	2.2
2003	716,157	697,595	18,562	2.6

Source : FOMEMA Sdn. Bhd.

TABLE 4
Diseases Detected During Medical Examination in Sabah and Peninsular Malaysia (FOMEMA)

Disease	1998	1999	2000	2001	2002	2003
HIV	178 (0.729%)	80 (0.574%)	98 (0.93%)	91 (0.982%)	122 (1.382%)	286 (1.541%)
TB	1,909 (7.819%)	1,203 (8.636%)	1,197 (11.36%)	1,460 (15.76%)	1,278 (14.48%)	2,313 (12.46%)
Malaria	4 (0.016%)	7 (0.016%)	6 (0.057%)	1 (0.011%)	0 (0%)	9 (0.048%)
Leprosy	16 (0.066%)	8 (0.057%)	3 (0.028%)	0 (0%)	1 (0.011%)	3 (0.016%)
Syphilis	3,627 (14.86%)	2,462 (17.67%)	1,519 (14.41%)	756 (8.161%)	657 (7.444%)	1,620 (8.728%)
Hepatitis B	16,742 (68.57%)	7,830 (56.21%)	5,476 (51.96%)	4,107 (44.33%)	4,505 (51.04%)	9,686 (52.18%)
Cancer	22 (0.09%)	14 (0.101%)	7 (0.066%)	5 (0.054%)	6 (0.068%)	4 (0.022%)
Epilepsy	13 (0.053%)	4 (0.029%)	4 (0.038%)	0 (0%)	1 (0.011%)	7 (0.038%)
Psychiatric Illness	19 (0.078%)	9 (0.065%)	6 (0.057%)	4 (0.043%)	19 (0.215%)	20 (0.162%)
Pregnancy	1,289 (5.28%)	675 (4.846%)	611 (5.798%)	456 (4.922%)	495 (5.608%)	659 (3.55%)
Urine Opiates	256 (1.049%)	296 (2.125%)	125 (1.186%)	103 (1.112%)	71 (0.804%)	369 (1.988%)
Urine Cannabis	156 (0.639%)	206 (1.479%)	153 (1.452%)	137 (1.479%)	69 (0.782%)	165 (0.889%)
Others	184 (0.754%)	1,136 (8.155%)	1,340 (12.72%)	2,144 (23.14%)	1,602 (18.15%)	3,411 (18.38%)
Total	**24,415**	**13,930**	**10,545**	**9,264**	**8,826**	**18,562**

Source : FOMEMA Sdn. Bhd.

TABLE 5
Percentage and Incidence of Foreign Workers Found 'Unfit' According to Work Sector in 2003

Work Sector	Number Examined	Fit	Unfit	% Unfit	Incidence Unfit
Agriculture	183,710	177,180	6,530	35.18	3.55
Construction	113,321	109,552	3,769	20.30	3.33
Domestic	137,997	135,358	2,639	14.22	1.91
Manufacturing	225,131	220,508	4,623	24.91	2.05
Service	55,998	54,997	1,001	5.39	1.79
Total	**716,157**	**697,595**	**18,562**	**100**	**2.59**

Source : FOMEMA Sdn. Bhd.

Disease surveillance among Muslims who were performing their hajj between 1998 to 2001 showed that the respiratory tract and lung diseases were the main diseases occurring among them, followed by the muscular skeletal diseases, skin diseases and gastrointestinal diseases (Table 6). Congestion during the congregation of the pilgrimages increased the risk of contracting and the spread of respiratory tract diseases through air (water droplets and throat).

It was also noted that the death trends (by percentage) for those performing hajj between 1997 and 2002 was declining. Of 0.65% in 1997 decreased to 0.42% in 1998, but there was a slight increase to 0.54 in 1999 but went up again to 0.37 in 2000 and 0.39% in 2001 (Figure 10) and in the year 2002 the death percentage declined to 0.28%.

CARDIOVASCULAR UNIT

Objectives

i) To reduce morbidity and mortality of Cardiovascular Disease in particular coronary heart disease and cerebrovascular disease.
ii) To reduce recognised modifiable risk factors such as hypertension, smoking, hypercholesterolemia, diabetes mellitus, obesity and physical inactivity in the community.

Strategies

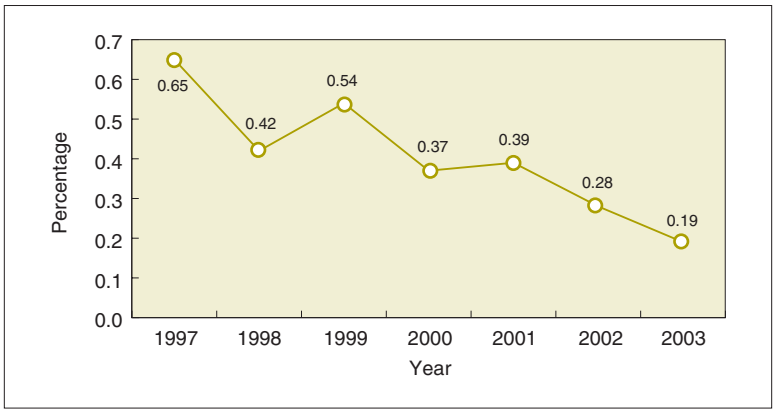
Studies done have shown that the prevention and control of Cardiovascular disease depends on reduction of the level of its major known modifiable risk factors namely: Tobacco smoking, Diabetes, Hypertension, Hypercholestrolemia, Obesity, Sedentary Lifestyle, Elderly, Obese, Smokers, Family history of Hypertension, Stressful living conditions and Unhealthy eating - High salt/sodium intake.

TABLE 6
Total Number of Pilgrims Who Sought Treatment Classified According to Disease from 1998 until 2003

Cases Treated	1998	1999	2000	2001	2002	2003
Communicable Diseases	0	0	5	7	0	0
Cardiovascular Diseases	1,244	3,094	3,846	3,254	3,742	4,552
Chest Diseases	64,024	63,418	73,349	86,453	85,660 (14,056)*	93,254 (16,106)*
Gastrointestinal Diseases	2,337	3,631	4,098	4,690	5,364	5,451
Genitourinary Diseases	405	828	630	673	840	646
Gynaecology and Obstetrics	240	375	405	596	1,161	845
Skin Diseases	1,921	3,385	4,664	5,979	5,053	8,107
Musculoskeletal Diseases	2,460	2,967	4,797	6,117	5,589	8,274
Mental & Psychiatric Diseases	160	196	128	174	172	262
Metabolic Disorder	386	555	0	1,199	1,539	1,606
Eye Diseases	1,108	1,470	2,849	2,906	2,862	2,602
ENT Diseases	1,040	2,089	2,209	2,130	5,004	1,754
Mouth and Dental Disorder	289	860	2,352	1,519	3,311	2,559
Wound, Fractures and Burns	176	239	439	343	1,114	418
Minor Surgery	10	6	10	2	36	13
Heat Exhaustion	85	172	0	45	42	81
Heat Stroke	0	0	0	0	26	0
Others	547	1,231	2,587	1,639	2,109	1,141
Total No. Treated	**76,432**	**84,516**	**102,368**	**117,726**	**123,624**	**131,565**
Total No. of Pilgrims	**29,404**	**34,920**	**39,393**	**44,282**	**49,864**	**49,047**

Note : *( ) Real total of Chest Diseases – Before 2002, all respiratory infections were categorized at Chest Diseases
Source : Lembaga Tabung Haji, Malaysia

FIGURE 10
Death Trends Compared to Total Number of Pilgrims by Year (In Percentage), 1997-2003



Therefore activities planned are geared towards increasing awareness and reducing the risk factors.

Two strategies have been formulated :

i) The population strategy and
ii) The individual or high risk strategy.

They are complementary and reduction of Cardiovascular diseases are likely to be most successful where both are pursued simultaneously.

Achievement

The screening programmes for CVD risk factor have been launched in 1999 and it doing step by step. The programmes started with one health clinic in every district and the number are increasing step by step. The enhancement of the clinic that running the programme depends on the planning and ability of the district health office (Table 7).

In this program, the individual aged 35 year and above or those with high risk for CVD such as obesity, smoking and having family history of CVD problem will be registered in that screening program. The risk factors that are screened through out this program are Body Mass Index (BMI), Blood Pressure, Test for cholesterol and glucose level, smoking status and also family history of hypertension, DM and CVD. Those who have risk of the diseases would be advised and suitable intervention depend on their problem will be given such as those who are smoker will be assigned to the quit smoking clinic.

TABLE 7
Number of Clinic that Running the Screening Program for CVD Risk Factors in 1999-2003

Year	Member of Clinic	Cases	The cases with Risk Factor (%)
1999	57	6,195	1,752 (28%)
2000	127	22,967	8,648 (38%)
2001	200	34,033	16,086 (47%)
2002	405	88,775	32,256 (36%)
2003	453	102,956	38,304 (37%)

Activities in 2003

Public Health Department Executive Fitness Seminar

Public Health Department Executive Fitness Seminar had been conducted at Guoman Resort, Port Dickson from 1st until 3rd of August 2003. The participants are Director General of Health, Deputy of Health DG (Public Health) and all State Health Department Directors. The objectives of this seminar are to assist the respective participants and their spouses in order to re-evaluate their own health and fitness status, to give latest information about fitness, diet and health, helping participants and their spouses in developing their fitness plan of action and to strengthen the relation of "esprit de corps" among Ministry of Health Officers. This seminar offered various interesting slots to its' participants and their beloved spouses, such as massage service and diet counseling.

Level 1 Fitness Instructor Seminar

Ministry of Health Malaysia in collaboration with Petaling District Health Office had organized Level 1 Fitness Instructor Seminar from 4th until 9th August 2003 that took place at National Institute of Occupational, Safety and Health (NIOSH), Bandar Baru Bangi, Selangor. 40 staffs from different clinics and offices had participated in this seminar.

This seminar objectives are :

i) to train staffs about the appropriate way in exercising and coach them about the fitness concept.
ii) to conduct *Ujian Kecergasan Jasmani Kebangsaan (UKJK).*
iii) to educate them about safety precautions in physical fitness exercise.

World Heart Day 2003

World Heart Day 2003 was celebrated on the 29th of September 2003. This year, the event was conducted at Taman Botani, Putrajaya and launched by our respective Prime Minister, Y.A.B. Dato Seri Abdullah Ahmad Badawi. The slogans for this event was "A Heart For Life" and the theme was "Women, Heart Disease and Stroke". Healthy Lifestyle has been set as the concept of celebration. Various activities has been planned to translate the objective of World Heart Day especially to all Malaysians.

World Heart Day 2003 objectives were :

i) To promote and create awareness among youth. As prevention is better than cure, early stages of awareness will promote a healthy lifestyle.
ii) The physical activities are promoted to make youth understand how a healthy active lifestyle will prevent heart disease in the future.

Various heart health activities had been organized such as Walk A Mile, Walk 'n' Hunt, exercise demonstration (Jump rope, Line Dancing and fitball robic) and activities for youth.

National Fitness Tournament MOH 2003

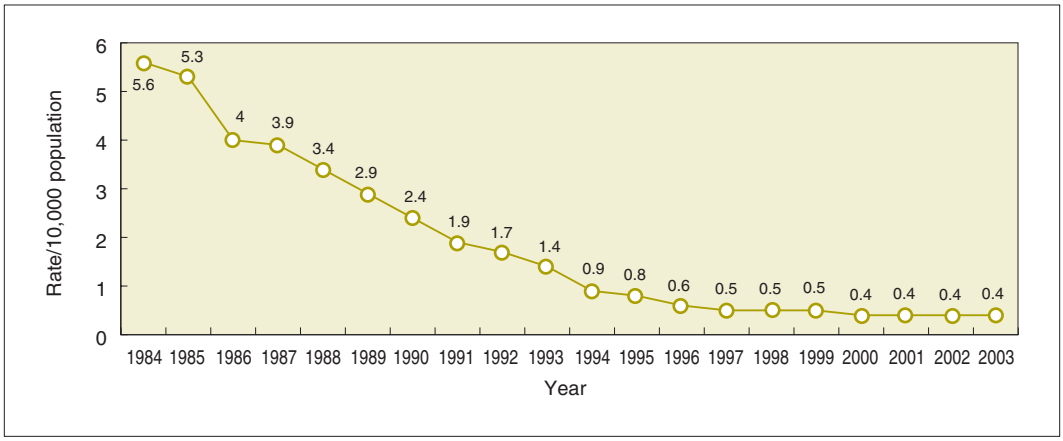
National Fitness Tournament MOH 2003 has been held on 5-7 October 2003 at *Dewan Tertutup* SUKPA, Bandar Indera Mahkota, Kuantan, Pahang. The tournament was launched together with World Heart Day 2003 by HRH the Sultan of Pahang. All Health State Departments in Malaysia gave a support by sending their participants for fitballrobic and jump rope for the event. The HQ Fittballrobic contigent (Phyne Ballerz) had became a champion. 1st runner up won by Sarawak contigent and the 2nd runner up accepted by Perak contigent. Pahang's contigent became a champion for jump rope category, Selangor and Malacca contigent deserved 1st runner up and 2nd runner up. Besides that, multi events have been held including public aerobic, colouring contest and fitballrobic and jump rope demostration.

LEPROSY ELIMINATION PROGRAMME

National Leprosy Control and Preventive Programme was started in 1969. For almost 30 years, Malaysia has successfully reduced the burden of disease in Malaysia. In the early 90's, WHO has announce leprosy as a public health problem and set a target for leprosy elimination by the year 2000. Elimination of leprosy was defined as achieving the prevalence of leprosy at 1 case per 10,000 population. Few indicators were use to monitor the achievement of the elimination programme.

In the year 2003, 972 cases were on treatment. The prevalence was 0.4/10,000 population and has not changed since 2000 (Figure 11).

FIGURE 11
Leprosy Prevalence in Malaysia, 1984-2003



All the states has achieved elimination phase except for FT Kuala Lumpur (1.5/ 10,000 population) and four others i.e Sabah, Perlis, Perak and Kelantan. Previously, the incidence rate has decrease since 1993 but in the year 2003, it has increase to 0.9/100,000 population (Figure 12).

219 new cases were reported in 2003. This show an increment of 22.3% compared to previous year . Sabah has the highest with 58 cases followed by Perak (26), FT KL (25), Selangor (20) and Sarawak (20) (Figure 13).

FIGURE 12
Incidence Rate of Leprosy in Malaysia, 1984-2003

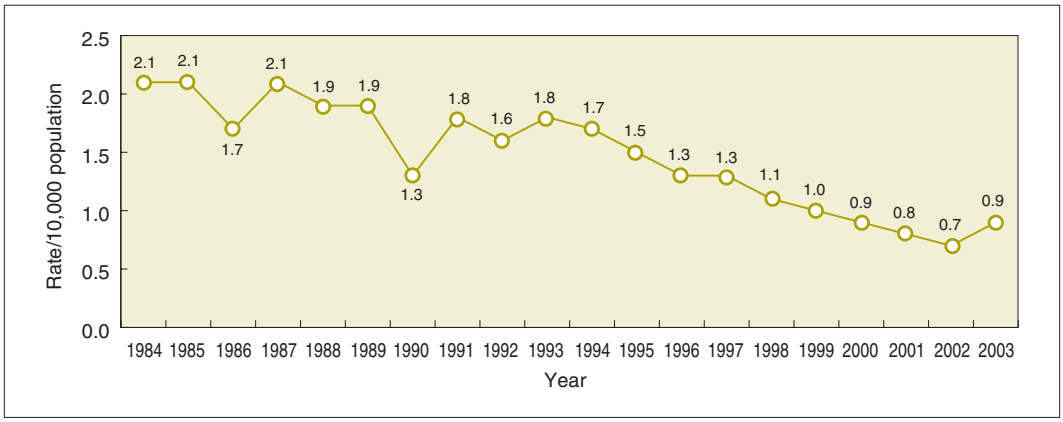
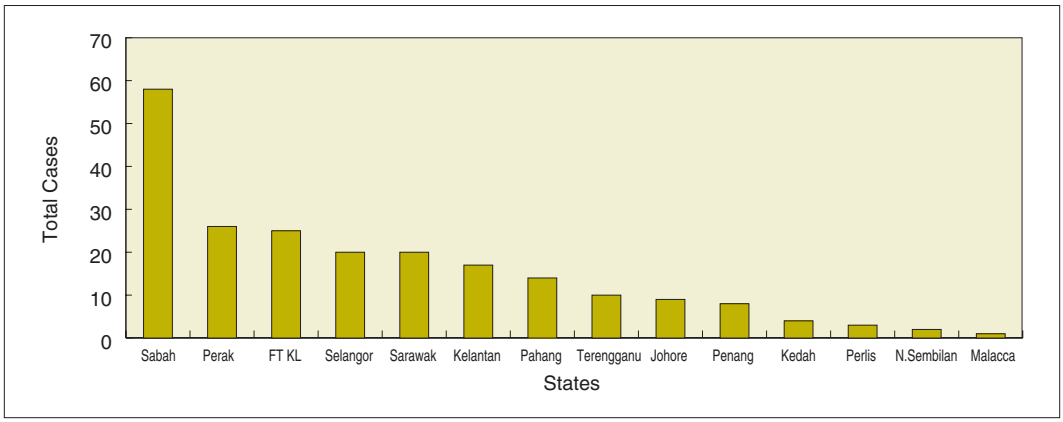
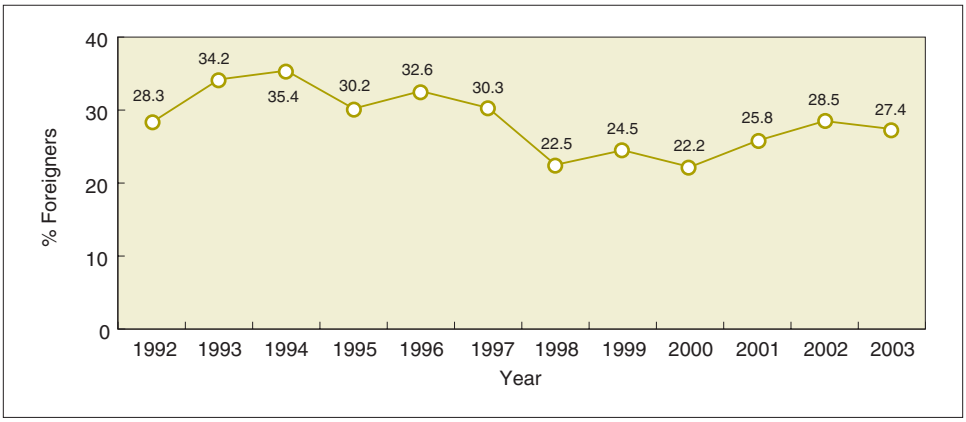


FIGURE 13
Total Leprosy Cases by States in Malaysia, 2003



For year 2003, 11.1% cases were reported among children less than 15 years old while 37.4% cases were among adult. More than two third of cases were male (66.6%). 60 cases (27.4%) were among foreigners mainly Indonesian (72%), Philipinos (23%) and others were from Bangladesh and India. 50% of the foreigners were reported from Sabah (Figure 14).

FIGURE 14
New Leprosy Cases Among the Foreigners, 1992-2003



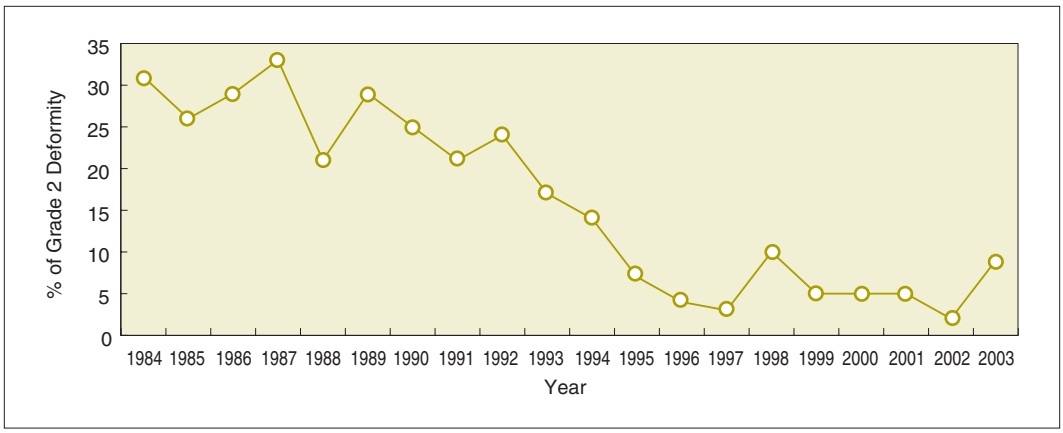
Almost 80% of the new cases were the *Multibacillary type (lepromatous and borderline)*. It shows an increase of 5% compared to 2002. While the remains were *Paucibacillary type (indeterminate dan tuberculoid)*. Indeterminate type were use as an indicator for the effectiveness of an early detection of case. In 2003, only 2.3% of leprosy cases were in their early phase (Table 8).

TABLE 8
Total and Percentage of Cases by Type of Leprosy, 1998-2003

Year	Type of Leprosy								Total Cases
	Lepromatous		Tuberculoid		Indeterminate		Borderline		
	Total	%	Total	%	Total	%	Total	%	
1998	84	35.6	75	31.8	13	5.5	64	27.1	236
1999	114	50.9	52	23.2	8	3.6	50	22.3	224
2000	108	49.8	50	23.0	9	4.2	50	23.0	217
2001	101	51.8	38	19.5	7	3.6	49	25.1	195
2002	93	52.0	38	21.2	6	3.4	42	23.4	179
2003	103	47.0	41	18.7	5	2.3	70	32.0	219

20 new cases (9.0%) were reported to have a grade 2 deformity (serious and permanent deformity). This shows a high increase from previous year (Figure 15).

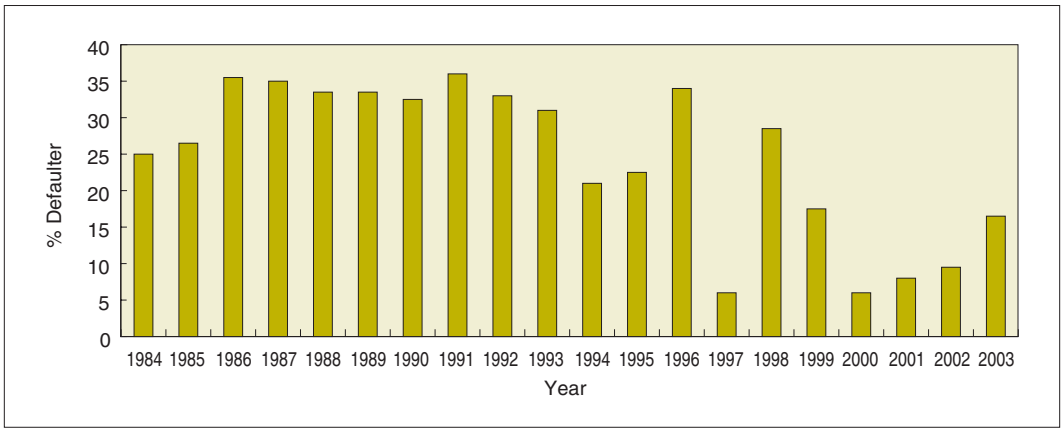
FIGURE 15
Percentage of New Cases with Grade 2 Deformity, 1984-2003



The treatment of leprosy take a long time (between 1 to 3 years) using MDT treatment regime according to ministry's guideline. Since 1993, the percentage of failed treatment has decreases to about 10% (Figure 16).

Generally, Malaysia has achieved elimination status set up by WHO. During elimination phase, continuous surveillance need to be implemented. This is because leprosy has a long incubation period and although the infectivity has decreased, the disease incidence remains for a longer period.

FIGURE 16
Percentage of Defaulter in Malaysia, 1984-2003



The training for health care workers are essential to increase the skills for and diagnosing and treatment of cases. With the combination of expertise from WHO and Ministry of Health, the training to them will be beneficial.

NATIONAL TB CONTROL PROGRAMME

In 1999, WPRO (WHO) has announce that TB as a crisis. WHO has set up specific target to reduce TB cases in the intermediate TB Burden countries. In 2003, TB notification rate in Malaysia has increase to 63.5/100,000 population. The increement generally due to increasing number of noticiation after the introduction of TB Information System replacing the existing reporting system (HMIS-TB) (Figure 17). TB notfication rate (infectious) also show the same trend (Figure 18).

FIGURE 17
Trend of TB Notification Rate (All Type), Malaysia, 1993-2003

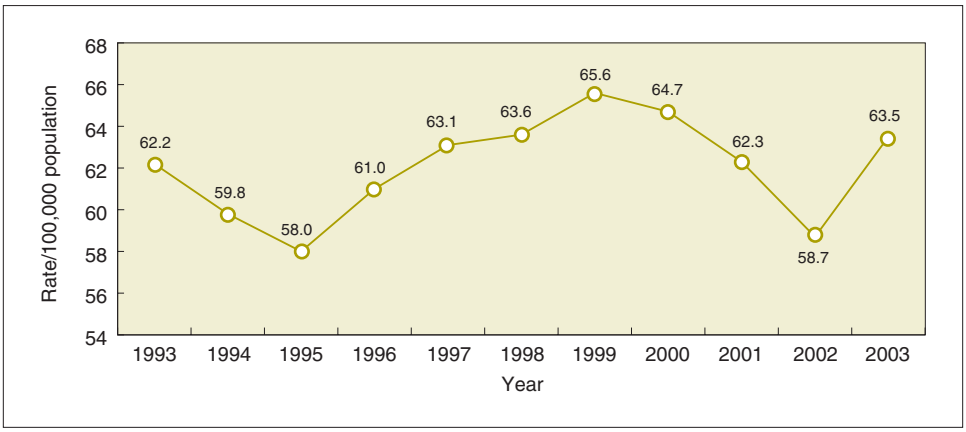
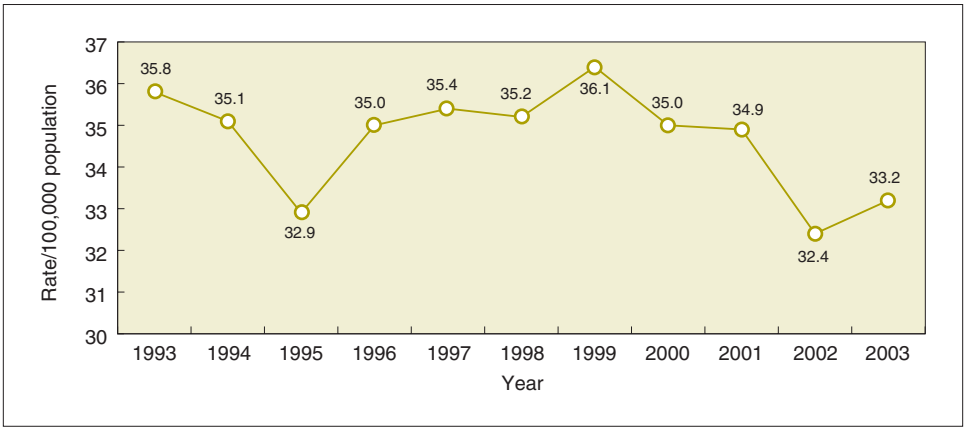


FIGURE 18
Trend of TB Notification Rate (Infectious), Malaysia, 1993-2003



A total of 15,912 TB cases were reported in Malaysia with the increement of 10.5% compared to 2002.

The breakdown of cases are as follow :

i) 8,305 cases (52.2%) of PTB smear positive;
ii) 6,096 cases (38.3%) of PTB smear negative; and
iii) 1,511 cases (9.5%) of extra-PTB.

Total cases according to category are as follow :

i) 15,265 (95.9%) new case;
ii) 647 (4.1 %) re-treatment cases :
- 406 relapse cases;
- 175 treatment after interruption cases;
- 20 treatment after failure cases; and
- 46 re-treatment of extra PTB cases.

Sabah and FT Kuala Lumpur have recorded TB notification rate for TB (all types) more than 100/100,000 population while for infectious type of TB, Sabah and Kelantan have recorded the highest rate of more than 40/100,000 population and Pahang and Selangor have recorded the lowest rate of less than 20/100,000 population repectively (Figure 19).

In recent WHO report it was estimated that countries with intermediate TB burden will be reporting the proportion of type of TB cases as 60:30:10 for PTB smear positive, PTB smear negative and extra PTB. In Malaysia, the proportion for 2003 are 52.2%:38.3%:9.5% respectively (Figure 20).

FIGURE 19
Notification Rate of TB by States, Malaysia, 2003

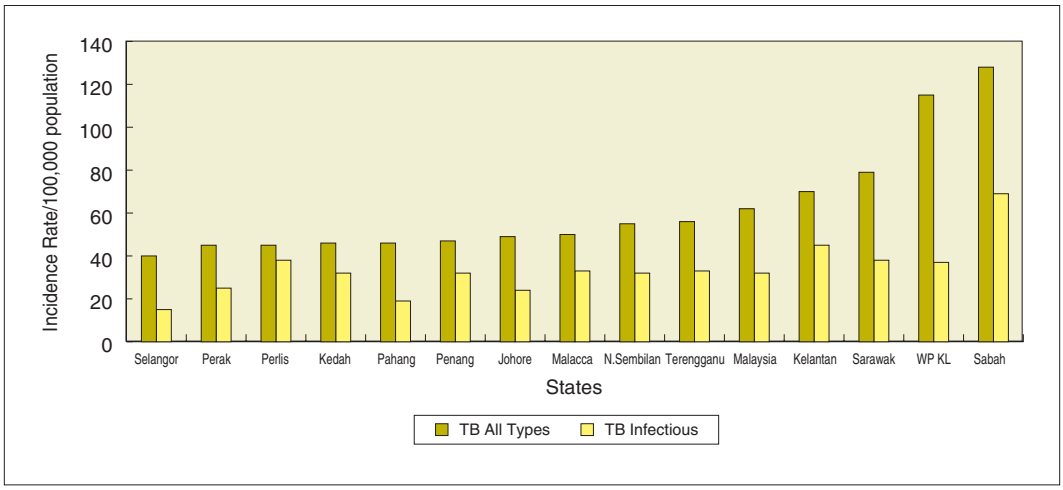
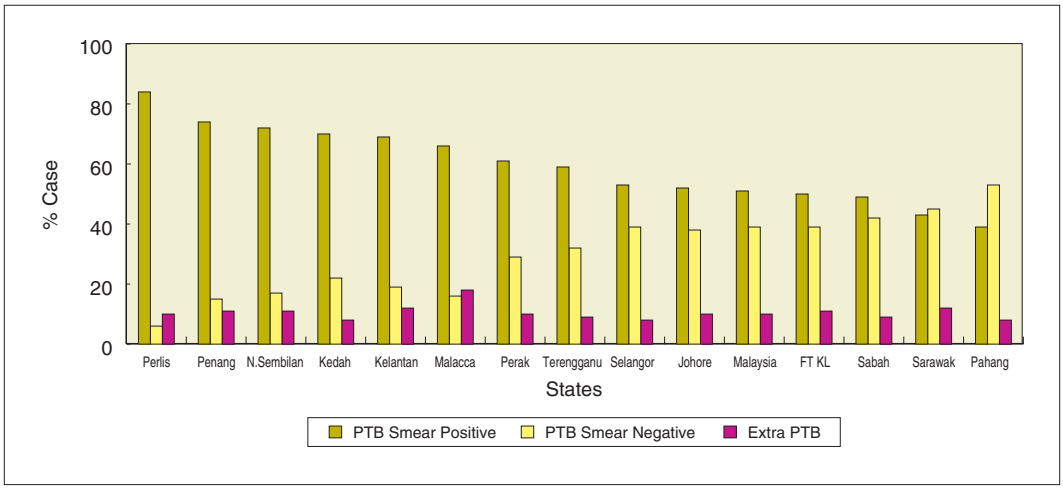


FIGURE 20
TB Diagnosis Category by State, Malaysia, 2003



A total of 10,801 (68%) TB cases were males. Majoriti of cases (55%) were among adult in the age range 25 - 54 years (Table 9).

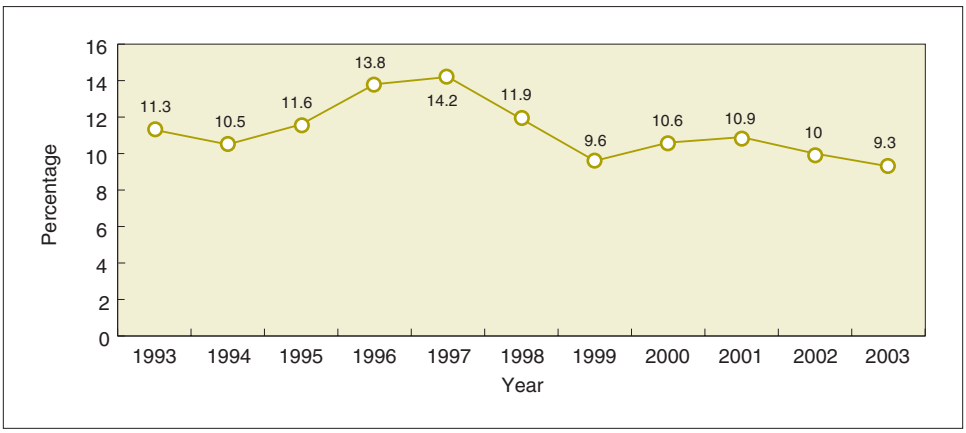
A total of 1,471 (9.3%) cases were reported among foreigners and the number have decrease slowly for the past 3 years (Figure 21).

294 TB cases has had HIV infection before diagnosis of TB have been made while 645 cases were diagnosed to be HIV positif after diagnosis of TB have been made. Therefore the number of TB/HIV cases were 939 (5.9%) out of the total reported TB cases (Figure 22).

TABLE 9
Number of Cases by Age and Gender, Malaysia, 2003

Age Group (Year)	Male	Female
0 - 14	219	199
15 - 24	1,244	985
25 - 34	2 ,087	1,066
35 - 44	2,165	885
45 - 54	1,883	698
55 - 64	1,511	617
Above 65	1,596	619
No Information	96	42
Total	**10,801**	**5,111**

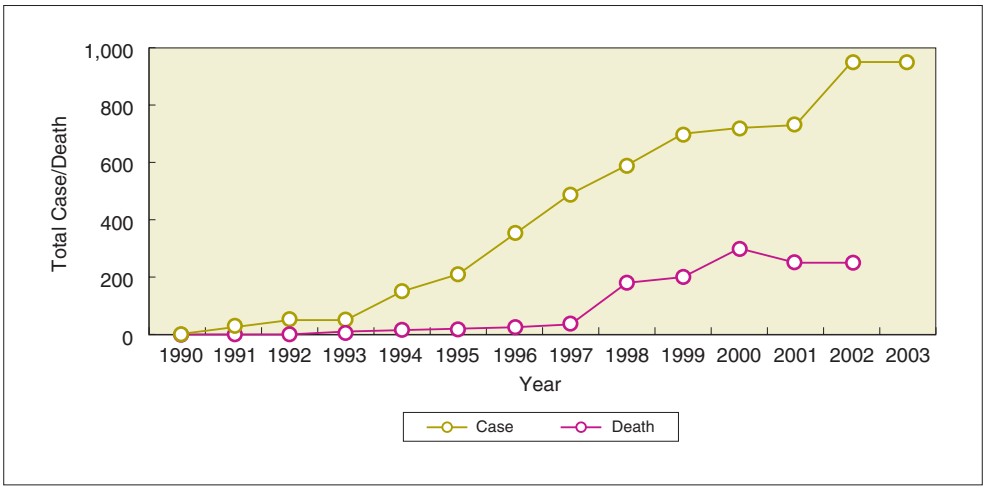
FIGURE 21
Percentage of TB Cases Among Foreigners, 1993-2003



DOTS strategies were introduced in Malaysia since 1999. It has 5 component mainly :

i) Government commitment to sustained TB control activities.
ii) Case detection by sputum smear microscopy.
iii) Standardized treatment regimen of six - eight months for at least all confirmed PTB sputum smear +ve cases, with directly observed treatment (DOT) supervision for at least the intensive phase.
iv) A regular, uninterrupted supply of all essential anti TB drugs.
v) A standardized recording and reporting system that allows assessment of treatment outcomes of each patient and of the TB control programme overall.

FIGURE 22
The Trend of TB/HIV Cases & Death, 1990-2003



With the implementation of TBIS in 2003, we were able to evaluate the DOTS strategies especially DOT practices. By end of 2003, 10,788 patient were able to complete their intensive phases. 10,043 (93.1%) patient were given treatment supervision (DOT). All the states were able to achieve DOT activities target for intensive phase more than 85% except Selangor.

Throught 2003, 43,592 contacts were examined. The average contacts examination were 2-3 persons. The figures were smaller than the previous year. Out of the total contacts, 467 (1.1 %) were found to have TB.

2 qualtiy indicators were identified under the TB control programme. They are :

i) Percentage of symptomatic sputum examination (targeted for 2010) :
   - hospital (15%);
   - health clinic (10%).

   The target cannot be verified because it was not captured in TBIS reporting system.
ii) Sputum Conversion Rate (SCR).

For, the sputum coversion rate was 87%. However, 4 states did not achieved the target set which are Perlis (84.8%), Perak (77.5%), Pahang (74.7%) and Negeri Sembilan (54.3%).

Cohort analysis was done for all TB cases registered throughout the year 2002.

i)	Total PTB sputum smear positive cases	-	7,958
ii)	Total cases analysed	-	7,424 (93.2%)

iii) Treatment outcomes :

- Completed treatment - 5,619 (75.7%)
- Defaulter - 825 (11.1%)
- Died - 583 (7.9%)
- Others - 397 (5.3%)
  (change diagnosis, transfer and others)

Generally, there were an increase of 10% TB cases for 2003 compared to previous year. This also followed by an increase of TB notification rate for TB of forms and infectious forms. The findings were expected after the implementation of systematic and comprehensive reporting system i.e. TBIS in 2003.

Notification rate for TB were still high i.e. 63.2 (TB all forms) dan 33.2 (TB infectious forms). To achieve target set for the National TB Control Programme, commitment and continuous effort in the control of TB from all parties especially health managers at the states and district were greatly needed. National Operational Plan for TB Control 2002 - 2006 need to be improved from time to time. Other newer approach need to be introduced to strengthen the National TB Control Programme.

Food Quality Control

VISION

TO uphold the nations integrity by ensuring safe food through shared responsibility and accountability on the basis of effective tripartite management towards Vision 2020.

PROGRAMME OBJECTIVES

General

To protect the public against health hazards and fraud in the preparation, sale and use of food, and for matters incidental thereto or connected therewith.

Specific Objectives

i) To ensure food is processed, stored and handled in safe and sanitary manner.

ii) To ensure that food sold are :

- Free from contamination and non permitted additives;
- In compliance with the required standards in the food legislation; and
- Labeled and advertised in a clear and not misleading manner

iii) To ensure food imported into this country is safe and complies with the prescribed food standards and regulations;

iv) To ensure food exported from this country complies with the food regulatory standards of the importing country;

v) To ensure the public receives adequate information on food safety and quality.

PROGRAMME STRATEGIES

i) Promulgate and update food legislation, codes of practices and guidelines.
ii) Monitoring, surveillance and enforcement of local and imported food.
iii) Tackle food safety problems at source.
iv) Inculcate good food handling and hygienic practices.
v) Carry out research and studies on food safety.
vi) Assist small and medium size food industries (SMIs).
vii) Coordinate and collaborate with other relevant agencies at the national and international level.
viii) Strengthen the implementation of Quality Assurance Programme.

RESOURCES DEVELOPMENT

Human Resources

In 2003, there were 51 posts in the Food Quality Control Division, of which 42 had been filled with 9 posts still vacant.

SURVEILLANCE AND RESEARCH SECTION

Surveillance and Research

i) Publication of surveillance report 2001/2002.
ii) Organize jointly with JICA a 2 $^{1}/_{2}$ days Food Contaminants Conference from 28-29 April 2003 which was attended by 178 participants comprising of State Food Technologists, Food Technologists from Laboratories, District Medical Officers of Health as well as District Assistant Environmental Health Officers and other related agencies.
iii) Conducted surveillance for 2003 and plan programme for 2004.
iv) Preparation of annual report for activity.

Food Safety Risk Analysis

i) Organise Meeting of the Committee on Food Safety Risk Analysis on 14 January 2003.
ii) Organize the National Risk Assessment Project.
iii) Conducted Echo-Training on "Chemical Risk Assessment – Part I" from 1-4 July 2004 at Genting Highlands and "Training on Quantitative Microbiological Risk Assessment" on 15-19 December 2003.
iv) Conducted a Workshop on Preparation of Risk Management Guideline from 3-5 September 2003.

National Food Safety and Dietary Council

4 Meetings of the Main Committee were held on 8 April, 6 June, 8 July and 18 November 2003.

Total Contamination Study in Malaysian Diets Project

Meeting on preparation of project protocol "Total Diet Study Contaminants" was held on 16-18 December 2003 together with Prof. Dr. Ishiwata (JICA expert).

MS ISO 9002 : 2000

Conducted the "MS ISO 9002:2000 Document Preparation Meeting" for BKMM on 1-4 April 2003 at Bagan Lalang, Sepang.

INDUSTRY SECTION

Function

To promote food safety in the food industry through advisory services and cooperation with the industry to ensure the success of food safety activity.

Activities

i) ***Export Control***

EU Registration Number
Since 1996, the European Union had appointed Malaysia as a competent authority in food safety through HACCP certification in order to obtain registration approval such as European Union (EU) Registration Number for the purpose of export of fish and fish based products to the EU. To date, there are 64 companies registered with the EU through BKMM. Annual reports on the monitoring programme for drug residues in fish and fish-based products were prepared to comply with the states of competent authority as required by the EU.

ii) ***Certification***

HACCP Certification Scheme
The HACCP Certification Scheme was introduced by the Division at the end of 1997 in view of the mandatory HACCP certification required from companies exporting fish and fish-based products to the European Union and United States of America. As at December 2003, a total of 126 applications were received and 76 were HACCP certified. In 2003 alone, 70 HACCP certifications

were granted comprising of 13 new certifications and 57 renewals. As at 2003, 12 HACCP third party certification auditors were registered in the KKM "pool of auditors" and 11 surveillance auditors were officially appointed by KKM. BKMM also cooperated with MARDI to conduct HACCP courses and training such as Pre-requisite HACCP, HACCP implementation and HACCP Verification and Auditing three times a year.

In addition to complying with requirements as a food exporting country, the scheme also ensures the safety of food produced. KKM had drawn up an action plan for the implementation of HACCP in 3 phases from 2005 to 2015 under the National HACCP Policy to achieve this objective.

iii) ***Export Control***

Corresponding with the rapid expansion of the food industries in Malaysia, there is a tremendous increase in the food export activities in order to fulfill the varied requirements of the importing countries. To fulfill these requirements, this section issues various certificates for export purposes namely Health Certificates, Free Sales Certificates, Non Genetically Modified Food – Non Starlink Corn) in relation to food safety and also other certificates as and when required by importing countries. The increase in the number of certificates issued as in the tables shows the rapid expansion of the export trade.

Certificates	2001	2002	2003
Health Certificate	6,950	7,525	12,255
Free Sales Certificate	42	252	481
Non GMF - Non Storlink Corn	20	21	33

Source : Food Quality Control Division

Food Handlers Training

As at November 2003, a total of 150,000 food handlers were trained in 78 institutes accredited to BKMM. 230 trainers were previously accredited by BKMM with another accredited in 2003. To qualify as trainers trained by KKM, one had to sit for a Screening Examination and attend the Trainers Compulsory Course. In 2003, 43 candidates had sat for the Screening Examination with 28 successfully attending the Trainers Compulsory Course which was held twice a year.

Development of Small and Medium Industries

KAP study among Small and Medium Industries in relation to good hygienic practices. The objective of the study was to understand the status of Small and Medium Industries in relation to good hygienic practices as well as to access their

knowledge and competency in implementing guidelines for good hygienic practices, prior to implementing the proposed certification relevant to the industry. 10 states and 30 to 100 industries in each state were involved in the study. The study was conducted in 2 stages, ie pre-study in 2003 and post-study in 2004. Training, briefing, discussions and seminars on good hygienic practices were also conducted.

Guidelines

The implementation of the guidelines is intended to provide reference materials for the food industry in order to increase their knowledge on hygienic practices and food safety. Various guidelines such as the following were prepared :

No.	Guidelines
1.	Malaysian Certification Scheme For Hazard Analysis and Critical Control Point (MCS1, MCS2, MCS3, MCS4 – English and Malay version)
2.	*Kantin Sekolah*
3.	Guidelines Cook Chill Catering
4.	Guidelines Mass Catering
5.	Guidelines Hospital Catering
6.	*Amalan Kebersihan yang Baik Untuk Industri Makanan Skala Kecil dan Sederhana versi Bahasa Inggeris dan Bahasa Malaysia*
7.	*Kod Amali Udang Sejuk Beku*
8.	*Garispanduan Kebersihan Kedai Makan dan Restoran*
9.	*Kod Amali pemprosesan dan penapisan minyak makan kelapa sawit palm olein dan palm stearin*

Involvement of Officers from the Section in Special Committees

i) ***Department of Standard Malaysia (DSM)***

- The Working Group on General Requirement for Bodies Operating Assessment and Certification of HACCP.
- Inspection Body.

ii) ***Ministry of Agriculture (MOA)***

- National Aquaculture Committee.
- Inter Agency Steering Committee on Food Production Farming Sub-Sector.

iii) ***Ministry of International Trade and Industry (MITI)***

- Committee to develop Malaysia as a regional hub for HALAL products.
- *Jawatankuasa kabinet mengenai Daya Saing (CNCC) berhubung dengan Agriculture Processing Industry.*

iv) ***JAKIM***

Halal certification advisory committee

ENFORCEMENT SECTION

Function

Plan, review and co-ordinate all enforcement activities based on the Food Act 1983 and Food Regulations 1985.

Activities

i) ***Food Sampling***

Sampling was carried out to ensure food prepared and sold in Malaysia are safe and comply with the provisions in the Food Act 1983 and Food Regulations 1985.

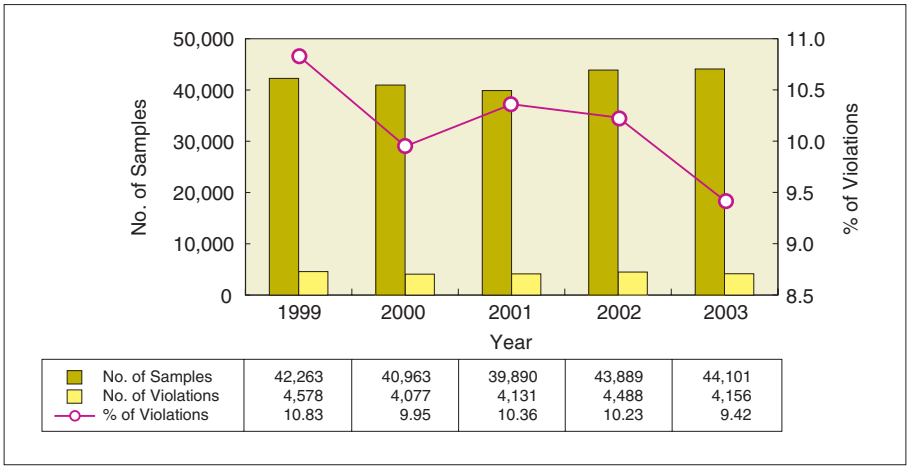
The sampling target for the year 2003 was 40,000 which was based on the norm established in the National Work Plan (NWP) of 2 samples/1000 population fixed by the Food Quality Control Division. The parameters of analysis of these samples were divided into Microbiology (40%), Chemical (55%), Physical (5%).

A total of 44,101 food samples were taken for analysis in 2003, out of which 4,156 (9.42%) contravened the Food Act 1983 and Food Regulations 1985. The number of offenders fined were 549 cases with fines amounting RM609,981.00 were collected. There was no imprisonment for the offenders. There were 88 cases that were Acquitted Not Amounting to Discharge and 13 cases that were Discharged and Acquited.

ii) ***Inspection and Closure of Food Premises***

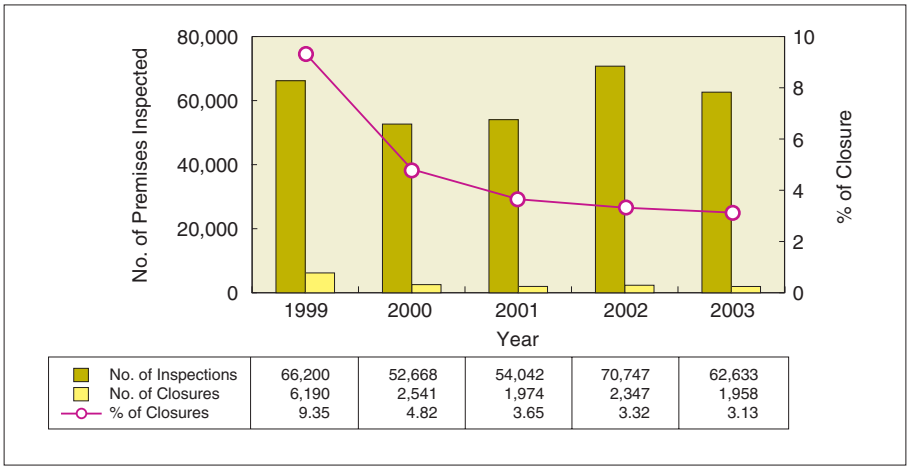
The inspection of premises is a routine activity to ensure the sanitation and hygiene of premises and to ensure food safety. In 2003, a total of 61,879 premises were inspected where 2,471 premises were closed under provisions provided in Section 11 of the Food Act 1983.

FIGURE 1
Food Sampling, 1999-2003



	1999	2000	2001	2002	2003
No. of Samples	42,263	40,963	39,890	43,889	44,101
No. of Violations	4,578	4,077	4,131	4,488	4,156
% of Violations	10.83	9.95	10.36	10.23	9.42

FIGURE 2
Food Premises Inspection and Closure, 1999-2003

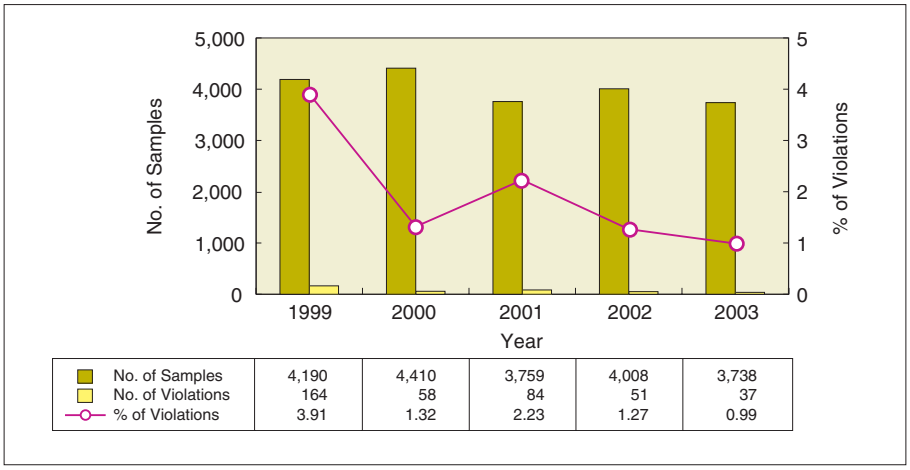


	1999	2000	2001	2002	2003
No. of Inspections	66,200	52,668	54,042	70,747	62,633
No. of Closures	6,190	2,541	1,974	2,347	1,958
% of Closures	9.35	4.82	3.65	3.32	3.13

iii) ***Pesticide Residue***

In the year 2003, a total of 3,738 samples were taken for vegetables and fruits for pesticide residue analysis. Out of these 3,738 samples, 2,741 samples were for vegetables and 997 samples were for fruits. Results of analysis indicated only 37 samples (0.99 %) of vegetables and fruits were found to be above the Maximum Residue Limits (MRLs) of Schedule 16 (Pesticide Residue), Regulation 41, of the Food Regulations 1985.

FIGURE 3
Sampling of Vegetables and Fruits for Pesticide Residue, 1999-2003



	1999	2000	2001	2002	2003
No. of Samples	4,190	4,410	3,759	4,008	3,738
No. of Violations	164	58	84	51	37
% of Violations	3.91	1.32	2.23	1.27	0.99

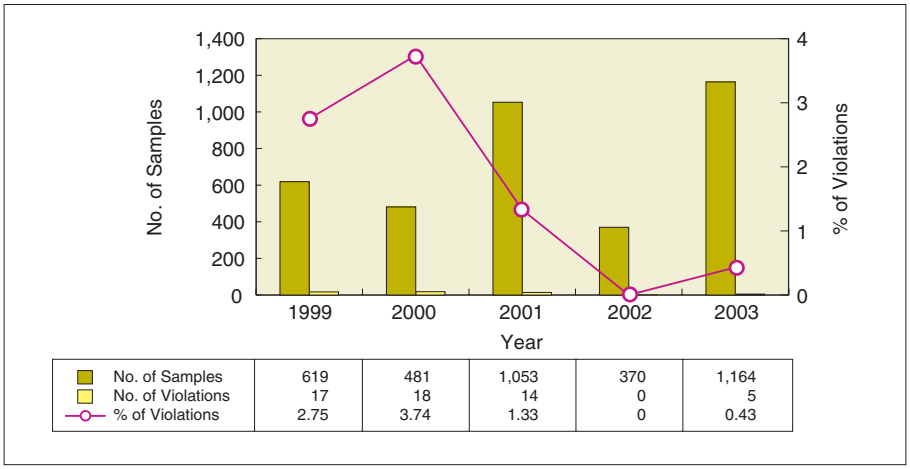
iv) ***Veterinary Drug Residue***

Farmers continue to abuse the use of veterinary drug although the Food Regulations 1985 prohibits the use of Beta-Agonist, Nitrofuran and Chloramphenicol in Food.

➻ *Nitrofuran*

The Ministry of Health is monitoring the problem related to the abuse of nitrofuran. A total of 1,164 samples of chicken were taken for analysis with 5 (0.43%) contraventions while 43 samples of eggs were taken and none were found to contravene the Food Regulations 1985.

FIGURE 4
Sample for Nitrofuran in Chicken, 1999-2003



	1999	2000	2001	2002	2003
No. of Samples	619	481	1,053	370	1,164
No. of Violations	17	18	14	0	5
% of Violations	2.75	3.74	1.33	0	0.43

Chloramphenicol

Samples were taken to trace the use of Chloramphenicol in chickens and fish. A total of 922 samples of chicken were taken with 6 (0.65%) violations and 298 samples of fish taken with 31 (10.4%) violations.

FIGURE 5
Sample for Chloramphenicol in Chickens, 2001-2003

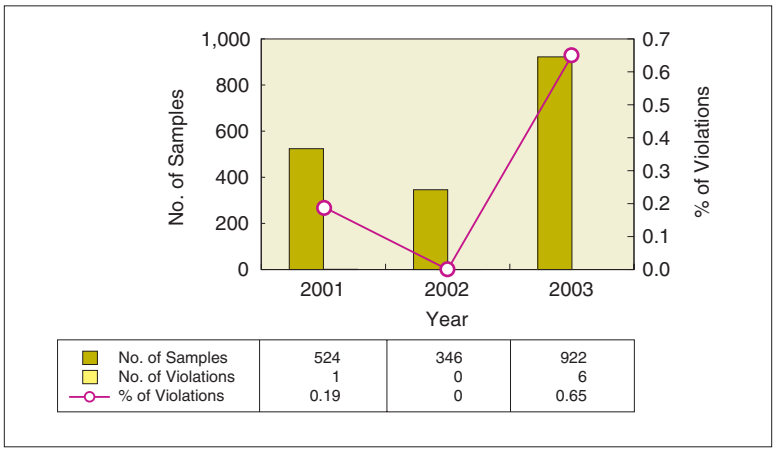
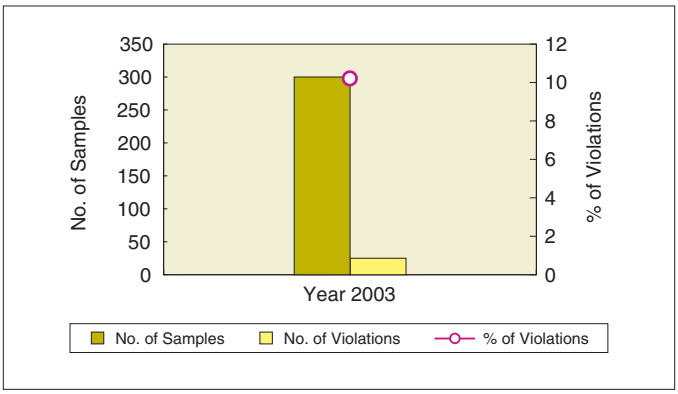


FIGURE 6
Sample for Chloramphenicol in Fish, 2003

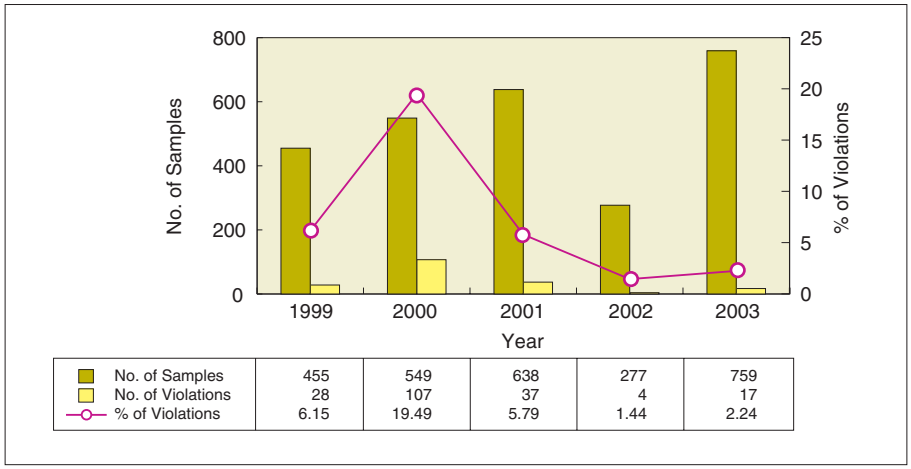


Beta-Agonist

In 2003, a total of 759 samples were taken for analysis of beta-agonist. This includes pork (364 samples), beef (306 samples), mutton (79 samples) and duck meat (10 samples). The abuse of beta-agonist has been ongoing since 1996 even though the Ministry of Health had been

carrying out enforcement through routine checks as well as operations. However, the detection of beta-agonist had been reduced. There are only 17 (2.24%) violations with 13 in pork and 4 in beef.

FIGURE 7
Monitoring of Beta-Agonist, 1999-2003



	1999	2000	2001	2002	2003
No. of Samples	455	549	638	277	759
No. of Violations	28	107	37	4	17
% of Violations	6.15	19.49	5.79	1.44	2.24

v) ***Import Control***

The control of food safety in imported food is an important activity of the Food Quality Division of the Ministry of Health. The official launching of the FoSIM system by the Health Minister in August 2003 was another milestone in the effort to improve the standardization of the food quality control activities in the entry points. This system is running in the states of Selangor and Johor and will be implemented in the other states when the Customs Information System is in place. In the year 2003, there was only the BSE crisis which resulted in the halting of imported beef from the infected countries.

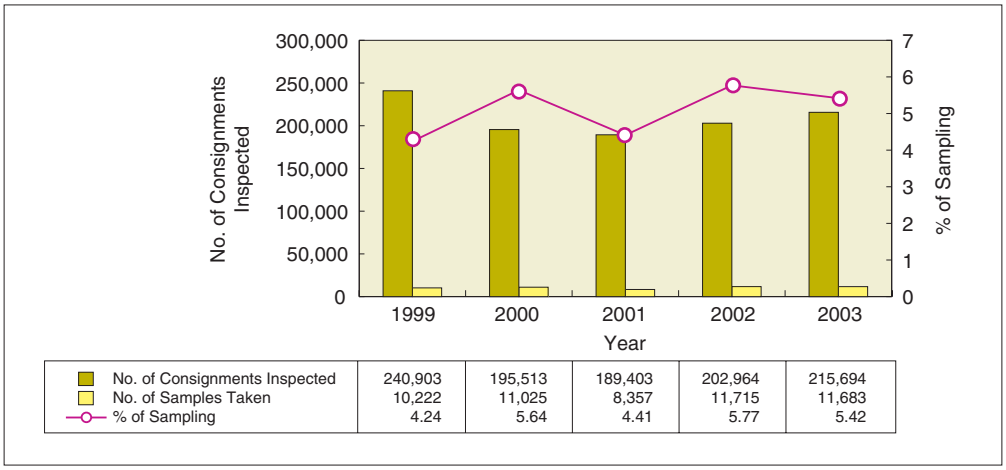
Achievements :

The food quality control activities of the entry points are based on the following aspects :

- Physical inspection :
  Land Route : 70% of imported food
  Sea route : 40% of imported food
  Air route : 35% of imported food
- Food Sampling. 10% of the inspected food.
- Hold, test and release are carried out for black listed food items.

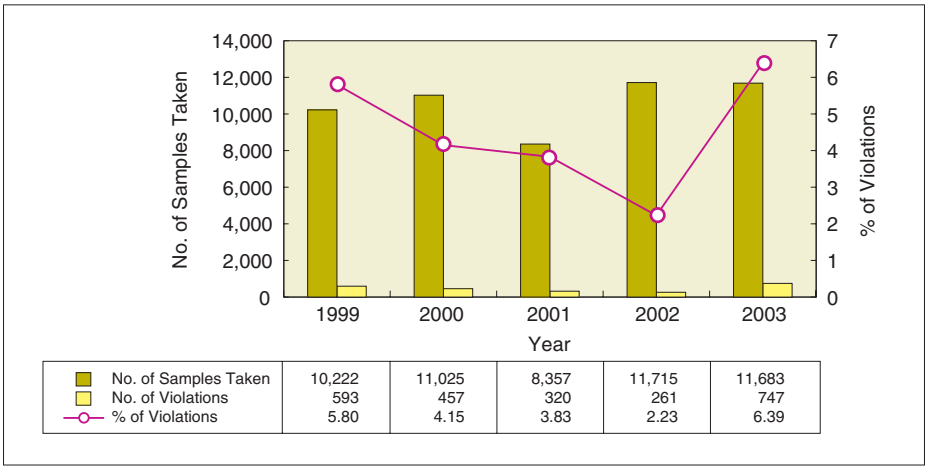
In the year 2003, a total of 215,694 food consignments were inspected and 11,683 samples were taken for analyzing. 747 samples or 6.39% of the analyzed samples were found to positive.

FIGURE 8
Import Control Activities, 1999-2003



	1999	2000	2001	2002	2003
No. of Consignments Inspected	240,903	195,513	189,403	202,964	215,694
No. of Samples Taken	10,222	11,025	8,357	11,715	11,683
% of Sampling	4.24	5.64	4.41	5.77	5.42

FIGURE 9
Violation of Imported Food, 1999-2003



	1999	2000	2001	2002	2003
No. of Samples Taken	10,222	11,025	8,357	11,715	11,683
No. of Violations	593	457	320	261	747
% of Violations	5.80	4.15	3.83	2.23	6.39

vi) ***Licensing***

➵ *Natural Mineral Water*

The production and importation of natural mineral water in this country is licensed under Regulation 360A of the Food Regulations 1985. From the time this Regulations is enforced until December 2003, 41 sources of natural mineral water is being licensed with a collection of RM246,000.00.

From the 41 sources of natural mineral water, 11 are from foreign sources and 30 are from local sources.

➵ *Packaged Drinking Water*

Regulation 360B, Food Regulations 1985 was gazetted in the year 2000 whereby the sources of packaged dringking water need to be licensed. Since 2003, a total of 81 sources of packaged drinking water was approved.

TABLE 1
Total Licences of Natural Mineral Water Issued According to State and Amount Collected from Year 1999 to 2003

State	Natural Mineral Water		Total	Total Collection (RM)
	Local	Imported		
Perlis	1	0	1	6,000.00
Kedah	4	0	4	24,000.00
Penang	1	0	1	6,000.00
Perak	2	0	2	12,000.00
Selangor	4	9	13	78,000.00
Negeri Sembilan	4	0	4	24,000.00
Malacca	1	0	1	6,000.00
Johore	8	1	9	54,000.00
Pahang	3	0	3	18,000.00
Sabah	1	0	1	6,000.00
Sarawak	1	0	1	6,000.00
Kuala Lumpur	0	1	1	6,000.00
Total	**30**	**11**	**41**	**246,000.00**

FIGURE 10
No. of Licences Issued for Natural Mineral Water from Year 1993 to 2003

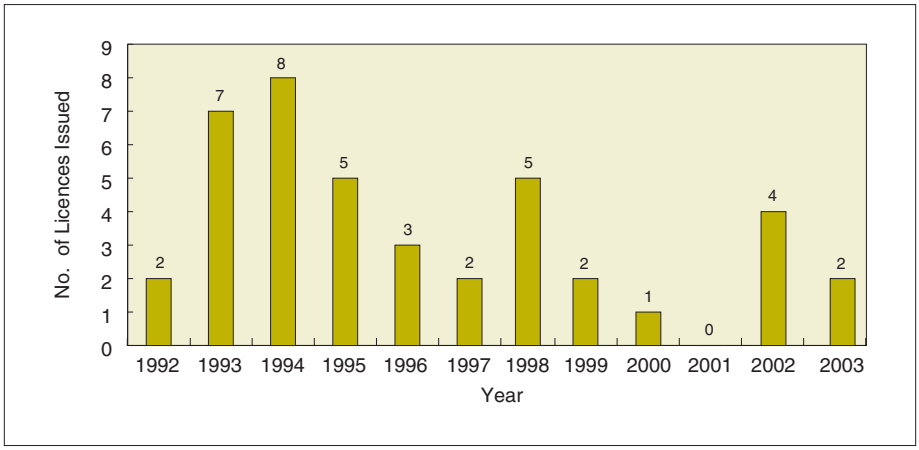


TABLE 2
List of Countries of Foreign Sources for Imported Natural Mineral Water

Country of Origin	Total
Indonesia	2
Nepal	1
Australia	1
France	3
Italy	2
United Kingdom	1
Canada	1

STANDARD DEVELOPMENT SECTION

Function

To review and update the 1985 Food Regulations to ensure that the regulations are harmonized with Codes and legislations in other countries.

Activities

Amended 1985 Food Regulations

The 1985 Food Regulations was amended through P.U.(A) 88 dated 31 March 2003.

1985 Food Regulations Amendment Draft

Amendments to the 16th Schedule was presented to the Legal Advisor of the MOH. Amendments included the maximum level of pesticide residues to be harmonized with the 1974 Pesticides Act. Only pesticides registered under the Act are allowed for use in Malaysia. Under the Codex Allimentarius, imported products containing pesticide residues below the minimum level are allowed.

Other Draft Legislations

Other draft legislations prepared were :

i) Food Analysts Bill
ii) Food Analysts Regulations
iii) Food Hygiene Regulations
iv) Imported Food Regulations
v) Food Irradiation Regulations

The legislations will be updated before being presented to the Legal Advisor.

FOOD LEGISLATION SECTION (LABEL)

Function

i) To provide technical advisory services to the industry on nutrition labelling, advertising and nutritional claims based on the 1983 Food Act and 1985 Food Regulations.
ii) To classify food products based on the decision tree for "food drug interface" products.
iii) To revise and amend the 1985 Food Regulations relating to labelling of food products.

Activities

i) Vetting of and provide feedback to the food industry which seeks advisory services on the labelling of their products. These services are charged RM1,000.00 for each product label.
ii) Classification of food products according to the relevant standards under the 1985 Food Regulations.
iii) Produce the "Guide to Nutrition Labelling and Claims" booklet as a guideline to the Nutrition Labelling Regulations enforced on 1 March 2004.

iv) Discuss applications and propose amendments on nutrition labelling related to issues to the Nutritional Labelling Working Committee which comprises of government agencies and Federation of Malaysian Manufacturers'.

v) Discuss applications and propose amendments on nutrition labelling related issues to the Dietary Working Committee/Health Claims/Advertising which comprises of various related government agencies.

vi) Provide technical advise on labeling and CODEX to the Baby Formula Code of Ethics Committee.

vii) Provide briefings and road shows relating to general labelling, labelling regulations and nutritional claims.

Food Labelling

i) ***Labelling Advisory Services***

From 15th June 2002, the Food Quality Control Division had imposed charges of RM1,000.00 on the industries or importers which seek its advisory services on labeling. Prior to this, the services were provided on a voluntary basis and is free of charge. Nutrition labels were required to comply with the Food Act 1983 and Food Regulations 1985. Since its inception, 445 labels had been accessed by the Labelling Working Committee.

ii) ***Nutrition Labelling and Claims Regulations***

This new regulation was gazetted on 31 March 2003 and was supposed to be enforced from 1st September 2003. However, enforcement was postponed to 1st March 2004 to provide the industry with sufficient time to make the necessary changes on their nutrition labels to comply with the regulations. In addition, 5 articles on nutrition labelling was published in newspapers and magazines to increase consumer awareness on the new regulations. A series of briefings and road shows were also conducted for enforcement officers and the food industries. A total of 23 briefings were conducted throughout the year.

iii) ***Food Drug Interface Products Classification***

In view of the various ambiguous products in the market which could be under the jurisdiction of either the Food Quality Control Division or the National Pharmaceutical Control Division, the Food Drug Interface Products Classification Committee which comprises of members of both divisions decided to use a system based on the decision tree to classify the products.

PROJECT FOR STRENGTHENING OF FOOD SAFETY PROGRAMME IN MALAYSIA

The "Project for Strengthening of Food Safety Programme in Malaysia" is a technical cooperation programme between the governments of Malaysia and Japan. The project was jointly implemented by the Ministry of Health and JICA. This joint 3-year project was launched on 1st June 2002 and ended on 31st May 2004.

The objective of the project is to enhance food safety in Malaysia by reducing health hazards in the consumption of food and to enhance consumer confidence on food safety in Malaysia.

The implementation of activities in the project is based on the master plan that was discussed and agreed to by the two parties. To enhance food safety in Malaysia, emphasis is placed on the following areas :

i) Strengthen the management of food safety.
ii) Enhance competencies in food analysis.
iii) Enhance food inspection mechanisms and technical assistance.
iv) Enhance food safety promotions.

Project Progress

Throughout the project, two specialists from Japan were assigned to the Food Quality Control Division, Ministry of Health to supervise and monitor the project. In addition, a microbiologist was assigned on a long-term basis at the Public Health Laboratory, Sungai Buloh to assist in enhancing the competency of food microbiology analysis. 19 other specialists in various food safety fields from Japan had also been assigned on a short term basis to Malaysia. The specialists assisted in enhancing competencies in food analysis in the areas of pesticide residue analysis, veterinary drug analysis, GMF analysis and microbiology analysis. The secondment and placing of specialists on a short-term basis are to ensure that their expertise and knowledge would be shared through technology transfer with local analysts in the laboratories.

Six officers from the Ministry were also assigned to Japan under the project. Their secondment will enhance their knowledge and sharpen their expertise in the identified fields. As a follow-up to their stint in Japan, the officers will also participate in an "echo-training" courses to share their experiences with fellow analysts.

From 15th to 24th January 2003, 5 members of the Japanese Consultation Team visited Malaysia to monitor the project interim progress and implementation. The visitors conducted discussions and visited laboratories and entry points with officers from the division. As indicated in the minutes of meeting and evaluation report, the visitors were satisfied with the progress of the project and the commitment displayed by both parties.

Conclusion

The issue of food safety is wide-ranging from the farm to table and poses a challenge to the Food Quality Control Programme. The division remains committed to ensuring that all activities undertaken are effective and that all food marketed are safe for consumption. The division continuously strives to enhance and strengthen its infrastructure and programmes. One such initiative was to cooperate with JICA to enhance the food safety programme, particularly in upgrading food analysis competencies and inspection of imported food at entry points through its IT Networking System. KKM is confident that this joint project will successfully achieve its objectives.

CODEX AND INTERNATIONAL SECTION

Functions

i) Responsible as the Codex Contact Point Malaysia and National Codex Secretariat Committee.
ii) Secretariat for the 13 National Codex Sub-committee, three Codex Taskforces and a Codex Working Group.

Activities

International Level

Malaysia had played an active role in international Codex meetings. In 2003, 21 international Codex meetings were held and Malaysia had attended 15 of them. A total of 33 Codex meetings at the national level were held to prepare for and follow-up with the international Codex meetings.

The 24th Codex Alimentarius Commission (CAC) Session held in Geneva on 2nd July 2001 saw the appointment of Malaysia as the Codex Coordinator for Asia from 2001 – 2003. In this capacity, Malaysia successfully hosted the 13th Codex Coordinating Committee for Asia Session from 17th to 20th September 2002 at the Istana Hotel, Kuala Lumpur. In addition, Malaysia also attended the Executive Committee meetings of the CAC as observer and coordinated Codex Issues of importance to Asian countries.

ASEAN

The division had successfully organized the ASEAN Expert Group on Food Safety Working Committee meeting from 22nd to 24th December 2003 at the Pan-Pacific Hotel, Kuala Lumpur. Agencies related to food safety attended the meeting. The objective of the meeting was to discuss the status and role of Malaysia in "capacity

building in food safety in ASEAN" schedule, in addition to completing the "Draft ASEAN Food Safety Improvement Plan" in the context of status, and action plan. The meeting also aimed to enhance the roles of agencies related to food safety in the country. In 2003, several meetings were held.

ICT UNIT

Functions

i) Plan, coordinate and maintain the information communication technology (ICT) utilized in the implementation of food quality control activities.
ii) Plan, coordinate and assist in ICT training.

Activities

i) ***Food Safety Information System of Malaysia (FoSIM) Project***

- Coordinate and prepare the codes used in FoSIM such as food codes, analysis code, HS codes, user group codes, treatment codes etc.
- Coordinate and prepare user Login ID registration to all FoSIM users such as officers, agents and food importers.
- Input information on entry points, laboratories, state, agent, food importers etc.
- Update and maintain the information reference and hyperlinks in FoSIM.
- Coordinate and validate the FoSIM User Manual to improve and complete the contents.
- Coordinate and assist in the application training programmes, network and hardware maintenance for all FoSIM users.
- Validate and check FoSIM application to ensure that it is free of bugs and system errors.
- Monitor and study the FoSIM network and to enhance access.
- Coordinate and implement the FoSIM mock run which involved KLIA Entry point, Health Department Klang Port (North, south and west), Tanjung Pelepas Port, 2nd Link, Pasir Gudang Port, Tanjung Putri, Bukit Kayu Hitam, MKMM Selangor, MKMM Laka Temin, MKMM Johor and BKMM.
- Coordinate and monitor implementation run at KLIA Entry point, Health Department Klang Port (North, south and west), Tanjung Pelepas Port, 2nd Link, Pasir Gudang Port, MKMM Selangor, and MKMM Johor.
- Coordinate the FoSIM launching ceremony on 7th August 2003 by the Minister of Health.
- Coordinate and assist in application and data backup process.

- Coordinate and maintain FoSIM network and hardware throughout the country.
- Coordinate and conduct dialogue sessions and promote the use of FoSIM with agents and food importers.

ii) ***Food Quality Control Division***

- Update and maintain contents in the website.
- Evaluate and design the layout of the website.

LABORATORY SECTION

Functions

i) Plan for the development of Food Quality Control Laboratories (FQCL) under the Ministry of Health throughout Malaysia.
ii) Supervise all activities and services provided by FQCL.
iii) Plan, coordinate and assist in the training of technical officers of FQCL.

Activities

i) ***Planning and Management for Food Quality Control Laboratories***

Plan, coordinate and prepare the 2004/2005 new policies

- Enhance and strengthen food analysis capacity based on 'technology transfer' from JICA project in food laboratories Ministry of Health.
- Set-up and commissioning Chemical Contamination Analysis services and Water and Packaged Drinking Water samples.
- Set-up and commissioning Drug Residues Contamination in food analysis services.
- Set-up and commissioning Quality Control Units in National Public Health Laboratories.
- Set-up and commissioning Food Packaging Services in the food section, National Public Health Laboratory in Johor Baru.
- Set-up and commissioning mycotoxin in food services in the food section, National Public Health Laboratory, Ipoh.

ii) A total of 39 Food Technologists posts and various grades of Assistant Food Technology posts were approved under the *"Dasar Baru"*.
iii) Streamline the development and implementation of the laboratory module in FoSIM including training, trial run and analysis code preparation.

iv) Streamline and coordinate all activities under JICA to enhance the competency or laboratory services, particularly in the areas of pesticide residue, pathogen detection via the PCR technique, mycotoxin, veterinary drugs residue and nutrients.

v) Manage, allocate and monitor the budget allocation of RM839,860 under OA 30000 and RM2,190,000 under OA 20000 for all food laboratories.

vi) Plan and coordinate the development of food laboratories. The new MKMM Miri was allocated RM163,000 for the purchase of equipment to commence operations in the third quarter of 2003. Additional human resources were provided for MKMM Laka Temin and MKMM Perlis to facilitate the implementation of inspection bays at the Bukit Kayu Hitam entry point. The MKMM Johor Baru was consolidated with MKA Johor Bahru to optimize the utilization of resources.

vii) Enhance laboratory quality systems through the implementation of ISO/IEC 17025 and five laboratories were accredited by the Department of Standards, Malaysia. Other food laboratories pending accreditation are laboratories in Laka Temin, Penang, Terengganu, Kelantan, Kota Kinabalu, Pahang, Ipoh and Sandakan.

viii) Coordinate and monitor the cooperation with the Doping Control Centre, USM as well as development of the Sub-Committee on Food Analysis which is chaired by the Department of Chemistry Malaysia to optimize analytical services.

MKMM Supervision

i) ***Audit***

To ensure that quality systems were implemented as intended, audits were conducted at MKMM Kota Kinabalu, Selangor, Kelantan, Perlis and the National Public Health Laboratories. Two qualified auditors from BKMM and the identified food laboratory were involved in each audit.

ii) ***Proficiency Testing***

A series of proficiency testing at the international and national levels were conducted to assess the competency of technical staff in conducting analysis, at MKMM and the Food Section, MKA. The national level proficiency test involved the following :

- Benzoic acid and ascorbic acid
- Saccharin and cyclamate
- Heavy metal
- Caffeine and
- Pesticide residues

Meanwhile, proficiency testing at the international level involved :

- Pathogens in Food, sponsored by the Ingrid Fleming Microbiology Quality Services Pty Ltd Australia.
- 7th round of the FAPAS Programme to analyse heavy metal and veterinary drugs, administered by the Central Science Laboratory, United Kingdom.

iii) ***Laboratory Reports/Output***

Monthly reports generated by the laboratories were examined to assess the achievements and performances of laboratory services. In 2003, the laboratories had analysed 33,983 food samples as compared to 33,070 in 2002. 50% were microbiology analysis samples, 49% chemical analysis samples and 1% were physical analysis samples.

iv) ***Meetings/Workshops/Visits***

As a forum to plan and discuss problems and issues related to laboratories, two heads of laboratory meetings were held. Various meetings and workshops were also conducted to discuss the following :

- Validation procedures.
- Harmonization of quality manuals and laboratory procedures.
- Use of the Food Safety Information System of Malaysia (FoSIM).
- Consolidation of MKMM Johor with MKA Johor Baru.

v) ***Technical Support***

- *Training*

  To enhance the competencies of the analysts in MKMM and MKA Food Section, training in the following areas were conducted :

  - Orientation for newly appointed Food Technologists (Laboratory) at the National Public Health Laboratory from 21st April – 13th May 2003.
  - Howard Mold Count at the Ipoh Public Health Laboratory from 1st – 3rd October 2003.
  - User training for FoSIM at Genting Highlands from 24 – 25th July 2003.
  - Detection of Genetically Modified Organism in Soy Products (Qualitative and Quantitative) from 14th – 16th July 2003.
  - Extraction for Genetically Modified Organism (Qualitative Analysis) using Magna Pure on 25th July 2003.
  - Veterinary Drug in United Kingdom from May – July 2003.

➵ *Reference Books*

To enable laboratories to easily access the information and the latest development, BKMM distributed the following reference materials for laboratory use :

- EC Directive Concerning Performance of Analytical Methods and the Interpretation of Results.
- EURACHEM/CITAC Guide Quantifying Uncertainty in Analytical Measurement (download from www.eurachem.ul.pt).
- 1983 Food Act and 1985 Food Regulations.

➵ *Information Management*

- *Primary Registry*
  To optimize the use of laboratories in Malaysia for food analysis, a primary registry of the competencies of laboratories in Malaysia was established. The inventory is updated and distributed to all State Health Departments.

- *Information Technology*
  Lab info stand alone servers are used by all MKMM to manage data on domestic food samples. FoSIM, which contains a laboratory module will also be upgraded for use in the sampling of imported food.

Health Education and Promotion

INTRODUCTION

HEALTH Education Division is one of the divisions under Department of Public Health, Ministry of Health. Established in 1968, it first started operating as Health Education Unit at the headquarters of the Ministry of Health Malaysia. Its primary function then was to publish health education printed materials for use of health staff in carrying health education activities throughout the country.

In 1993, under the New Remuneration System, the unit was upgraded to the Division of Health Education. Consequently, the scope of services provided by the division has diversified and expanded from the national level to include the state level, state hospitals, district hospitals and health clinics. The role of the Health Education Division has now shifted from publishing materials to managing health education and promotion programmes including research, training and mass media campaign. The main responsibilities of Health Education Division are now focused on planning, managing the implementation, coordinating and evaluating education and promotion programmes nationwide.

In line with the above, the services provided by the division are as follows :

i) Planning, developing, implementing and evaluating the health education and promotion programmes.
ii) Campaign management e.g. Healthy Lifestyle Campaign, health days celebration and special programmes.
iii) Production, distribution and loan of health education materials.
iv) Utilizing the mass media for health education.
v) Developing training programmes in health education and promotion.
vi) Research on health promotion.
vii) Consultancy services in health promotion.

VISION

To become a centre of excellence in health education and promotion for fostering healthy lifestyle among Malaysians so that they can achieve optimal health.

MISSION

To promote the health of Malaysians through :

i) Dissemination of accurate and relevant health information in an innovative, equitable and timely manner.
ii) Empowerment of individuals and the community so that they can act upon the factors that influence their health.
iii) Collaboration with the government and non-government agencies as well as with related private sector organizations.

ACTIVITIES AND ACHIEVEMENTS

HEALTHY LIFESTYLE CAMPAIGN 2003

The theme chosen was 'Be Healthy For Life'. The objective of the campaign was to promote a healthy lifestyle among Malaysians especially primary school students.

This campaign focuses on four elements of healthy lifestyle - Healthy Eating, Exercise and Physical Activities, No Smoking and Stress Management. Be Healthy For Life emphasises and focuses on campaigns that can be practiced by Malaysians to promote their health. This campaign also includes two main components which are, changing of habits with schools as the main setting and public awareness.

The 2003 Healthy Lifestyle Campaign's main target group was level 2 (years 4, 5 and 6) primary school children, teachers and parents. Meanwhile, the campaign also targets the general public.

Media Publications and Education Material

Various campaign media and education material have been published to support the campaign and spread the message to the society.

i) ***Health Education Printed Materials***

- For the general public: 1 poster, 1 brochure, 1 booklet published in four languages, bi-lingual table calendar and eating wheel.

- For school children: 1 wall calendar, 1 wall chart, 1 poster and 5 bi-lingual brochure (Bahasa Malaysia and English).
- A total of 3,785 million copies of printed materials on healthy lifestyle was produced for this campaign.
- Manual on main message and support campaign has been published in two languages; 20,000 in Bahasa Malaysia and 5,000 in English.
- 5,000 training module manuals were published.
- Four types of training module and paperwork for students have also been published.

ii) ***Mass Media Material***

One trailer, 1 documentary, 5 radio advertisements and 1 jingle have been produced in four languages. Besides that, newspaper advertisements in four languages in conjunction with the 2003 New Year celebrations in 6 main newspapers in the country.

iii) ***Interactive CD-Rom***

A total of 3,000 pieces of interactive CD-Roms comprising 4 campaign scopes for school children have been produced.

PATIENT EDUCATION PROGRAMME

Throughout 2003, as many as 300 patient education classes have been organised with the participation of 6,233 patients and family members. From there, a total of 77 asthma classes were held throughout 2003 with the 680 patients participating. Ipoh Hospital recorded the highest patient participation with 213 people, Sibu Hospital with 193 and Malacca Hospital with 160 patients and 26 classes.

A total of 273 patients participated in 87 High Blood patient education classes in 2003. That year, Ipoh Hospital recorded the highest patient participation. The classes recorded as many as 5,280 patients involved in a total of 136 sessions.

ORGAN DONATION PROMOTION

In 2003, the Organ Donation Promotion started its programme with the help of Universiti Putra Malaysia. The promotion was held as the university's Experiment Hall on 27th February, 2003. As many as 800 people attended the programme including lecturers, UPM graduates and Public Institute of Higher Learning Graduates Association (IPTA) representatives.

Organ Donation Awareness Campaign at Star Walk, Alor Setar, Kedah was held on 7th September, 2003 and was attended by 500 people comprising health officials and members of the public.

On 23rd September, 2003, YBhg Tan Sri Dato' Lee Lam Thye officiated the Organ Donation Promotion With Hentian Duta Taxi Drivers' Association. A total of 100 taxis under the association took part. Each taxi was given seat headrests and stickers with the message **'Donate An Organ For A Life'.**

Health Minister Dato' Chua Jui Meng was the guest of honour at the Organ Donation Mass Media Award Night on 23rd October, 2003. As many as 310 guests from the Ministry of Health officials, media representatives, non-Government Organisations, private agencies and Institute of Higher Learning attended the event. Among the award categories presented to the media were :

i) Best Electronic Media Journalist Award (TV and Radio).
ii) Best Newspaper Journalist Award.
iii) Best Magazine Journalist Award.
iv) Best Newspaper/Magazine Award.
v) Best TV Programme Award.

Media Programme

As many as 4 radio educational slots, 2 TV slots and 2 publishing media interviews were carried out.

Education Material Publications

i) 100,000 brochures on Brain Death and Organ Donation (Malay version).
ii) Reprint 100,000 copies of organ donation brochures (Malay version).
iii) Reprint 100,000 Organ Donation Cards (Malay version).

DOKTOR MUDA PROGRAMME

The concept for this programme is From Student, For Students, To Students. The objective of this programme was to instill school children with health knowledge and skills to improve health for themselves and their friends.

The Doktor Muda Programme is one of the packages under the United Healthy School Programme (PBSS) implemented in schools. This programme was run through smart sharing between Health Ministry and Education Ministry with the support from other agencies to educate school children on good health habits which starts from an individual's early age. The programme which follows the 'Peer Group' concept was implemented gradually based on available resources. 'Young Doctor'

students were chosen according to specific criterias and were given training based on the available module to strengthen their knowledge and skills. Schools are organised institutions where students are the target group. Teachers and parents are also targeted as they are involved in the students' activities besides providing them with support and guidance.

For the year 2003, this programme was very active in Kelantan, Pahang, Terengganu, Kedah, Malacca and Selangor. As many as 337 primary schools in those states have implemented the programme with as many as 8,000 primary school children participating.

HEALTH CAMPS

Health Camp Programme was held to create awareness among the community on good health management. This is to instill healthy living and from there improve health for themselves and their family towards building a harmonious community to achieve a vision of health for all.

Throughout 2003, there were 791 Health Camps in Malaysia with 197,622 participants. Selangor had the biggest participants with 42,881 taking part in 176 camps, followed by Penang with 27,180 in 36 sessions, while Kedah had 23,343 participants in 75 sessions.

WORLD HEALTH DAY

The World Health Day was launched by the TYT Yg. Dipertua Negeri Sabah on 8th May, 2003 at Sutra Harbour, Kota Kinabalu in Sabah. The theme for this World Health Day was "Build a healthy future: Healthy environment for children". Among the activities were an exhibition, publicity, Healthy TASKA contest and multimedia presentation.

2003 WORLD DIABETES DAY

The 2003 World Diabetes Day themed "Diabetes Can Destroy Your Kidneys, Act Now" was held on 23rd December, 2003 in Perlis. It was held at the Warisan Hall, Kangar and was launched by Perlis Menteri Besar, YAB Dato' Seri Shahidan Kassim with 1,200 attending including Health Ministry staff, old folks, adults and school children around Perlis. Activities held during the launch were an exhibition, healthy cooking contest, exercise session, sketch performances, fit ball robik demonstration and tug-of-war. Various special programmes was held like Media Programme, Diabetes Run, Forum and Diabetes Prevention Seminar and activities with Government agencies.

WORLD MENTAL HEALTH DAY

The national level 2003 World Mental Health Day was held on 13th October, 2003 in Kota Bharu, Kelantan and was launched by YB. Health Deputy Minister Dato' Seri Dr. Suleiman Muhammed. Among the activities held were a radio quiz, karaoke competition, remote control competitions, foot scooter, mountain bike, physical activity, multimedia presentation, sketch performances, children expressions, health check up, exhibition and games. As many as 1,000 attended the event.

WORLD AIDS DAY

The World Aids Day was held on 1st December, 2003 at the Ipoh Town Hall, Perak. The event was launched by Head Director of Health representative Y. Bhg Dato' Deputy Head Director of Health (KA).

Media Programme

Publicity on the World Aids Campaign were through two radio advertisements titled "Confessions of a Drug Addict" and "Help HIV Victims". The 45-second advertisements were broadcast on Radio Era throughout November and December with a total of 213 slots. The advertisements were also broadcast on Radio Tiga Ipoh and an interview on Selamat Pagi Malaysia on television on 1st December, 2003.

HIV/AIDS/STD EDUCATION PROGRAMMES

The objectives of this programme are :

i) To prevent HIV/AIDS from spreading.
ii) To minimise deaths and suffering due to the HIV/AIDS virus.
iii) To utilise national resources to fight HIV/AIDS.
iv) To promote and instigate cooperation between local, national and international agencies in the fight against HIV/AIDS.

Volunteer and Anonymous HIV Tests Programme

This programme was to encourage those who feel that they have been exposed or infected with the HIV virus to come up for a HIV check-up. This programme provides a comfortable atmosphere for those undergoing HIV tests as those tested can keep their anonymity and also the tests are simple and can be obtained for free at all Government clinics.

7th NATIONAL LEVEL PROSTAR CONVENTION

The convention was held on 4th - 7th September, 2003 at the Swiss Garden Resort in Kuantan, Pahang. The convention themed "Teens With High Moral Values, Excellent Generation" was attended by 500 Prostarians from throughout the nation and observers from ASEAN countries such as Myanmar, Laos, Singapore, Brunei and UNICEF representatives.

MEDIA PROGRAMME (RADIO & TELEVISION 2003)

Throughout 2003, the Health Education Division had organised several media programmes (radio and television), among them were Disease Control, Family Health Development, Food Quality Control, Dental, Pharmacy Services and other programmes such as Organ Donation, Blood Disease, Eye, 2003 World Health Day celebration and Health Symposium. As many as 116 slots were broadcasted in radio and television. As many as 60 slots which involved Disease Control Division programme, Family Health Development Division programme (25 slots), Food Quality Control Division (5 slots), Dental Division (2 slots), Pharmacy Services Division (4 slots) and 20 slots for other health programmes.

PUBLICATION AND DISTRIBUTION OF HEALTH EDUCATION AND PROMOTION MATERIAL

Printed Material

Throughout 2003, as many as 13 posters, 16 flyers and 8 booklets were published in various languages to be distributed to health education facilities throughout the country including several hospitals. Meanwhile, printed materials for Healthy Lifestyle Campaign were reported under the said divisions.

Non-printed Material

As many as 26 audio visual products were produced for the 2003 Healthy Lifestyle Campaign. Among them were a trailer on Health For Life, documentaries, Healthy Lifestyle Campaign jingles, radio and television advertisements.

HEALTH EDUCATION BY HEALTH STAFF

Health Education activities which was organised throughout Malaysia covering eight main fields on health such as Family Health, Infectious Disease Control, Vector-borne Disease Control, Food Quality Control, Healthy Environment, Non-infectious Disease Control, AIDS/STD Disease Control and Drug Abuse and Health Campaigns.

The method and approach towards organising health education activities were health talks, dialogues, group discussions, individual advice, demonstration, exhibition, video screening, health education activities through radio, Health Education Mobile Unit (UBPK) announcements, public forums and community cooperation *(gotong-royong)*.

The target groups receiving health education throughout the country were from health clinic customers and the public. The clinic customers include patients, ante-natal and post-natal mothers, teenagers, adults and parents, the elderly and the underprivileged. Meanwhile the public include students, factory workers, public sector employees, estate or farm residents, the aborigines, teenagers, parents or guardians, the elderly and food operators.

Health Education for Clinic Customers

Throughout 2003, as many as 3,936,798 clinic customers in the country were reported to receive health education. From that amount, 2,716,298 (69%) received education for family health field, 460,618 (11%) for non-infectious disease control field and 249,157 (6%) for infectious disease control field.

Among clinic customers who received family health education were 1,118,348 (41%) ante-natal mothers, followed by 755,012 (28%) adults and 556,352 (21%) post-natal mothers.

Health Education for the Public

Throughout 2003, as many as 5,685,833 of the public in the country received health education. From that amount, 2,406,841 (42%) received education for vector-borne disease control field, 896,169 (16%) for family health and 765,990 (13%) for AIDS/STD and drug abuse control field.

Among the public who received family health education were 1,389,666 (58%) public members, followed by 477,361 (20%) students and 144,870 (20%) parents or guardians.

Health Education Activities

As many as 1,400,608 (51%) health education activities in the field of Family Health Development were organised, followed by 718,968 (26%) in Vector-borne Disease Control field and 132,614 (5%) in Infectious Disease Control.

Individual health advice education method has the highest total of 2,017,101 (73%) sessions, followed by 278,950 (10%) group discussion sessions, 193,523 (7%) in demonstrations and 191,347 (7%) public talk sessions.

ROBIN GOOD PROGRAMME

The Robin Good Health Project was officiated by YB. Dato' Seri Dr Suleiman Mohammad on 13th July, 2003 at the Summit USJ. The activities included an exhibition, health screening, counseling, games, stage performances and the 'Resource Handbook for Community Services 2003 sponsored by UNFPA' book launch. More than 50 government agencies, NGOs and private sectors took part in the project.

CONCLUSION

Health promotion activities held throughout 2003 by the Health Education Division was in line with the organisation's vision as a centre of excellence in the field of promoting health to enable Malaysians to practice Healthy Lifestyle and enjoy optimum health.

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MEDICAL CARE PROGRAMME

Medical Care Services

INTRODUCTION

THE Medical Care Services objective is to provide comprehensive, equitable, accessible, effective, affordable and client-focused service, utilizing appropriate technology, while supporting primary health care, so as to improve health outcome and contribute towards enhancement of quality of life of the population. The Medical Programme, Ministry of Health which comprises of 2 divisions namely the Medical Development Division and the Medical Practice Division, provide the directions or formulate policies and legislations, develop strategies and programme as well strengthens the hospital governance to improve quality of medical services in the country. In the 8th Malaysia Plan, the main Activities of Medical Programme are :

i) Hospital Medical Care
ii) Extended Medical Care
iii) Medical Care Quality
iv) Health Technology Assessment
v) Medical Legislation and Regulations

HOSPITALS AND MEDICAL INSTITUTIONS

In 2003, hospital medical services were provided by 123 Ministry of Health hospitals and medical institutions. 45 of those hospitals offered specialist services in various disciplines (Table 1). Although 45 hospitals out of the 123 hospitals under the Ministry of Health were identified to provide services for the five basic specialities, due to shortage of manpower, only 32 hospitals were able to do so.

TABLE 1
MOH Hospitals and Medical Institutions 2003

State	Medical Institution	Hospitals	
		Hospitals with specialists	Hospitals without specialists
Perlis	-	1	-
Kedah	-	4	5
Penang	-	3	3
Perak	1	5	9
Selangor	-	4	4
Federal Territory	1	2	0
FT Labuan	-	1	0
Negeri Sembilan	-	2	3
Malacca	-	1	1
Johore	1	5	5
Pahang	-	3	7
Terengganu	-	2	3
Kelantan	-	2	6
Sabah	1	5	12
Sarawak	2	5	14
Total	**6**	**45**	**72**

Source : Information and Documentation System Unit, MOH

HOSPITAL MEDICAL CARE

The Hospital Medical Care is further divided into several components :

i) Medical Services Management
ii) Medical and Specialist Services
iii) Professional Development
iv) Medical Resources
v) Telehealth

Medical Services Management

The Medical Services Management comprises of Hospital Management and Interagency Collaboration Unit.

Hospital Management

Hospital Management Unit formulate policies and develop programmes in improving the governance of hospital facilities, organization and service systems, medical treatment facilities and medical information system.

i) ***Hospital Facilities***

The total number of beds of Ministry of Health Hospitals is 28,633 in hospitals and 5,456 in medical institutions.

The average rate of beds occupied has increased from 62.68% in 2002 to 63.66% in 2003 (Table 2). The state of Perak has the lowest rate of beds occupied, which is 49.02%. The table below indicates the bed occupancy rate amongst the Ministry of Health hospitals in Malaysia. However, bed occupancy rate does not reflect accurately the true workload faced by the hospitals.

ii) ***Organisation and Delivery Systems***

Accessibility to specialist-services has improved with the strengthening of referral system and visiting specialists' service and implementation of networking of hospitals programme, which allow patients to receive specialist care even in hospitals without specialists. The hospital networking programmes in Klang Valley and Seberang Perai has succeeded in the provision of day care surgeries thus reducing the number of in-patients in hospitals.

iii) ***Medical Treatment Facilities***

Ministry of Health hospitals provide comprehensive and affordable medical services to all. Based on Medical Fees Ordinance 1982, the charges for hospital medical care is nominal. Medical treatment is also given free of charge to school children and to those who can not otherwise afford it.

iv) ***Medical Information***

The main causes for hospital admissions in 2003 (Table 3) remained the same as in two previous years, and these include normal deliveries, complications of pregnancy, accidents, disorders of the circulatory system and disorders of the respiratory system.

Interagency Collaboration

The Ministry of Health collaborates with the private sector, universities, the community, the non-government organizations and other government agencies in the provision of services. The areas of collaboration include sharing of facilities, specialists, equipment and information as well as in training and research.

TABLE 2
Categorization of Hospital's BOR, 2003

State	No. of Hospitals (2003)	BOR<50% (2003)	BOR>50% (2003)	Lowest BOR (2003)	Highest BOR (2003)
Perlis	1	0	1	-	-
Kedah	9	5	4	32.54 H. Baling	80.86 H.Sg. Petani
Penang	6	3	3	23.39 H. Kepala Batas	83.65 H.Seberang Jaya
Perak	14	11	3	22.92 H. Selama	61.69 H. Ipoh
Selangor	8	3	5	43.00 H. Kuala Kubu	77.31 H. TAR Klang
FT Kuala Lumpur	3	2	1	46.89 H. Labuan	69.63 HKL
Negeri Sembilan	5	2	3	34.07 H. Jelebu	72.38 H. Seremban
Malacca	2	0	2	65.64 H. Alor Gajah	80.30 H. Melaka
Johore	10	4	6	40.33 H. Tangkak	90.27 HSA, Johor Bahru
Pahang	10	3	7	28.70 H. Cameron Highland	83.93 HTA, Kuantan
Kelantan	8	2	6	31.66 H. Tumpat	69.79 H. Kota Bahru
Terengganu	5	4	1	30.12 H. Ulu Terengganu	69.38 H. K. Terengganu
Pen. Malaysia	81	39	42	22.92 H. Selama	90.27 HSA, Johor Bahru
Sabah	17	9	8	18.46 H. Beaufort	99.29 H.Q. Elizabeth
Sarawak	19	13	6	7.96 H. Simunjan	70.39 H. Kuching

Source : 2003 Sub Medical Care Services Report, IDS Unit, Planning & Development Division

i) ***Outsourcing of Medical Services***

Outsourcing of medical services from the private sector is in accordance the guidelines and procedures and a contractual agreement endorsed by both parties. Currently purchasing of services is carried out for selected hospitals.

TABLE 3
Top 10 Causes of Admission in Malaysia, 2001-2003

2001	2002	2003
Normal Deliveries (Single spontaneous deliveries)	Normal Deliveries (Single spontaneous deliveries)	Normal Deliveries (Single spontaneous deliveries)
Complication of pregnancy, childbirth, and the puerperium	Complication of pregnancy, childbirth, and the puerperium	Complication of pregnancy, childbirth, and the puerperium
Accident (Accidental injury)	Accident (Accidental injury)	Accident (Accidental injury)
Diseases of the circulatory system	Diseases of the circulatory system	Diseases of the circulatory system
Diseases of the respiratory system	Diseases of the respiratory system	Diseases of the respiratory system
Certain condition originating in perinatal period	Certain condition originating in perinatal period	Certain condition originating in perinatal period
Diseases of the digestive system	Diseases of the digestive system	Diseases of the digestive system
Ill defined condition (symptoms and sign)	Ill defined condition (symptoms and sign)	Diseases of urinary system
Diseases of urinary system	Diseases of urinary system	Ill defined condition (symptoms and sign)
Malignant neoplasm	Malignant neoplasm	Malignant neoplasm

Source : Information and Documentation System Unit, MOH

ii) *Collaboration Between MOH and Training Institutions*

The MOH collaborated with training institutions, the government *(IPTA - Institut Pengajian Tinggi Awam)* and private *(IPTS - Institut Pengajian Tinggi Swasta)* sectors in medical training program since 1993. Under the agreement, the training institutions are allowed to use the MOH facilities for training of medical students (Table 4). The collaboration also includes the extended role of the MOH specialists in the training of medical students, and the extended role of the IPTS and IPTA specialists in the provision of patient care and training of MOH personnel. In 2003, there were 8 public and 4 private training institutions involved in training of medical students. A total of 46 government hospitals were identified for IPTA and 18 government hospitals for IPTS. A Joint Committee at the Ministry level was formed to monitor and ensure the smooth running of the collaboration activities.

TABLE 4
Collaboration between MOH and IPTA/ IPTS, 2003

Government Training Institutions (IPTA)	Private Training Institutions (IPTS)
Universiti Malaya	International Medical University
Universiti Kebangsaan Malaysia	Penang Medical College
Universiti Sains Malaysia	Melaka Manipal Medical College
Universiti Malaysia Sarawak	Perak College of Medicine
Universiti Putra Malaysia	
Universiti Islam Antarabangsa	
Universiti Malaysia Sabah	
Universiti Teknologi Mara	

iii) ***Community Participation***

Under community participation activity, the public are encouraged to participate either in groups or as individuals in the hospital volunteer programme organised by the Medical Welfare Unit. The programme is carried out in inline with the guidelines for hospital volunteers issued in 1994.

iv) ***Non-Government Organizations (NGO)***

There are several active non-government organizations which carry out health-related activities, such as rehabilitative care for stroke patients, palliative care for terminal cancer cases and setting up of haemodialysis centers for renal failure patients. Some of the NGOs receive grants from the MOH to carry out these activities (Table 5).

v) ***Collaboration with Other Government Agencies***

University hospitals, such as University Sains Malaysia, University Kebangsaan Malaysia and University Malaya provide services to patients. The Ministry of Health also receives students from other government agencies and private sectors for training attachment at government hospitals.

Medical and Specialist Services

These are ambulatory, medical, surgical, paediatric, obstetric and gynecology, and diagnostic and support services.

TABLE 5
NGO That Receive Grants from the Government, 2003

Name of NGO	Total amount granted (RM)
1. *Yayasan Buah Pinggang Kebangsaan Malaysia (NKFM)*	13,362,255.00
2. *Majlis Hospis Malaysia*	351,093.00 361,325.00
3. *Kelab PROSTAR*	500,000.00
4. *Yayasan Jantung Malaysia*	244,030.70
5. *Persatuan Bagi Mencegah Penyakit Tibi Malaysia (MAPTB)*	442,314.70
6. *Tabung Rawatan Pesakit Buah Pinggang Seberang Perai*	268,200.00
7. *Persatuan Angin Ahmar Malaysia (MASAM)*	47,560.00
8. *Persatuan Pemakanan Malaysia*	80,000.00
9. *Persatuan Kebangsaan Kanser Malaysia*	120,000.00
10. *St. John Ambulans Malaysia*	279,495.00
11. *Persatuan Penggalak Penyusuan Susu Ibu Malaysia*	50,600.00
12. *Persatuan Dialisis Kurnia*	285,050.00
13. Malaysian Red Crescent Society, Miri Chapater	323,000.00
14. MAA Medicare Kidney Charity Fund Kota Kinabalu Branch	304,000.00
15. *Pertubuhan Pusat Haemodialisis Hope Ipoh, Perak*	295,000.00
16. Rotary Club of Johor Bharu Foundation	263,500.00
17. *Yayasan Dialisis Pendidikan Akhlak Perak*	206,477.50
18. *Pusat Haemodialisis Mawar Negeri Sembilan Cawangan Sepang*	84,383.68
19. Kuala Lumpur Lions Foundation	155,785.00
20. *Persatuan Penggalakan Kesihatan Jiwa Negeri Perak*	30,000.00
21. *Persatuan Kebajikan Pesakit-pesakit Hospital Bahagia Ulu Kinta*	15,000.00
22. *Al-Jenderami*	20,000.00
23. Victorious Life Centre	294,500.00
24. Green Ribbon Support Association Kuala Lumpur	20,000.00
Total	**18,403,569.58**

Ambulatory Care Services

The activities in ambulatory care include emergency services, specialist clinics and day care services. Even though general outpatient service falls into ambulatory activities, it is not reported in this section as it has been moved under the Public Health Programme.

Table 6 shows the number of patients attending the ambulatory clinics by age for the year 2002 and 2003. In 2003, 26.34% of patients seen in clinics were children as compared to 27.24% from the previous year.

TABLE 6
Number of Patients Attending Ambulatory Services by Age Group in 2002 and 2003

State	2002			2003		
	Adult	Child < 12 yrs	% of Attendance by Children < 12 yrs	Adult	Child < 12 yrs	% of Attendance by Children < 12 yrs
Pen. Malaysia	15,541,664	5,050,424	24.52%	17,588,770	5,465,619	23.71 %
Sabah	2,451,377	1,679,128	40.65%	2,435,177	1,696,138	41.05%
Sarawak	2,777,088	1,048,845	27.41%	2,763,828	986,297	26.3%
Total	**20,770,129**	**7,778,397**	**27.24%**	**22,787,775**	**8,148,054**	**26.34%**

Source : Information and Documentation System Unit, MOH

i) ***Day Care Services***

Daycare services have started in 1997 with the intention of treating patients who need surgery which need less than 8-hour observation. The patients then can be discharged back to their homes within this time period. Since then, the concept of daycare has expanded to include other procedures such as blood transfusion, chemotherapy and other medical and paediatric procedures. Ambulatory Care Center (ACC) have been developed to daycare services.

ii) ***Emergency Services***

Table 7 shows the number of patients attending emergency services in the year 2002 to 2003. The average attendance has increased to 7.71%, which is 0.3% higher than that reported in 2002. The number of patients attending emergency department has also increased from 3,469,169 in 2002 to 3,736,656 in 2003.

The average percentage of repeat visits to emergency departments has reduced from 13.03% in year 2002 to 12.37% in 2003.

There were 630,508 patients admitted to the ward from emergency department in 2003. There is an overall increase of 1.25% in the number of patients admitted to the wards from emergency department (35.26 % in 2002 to 36.51% in 2003).

TABLE 7
Number of Patients Attending Emergency Departments and Number of Admissions from the Emergency Departments in 2002, 2003

Emergency Department	Year		% of Increase/ Decrease
	2002	2003	
Total attendance	3,469,169	3,736,656	7.71%
Repeat case	452,098	462,188	2.23%
% of repeat to attendance	13.03%	12.37%	- 0.66%
No of Admission	593,897	630,508	6.16%
% of admission to attendance	17.12%	16.87%	- 0.25%
% to total admission	35.26%	36.51%	1.25%

Source : Information and Documentation System Unit, MOH

Major Cause of Visit To Emergency Department And Specialist Clinic

The 5 major causes of visit to the emergency department and specialist clinics for 2002 and 2003 do not show a marked difference as noted below in Table 8. However it is noted that the leading cause of visits in 2002, injury, poisoning and certain other consequences of external causes, has dropped to second place in 2003 while the second major cause in 2002, disease of respiratory system, is ranked first in 2003.

TABLE 8
5 Major Causes of Visit to the Emergency Department and Specialist Clinics 2002-2003

5 Major Causes of Visits 2002		5 Major Causes of Visits 2003	
Disease of the respiratory system	22.91%	Disease of the respiratory system	22.62%
Injury, poisoning and certain other consequences of external cause	22.91%	Injury, poisoning and certain other consequences of external cause	21.49%
Symptom, sign and abnormal clinical and laboratory finding not elsewhere classified	11.80%	Symptom, sign and abnormal clinical and laboratory finding not elsewhere classified	13.46%
Disease of digestive system	8.62%	Disease of digestive system	8.25%
Disease of circulatory system	4.95%	Disease of circulatory system	5.06%

iii) ***Specialist Clinic Services***

There were 86 hospitals providing specialist clinics in 2003, which has increased by 8 from the year 2002. This is possible through the networking of specialist services whereby the specialist are able to conduct visiting clinics at hospital without specialists. Table 9 shows the number of attendance to specialist clinics and the admission rate from the specialist clinics.

Number of patients attending the specialist clinics has increased from 2002 to 2003 at 5.24%. Number of new cases attending the specialist clinics has reduced from 905,789 in 2002 to 854,930 in 2003. The percentage of new cases seen has thus decreased by 5.6%. Hence, the major cause of decreased attendance may be attributed to increase number of repeated cases been reviewed. The data also indicates that the number of admission via specialist clinic has increased by 10.38%. In 2003, 5.6% of patients attending to specialist clinics required admission, an increase by 0.93% from the year 2002.

TABLE 9
Number of Patients Attending Specialist Clinics and Number of Admissions from Specialist Clinics for 2002 and 2003

Specialist Clinics	Year		Average % of Increase/ Decrease
	2002	2003	
Total attendance	3,858,125	4,060,187	5.24%
New cases	905,789	854,930	-5.61%
% of new to total attendance	23.48%	21.06%	-2.42%
No. of Admission	205,918	227,299	10.38%
% of admission to attendance	5.34%	5.6%	0.26%
% to total admission	12.23%	13.16%	0.93%

Source : Information and Documentation System Unit, MOH

Medical Services

The specialist medical services consists of General Medicine, Dermatology, Tuberculosis and Respiratory Diseases, Leprosy, Psychiatry, Nephrology, Neurology, Radiotherapy & Oncology and Cardiology.

i) ***Medical Specialist Clinics***

As a whole, the total number of patients treated at specialist clinics of the various medical disciplines increased by 5.14% in the year 2003 as compared to the year 2002. This constitutes 34.78% of the total specialist clinic attendance for

the year 2003. Attendance at the General Medicine, Psychiatry, Nephrology and Neurology clinics showed an increase of 9.67%, 4.25%, 6.74% and 5.05% respectively. Table 10 shows the total number of patients who received outpatient treatment at the specialist clinics of the various medical disciplines in the year 2002 and 2003.

TABLE 10
Number of Patients Receiving Treatment
at Specialist Clinics by Disciplines in 2002 and 2003

Discipline	Total Outpatients		% +/- difference between 2002/2003
	2002	2003	
General Medicine	613,863	673,229	+9.67
Dermatology	187,178	186,870	-0.16
Tuberculosis and Respiratory Diseases	210,259	210,604	+0.16
Leprosy	7,226	6,377	-4.74
Psychiatry	247,748	258,295	+4.25
Nephrology	11,587	12,368	+6.74
Neurology	36,604	38,455	+5.05
Radiotherapy/Oncology	27,270	26,030	-4.54
Cardiology	13,700	12,889	-5.91

Source : Information and Documentation System Unit, MOH

ii) ***Medical Inpatient Services***

Table 11 shows the total number of patients from the various medical disciplines who were admitted to the ward and treated as inpatients. 26.19% of the total government hospital admissions were from the medical based specialities. In general, these medical specialist admissions increased by 2.18%, from 439,672 in the year 2002 to 449,263 in 2003. An increase in inpatients was most pronounced for the disciplines of radiotherapy and oncology and cardiology. The bed occupancy rate (BOR) for the various disciplines ranged from 28.71 to 85.95. The bed occupancy rate for leprosy increased from 26.34 in 2002 to 85.95 in 2003 as the number of beds for leprosy were decreased from 706 in 2002 to 196 in 2003.

Paediatric and O&G Services

In the 8th Malaysian Plan, emphasis is placed on two main areas, namely perinatal medicine and genetics. Condition arising from the perinatal period is the 5th most important cause of admissions and deaths in MOH hospitals.

TABLE 11
Total Inpatients and Bed Occupancy Rate (BOR) by Medical Disciplines for 2002 and 2003

Discipline	Total Inpatients		% +/- difference between 2002/2003	Bed Occupancy Rate (BOR)	
	2002	2003		2002	2003
General Medicine	390,905	400,690	+2.50	71.16	72.16
Dermatology	764	765	+0.13	24.89	28.96
Tuberculosis and Respiratory Diseases	5,123	5,336	+4.15	29.96	28.71
Leprosy	118	96	-18.64	26.34	85.95
Psychiatry	23,275	21,689	-6.81	78.90	77.33
Nephrology	8,927	8,734	-2.16	84.48	73.91
Neurology	834	818	-1.91	67.89	59.85
Radiotherapy/ Oncology	5,847	6,936	+18.6	72.58	71.77
Cardiology	3,879	4,199	+8.24	87.81	68.64
Total	**439,672**	**449,263**	**+2.18**		

The total number of paediatric inpatients has increased by 23.95% for the year 2002 to 2003. All states showed an increase in the number of patients admitted in 2003 compared to 2002, Federal Territory being the highest, followed by Sarawak, Sabah, Kedah and Perak respectively.

The highest BOR in 2003 is Malacca (91.66) followed by Federal Territory (83.94), Sabah (82.62%), Kedah (71.53%) and Perlis (68.36%). This differs in 2002, where the highest is in Sabah (80.73), followed with Federal Territory (79.86), Malacca (73.78), Kedah (72.60) and Kelantan (70.30). Even though the number of patients seen in 2003 for some states have increased, their BOR is low in comparison to 2002 due to increased in the number of paediatric and nursery beds.

Number of outpatients has increased by 5.52% from the year 2002 to 2003 with the highest number of patients in Federal Territory (56,946), Kedah (31,592), Selangor (31,314), Perak (27,068) and Johore (25,369) respectively.

In the year 2003, new services that have been initiated were the One Stop Crisis Centre (OSCC) and cardiology clinic services at the Paediatric Institute. OSCC is a one-stop management centre for abused children and families in crisis, as well as ensuring privacy for the interview and examination of children for sexual abuse. The new OSCC is equipped with audio visual equipment for interviewing of children, using video-colposcopy. Total capital cost for renovation and equipment was about RM180,000. A new EEG laboratory which can provide a '24-hour Video EEG'

service was also acquired in the Neurology Unit, Institute Paediatric and started to function fully by October 2003.

The Obstetrical and Gynaecological services in the country continues to improve, especially in the subspeciality field of Reproductive Medicine, Maternal Fetal Medicine, Gynae-oncology and Uro-gynaecology. In Reproductive medicine, Hospital Kuala Lumpur will soon be the first government hospital equipped to provide Assisted Reproductive Technology (ART) services. This will include in vitro fertilization, intra cytoplasmic sperm injection and cryopreservation facilities. The major part of the renovation work was carried out in the year 2003. The ART service is expected to start in the second half of 2004.

In the year 2003, Ministry of Health purchased six MEA systems for Hospital Kuala Lumpur, Hospital Sultanah Aminah Johor Bahru, Hospital Alor Setar, Hospital Tengku Ampuan Afzan Kuantan, Hospital Kuching and Hospital Kota Kinabalu. MEA is a safe and effective procedure which can be performed on a daycare basis so that the patient can be allowed home on the same day. This benefits both patients and hospitals. The operating list in the main theatre can then be better utilized for more urgent operations, thereby shortening the waiting period. In spite of the drop in delivery rate to 16,877 women in Hospital Kuala Lumpur, a total of 14,841 antenatal ultrasound scans were preformed in the Maternal Fetal Medicine Unit. This is inclusive of 3,418 targeted scans which identified 204 anomalous fetuses, in the year 2003. A total of 177 prenatal invasive procedures were carried out in that year. These services are now being performed in the Prenatal Diagnostic Centre in the Maternal Fetal Medicine Unit.

The total number of admissions for all deliveries (both normal and complicated) in Table 12 showed an decrease of 0.94% between the years 2002 to 2003.The highest total number of admission is Johore (70,627), followed by Sabah (58,195), Sarawak (56,306), Selangor (55,828) and Perak (47,495) respectively. The bed occupancy rate (BOR) for year 2003 ranged from 43.52 to 90.50 with the highest in Sarawak (90.50), Malacca (78.51), Selangor (66.84), Sabah (66.60) and Johore (65.56).

The number of normal deliveries showed a decline of 2.92% from the year 2002 to 2003 except for Selangor which showed an increase of 1.42%. The states that showed the highest number of normal deliveries is Johore (37,401), whilst the lowest number of normal delivery was Pahang (Hospital Cameron Highland - 193).

There is an overall decrease in complicated deliveries in 2003 as compared to 2002 by 1.14% even though 8 states showed an increased in the percentage, with Perlis being the highest, followed by Selangor and Federal Territory in 2003. At the state level, Johore (7,295), was noted to have the highest number of complicated deliveries recorded, followed by Selangor (6,157), Perak (5,893), Kedah (5,188) and Federal Territory (5,080). Hospital Kuala Lumpur is shown to have the highest number of complicated deliveries (4,211) in comparison to other MOH hospitals.

TABLE 12
Census of Total No. of Admission and Bed Occupancy Rate (BOR) for the Year 2002-2003

State	Total No. of Admission		BOR	
	2002	2003	2002	2003
Perlis	6,545	6,471	48.52	50.01
Kedah	47,299	46,038	67.85	64.55
Penang	26,641	26,370	54.06	49.53
Perak	50,792	47,495	44.41	43.52
Selangor	55,725	55,828	63.36	66.84
Federal Territory	27,858	33,186	47.27	51.59
Negeri Sembilan	27,392	27,163	54.42	18.57
Malacca	19,483	19,950	73.26	78.51
Johore	70,524	70,627	63.93	65.56
Pahang	34,904	35,038	58.17	53.69
Terengganu	27,987	26,228	66.84	63.94
Kelantan	37,890	36,424	59.66	52.78
Sabah	60,287	58,195	71.95	66.60
Sarawak	57,172	56,306	51.41	90.50
Total	**550,499**	**545,319**		

Source : Information System and Documentation Unit, MOH

Surgery

Surgical services are divided into basic surgical specialties and surgical subspecialties. The basic surgical specialties are general surgery, orthopaedic, ophthalmology and ENT. The subspecialties under surgery are gastrointestinal, vascular, hepatopancreatobiliary, breast & endocrine, urology, cardiothoracic, neurosurgery, colorectal, plastic surgery and pediatric surgery. Table 14 showed the number of hospitals which provide the surgical services according to disciplines. For hospital without specialist, networking between hospitals have been established in order to provide better health care services to those in need. The number of specialist clinics have increased from 265 in year 2002 to 298 in year 2003. The number of beds for surgical specialties have also increased from 7,357 (2002) to 7,390 (2003). The increment was obviously seen in orthopaedic speciality.

TABLE 13
The Percentage Difference in the Year 2002 to 2003 for Normal and Complicated Deliveries

State	No. of Normal Deliveries		% +/- Differences 2002/2003	No. of Complicated Deliveries		% +/- Differences 2002/2003
	2002	2003		2002	2003	
Perlis	3,586	3,426	-4.46	592	683	+15.37
Kedah	24,606	23,159	-5.88	5,029	5,188	+3.16
Penang	11,875	11,314	-4.72	2,903	2,920	+0.59
Perak	26,384	24,555	-6.93	6,133	5,893	-3.91
Selangor	30,310	30,740	+1.42	5,856	6,157	+5.14
Federal Territory	17,127	17,080	-0.27	4,836	5,080	+5.05
Negeri Sembilan	11,386	10,936	-3.95	3,014	3,161	+4.88
Malacca	7,567	7,480	-1.15	2,900	2,874	-0.89
Johore	37,745	37,401	-0.91	7,905	7,295	-7.72
Pahang	17,984	16,969	-5.64	3,313	3,030	-8.54
Terengganu	16,355	15,539	-4.99	1,982	2,048	+3.33
Kelantan	23,345	23,255	-0.39	2,952	2,684	-9.08
Sabah	36,065	34,600	-4.06	5,258	4,871	-7.36
Sarawak	32,806	32,023	-2.39	4,722	4,852	+2.75
Total	**297,141**	**288,477**	**-2.92**	**57,395**	**56,736**	

Source : Information System and Documentation Unit, MOH
(Complicated deliveries example Caesarian, Forceps, Vacuum etc.)

i) ***Surgical Specialist Clinic***

Table 15 showed the total number of patients that were treated in surgical specialist clinics with an increase of 1,636,852 patients in 2002 to 1,735,149 patients in 2003. The total increment was about 6%. This was 42.7% of total number of outpatients who were seen in the specialist clinic and 22.3% of total number of outpatients who visited government hospitals. Hepatobiliary, cardiothoracic and neurosurgery showed a marked increase in the number of outpatient attendance to the clinics as compared to other disciplines. However, the number of patients in Hand & Microsurgery clinic had decreased.

ii) ***Surgical In-Patient Services***

Overall the number of surgical patients who were admitted to the wards have been increased as compared to year 2002. The percentage of admission have increased from 338,494 to 355,852 in year 2003. Table 16 showed the number of surgical patients who were admitted to the wards. Generally, the

TABLE 14
Total Number of Facilities for Surgical Specialities in Government Hospitals, 2002-2003

Discipline	Number of Specialist Hospitals		Number of Specialist Clinics		Number of Beds	
	2002	2003	2002	2003	2002	2003
General Surgery	39	39	59	67	3,802	3,752
Orthopaedic	25	25	55	61	2,220	2,302
Ophthalmology	28	28	58	65	588	584
ENT	20	20	46	55	274	278
Urology	7	7	22	26	182	168
Neurosurgery	5	5	5	5	136	141
Cardiothoracic	3	3	4	4	30	30
Plastic Surgery	9	9	13	13	113	123
Hand and Microsurgery	1	1	2	1	12	12
Hepatobiliary	1	1	1	1	NA	NA
Total	**138**	**138**	**265**	**298**	**7,357**	**7,390**

Source : Information and Documentation System Unit, MOH

TABLE 15
Total Number of Patients Treated in the Surgical Specialist Clinics in 2002 and 2003

Discipline	Number of Outpatients		% Increase or Decrease
	2002	2003	
General Surgery	373,634	401,750	8
Orthopaedic	455,324	490,830	8
Ophthalmology	429,870	439,909	2
ENT	204,632	222,038	9
Urology	119,981	125,168	4
Neurosurgery	2,407	2,642	10
Cardiothoracic	16,407	21,047	28
Plastic Surgery	22,551	22,610	0.3
Hand and Microsurgery	10,438	7,104	-32
Hepatobiliary	1,608	2,051	28
Total	**1,636,852**	**1,735,149**	**6**

Source : Information and Documentation System Unit, MOH

BOR rate was around 50%-70%. The increment in the number of patients admitted were noted in general surgery, orthopaedic, urology and plastic surgery wards.

TABLE 16
Total Number of Patients Who Were Admitted to the Surgical Wards, 2002-2003

Discipline	Number of Inpatients		% +/- difference between 2002/2003	Bed Occupancy Rate (BOR)	
	2002	2003		2002	2003
General Surgery	204,784	213,412	4.2	54.35	56.94
Orthopaedic	85,896	93,201	8.5	64.08	63.71
Ophthalmology	23,508	23,905	1.7	45.25	46.53
ENT	9,113	9,610	5.5	48.17	50.40
Urology	6,627	7,565	14.2	63.25	74.37
Neurosurgery	5,491	5,027	-8.5	118.68	105.32
Cardiothoracic	696	768	10.3	96.23	91.76
Plastic Surgery	1,887	2,092	10.9	48.80	48.73
Hand and Microsurgery	492	272	-44.7	45.21	37.79
Hepatobiliary	NA	NA	NA	NA	NA
Total	**338,494**	**355,852**	**5.1**		

Source : Information and Documentation System Unit, MOH

The number of operations done in year 2003 have increased from 479,875 in year 2002 to 482,113 in year 2003. In year 2003, 64.3% cases were emergency operations while 35.7% was elective cases. The increase in the number of operations carried out were in cardiothoracic, neurosurgery and urology discipline. Emergency cases were mostly done by the orthopaedic, ENT, cardiothoracic and plastic surgery. However as compared to 2003, the number of emergency operations have been reduced. Table 17 showed the number and type of operations carried out in various surgical disciplines.

Diagnostic Services

Diagnostic Services comprised of pathology, blood transfusion, forensic medicine, diagnostic imaging and nuclear medicine services.

TABLE 17
Number of Operations Done in 2002 and 2003

Discipline	Number of Operations		% Increase or Decrease
	2002	2003	
General Surgery	190,366	176,291	7.4
Orthopaedic	201,575	214,843	6.6
Ophthalmology	32,692	33,773	3.3
ENT	26,365	25,901	-1.8
Urology	17,476	19,041	9.0
Neurosurgery	5,647	6,113	8.3
Cardiothoracic	1,250	1,384	10.7
Plastic Surgery	4,504	4,767	5.8
Hand and Microsurgery	NA	NA	NA
Hepatobiliary	NA	NA	NA
Total	**479,875**	**482,113**	**0.5**

Source : Information and Documentation System Unit, MOH

TABLE 18
Number of Elective and Emergency Cases in 2002 and 2003

Discipline	Number of Elective Operations			Number of Emergency Operations		
	2002	2003	% Increase or Decrease	2002	2003	% Increase or Decrease
General Surgery	54,965	57,047	3.8	135,401	119,244	-11.9
Orthopaedic	41,212	46,990	14.0	160,363	167,853	4.7
Ophthalmology	26,921	28,051	4.2	5,771	5,722	-0.8
ENT	18,729	17,758	-5.2	7,636	8,143	6.6
Urology	14,584	16,006	9.8	2,892	3,035	4.9
Neurosurgery	1,249	1,420	13.7	4,398	4,693	6.7
Cardiothoracic	1,019	1,116	9.5	231	268	16.0
Plastic Surgery	3,503	3,637	3.8	1,001	1,130	12.9
Hand and Microsurgery	NA	NA	NA	NA	NA	NA
Hepatobiliary	NA	NA	NA	NA	NA	NA
Total	**162,182**	**172,025**	**6.1**	**317,693**	**310,088**	**-2.4**

Source : Information and Documentation System Unit, MOH

i) ***Pathology Services***

Pathology service is a nucleus service provided in each hospital of the Ministry of Health contributing to diagnostic services (screening and confirmatory) and monitoring of outpatient and inpatient treatment. It is available in 124 hospitals including the district and state hospitals, more than 800 health centers and 5 special institutions. The service comprised of chemical pathology, medical microbiology, haematology, histopatology and cytology.

Workload of pathology services increased by 18.52% in 2003 (75,764,983) as compared to 2002 which was 63,923,857. This is due to the increase in the number of tests carried out in the hospital laboratories including Hospital Selayang and Hospital Putrajaya. 81.56% of the tests (60,681,824) were done in West Malaysia laboratories.

There were 6 pathologists sent for subspeciality training as follows: Red Cell Enzymology Coagulation (3), Infection Control (1), Renal pathology (1) and Enthropology (1) in year 2003.

ii) ***Blood Transfusion***

The year 2003 showed an increase of 1.2% in procurement of blood which is still below the target of 8%. This is due to the occurrence of SARS which resulted in cancellation of few of the blood donation campaigns.

10 internal training programmes were conducted in 2003 in the forms of courses, seminar and workshops covering the topics of immunohaematology, regulation and control of blood and blood products and haemostasis, among others. The cord blood bank in the National Blood Centre, K.L. was also launched.

iii) ***Forensic Services***

Forensic services includes medical forensic, clinical forensic and medicolegal practice. The achievement in 2003 is summarized in Table 19. The upgrading of the postmortem room to BSL II was completed and are currently functioning in two hospitals which are Hospital Kuala Lumpur and Hospital Tengku Ampuan Afzan, Kuantan. This enabled SARS cases to be conducted in the optimum condition. Two new services which will be carried out in the future are Forensic Anthropology and Clinical Forensic where 2 forensic pathologists have been sent for subspeciality training.

TABLE 19
Number of Post-Mortems Carried Out in MOH Hospitals by State

Hospital	Death Cases	Postmortem cases	Percentage
Alor Setar	1,616	286	17.7%
Penang	1,787	452	25.3%
Ipoh	2,458	498	20.2%
Klang	2,362	743	31.5%
HKL	3,974	838	21.1%
Seremban	1,551	422	27.2%
Malacca	1,761	337	19.1%
Johore	3,056	493	16.1%
Kuantan	2,322	296	12.7%
Kuala Terengganu	2,000	280	14.0%
Kota Bahru	1,775	268	15.0%
Kota Kinabalu	2,351	170	7.23%
Kuching	1,102	167	15.1%
Total	**28,115**	**5,250**	**18.7%**

iv) ***Diagnostic Imaging Services***

The Diagnostic Imaging Services is one of the main contributors in Malaysian healthcare system. General Radiology is available in all hospitals while special modality such as mammography, CT, MRI and Angiography are only available in state hospitals and few district hospitals. Mammography services are available in all state hospitals and the district hospitals of Sandakan, Muar and Taiping. Computerised Tomography is available in all state hospitals and the district hospitals of Sibu, Tawau, Muar, Taiping and Miri. MRI is available in Hospital Pulau Pinang, Hospital Ipoh, Hospital Kuala Lumpur (2 units), Hospital Selayang, Hospital Johor Bharu, Hospital Kuantan and Hospital Kuching. Angiography is available in Hospital Kuala Lumpur and Hospital Johor Bharu. At present, only Hospital Kuala Lumpur is providing Neuro Interventional and Advanced Vascular Interventional Radiology. Basic interventional radiology is carried out in all hospitals under the supervision of the radiologist.

The number of investigations done have increased every year (Table 20). General Radiography is still the most highly used accounting for more than 90%. The number of investigations for other modalities like CT Scan, MRI, Ultrasonography, specialised radiography (Alimentary system, biliary, vascular, reproductive, heart study) and additional investigation have also increased (including Mammography). This has lead towards an increase in need for highly skilled manpower in this discipline.

TABLE 20
Total Investigation Done in MOH Hospitals (By Modality)

Imaging Modalities	2000	2001	2002	2003
General Radiography	1,937,568	2,024,929	2,158,694	2,276,705
Specialised Radiography	31,317	24,145	26,529	35,663
Computerised Tomography (CT Scan)	58,313	65,902	80,243	89,541
MR Imaging (MRI)	4,956	6,224	8,690	11,845
Ultrasonography	138,966	140,410	152,400	159,553
Additional investigation	15,600	17,288	23,837	26,270
Total	**2,186,720**	**2,278,898**	**2,450,393**	**2,599,577**

v) ***Nuclear Medicine***

Nuclear medicine is an important diagnostic service in medicine. The radioactive material is commonly used and given to the patient according to the type of scan required to make the diagnosis, besides it being used in therapy. For new services, in Hospital Umum Sarawak, DMSA scan, Meckel and 3 phase Bone scan have been added. In HPP, 291 trial cases of bone densitometry were introduced to the hospital staff. Two staffs from Hospital Umum Sarawak (a radiographer and a medical laboratory technologist) were trained in the Nuclear Medicine Unit of University of Chulalongkorn, Bangkok. A Quality Assurance Programme meeting in Malacca organised by the Engineering Division, MOH was attended by a science officer from Hospital Umum Sarawak.

Professional Development

Specialists and Medical Officer

i) ***Gazettement of Clinical Specialists***

Medical knowledge and advance technology skills are developing rapidly in our country. Hence this leads to increase demand of qualified specialist in hospitals. Therefore, gazettement process is the integral part to acknowledge qualified and skillful specialists.

Table 22 showed the number of specialists have increased through out the years with majority of them being gazetted in 2002. In 2003, 262 clinical specialists were gazetted, a reduction of 29% as compared to 2002. This is probably due to a reduction number of master students passing their final exam in 2003.

TABLE 21
Number of Nuclear Medicine Scans Done in 2002 and 2003

Hospital/Service Centre	Total Number of Scans/Therapy Cases Done	
	2002	2003
Hospital Kuala Lumpur	3,219	3,274
Hospital Umum Sarawak	140	149
Hospital Pulau Pinang	1,020	1,342
Hospital Sultanah Aminah Johor Bahru	1,009	994
Total	**5,388**	**5,759**

TABLE 22
No. of Specialist Gazetted from Year 2000 to 2003

Year	No. of Specialists
2000	204
2001	190
2002	291
2003	262
Total	**947**

Majority of specialists are gazetted in O & G, Orthopaedics and General Surgery speciality in 2002. However, in 2003 most of them are in the Internal Medicine and O&G speciality. The most favourite speciality is still O&G in both years. The specialists in Psychiatric have increased by 60%, Anaesthesiology by 10% and ENT by 100% in 2003. However there is an obvious reduction in 2003 especially in Orthopaedics by 14%, Paediatric by 23%, O&G by 10% and General Surgery by 16% compared to 2002.

ii) ***Credentialing***

The Credentialing process forms an important activity of the hospital and ensures that hospitals and the healthcare providers therein provide services which are of appropriate scope and quality. It is part of hospital risk management program and it includes all health care professionals. However, it has been limited to specialists performing specialized procedures. In the year 2001 the MOH with Academy of Medicine, Malaysia has established the National Credentialing Committee which is chaired by the Director-General of Health, Malaysia. In the year 2003 the secretariat had received 111 applications from specialists from several state hospitals, an increased of 21% compared to 2002 applicants.

iii) ***Fellowship Training***

Ministry of Health also conducts Fellowship Training in various specialties at recognized training centres such as Kuala Lumpur Hospital, Selayang Hospital, Penang Hospital, Johor Bahru, several university hospitals like UMMC and HUKM. The training is residency-based with an exit certification at the end of the programme. To facilitate the training, each specialty has established its own specialty committee responsible for the planning, organization and monitoring the programme. Currently, there are 11 Training Committees established at various discipline levels and 39 Specialty Sub-Committees. The number of trainees have increased over the years from 60 in 2002 to 65 in 2003. Hence, a total of 320 trainees were in the programme with nephrology being the most favourite specialty followed by gastroenterology and cardiology.

iv) ***CME/CPD Activities***

The Ministry of Health plans and coordinates CME activities related to the career development of specialists, medical officer and the allied health professionals. In 2003, 92 courses including seminars and conferences were conducted and a total of 3,018 personnel were selected. The total number of personnel has been reduced in 2003 by 19.8% compared to 2002, the main reason for this reduction is due to financial constraint (Table 23).

TABLE 23
Numbers of CME Activities from 2000 to 2003

	2000	2001	2002	2003	Total
Total CME Programmes	49	70	108	92	319
No. of participants	2,015	2,470	3,764	3,018	11,267

Source : Cawangan Pembangunan Profesyen Perubatan, Bahagian Perkembangan Perubatan, KKM

v) ***Specialists Requirement***

In 2003, there were 1,685 specialists of various disciplines employed with the Ministry of Health including 140 specialists on a contractual basis. This is an increased of 6.2% in the number of doctors employed as compared to 2002. Even though the number specialists employed is increasing, it has still not meet the country's requirements.

vi) ***Buying of Private Specialist Services***

The Ministry of Health, Malaysia is facing an acute shortage of specialists in the government hospitals. It is even more critical in the east coast of Malaysia. The main reason for this is due to lack of specialists in the country and an

increase number of specialists resigning from MOH. In order to maintain good quality service, MOH has outsourced services from the specialists in the private sector to work in government hospitals on a sessional or honorary basis.

Allied Health

The Allied Health Unit was established in the Medical Development Division, Ministry of Health in early 1996. The functions of the unit are to facilitate the professional development of allied health professionals (AHPs) in the Medical Program, coordinate the manpower needs for the development of allied health services, review the roles of AHPs to ensure that services are responsive and provide positive health benefits to patients, coordinate the development of mechanism to regulate the practice of various categories of AHPs, secretariat to process application from foreign AHPs seeking employment in the private healthcare sector, secretariat to develop credentialing mechanism for the AHPs and other matters that are related to allied health providers in the Medical Programme.

The term 'Allied Health Professions' has been used to reflect the natural affinity these diverse professions have with each other, while recognizing their individuality and uniqueness. Working towards the delivery of excellence in hospital services requires a team effort, an equal partnership between staff and patients, and more than ever the skills and expertise of the allied health professionals (AHPs).

i) ***Training for Health Attendants in the MOH***

The Allied Health Unit has been appointed as the secretariat for the training of health attendants called *'Latihan Peningkatan Atenden Kesihatan'*. These training sessions were divided into 3 levels in which level 1 & 2 were conducted at the state level, and the training sessions in level 3 (for attendants working in operating theatre, physiotherapy unit, CSSU and mortuary) were conducted centrally by this unit. Five series of training sessions in level 3 were conducted with a total of 441 trained in the year 2003.

ii) ***Foreign AHPs Employed by the Private Hospitals/Institutions***

The Ministry of Health acknowledges the shortage of certain categories of allied health professionals in the health services (government or private). It has therefore identified certain categories of foreign allied health professionals that can be employed by the private hospitals/ institutions. A total of 32 applications from foreign allied health professionals (excluding nurses) has been processed in the year 2003.

iii) ***Proposal Papers in Collaboration with the Human Resource Division MOH***

The proposal on upgrading the scheme of service for health attendants and community nurses has been approved by Public Service Department (PSD) in the year 2003 with effect from 1st. January 2004. The scheme of service for Medical Rehabilitation Officer *(Pegawai Pemulihan Perubatan)* was also approved in the year 2003.

The proposal on the extension scheme of service from diploma to degree for those who have degree qualification (eg. nurses, physiotherapists, radiographers etc) has been forwarded to the Public Services Department for their attention and due consideration. A series of discussions has been on-going and awaiting approval.

The proposal paper on the scheme of service for clinical psychologists and ortoptists, incentive allowance for medical assistants working in anaesthesia department in Sabah and Sarawak, has also been forwarded to the Human Resource Division MOH for their attention and further actions.

iv) ***Engagement of Private Allied Health Professionals on Sessional Basis***

The Ministry of Health acknowledges the need of certain categories of allied health professionals in the MOH hospitals such as clinical psychologists, orthoptists and etc. In the year 2003 , the Treasury has approved the new payment rate for private allied health professionals working on a sessional basis in the MOH hospitals.

v) ***Collaboration with the Higher Centers of Learning***

The MOH has approved application of higher centers of learning (public and private) for the usage of the MOH hospitals for the training of allied health professions. A total of 4 applications from the private institutions has been received and approved in 2003, and is in the process of signing memorandum of agreement/understanding.

vi) ***Credentialing***

The Medical Development Division, MOH is in the process of developing credentialing mechanism for the allied health professionals working in hospital settings.

vii) ***Allied Health Professions Bill***

The MOH is in the final stages of drafting the 'Allied Health Professions Bill' together with the MOH legal advisor. The objective for drafting the Bill is to recognize, register, regulate the professional conduct and promote the continuing professional development for members of the allied health profession.

Medical Resources

The Medical Resource Unit is responsible for managing the budget and also to provide technical input for any medical equipment required to be procured.

Medical Budget

i) ***Expenditure Target (ET)***

In the year 2003, a total allocation of RM3,623,552,530 billion was given to the Medical Programme, which is 62.62% of the total amount allocated to the Ministry of Health. This is an increase of 12.81% compared to the previous year. About 109.57% was spent for the year 2003. Emolument being the main component was 125.75%, while the expenditure for the *"bekalan dan perkhidmatan"* was 98.43%.

ii) ***"New Policies" (Dasar Baru)***

A total of 6 "New Policies" were approved for the year 2003 which involved RM25 million (OA 20000). The overall expenditure was 96.82%. Asset was allocated under "One-Off" (RM56.9 million).

iii) ***Development Budget***

A total of RM35 million was allocated under the "*projek BP 301 (ubahsuai dan naiktaraf hospital)"*. With the support from the Finance Division, Ministry of Health, every effort has been made to ensure that the allocations approved abide to the Treasury Regulations.

Medical Equipment

The Medical Resource Unit liaise with other units in the *"Cawangan Perkembangan Perkhidmatan Perubatan & Kepakaran"* to identify the medical equipment for government hospitals. This unit is also responsible for preparing the specifications of medical equipment to be purchased.

For the year 2003, 34 tendered items were prepared centrally. The remaining allocation was distributed to the State Health Department which was largely procured through quotations.

Some of the equipments were also tendered at the state level *(Pusat Tanggung Jawab)* as the amount of equipment was more than RM200,000 (Table 24). Medical Resource Unit also coordinates the technical evaluation of consumable items supplied by Pharmaniaga Sdn Bhd.

TABLE 24
Medical Equipments Tendered at the State

No.	State	Hospital	Medical Equipment
1.	Terengganu	Kuala Terengganu	Lung Function Test
2.	Kuala Lumpur	Kuala Lumpur	Paediatric Ret - Camera
3.	Sarawak	Umum Sarawak	Operating Microscope (Plastic Surgery)
4.	Sarawak	Umum Sarawak	Atomic Absorption Spectrophotometer
5.	Sarawak	Sibu	Chemistry Analyser with ISE 800 tests
6.	Perak	Taiping	Ultrasound Colour Doppler
7.	Selangor	TAR, Klang	Ultrasound (O & G)
8.	Kedah	Alor Star	Urodynamic System With Video
9.	Pulau Pinang	Pulau Pinang	C - Arm (Cardiology)

Source : Medical Resource Section, MOH

Telehealth

Vision

"Right information to right people at the right time and place".

Mission

"Leveraging on ICT (Information and Communication Technology) for accurate, timely information to consumers and care providers".

Background of Telehealth

The government of Malaysia launched the Telehealth initiative to lead the country's healthcare system into the information age. In realizing this, the Telehealth project was launched as one of 7 flagship application under the Multimedia Super Corridor. In addition Telehealth will play an essential role in catalyzing the development of the MSC, as well as furthering the economic development goals in Vision 2020.

Consistent with Vision 2020, Malaysia aspired to harness the power of information and multimedia technologies to transform the delivery of healthcare and improve health outcomes. In year 1997, Telemedicine Blueprint was developed specifically to provide the framework to lead a whole generation from industrial age medicine to information age healthcare. Telemedicine Blueprint provided the conceptual model and implementation road map for the roll-out of telemedicine across the nation, and links Malaysia into a global network of virtual health services. The components of

Telemedicine were Lifetime Health Plan (LHP), Mass Customised/Personalised Health Information and Education (MCPHIE), Continuing Medical Education (CME) and Teleconsultation (TC).

In realizing the need to have a legislative control over practice of Telemedicine in Malaysia, in 1997, under the Law Of Malaysia Act 564, Telemedicine Act 1997, was enacted. The purpose of the law is to regulate and control the practice of Telemedicine. In year 1999 National Telehealth Policies was developed to facilitate greater understanding of the future health delivery system and to assist the implementation of Telehealth. The Telehealth project was implemented in year 2000.

Progress Report

i) ***LHP***

➵ *Code Sets*

The Lifetime Health Record Data Dictionary has been finalized by the Ministry of Health pending formal publishing. Progress on the National Clinical Codesets are as follows :

- Laboratory Codesets have been completed and approved.
- Radiology Codesets have been completed and approved.
- Pharmacy Codesets are 90% completed.
- Revised Standard Operating Procedures are being developed.

➵ *Application Solution*

- Version 1.2.4 has been implemented in all three areas of Selangor, Negeri Sembilan and Kuala Lumpur.
- Version 1 is integrated to Mykad.
- Version 2 of LHP Outpatient Application is pending implementation in areas of Kajang.
- The LHP version 2 is also pending integration to Mykad and SPPD.

➵ *Infrastructure Readiness*

46 piloted facilities have been chosen around the four states of Wilayah Persekutuan, Negeri Sembilan, Selangor and Perak as follows :

- Kuala Lumpur - 13 Health Centers and Hospital Kuala Lumpur.
- Kajang - 7 Health Centers and Hospital Kajang.
- Seremban - 6 Health Centers and Hospital Seremban.

➵ *Overall Utilization of LHP*

- Total average online utilization is 42% of manual patient load.
- Selangor registered an average of 92% of patients online.
- Negeri Sembilan registered an average of 72% of patients online.
- Kuala Lumpur registered an average of 17% of patients online.

ii) ***CME***

Five FDE online courses were made available. These were :

➵ Midwifery
➵ Health Personnel Management
➵ Accident and Emergency
➵ Primary Healthcare
➵ Public Health Nursing

A total of 56 students registered for the courses. Virtual resources such as Biomedical journals, e-text books, EBMR, Medline and health news were also made available.

iii) ***MCPHIE***

The portal went live on the 1st November 2000. A total of 47 mass topics were webtised by Syarikat Medical Online Sdn Bhd. in 2003 bringing the total number of topics webtised to 103 topics in English and 40 topics in Bahasa Malaysia. 10 customised topics were also delivered by the company and handed over to MOH for vetting through. Other services introduced were the Online Discussion Forum and the module for Health Risk Assessment for Cardiovascular Diseases.

iv) ***Teleconsultation***

The Teleconsultation Project was completed on the 10th of October 2002. A total of 41 health facilities throughout the country with the exception of Sarawak, were interlinked. The total number of cases conducted were 1,215.

Conclusion

A strategic review of Telehealth Flagship Application was completed in 2003. The review validated the relevance of vision and the blueprint of the Telehealth Flagship. This will form the basis for further implementation of the Telehealth Flagship.

EXTENDED MEDICAL CARE

Extended Medical Care is a new activity in the 8th Malaysia Plan and is derived from Medical Rehabilitation Activity under the 7th Malaysia Plan. Extended Medical Care extends beyond medical rehabilitation, with a totally new concept and approach. It complements Hospital Medical Care, another patient care activity, and covers medical, nursing, rehabilitative and palliative care for specific group of patients with needs that could not be adequately met in the current hospital service. Extended medical care provides for an extended period of continuing medical, nursing and rehabilitative care to patients where such care cannot be adequately provided at the primary health care facility or at home. Types of services to be provided are :

i) Inpatient Extended Care - As an extension of post-acute care for which an extended period of medical, nursing and rehabilitation is expected.
ii) Day Extended Care - As a Day Rehabilitation, Day Geriatric, Day Psychiatry, Haemodialysis service and other organized day service that are provided over an extended period of time.
iii) Palliative Care - For patients which cannot be cured. Palliative care provides symptom relief, respite care, counseling, emotional and bereavement support thereby optimizing quality of life. Although palliative care covers all terminal illnesses, the immediate focus of this service is cancer care.
iv) Home Care Nursing - through visits by healthcare personnel by means of giving advice, support, as well as monitoring of continuing care initiated by the hospital.

The extended medical care service provides continuing care of patients for a limited period of time and once they are stable, they will be cared for by the primary health care providers and the community.

Rehabilitation

One of the major activities in Extended Medical Care is Rehabilitation Medicine which has been officially recognized in 1996. Hospital Cheras has been chosen as the Centre of excellence for Rehabilitation Medicine Programme. Since this hospital is yet to be established, Hospital Putrajaya has been identified as the temporary Centre of Excellence for Rehabilitation Medicine Programme. The outpatient rehabilitation clinic in Hospital Putrajaya has been in service since 2002. It mainly caters for patients from the surrounding area.

Rehabilitation Medicine is a direct form of professional patient care that can be applied in most disciplines of medicine. It provides a hands-on component which can liaise with physicians who have medical expertise in neurology, neurosurgery, orthopaedics, general surgery, family practice, pediatrics, geriatrics, rheumatology, internal medicine, urology, cardiovascular medicine, cardiopulmonary medicine, psychiatry, and sports medicine.

The objectives of Rehabilitation Medicine are :

i) Prevention of disability and pain.
ii) Restoration of function and relief from pain.
iii) Promotion of healing.
iv) Adaptation to permanent disability.

Rehabilitation Medicine is a vital part of the total care for patients who have problems of temporary or permanent disability. The ultimate goal of Rehabilitation Medicine is for the patient to achieve freedom from pain, independent living and understanding of how to prevent re-injury.

Physiotherapy

Physiotherapy concerns with the assessment, maintenance, and restoration of the physical function and performance of the body. It is a distinct form of care which can be performed both in isolation and in conjunction with other types of medical management. Used in conjunction with certain medical or surgical techniques, physiotherapy can complement these techniques to help provide a speedy and complication-free return to normal activity. Physiotherapy can be useful in the diagnosis and management of a wide range of injuries, disease processes and other conditions. Table 25 below showed an increment of 21.33% in the number of hospitals which provide this service in year 2003 as compared to year 2002. This involves 46 hospitals with specialists, 31 hospitals without specialists and 3 special institutions.

Occupational Therapy

Occupational Therapy concerns with restoring useful physical functionality following disabling accidents and sickness. The goal of occupational therapy is to assist the patient in achieving the maximum level of independent function. Patients include persons suffering from strokes, cerebral palsy, spinal cord injuries, arthritis, head injuries, amputations, burns, hand injuries, people with visual, auditory and speech problems. Occupational therapists helps the patient to be actively involved in therapeutic tasks and activities which, not only improves the functional aspect but also helps the patient to apply the newly restored or impaired function in meeting the demands of daily living.

Audiology and Speech Therapy

The study of hearing disorders through identification and evaluation of hearing loss, and the rehabilitation of those with hearing loss, especially those that cannot be improved by medical or surgical means. Speech therapy is the treatment of communication disabilities and swallowing disorders.

TABLE 25
Number of Hospitals with In-Patient Physiotherapy Services by States, 2002-2003

State	No. of Hospital Providing In-Patient Physiotherapy Services					
	2002			2003		
	*P	*T.P	Total	*P	*T.P	Total
Perlis	1	0	1	1	0	1
Kedah	4	1	5	4	1	5
Penang	3	1	4	3	2	5
Perak	5	5	10	5	6	11
Selangor	5	1	6	6	0	6
Federal Terrritory	3	0	3	3	0	3
Negeri Sembilan	2	1	3	2	1	3
Malacca	1	0	1	1	0	1
Johore	5	0	5	5	0	5
Pahang	3	4	7	3	4	7
Terengganu	2	2	4	2	2	4
Kelantan	2	5	7	2	5	7
Sabah	4	3	7	4	6	10
Sarawak	5	4	9	5	4	9
Total hospitals	**45**	**27**	**72**	**46**	**31**	**77**
Institutions			3			3
Overall Total			**75**			**80**

*P = Hospitals with specialists *TP = Hospitals without specialists
Source : Information and Documentation System Unit, MOH

MEDICAL CARE QUALITY

The goal of the Medical Care Quality Activity is Internalisation and institutionalisation of Quality in the Medical Programme so that our clients will obtain better health care and achieve better quality of life.

"National Indicator Approach" (N.I.A)

i) ***Review of NIA for QAP of Patient Care Services***

53 national indicators for the Patient Care Services NIA has been implemented in MOH hospitals since 2001. Data is collected and analysed six monthy. In 2003, all the indicators have been reviewed through focus group consensus

and discussions. 48 indicators were agreed to be continued and a number of indicators were proposed to be modified or added. A new format for collection of data and subsequently, the NIA manual is being updated. Meanwhile, the 53 NIA indicators continue to be field tested till end of 2004.

ii) ***New Approach of Obtaining NIA Data by Utilising "Clinical Care Pathways"***

Since 1986, the QAP Programme has been using problem-solving approach to develop NIA indicators. This approach has been the basis of development of Quality Improvement Activities within Ministry of Health. **The Review of NIA Workshop** in 18th-20th December 2002 recommended a new approach for QAP which is ***Quality by Design***. This approach helps to improve integrity and accuracy, as well as "primary risk adjustment" of NIA data. It will be able to be used in the development of benchmarking of all Ministry of Health facilities. However, the problem solving approach of QAP is will be retained as it has its relevancy. In this approach, Model of Good Care or care pathway is used to identify the process or outcome indicators.

A Working Committee had successfully developed a "model of good care/ practice" in managing ST Elevation Acute Myocardial Infarction (STEMI) based on the "Malaysian Clinical Practice Guidelines on STEMI and Non-STEMI/Unstable Angina". An Information Communication Technology Consultant was engaged and, with the expert directions and advice from the Working Committee, had successfully developed the computerized NIA data collection format (Electronic CPATH) based on the "model of good care/ practice". Collated information on the *Percentage of Acute Myocardial Infarction patients receiving Thrombolytic Therapy within 1 hour of presentation at the Emergency Department" (Door-to-Needle Time)* has been captured using computer system.

A pilot project was officiated and launched by the Deputy Director-General of Health (Medical) on 8th August 2003. The pilot project was successfully implemented and is running smoothly at present. Kuala Lumpur Hospital is able to collect "near-live data" on door-to-needle time from the Coronary Care Unit. The Electronic CPATH will be implemented in phases. In 2003, six hospitals namely Hospital Kajang, Hospital Banting, Hospital Sungai Buloh, Hospital TAA, Klang, Hospital Selayang and Hospital Putrajaya were chosen to implement a paper-based Door-to-Needle Time data collection initially, to be converted to the Electronic CPATH in future. Selected hospitals in the northern zone will also be participating in 2004.

The Care Pathways for the following have been developed in 2003 :

- Traumatic Brain Injury
- Chronic Asthma Management
- Adults with closed diaphyseal fracture
- Polytrauma
- Acute Myocardial Infarction

The pathways will be implemented in phases.

"Hospital-Specific Approach" (H.S.A.)

Five sessions of "Training of Trainers" in QAP with emphasis on problem-solving had been conducted for hospitals. The objectives of the training programmes are :

i) To create awareness and improve the knowledge of health care workers.
ii) To train and nurture participants on the internalization of Quality in health care.
iii) To enable the trained QAP trainers to provide echo training at their respective workplace.

Participants of the training program included Hospital Directors, Specialists, Medical Officers, Medical Assistants, Nurses as well as officers from Imaging Department and Laboratories. The training sessions were jointly conducted by the State Health Office and the Healthcare Quality Section, Ministry of Health. In 2003, 292 participants from Pahang, Kedah, Penang, Perlis, Sabah and Sarawak had been trained.

Perioperative Mortality Review (POMR)

In 2003, 40 public hospitals from the Ministry of Health and 3 University hospitals, one Arm Forces hospital and the National Heart Institute participated in POMR.

Four POMR meetings chaired by Dato' Dr. Hasim bin Mohamad, Head of Surgical Department, Kota Bharu Hospital were held to assess the five selected surgical discipline groups which include Paediatric Surgery, Obstetric & Gynaecology, Colorectal Surgery, Polytrauma and Neurotrauma and "Others" (Table 26).

As a further step to improve the reporting rate and reliability of POMR reports, one coordinator was appointed from the nursing group for each hospital. The POMR coordinators have been trained in using the new POMR format on 25th-26th May 2003 at Hotel Cititel, Kuala Lumpur.

The Advisory POMR Committee Meeting chaired by the Deputy Director-General of Heath (Medical) was held on 6th November 2003 to discuss the recommendations of the POMR Reports. Some of the recommendations were agreed in principle, to be taken as policies for the Ministry of Health.

TABLE 26
Number of Cases by Types of Surgery, 2003

Type of Surgery	Number of Cases
Colorectal	75
Polytrauma	80
Neurotrauma	109
Paediatric surgery	50
O&G	43
Cardiothoracic	5
Others	477
Total	**839**

Two POMR bulletins presenting POMR cases were published in 2003. The lessons learnt from POMR could be taken as a guide to improving the quality of care.

36 MOH hospitals have been installed with the Computerized Operating Theater Documentation System (COTDS) programme. In 2003, 7 more public hospitals were introduced to and trained on the COTDS.

National Adult Intensive Care Unit (NAICU) Audit

The National Adult Intensive Care Unit (NAICU) audit was initiated in 2002 by the NAICU Audit Committee chaired by Dr Ng Siew Hian, Head of Department of Anesthesiology, Ipoh Hospital. The Committee members include 5 Anesthesiologists from the MOH. The Section on Healthcare Quality is the Secretariat for this audit, which is intended to evaluate the performance of ICUs and establish a national database for the service, with the ultimate aim of improving the intensive care services for the country.

14 State Hospitals with more than four ICU beds including Selayang Hospital are involved in this study. A standardised NAICU audit format was used to collect the data during a trial period from July 2002 until December 2003.

From a six-month study, an interim report was prepared in January 2003. This report was presented to the *"Mesyuarat Khas Ketua Pengarah Kesihatan"* on the 14th March 2003 in Tawau, Sabah. The Meeting agreed on an annual budget of RM10 million to be approved in order to upgrade as well as increase the number of ICU beds in MOH hospitals. A Cabinet Memorandum from the Ministry of Health requesting for the additional allocation to upgrade ICU services in Malaysia had been prepared.

A training session on data entry of NAICU audit was organised from the 19th until 21st August 2003 in Awana Genting Hotel. Subsequently from September 2003, the entry of NAICU audit data was computerised.

The NAICU audit was launched on the 17th October 2003 in Kuala Lumpur by the Honourable Minister of Health.

Nosocomial (Hospital) Infection Control Programme

The Infection Control Unit was established in early 2002 under the Healthcare Quality Section. The objective of the unit is to systemically monitor and enhance hospital acquired infection surveillance and control activities in hospitals. The Unit reports to the Infection Control Committee of the Medical Programme which is chaired by the Deputy Director General of Health (Medical). The National Steering Committee on Infection Control is chaired by the Deputy-Director General of Health (Research and Technical Support).

In 2003, the *Disinfection and Sterilisation Policy and Guidelines,* the *National Policy and Procedure of Infection and Antibiotic Control Programme* and *Pocket Guidelines For Standard Precautions* were prepared. The documents have been printed and distributed to all facilities of the Ministry of Health, Universities and private hospitals. The policies and guidelines will be reviewed every 2 years.

i) ***MRSA and ESBL Monthly Surveillance***

Since the year 2002, monthly surveillance of Methicillin Resistant Staphalococcus aureus (MRSA) infections has been conducted in 14 state hospitals and 3 university hospitals. In August 2003, the monthly surveillance of Extended Spectrum Beta Lactamase Klebsiella (ESBL) infections was initiated. It was found that there was a high MRSA infection rate in the Orthopedic Unit and Intensive Care Unit. Awareness programme as well as courses with special emphasis on "hand hygiene and standard precautions" were also conducted in the Intensive Care Units and Orthopedic wards.

ii) ***Point Prevalence Survey on Nosocomial Infections***

Point-Prevalence Surveys for Nosocomial Infections are conducted twice a year in March and September. 5 types of nosocomial infections are monitored namely :

- Urinary Tract Infections (UTI)
- Surgical Site Infections (SSI)
- Pneumonia
- Bloodstream Infections (BSI)
- Clinical Sepsis

In the first point prevalence study, pneumonia was followed by surgical site infections as the commonest form of nosocomial infections. In a more elaborate and detailed study, to be conducted in 2004, targeted surveillance of ventilator associated pneumonia (VAP) and surgical site infections will be performed.

iii) ***Training***

In-service training on infection control for hospital staff has been conducted in selected hospitals including Hospital Sultanah Aminah Johor Bharu, Hospital Melaka, Hospital Alor Star, Hospital Queen Elizabeth and Hospital Umum Sarawak. The Asia Pacific Society of Infection Control (APSIC): Basic Infection Control Training Course was first conducted in Malaysia at the Institute of Medical Research (IMR) in 2003. It is a course that is recognised by the University of New South Wales, Australia. 122 participants consisting of medical officers, science officers, pharmacists, medical assistants and nurses attended and successfully completed and passed the APSIC training.

Awareness Programme: Hand Hygiene & Standard Precautions

The awareness programme on hospital infection control, particularly hand hygiene and standard precautions has been conducted, involving all state and district hospitals of the MOH.

The Proposal for Infection Control Post Basic and Credentialing of Infection Control Nurse and Link Nurse Training Programme

A proposal to establish post basic training and credentialing of infection control nurses has been drafted. This is to improve the competency of infection control nurses nation-wide. Staff nurses in the ward have been identified and designated as link nurses, who are responsible in organising infection control activities in the respective wards. The "Link Nurses" of state hospitals will be trained in 2004, as trainers for link nurses of district hospitals.

iv) ***Joint Post SARS Surveillance Action Plan***

In late December 2003, a joint effort by the Medical Development Division and the Public Health Division resulted in the successful development of the surveillance action plan for monitoring atypical pneumonia in MOH hospitals (as a surveillance and preventive measure for SARS).

Health Tourism

In 2003, The Healthcare Quality Section was appointed the secretariat to the National Committee for Health Tourism.

In the 2003, there was a drop in Health Tourism activity due to the SARS outbreak and the Middle East crisis. However during the 3rd quarter of 2003, there was a marked improvement as reported by the Association of Private Hospitals Malaysia (Table 27 and 28). The improvement may be attributed to the resolution of the SARS problem and the increasing confidence of tourists to travel.

TABLE 27
Number of Foreign Patients and Quarterly Income in the Private Sector, 2002

Quarterly Income 2002	1st. Quarter	2nd. Quarter	3rd. Quarter	4th. Quarter
* Foreign patient (Number)	15,520	20,541	24,707	23,817
** Income (RM)	7.452 mil.	10.041 mil.	9.745 mil.	8.641 mil.

*data No. of patients = from 20-22 hospital **data Income = from 10-14 hospitals
Source : Association of Private Hospitals Malaysia (APHM)

TABLE 28
Number of Foreign Patients and Quarterly Income in the Private Sector, 2003

Quarterly Income 2003	1st. Quarter	2nd. Quarter	3rd. Quarter
* Foreign patients (Number)	25,779	18,690	29,104
** Income (RM)	13.3 mil.	10.4 mil.	17.2 mil.

*No. of patients from 15-20 hospital **data Income from 14-16 hospital
Source : Association of Private Hospitals Malaysia (APHM)

The Health Tourism Programme is being developed in line with the 17 recommendations proposed by *The Study and Audit for the Development of Public and Private Health Facilities as Sources of Foreign Exchange Earnings*. This study was conducted by Arthur Andersen in 2002.

Hospital Accreditation Programme

The Circular of the Director-General of Health Malaysia (Pekeliling KPK 2/99) mandated the implementation of Accreditation in MOH hospitals. The State Health Director is accountable for the planning and implementation of accreditation activities in the hospitals under their jurisdiction in their respective States. In ensuring the smooth implementation of the accreditation processes, the MOH works closely with the Malaysian Society of Health (MSQH).

The Ministry of Health is committed to the Hospital Accreditation Programme by acquiring RM500,000 annually till 2005 under "Dasar Baru". In 2003 an additional RM150,000 was approved for the hospital accreditation program as a "one-off budget" to assist accredited hospitals go for "re-accreditation" once their 3 year accreditation status had expired. In 2003, another 9 public hospitals were trained in Accreditation. Since the commencement of the program in 1998 until 2003, approximately 93 hospitals have undergone accreditation training.

Accreditation of Hospitals : Achievements until December 2003 :

i) 30 hospitals achieved "full accreditation" for a 3 year period.
ii) 2 hospitals achieved "partial accreditation" of a 1 year period.
iii) 4 hospitals have been re-accredited for the second time, namely :
- Hospital Kota Bharu
- Hospital Tengku Ampuan Afzan Kuantan
- Hospital Labuan
- Hospital Tengku Ampuan Jemaah (Sabak Bernam)

iv) 2 hospitals with expired the accreditation status; they will need to be re-surveyed.
v) 4 hospitals are awaiting decision from the MQSH.

The objective of the Ministry of Health is to ensure that Ministry of Health hospitals achieve accreditation certification. However, in realising this objective, there is a critical need for continual financial support and commitment of all parties involved.

MS ISO Certification 9001:2001

The Healthcare Quality Section, Medical Development Division is the secretariat for MS ISO 9000:2001 for MOH hospitals and the Medical Programme. The function of the Secretariat is to request and procure allocation for hospitals and Medical Division for MS ISO 9001:2000 certifications from the MOH Health Engineering Division which coordinates the MOH ISO programme.

i) ***MS ISO of the Medical Division***

The respective Division and Units are in the process of developing a Quality Manual of the respective Divisions and Units and the "generic Quality Procedures". The Medical Division's Quality Manual ("Manual Kualiti") is ready for endorsement by the top management. An internal audit will be conducted in 2004.

ii) ***ISO for MOH Hospitals***

The Healthcare Quality Section is the Secretariat for MS ISO 9001:2000 for all MOH hospitals.

Achievement till end of 2003 (Table 29):

14 hospitals had requested re-conversion from version 1994 to MS ISO 9001:2000 while 5 hospitals applied for MS ISO 9001:2000.

TABLE 29
List of MOHs' Hospital Certified with MS ISO Certifications

No.	State	Name of Hospital	Year of MS ISO Certification	Current Status
1.	Kedah	Hospital Kulim	2001	Reconversion from 1994 to version 2000
		Hospital Langkawi	2002	Plan for reconversion 2000
		Hospital Sik	2003	Preparatory stage for reconversion to 2000
2.	Perak	Hospital Sungai Siput	2003	MSISO 9001:2000-2003 -2006
3.	Selangor	Hospital TAR Klang	1999	MSISO 9001:2000-2003-2006
		Hospital Tanjung Karang	2002	Undergoing internal audit & adequacy audit. Proposed date of certification 2004
4.	Federal Territory	Institute Pediatric	2002	Certified with MS ISO 1994
5.	N.Sembilan	Hospital Kuala Pilah	1999	Plan for reconversion to 2000 in 2004
6.	Malacca	Hospital Malacca	2002	Plan for reconversion to 2000 January 2004
		Hospital Alor Gajah	2002	Plan for reconversion to 2000 on April 2004
7.	Johore	Hospital Muar	2002	Plan for reconversion to 2000 early 2004
8.	Terengganu	Hospital Kemaman	2002	Plan for reconversion to 2000 May 2004
9.	Kelantan	Hospital Kota Bharu	2002	Plan for reconversion to 2000 (2003-2006)
		Hospital Machang	2002	Plan for reconversion to 2000 (2003-2006)
		Hospital Tanah Merah	2001	Plan for reconversion to 2000 as early 2004
		Pasir Mas	2002	Plan for reconversion to 2000 in 2004
10.	Sabah	Hospital Queen Elizabeth KK	2002	Preparing document to be audited for reconversion to 2000 series by 2004
		Hospital Bukit Padang	2002	Prepared for reconversion to 2000 in 2004

- Hospital Kulim (Reconversion to 2000 series).
- Hospital Seberang Jaya, Pulau Pinang.
- Hospital Taiping.
- Hospital Ipoh.
- Hospital Alor Gajah (Reconversion to 2000 series).
- Hospital Besut, Terengganu.
- Hospital Tumpat, Kelantan.
- Hospital Tanah Merah (Reconversion to 2000 series).
- Hospital Gua Musang.
- Hospital Queen Elizabeth KK, Sabah (Reconversion to 2000 series).
- Hospital Bukit Padang, KK Sabah (Reconversion to 2000 series).

"Incident Reporting"

i) ***Introduction***

Incident reporting is a vital Quality Improvement activity and is one of the MOH's effort in Clinical Risk Management. Incident reporting emphasises safety of patients and staff. A Manual on Incident Reporting was published in 1999 and were circulated to all public hospitals for implementation. Approximately 30 incidents are being monitored by MOHs' hospitals and localised to area of high risks such as Operation theatres, Labour wards and Intensive Care Units.

ii) ***Situational Analysis***

Incident Reports are analysed and monitored at state levels so as remedial measures and prevention can be undertaken. In the Incident Reporting, a manual list of Reportable Incidents have been identified at critical locations such as operation theatres and Intensive Care Units etc, as well as the preventable measures.

The Healthcare Quality Section and the State Health Offices collated incident reports from all hospitals, and it was found that the level of monitoring varies from States and hospitals.

iii) ***Future Plan***

To ensure that incident reporting is to be a national activity, incidents in the "must report incident" list must be reported. Ministry of Health's policy is to maintain incident reporting as confidential and thus to inculcate Safety Culture among health personnels.

Patients Safety

i) ***Introduction***

The Patient Safety Council of Malaysia was established with the aim of ensuring that the health care industry in Malaysia is safe and of high quality. The Council acts as an Advisory body to the Minister of Health to enhance patient safety and quality of care in public hospitals.

A note on the Patient Safety Council was presented by the Hon. Minister of Health to the Cabinet and the establishment of the Patient Safety Council Malaysia was given Cabinet approval in January 2003.

ii) ***Term of Reference Patient Safety Council, Malaysia***

- Advise the Hon. Health Minister on priority areas and national strategies for patient safety and quality improvement in healthcare.
- Identify areas of concern regarding patient safety and to monitor the performance in these areas. Reports are to be tabled at the Council's meetings.
- Discuss issues on patient safety and to develop means to overcome the problems.
- Plan a prevention strategy for patient safety.
- Prepare an annual report on Patient Safety performance.
- Establish an electronic database on patient safety and medical error data.

iii) ***Achievements***

In 2003, two meetings were conducted on the 21st March and 1st July. A special Committee headed by Tan Sri Dato' Dr. Abu Bakar Suleiman was established to advise the Patient Safety Council on strategies pertaining to patient safety in Malaysia. This special Committee met twice and will propose their recommendations in the year 2004.

Various Technical Advisory Committees were established to address patient safety issues on area of the related expertise. The Technical Advisory Committees will implement strategies proposed by the Patients Safety Council. The various Technical Advisory Committees are :

- *"Data and Information Committee".*
- *"Consumer Education and Empowerment Committee".*
- *"Continuing Education Committee".*
- *"Medication Safety Committee".*
- *"Transfusion Safety Committee".*
- *" Safe Staffing and Quality of Work Life Committee".*

iv) ***Resource Development***

The Healthcare Quality Section has successfully obtained WHO fellowships and technical assistance for the year 2004/2005 in the formulation of strategies to address the problem of preventable adverse events due to medical errors.

"Patient Centered-Services"

The Section on Healthcare Quality has taken over the patient-centered services functions from Hospital Administration Unit since middle of 2002. A survey was conducted to identify the various patient-centered services elements currently being implemented at several public hospitals. A cabinet note had been prepared, which was presented by the Minister of Health to the Ministerial Meeting in early 2003.

Therapeutic Gardens in MOH Hospitals

The therapeutic gardens competition has been in existence since 1998. In 2003, 20 hospitals and 12 states were involved in this competition. The State of Kelantan and Federal Territory did not participate in 2003 competition. Malacca and Terengganu State Health Office were represented by a candidate meanwhile the other State Health Offices were represented by two candidates.

The evaluation exercise on therapeutic garden was conducted from 22nd September till 13th October 2003. On the 16th October 2003 the panel of judges met at Ministry of Health to decide the winner of the therapeutic garden competition.

Results of the therapeutic garden competition :

First place	:	Hospital Batu Pahat, Johor
Second place	:	Hospital Parit Buntar, Perak
Third place	:	Hospital Sungai Bakap, Pulau Pinang

The panel of judges felt that the hospitals that took part in the competition should be praised for their effort and acknowledgement be given in relation certain criteria such as :

"Ciri AirTerbaik"	:	Hospital Balik Pulau, Pulau Pinang
"Keceriaan"	:	Hospital Changkat Melintang, Perak Darul Ridzuan
Innovation	:	Hospital Kuala Nerang, Kedah Darul Aman
Landscape	:	Hospital Raub.Pahang Darul Makmur
Initiative	:	Hospital Baling, Kedah Darul Aman
Teamwork	:	Hospital Limbang, Sarawak

"Patient Complaints"

The Healthcare Quality Section has taken over this function from the Hospital Administration Section in the middle of year 2002. A study was conducted to evaluate the number of complaints and to classify the type of complaints that are channeled through the media. The Complaint Committee at the hospital level was reviewed.

Occupational Health And Safety Act

In 2002, the Healthcare Quality Section conducted 2 meetings represented by Medical and Public Health Division to prepare the template for O&G, CSSD, pathology, Radioimaging, Pharmacy, Dietatic and Dental. These templates will be collated for the preparation of guidelines on Occupational Health & Safety in all public hospitals.

Conclusion

Healthcare Quality Section will continue to assist the top management of the MOH in the enhancement of the quality initiatives in line with MOH's Strategic Plan on Quality and in the never-ending pursuit of Quality in healthcare.

HEALTH TECHNOLOGY ASSESSMENT

The Health Technology Assessment Unit was established to provide input into policy making to ensure that safe, effective and cost effective technology is being used in the Ministry of Health facilities in this country. The five main outputs of the Unit are health technology assessments, health technology reviews, clinical practice guidelines, training and the *Newsletter*.

Activities in 2003

Health Technology Assessments

In 2003, 8 new health technology assessments were started, while 14 assessments on issues from previous years were continued. Four issues were recommended by the TAC and approved by the Council.

Health Technology Reviews

19 requests for review were received of which 11 of have been completed while 8 are at the stage of preparation of the final report.

Clinical Practice Guidelines (CPG)

The Unit has provided assistance in the formulation of 46 CPGs produced by colleges or societies within the Academy of Medicine Malaysia or by the Unit itself.

Clinical Pathways

A formal template of clinical pathway for neonatal jaundice was developed with the help of Telehealth Unit, Medical Development Division. The draft of the pathway has been sent to all Paediatric Heads of Department for their comments and views.

Seminars/Training Course/Systematic Review Workshops/Workshops

i) ***Seminar***

Seminar for Nurses and Medical Assistants held at KL International Hotel on 26th-27th May 2003 attended by 30 participants.

ii) ***Training Course***

The annual training course was held at Dynasty Hotel, Kuala Lumpur from 6th to 10th July 2003. The 40 participants included clinicians from various disciplines, including hospital directors and officers from various divisions of the Ministry of Health.

iii) ***Systematic Review Workshops***

Two workshops were organized mainly to assist clinicians in preparing clinical practice guidelines namely :

- 28th-29th March 2003, at Institute of Health Management, Ministry of Health, Bangsar.
- 26th-27th August 2003 in Dynasty Hotel, Kuala Lumpur.

iv) ***International Conferences***

2 International Conferences were jointly organised with the Malaysian Society of Health Technology Assessment namely :

- Asian Regional Conference on Evidence Based Nursing, 22nd-25th September 2003 held at Legend Hotel. 470 participants attended the conference (local & overseas).
- Asian Regional Health Technology Assessment Conference 15th-18th December 2003, in Grand Season Hotel, KL. 270 participants attended the conference (local & overseas).

Other Activities (local and international)

HTA Meeting

An officer from the HTA Unit and a paediatrician from Hospital Melaka attended the annual meeting by the *Society of Health Technology Assessment International* held in Canmore, Canada from 4th to 5th June 2003 sponsored by the Ministry of Health. The officer from the Ministry of Health presented a paper during the meeting.

Lectures to Masters in Public Health (MPH) Students

Lectures were given to MPH students from University of Malaya and University Kebangsaan Malaysia.

United Nations Award for Public Service

The unit was invited by MAMPU to participate in the UN Award for Public Service.

Achievements in 2003

4 issues were approved by the Council :

i) Minimal Access Surgery.
ii) Rational Antibiotic Utilization in Selected Pediatric Conditions.
iii) Management of Thalassemia.
iv) Management of Moderately Elevated Blood Pressure.

Recommendation from the reports :

i) In the field of orthopedics it is suggested these newer techniques using *Minimal Access Surgery* should be encouraged, with opportunities being offered to individual surgeons who wish to pursue such training. Laparoscopic surgery has more advantages over open cholecystectomy. In the management of staghorn calculi in the kidney, percutaneous nephrolithotomy is recommended.

   Vaginal hysterectomy is the best procedure and more cost effective than laparoscopic assisted vaginal hysterectomy. The evidence shows that the treatment of choice for cystectomy is laparoscopy. Laparoscopy is also safe and an effective procedure for treatment of ectopic pregnancy.

   With regards to minimal invasive surgery in children, it was found that laparoscopic orchidopexy is safe and useful for localisation of non-palpable testes. The laparoscopic technique is recommended for bilateral impalpable

testes and open inguinal exploration for unilateral impalpable testes. Laparoscopic cholecystectomy, appendicectomy and Nissen Fundoplication is not recommended.

ii) In the report on *Rational Antibiotic Utilization in Selected Pediatric Conditions* it was noted that there is evidence to recommend the use of Ampicillin, Aminoglycosides, Cephalosporins and Vancomycin in the treatment of neonatal sepsis however there is inconclusive evidence on the appropriate duration of antibiotics. Penicillin is recommended for Group B Streptococcus, while Liposomal Amphotericin B is recommended in Candidiasis. Gentamycin can be given on a once daily dose where indicated. Vancomycin, Penicillin and Teicoplanin can be used for prophylaxis. There is insufficient evidence on the use of prophylaxis in specific conditions and antibiotics of choice in specific conditions. There is also insufficient evidence, to support the use of antiviral agents in various conditions, except for evidence of effectiveness of Acyclovir in Herpes simplex infection and neonatal *Varicella* infection.

iii) The HTA on *Management of Thalassemia* recommends that a screening and prevention programme for the control of β-thalassaemia trait should be instituted. Screening of school students and screening of relatives of known carriers should be carried out. Pre-marital and prenatal screening services should be offered for those who request for it. The report further recommends that Thalassaemic children should receive leukocyte-reduced red cells for transfusion. Chelation therapy using Desferoxamine and Deferiprone is recommended to prevent or improve serious complications of the Thalassaemia. Bone Marrow Transplantation should be offered to patients as soon as possible especially if there is a HLA compatible sibling/family member. There is insufficient evidence to recommend other treatment modalities.

iv) In the HTA on Moderately Elevated Blood Pressure a diagnosis of moderately elevated blood pressure or mild hypertension should be made if the systolic blood pressure exceeds 140 mm Hg or the diastolic blood pressure is more than 90 mm Hg. The blood pressure must be accurately measured, and further confirmed by monitoring the blood pressure. Management of Moderately Elevated Blood Pressure of these patients would depend on the level of blood pressure risk factors. Non-pharmacological interventions should be attempted before initiating therapy with drugs.

Challenges

i) Insufficient global acceptance of HTA reports.
ii) Difficulties in getting full participation from expert committees.
iii) Difficulties in evaluating implementation impact of recommendations from HTA reports.
iv) Limitation of scope of the Unit due to shortage of staff and basic facilities.

Future Plans

i) To expand and promote HTA at hospital level.
ii) To ensure continuous effort to increase awareness of the importance of HTA.
iii) To promote HTA awareness in the private sector, so as to ensure the optimal utilization of resources and also to ensure that the health technology being used is safe and effective.
iv) To ensure that HTA is carried out prior to the purchase of medical equipment costing more than RM200,000 that has never been used in Ministry of Health facilities.
v) To continue to upgrade the skills of the staff in HTA unit.
vi) In Asian region, the Unit has been given the mandate to ensure optimal use of resources, and the unit is in the process of being appointed as *Collaborating Centre for World Health Organisation* (WHO) as the resource for HTA.

PRIVATE MEDICAL PRACTICES CONTROL

Malaysia has a dual-system in the provision of healthcare comprising of public (Government) and private healthcare providers. Both sectors provide up to tertiary level care for the public and function to complement each other in the provision of healthcare services to the masses.

Currently the private healthcare facilities fall under the Private Hospital Act 1971 and the Private Hospital Regulations 1973. These Acts govern the practice of private hospitals, maternity homes and nursing homes. However with the coming Private Healthcare and Services Act 1998, other healthcare services will also be subject to MOH supervision, giving greater responsibility to MOH to govern all private healthcare facilities and services.

In anticipation of the implementation of the new Act, the Licensing Branch at MOH was upgraded to become the Private Medical Practices Control Section with branches being founded at the State Health Offices.

At present however, the general procedure on the processing and the issuance of licences for private hospitals is still under the Private Hospital Act 1971 as regulations under the Regulations of the Private Healthcare Services Act 1998 has yet to be gazetted.

Number of Licensed Private Hospitals and Their Bed Complement by State in 2001, 2002 and 2003

State	No. of Private Hospital, Maternity Homes and Nursing Homes					
	Number Licensed			Number of Beds		
	2001	2002	2003	2001	2002	2003
Johore	35	35	33	770	769	838
Kedah	16	15	14	395	386	377
Kelantan	2	3	3	63	93	95
Malacca	6	5	5	619	612	708
Negeri Sembilan	6	5	5	181	173	122
Penang	24	22	23	1,798	1,776	2,040
Pahang	8	8	10	143	143	216
Perak	16	16	16	763	763	740
Perlis	-	-	1	-	-	2
Selangor	47	44	46	2,259	2,242	2,337
Terengganu	2	2	2	17	17	17
F.T. Kuala Lumpur	42	37	40	2,395	2,319	2,330
Peninsular Malaysia	**204**	**192**	**198**	**9,403**	**9,293**	**9,822**
Sabah	11	10	11	227	219	227
Sarawak	9	9	9	319	337	346
F.T. Labuan	-	-	1	-	-	10
Malaysia	**224**	**211**	**219**	**9,949**	**9,849**	**10,405**

MEDICAL LEGISLATION SECTION

In the year 2003, the activities of this Unit were focused on the preparation of the draft of the Bills/amendments of the Acts below :

i) Human Reproductive Cloning Bill.
ii) Mental Health Regulations.
iii) Amendments to the Human Tissue Act 1974.
iv) Preparation of Pathology Laboratory Bill and Regulations.

Below is the achievement of this Unit in 2003 :

No.	Activity	Achievement
1.	Human Reproductive Cloning Bill 200_	3 meetings of the committee for the preparation of the Human Reproductive Cloning Bill 200_ were held in 2003; on 11 March 2003, 8 May 2003 and 29 August 2003. On 21 March 2003, the Bill was presented to the Director General of Health. As of December 2003, the Bill was still in the process of drafting.
2.	Mental Health Regulations	On 17-20 Mac 2003, a meeting of the Committee for the preparation of the regulations under the Mental Health Act was held. The Mental Health Regulations 2003 were presented to the secretary of Parliament on 3 July 2003. The regulations were sent for translation to Bahasa Malaysia on 10 October 2003. The Regulations is now with the Legal Office.
3.	Amendments to the Human Tissue Act 1974	The draft of the Amendment of the Human Tissue Act 1974 was presented to the Director General of Health on 11 July 2003 and to the Mesyuarat Khas KPK with Directors of Division and Directors of Health on 28 August 2003. On 25 July 2003, a meeting to discuss the draft of the Amendments of the Human Tissue Act 1974 was held.
4.	Pathology Laboratory Bill and Regulations	2 meetings were held to discuss the concept paper for the Pathology Laboratory Regulations. The meetings were held on from 19 September until 23 September 2003 and 28 September until 1 October 2003.

MEDICOLEGAL SECTION

The number of medico-legal cases are expected to increase annually in tandem with the increased awareness of patients of their rights in obtaining healthcare. The number of cases being treated at government hospitals is also increasing in view of today's economic scenario. Conversely, the number of medical malpractice claims and the amount being sought as compensation has also increased.

Starting from 2001, MOH medico-legal cases are being handled by the Putrajaya DPP. This represents a transitional period as some cases are still being handled by State DPPs at Sessions Courts.

Cases that have been settled at the AG level will be followed up by MOH. For cases in which compensation have been given, the Treasury will require that MOH to take action against the officers concerned. An Investigation Committee will be formed to investigate and to report on the cases. This report will then be submitted to the Human Resource Division, MOH as a guide for the Disciplinary Committee. Further, the disciplinary actions taken will be informed by the Human Resource

Division to the Treasury. Upon agreement from the Treasury, the case can then be declared closed.

Based on a study conducted by St Mary's Hospital in London, malpractice claims are made due to these factors :

i) Emphasis on the standard of care by both the patients and their family members.
ii) The need for an explanation to be offered to the patients and their family members on the events taking place.
iii) Compensation with regard complications arising from the interventional treatment carried out.
iv) Accountability and the belief that the caregiver or the organisation need to be responsible for their actions in providing care.

MALAYSIAN MEDICAL COUNCIL

The Malaysian Medical Council is a statutory body enacted under the Medical Act 1971. The composition of the Council is as follows :

i) President (Director General of Health).
ii) 9 elected representative from Peninsular Malaysia.
iii) 3 nominated representatives each from public universities.
iv) 1 elected representative from Sabah.
v) 1 elected representative from Sarawak.
vi) 3 appointed representative from public service.

The Council has two core functions namely registration and regulation. There are also several committees/panels formed by the Council. They are Preliminary Investigation Committee, Evaluation Committee, Ethics Committee, Joint Committee on Compulsory Service, Medical Review Panel and Medical Qualifying Board.

The Council also conducts Qualifying Examinations for graduates from unscheduled universities prior to registration with the Council.

Disciplinary Achievement in 2003

Number of meeting held by Preliminary Investigation Committees in year 2003:

Preliminary Investigation Committee	2003
PIC I	70
PIC II	27
PIC III	21
PIC IV	16
Total	**134**

Cases brought to the attention of the Council from Preliminary Investigation Committee in 2003 under :

Regulations	2003
Regulation 28	29
Regulation 29 (3)	39
Regulation 29 (4) (a)	8
Regulation 29 (7) (a)	2
Regulation 29 (7) (b)	6
Total	**84**

Disciplinary Inquiry by the Council in 2003 :

i) 1 Pending Court Injunction.
ii) 2 Reprimand.
iii) 1 Suspension from the Register for 4 months.
iv) 1 Not guilty as charged.
v) 1 One month suspension from the Register but suspend the application thereof for a period of six months.

Registration Achievement in 2003

Medical Practitioners Registered with the Council by Type of Registration 2000-2003

Type of Registration	2000	2001	2002	2003
Provisional Registration	995	1,029	1,104	1,083
Full Registration (Without Conditions)	893	1,060	1,088	653
Full Registration (With Condition) [Subsection 14(3)]	133	163	76	128
Temporary Registration (Section 16)	52	112	214	201
Total	**2,073**	**2,364**	**2,482**	**2,065**

Annual Practising Certificates (APC)

	2000	2001	2002	2003
APC	12,428	13,007	13,869	14,451

Medical Practitioners with Annual Practising Certificates in 2003 by Sector and Ethnic

Sector	Bumiputera	Chinese	Indian	Others	Total
Public	3,328	1,176	1,224	380	6,229
Private	2,236	3,145	2,736	231	8,222
Total	**5,564**	**4,321**	**3,960**	**608**	**14,451**

Number of Temporary Practising Certificate Issued by Malaysian Medical Council from Year 2000 to 2004

	2000	2001	2002	2003
TPC Issued	52	112	214	201

Certificate of Good Standing

	2000	2001	2002	2003
LOGS	90	174	208	273

Other Achievements in 2003

i) Accreditation visits to Public and Private Medical Colleges.
ii) Three new medical colleges were given approval by Lembaga Akreditasi Negara (LAN) to start their medical degree program in year 2003. They were Allianze College of Medical Sciences, Monash University (Sunway Campus) and Asian Institute of Medicine, Science and Technology.
iii) Visits to Universities in Ukraine from 13th-25th July 2003 and to Universities in Republic Czech and Romania from 27th September until 10th October 2003.
iv) Hospital Kajang and Hospital Selayang were approved for houseman ship training by the Medical Qualifying Board.
v) Seminar and Workshop on Medical Report vs. Record.

MEDICAL ASSISTANTS BOARD

The Medical Assistants Board meets twice a year and is responsible for the registration of qualified Medical Assistants serving both the public and private hospitals and for the issuance of annual practice certificates under Medical Assistants Act (Registration) 1977 Sect. 7(3). It is also responsible for the conduction of Orientation and Leadership courses for senior Medical Assistants. Revenue for the Board is from the collection of fees for registration, APC, Medical Assistants Batch and duplication of certificate.

Estate Hospital Assistants Board

The Estate Hospital Assistants Board meets twice a year. Activities carried out include conducting examinations for EHAs, registration for probation from Grade 1 to Grade 3 of EHAs, preparation of examiners for the EHA examinations, organizing intensive courses to prepare candidates for the EHA examinations and the collection of fees incurred on such activities.

Achievements for 2003

As Health Sub-Committee Secretariat on medical coverage for 2 major International Events on 13th Non Aligned Movement Summit, PWTC Kuala Lumpur and 10th Session of Summit Conference, Islamic Organisation Countries, in Putrajaya International Convention Centre. Briefing and lectures at 4 Medical Assistants Colleges to 1st (fresh) and 6th (final) semester Medical Assistants Students in Ulu Kinta, Perak, Alor Setar, Kedah, Seremban, Negeri Sembilan and Kuching, Sarawak.

NURSING BOARD

Functions of the Nursing Board encompasses areas of Nursing Practice, Registration and Regulations.

i) Conducts final and registration exams for Nursing Diploma, Nursing Assistant Program (private sector only), Jururawat Desa Program (transitional and long-distance programs) and Midwifery Part 1.
ii) Registration and Certification of qualified Nursing personnel.
iii) Annual Practice Certificate (APC).
iv) Certificate to maintain registration for nursing personnel who no longer practice or for those practising abroad.
v) Training transcripts and endorsement of registration.
vi) Regulations for discipline and practice.
vii) Activities for the development of nursing practice.
viii) Revenue collection.

Inclusion into the General Register 2003

Category	MOH	Private	Trained Abroad	No. in Register until 31/12/2002	No. in Register until 31/12/2003
Trained Nurse	3,158	1,093	7	49,560	53,818
Nursing Assistant	22	96	7	16,549	16,674

Activities and Achievements of the Medical Assistants Board in 2003

No.	Activity	Achievement
1.	Medical Assistants Board Meeting	The 38th Meeting on 27.08.2003 and 39th Meeting on 26.12.2003 at HQ. MOH, Jln. Chenderasari
2.	Estate Hospital Assistants Board Meeting	The 79th Meeting on 15.04.2003 the 80th Meeting on 14.11.2003 at HQ. MOH, Jln. Chenderasari
3.	Annual Registration	7,736 from public and private sectors of running registration
4.	New Registration (Gazette) for MA	456 who passed the Final Examination
5.	Registration for Probation (EHA)	27 (Estate Hospital Assistants)
6.	Certificate Registration (EHA)	6 Grade I, 1 Grade 3 Registered
7.	Annual Practicing Cert. M/A	6,057
8.	Monetary Collection	RM37,675.00 Registration Fee, Apc Fee, Late Fee, Medical Assistants Batch, and duplication certificate payment RM2,600 by Estate Hospital Assistants Board
9.	Courses Conducted by Medical Assistants Board	29th June - 03rd July 2003 - 100 participants 18th - 21st August 2003 - 101 participants
10.	Examiner Meeting of Estate Hospital Assistants Board	Held on 14th May 2003 in preparation for Estate Hospital Assistants Examination
11.	Examination For Estate Hospital Assistants Candidate	7 Grade I, 3 Grade II, 0 Grade III candidate held 22nd - 29th September 2003
12.	Other Activities - Medical Coverage for International Events	10th Session of Summit Conference Islamic Organisation Countries, PICC from 11th - 18th October 2003 13th Non Aligned Movement Summit, PWTC Kuala Lumpur 20th - 25th February 2003
13.	Visit To MA Colleges	22.3.03, 26.3.03, 25.7.03 and 28.7.03

APCs for Local Nurses 2003

Category	MOH	Private	Total
Trained Nurse	10,328	9,695	20,023
Nursing Assistant	1,575	2,250	3,825
Community Nurse	2,556	167	2,723
Total	**14,459**	**12,112**	**26,571**

MALAYSIAN OPTICAL COUNCIL

Malaysian Optical Council (MOC) was established twelve years ago with the function to register opticians and optometrists and to regulate the practice of optometry in this country through the implementation of all provisions under the Optical Act 1991 and Optical Regulations 1994.

Until the end of 2003, MOC has registered 477 optometrists and 1,962 opticians to make the total number to 2,439 registered practitioners.

MOC has issued 1,783 Annual Practicing Certificates (APC) in 2003 and the number will be increasing as the number of registered practitioners arise. MOC has also issued 497 contact lens permits to eligible registered opticians to dispense contact lenses. MOC is planning to strengthen the Optical Act 1991 to include regulating the optical premises and services in future.

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RESEARCH AND TECHNICAL SUPPORT PROGRAMME

Health Planning and Development

INTRODUCTION

THE Planning and Development activity is one of the four activities under the Research and Technical Support Programme. The Planning and Development activity supports the Ministry of Health, as well as the health sector in health planning and development, including the provision of health information. The Planning and Development Division has three core businesses namely :

i) To formulate, review and evaluate the 5-year health plan for the Ministry of Health.
ii) To plan, implement, monitor, commissioning and evaluate health facilities for the Ministry of Health.
iii) To provide timely and accurate health information for the health sector and health related agencies.

OBJECTIVES

The objectives of the Eighth Malaysia Plan (2001-2005) are :

i) To ensure priority consideration of equity of access to health services in terms of geographical cost, comprehensiveness and continuity of care.
ii) To ensure attainment of quality care through availability of trained personnel, appropriate technology, optimal resources and acceptable standards of practice. To maintain and improve their health status.
iii) To strengthened the Primary Health Care approach in delivery of health care through health promotive, preventive, curative and rehabilitative services.

iv) To provide high quality and comprehensive medical care services, with a continuum of care from acute to rehabilitative, using appropriate technologies to improve health outcomes.

v) To strengthen inter-agency and intra-agency coordination, cooperation and sharing of resources, including information.

ACTIVITIES AND ACHIEVEMENTS IN 2003

PLAN FORMULATION AND EVALUATION

Mid-Term Review of the Health Plan

In 2003, the Mid-Term Review (MTR) of the Eighth Malaysia Plan (8th MP) was carried out to assess achievements and shortfalls, if any, and to define the prospects for the second half of the 8th MP period. The preparation for the MTR started in January 2002 and the conference of the MTR was organised on the 23rd - 24th January at the Putrajaya Marriott Hotel. All of the heads of Division, State Health Directors, selected specialists, selected Hospital Directors, selected District Health Officers, Deans of Medical Faculty from Universities, Central Agencies, other Ministries like the Ministry of Education and Ministry of Defence, the private sector and NGOs participated in the conference.

State Health Situational Analysis from all states were further assessed and aggregated to form the Country Health Situational Analysis report. Health issues at the Mid-Term review of the 8th MP were identified based on health situational analysis, and also through discussions among MOH planning committee members and the EPU. Fifteen (15) health issues were identified which were brought to the Inter Agency Planning Unit (IAPG) meeting. Twelve (12) Technical Working Groups (TWGs) were formed with representatives from the relevant public and private sectors as well as NGOs, to analyse data and information, to support the health issues and recommend strategies to overcome or reduce them. The TWGs formed were on demographic profile, changing disease pattern, marginalized population health, wellness paradigm, appropriate balance of infrastructure and services, health sector human resource planning, management and training, expanding indicators to measure health status, research and development, harnessing the potential of Information Communication Technology (ICT), impending health care reform, restructuring of Ministry of Health, cost containment - rising health care cost, integration of public - private health system, integration of allopathic and traditional & complementary medicine, health sector as a growth sector, the impact of globalization and crisis preparedness.

Every MOH Programme and Activity including the Planning and Development Activity had the opportunity to re-look at their related health issues, achievements and shortfall of policies, strategies and plan of action as well as targets and prepare their respective MTR reports. The Planning and Development activity MTR report

as well as the Research and Technical Support Report were prepared by the Planning and Development Division. In early 2003, the Planning and Development Activity was geared towards the conference on the MTR of the 8th MP.

Following this, a report on the plan of action by every activity was prepared by the respective activities/division to be implemented in the second half of the 8MP and into the 9MP. The report was circulated to all heads of division and institutions for their action and implementation.

National Health Policy

The National Health Policy document was amended following the Directors of Health Conference in 2001 and was subsequently presented to the National Health Policy Committee Meeting. The draft National Health Policy was submitted to the Minister of Health for further comments and direction. Meanwhile, an Editorial Committee was formed to edit the draft.

National Health Care Financing Mechanism and National Health Accounts

Currently, the Ministry of Health Malaysia and the Economic Planning Unit are studying various models of health care financing for the country. The proposed health care financing must be superior to the existing system and should result in greater benefit, equity and efficiency for the public. It must be in line with the Vision for Health and the National Vision Policy and Vision 2020.

In 2003, the Ministry of Health (MOH) with the participation of relevant agencies, organized discussions and meetings, to plan for an appropriate and acceptable national health care financing mechanism for the country. The MOH has also been invited and has actively participated in many seminars and forums organized by both the public and private sectors, to disseminate information on the principles of the proposed health care financing mechanism for the country, as part of the awareness and sensitization process, whilst at the same time to obtain further input and feedback. To intensify this effort the MOH has published three articles related to the national health care financing in three Journals, in 2003. The concept and principles of the proposed national health care financing mechanism was presented to the National Development and Planning Committee chaired by the Chief Secretary to the Government in 2002. The proposal was also presented to the Ministry of Finance on 21st May 2003 and subsequently to the Cabinet on the 3rd of September 2003.

The analysis of the 'case mix study' (funded under the Intensified Research in Priority Areas - IRPA), which was jointly undertaken by the Economic Planning Unit, University Malaya, Universiti Kebangsaan Malaysia, University Science of Malaysia and the Ministry of Health was intensified in 2003. The Ministry of Health is now piloting the case mix system in all 12 hospitals under study. In 2002, Hospital

Universiti Kebangsaan Malaysia (HUKM) implemented the casemix based on Diagnosis Related Groups (DRG), thereby making HUKM the first hospital in Malaysia to implement DRG. The Planning and Development Division is a member the Casemix Team of HUKM.

The Economic Planning Unit has already agreed with the terms of reference for the study commissioned in 2001, to develop the Malaysian National Health Accounts. The study is still ongoing and the result is expected to be ready by 2005.

Following the World Health Report 2000, the Planning and Development Division of MOH, in collaboration with the World Health Organization (WHO) and the Department of Statistics, has conducted a workshop in September 2001 to calculate and analyze the index of the Fairness of Financial Contribution (FFC) for Malaysia. The results were refined, finalized and printed in 2002. The index of FFC was found to be 0.982, which was higher than 0.917 as stated in the World Health Report 2000. It is concluded that the Malaysian health care system is very close to achieving perfect equality. The official report was disseminated and circulated in 2003 to WHO, various Divisions of MOH, State Health Departments and medical faculties of local public universities.

PROJECT AND EQUIPMENT PLANNING

Development of Health Facilities

In 2003, MOH received RM1.990 billion under the development budget to implement 1,443 projects (Table 1). For the past 2 years more than half of the new hospital projects identified to be implemented in the 8th MP have been implemented. In 2003, most of these projects were at the stage of detailed design development ie. room data, ironmongeries, signages, security system etc. which require our active participation. Concurrently, construction activities done on site were monitored to ensure they were carried out in a coordinated manner and meet the required standards and functions. 10 new hospital projects were at the early planning stage where situational analysis were done to identify the detailed project scope. Besides that, 13 hospitals have been successfully completed and handed over to MOH by 2003 (Table 2).

Rural health facility projects (new and upgrading) ie. urban health clinics, rural health clinics, health offices, staff accommodation etc. have been given greater emphasis in the 8th MP where a total of 360 rural and 226 urban health projects were successfully implemented by the year 2003 (Table 5 and 6). As one of the priorities for the 8th MP is training, a total of 28 projects of various types for manpower training have been completed up till 2003 (Table 8).

Equipment Planning

Being the third year of the 8th MP, 2003 was a very hectic year for the division as all projects that have been identified were being actively implemented (Table 2). Equipment planning activities were emphasized to ensure equipment and technology supplied to the projects matched the requirement of the hospital through intensive interactive consultation with the end users, implementing agencies, medical planners, medical equipment planners and contractors. Special efforts were also made to ensure equipment supplied met the advancement of medical technology and ICT. With new 'business process reengineering' certain equipment requirements had to be reviewed to address the new requirements without affecting the cash flow requirements and implementation schedule of the project.

Masterplanning and Upgrading of Existing Hospitals

The 9 upgrading projects that were previously financed under Loan ADB 980 MAL are now financed using local funding. The initial allocation approved for implementing the Masterplanning and Upgrading for existing hospitals for the year 2003 amounted to RM20 millions. Additional allocation of RM22 millions was approved and received to supplement the increasing amount of expenditure. A dummy warrant amounting to RM6 millions was issued late in 2003 following authorization from Federal Treasury to over commit. Approximately RM45,954,998.14 that is 104.65% of the total initial allocation (excluding the dummy allocation) was successfully spent in the year 2003.

Construction packages undertaken during 2003 include Specialist Block (Hospital Seremban), Labour and Delivery Centre and First Class Ward (Hospital Sultanah Aminah, Johor Bahru), Kitchen Block (Hospital Umum Sarawak), 6 Storey Ward Annex Block (Hospital Kota Bharu), Clinical Services Block and 6 Storey Ward Block (Hospital Kangar), 6 Storey Ward Block (Hospital Taiping) and Pharmacy Block (Hospital Muar).

External Loans and Financing

Islamic Development Bank Loan No. 0070-MA

Short term financing for equipment amounting to USD 25m was successfully negotiated and signed on 8 March 1999. It came into effect in April 1999. Major equipment, including MRIs, CT Scans, lithotripters and equipment for the Emergency units are in the process of being bought for existing hospitals around the country. The project is expected to be completed in late 2001, However IDB has agreed to extend the financing period up till 30th June 2004.

Up until the end of 2003, RM75,044,540.58 confirmed payments has been processed under this financing. The remaining payments that is amounting to RM3,009,239.25 are still awaiting debit advice, while another small amount of 7,250.00 has not yet been processed.

Islamic Development Bank Financing No. 2-MA-0088

An application for a second tranche of financing amounting to USD 28m was submitted to the Economic Planning Unit for consideration. The agreement pertaining to the application (IDB 2-MA-0088) has been signed on 25 March 2003 and has been declared effective since April 2003. Several projects related to the replacement and upgrading of diagnostic imaging and intensive care equipment have been identified for various hospitals. Site visits to a number of hospitals have been arranged to inspect and ensure the condition of the sites match the suitability of the equipment to be installed. Technical specifications for the aforementioned equipment have been conducted throughout year 2003. In addition, preparation of tender documents had been initiated and a number of tenders are expected to be released early 2004.

HEALTH MANAGEMENT INFORMATION SYSTEM

Health Management Information System is needed to provide data and information to enhance and facilitate evidence-based planning, management and decision making.

The current HMIS reporting system allows for the production of reports as specified by the program heads as collected in a specific formats. It does not capture the whole health sector performance.

Formats for data collection for Medical Care Information System, Family Health Information System and Oral Health Information System were reviewed to fulfil the requirements of data capture for the expanded and upgraded services. Similarly, in conjunction with the National Blood Services Centre and the pathologist from various hospitals, a new reporting format has been developed in 2003 for use in the Blood Transfusion Services for the country. The software application for inpatient and Communicable Disease Control information System (CDCIS) were revised in 2003. Several HMIS reports and annual publications have been produced in 2003 such as :

i) MOH Annual reports - Year 2001.
ii) Indicators for Monitoring and Evaluation for Strategy for Health For All, Year 2001.
iii) Health Facts, Year 2000 and Year 2001.
iv) HMIS report by programmes Year 2002.

CONCLUSION

As the year 2003 draws to a close, the Mid Term Review of the 8th MP has revealed many achievements and a few shortfalls that need to be addressed in the second half of the 8th MP period. With mega projects such as the National Health Policy, National Healthcare Financing and National Health Accounts in the pipeline there is a great need for active participation and consensus from all sectors in the healthcare industry to reforms. There is a need to make efficient use of limited resources and ensure that each level of care namely primary, secondary and tertiary care is available and accessible to all. With telehealth and IT as an enabler, a seamless, borderless healthcare must be created to make the Vision for Health and Vision 2020 a reality.

TABLE 1
Health Facility Project and Development for 8th MP

Project Detail	Facilities	Number of Projects	Allocation (RM '000)	Percentage Allocation
001	Training	47	336,490	3.54
002	Public Health	1,066	1,445,053	15.21
003	Upgrading of Hospital Facilities	286	2,330,165	24.53
004	Hospitals	37	5,118,292	53.88
005	Consultancy & Feasibility Studies	2	30,000	0.32
006	Upgrading and Maintenance	1	180,000	1.89
007	*Perolehan dan Penyelenggaraan Tanah*	4	60,000	0.63
	Total	**1,443**	**9,500,000**	**100.00**

Source : Planning and Development Division

TABLE 2
Progress of Hospitals Projects Up Till 2003

A.	Planning Stage	State
1.	Psychiatric (Aman Jaya) Hospital	Kedah
2.	Shah Alam Hospital	Selangor
3.	Rehabilitation Cheras Hospital	Federal Territory
4.	Women and Children Hospital	Federal Territory
5.	Kluang (New) Hospital	Johore
6.	Psychiatric Tampoi Hospital	Johore
7.	Lawas Hospital	Sarawak
8.	Sri Aman Hospital	Sarawak
9.	Belaga Hospital	Sarawak
10.	Nabawan Hospital	Sabah
B.	**Tender Stage**	
C.	**Construction Stage**	
1.	Sg. Petani (New) Hospital	Kedah
2.	Alor Setar (New) Hospital	Kedah
3.	Ampang Hospital	Selangor
4.	Serdang Hospital	Selangor
5.	Sg. Buloh Hospital	Selangor
6.	Jempol Hospital	Negeri Sembilan
7.	Cameron Highlands Hospital	Pahang
8	Pekan Hospital	Pahang
9.	Temerloh Hospital	Pahang
10.	Sarikei (New) Hospital	Sarawak
11.	Pitas Hospital	Sabah
12.	Kunak Hospital	Sabah
13.	Kuala Penyu Hospital	Sabah
14.	Sabah Medical Centre (SMC)	Sabah
D.	**Completion Stage**	
1.	Kepala Batas Hospital	Penang
2.	Slim River Hospital	Perak
3.	Selayang Hospital	Selangor
4.	Jasin Hospital	Malacca
5.	Pandan Hospital	Johore
6.	Muadzam Shah Hospital	Pahang
7.	Setiu Hospital	Terengganu
8.	Jeli Hospital	Kelantan
9.	Dalat Hospital	Sarawak
10.	Bintulu Hospital	Sarawak
11.	Keningau Hospital	Sabah
12.	Lahad Datu Hospital	Sabah
13.	Kinabatangan Hospital	Sabah
E.	**Cancelled/Delayed**	

TABLE 3
Seventh and Eighth Malaysia Plan Development Expenditure Performance

Year	Allocation (RM)	Expenditure (RM)	% Expenditure
1996	544,644,000	449,979,952	82.62
1997	566,967,300	488,583,929	79.10
1998	730,198,222	716,229,385	97.70
1999	900,000,010	835,426,034	92.80
2000	1,289,858,000	1,271,073,746	98.61
2001	1,220,146,000	1,569,959,407	128.66
2002	1,415,253,000	1,715,253,000	121.19
2003	**1,990,170,000**	**2,691,430,000**	**135.23**

Source : Planning and Development Division

TABLE 4
Allocations and Projects in the Year 2003

Project Detail	Facility	No. of Projects	Initial Allocation (RM'000)	%	Final Allocation (RM'000)	%	Addition (+ or -) (RM'000)
001	Training	40	120,605	6.73	94,605	4.75	-26,000
002	Public Health	628	416,620	23.27	371,120	18.64	-45,500
003	Hospital Facilities	135	583,093	32.57	595,093	29.90	12,000
004	Hospital	35	564,352	31.52	889,352	44.68	325,000
005	Consultancy & Feasibility Study	2	5,500	0.30	4,200	0.21	-1,300
006	Upgrading & Maintenance	1	0	0	25,500	1.28	25,500
007	*Perolehan & Penyelenggaraan Tanah*	4	100,000	5.58	10,300	0.51	-89,700
	Total	**845**	**1,790,170**	**100**	**1,990,170**	**100**	

Source : Planning and Development Division

TABLE 5
Achievements of Rural Health Services Projects Up Till 2003

Type of Facility	Total Projects (8MP)	Total Projects (2003)	Achievement Up Till 2003			
			Tender	Construction	Completion	Others
Health Clinic/Community Clinic/Polyclinics/ New Rural Clinic	230	112	0	39	23	50
Quarters/Upgrading Rural Clinic (MCQ)	345	152	17	50	29	56
Quarters/Upgrading Health Clinic (Add. Quarters/X-Ray and others)	110	93	0	49	9	35
Alternative Birthing Center (ABC)	10	1	0	0	1	0
District Health	13	2		1		1
Total	**708**	**360**	**17**	**139**	**62**	**142**

TABLE 6
Achievements of Urban Health Services Projects Up Till 2003

Type of Facility	Total Projects (8MP)	Total Projects (2003)	Achievement Up Till 2003			
			Tender	Construction	Completion	Others
Health Clinic/ Community Polyclinics	156	70	1	28	8	33
Wards	57	9	0	6	2	1
Upgrading Hospital Treatment	137	105	1	40	6	58
Hospital Quarters	63	39	0	20	4	15
Ambulatory Care	8	2	0	2	0	0
Low Risk Birthing Centre	1	1	0	0	0	1
Total	**422**	**226**	**2**	**96**	**20**	**108**

TABLE 7
Achievements of Dental Services Projects Up Till 2003

Type of Facility	Total Projects (8MP)	Total Projects (2003)	Achievement Up Till 2003			
			Tender	Construction	Completion	Others
Dental Clinic and Mobile Clinics (BP 201 & 203)	199	173		147	26	
Total	**199**	**173**		**147**	**26**	

TABLE 8
Achievements of Manpower Training Projects Up Till 2003

Type of Facility	Total Projects (8MP)	Total Projects (2003)	Achievement Up Till 2003			
			Tender	Construction	Completion	Others
Nurses Training College	13	4	0	1		3
Rural Health Training School	2	1	0	0	0	1
Community Nurse's Training School	6	2	0	0	1	1
On-call Complex	5	3	2	1	0	0
Allied Health Professional College	9	4	0	3	1	0
Medical Assistant's Training School	2	1	0	0	0	1
Others	10	13	2	1	2	8
Total	**47**	**28**	**4**	**6**	**4**	**14**

Pharmaceutical Services

INTRODUCTION

THE Pharmaceutical Services Division (PSD) is a division under the Research and Technical Support Program (P&ST) of the Ministry of Health Malaysia (MOH). The main responsibility of the PSD is to ensure that pharmaceuticals and healthcare products available to the Malaysian public are safe, efficacious, and of good quality; to achieve definite outcomes and improve quality of life.

VISION AND MISSION

The vision of the division is "to provide the best pharmacy service for the health and well being of the nation" and its mission is to "lead a dynamic pharmacy service emphasizing on the highest level of integrity, professionalism and excellence, that meets the aspiration and challenges of the nation.

PROGRAMME OBJECTIVE

To ensure that quality, safe, efficacious and affordable pharmaceutical and healthcare products are available and accessible to the public.

Specific Objectives

i) To ensure that pharmaceutical products permitted to be marketed locally are safe, effective and have quality as well as to ensure that cosmetic products are safe and are of good quality.
ii) To enforce the related acts and regulations regarding pharmaceutical products.

iii) To formulate and determine policies on drugs and pharmaceuticals to align with and chart the National Health Policy.
iv) To optimise manpower utilisation for pharmaceutical service in the country.
v) To optimise drug therapy and provision of pharmaceutical care through effective pharmaceutical control and up-to-date clinical and professional pharmaceutical services.
vi) To ensure that drug expenditure is at the optimal economic level and quality medicines are available at the point of need.
vii) To generate consumer awareness on issues of informed and rational drug use and adverse events through constant consumer and patient education.
viii) To ensure that the pharmaceutical service provided is dynamic and progresses with current global development.

ORGANISATION

There are three main subdivisions within the Pharmaceutical Services Division, namely the National Pharmaceutical Control Bureau, Pharmaceutical Enforcement Branch and Pharmaceutical Care Management.

The general functions of PSD and specific functions of the 3 main subdivisions of the Pharmaceutical Services Division are as follows :

i) **General Functions**

- As the Secretariat to the Poison's Board.
- As the Secretariat to the Pharmacy Board.
- As the Secretariat to the Medicine's Advertisement Board.
- As the Secretariat to the Drug Control Authority.
- To provide technical input to developing countries through international bodies and local agencies; and to provide training and expertise to health personnel of developing countries in regulatory, enforcement and pharmaceutical care areas.

ii) **The National Pharmaceutical Control Bureau**

To contribute directly towards public health, through quality assurance by regulating the pharmaceutical industry. This is to ensure that products produced or imported conform to acceptable standards of quality, safety and efficacy before they are registered; and that all premises and practices employed to manufacture, store and distribute these products comply with the required standards until they are delivered to the end users.

iii) **The Pharmaceutical Enforcement Branch**

To ensure that the manufacture, importation, sale, supply, management and use of pharmaceuticals, cosmetics and healthcare products are conducted according to the following existing acts and regulations :

- The Poisons Act 1952 (Revised 1989) and Regulations.
- The Sales of Drugs Act 1952 (Revised 1989) and Regulations.
- The Medicines (Advertisement and Sales) Act 1956 (Revised 1983) and Regulations.
- The Registration of Pharmacist Act 1951 (Revised 1989) and Regulations.
- The Dangerous Drugs Act 1952 (Revised 1980) and Regulations.

iv) **Pharmaceutical Care Management**

- As the Secretariat to the Ministry of Health Drug List Review Panel.
- To formulate policies for pharmacy practice in areas of services requirement, skills enhancement, human resource development, administrative functions and funds allocation.
- To provide advisory technical support in drugs and medical products procurement, supplies and distribution.

PROGRAMME STRATEGIES

The PSD has carried out its responsibilities through the following strategies :

i) Ensure the safety, efficacy and quality of medicines, including traditional medicines are maintained by :

- Evaluation and registration of medicines prior to marketing.
- Licensing manufacturers, importers and wholesalers of medicines.
- Monitoring for adverse drug reaction arising from their use.
- Monitoring quality of medicines through post marketing surveillance programme.

ii) Improve the enforcement of existing acts and regulations by :

- Strengthening the enforcement units at Ministry and State levels.
- Formulating new legislations while reviewing and amending existing ones whenever necessary.
- Intensifying enforcement activities.

iii) Ensure continuous and adequate supply of quality pharmaceuticals by :

- Utilising information and communication technology to strengthen the inventory management system.
- Enhancing advisory technical input in the purchase of pharmaceutical products.

iv) Develop an efficient and effective pharmacy service in the Ministry of Health hospitals and health clinics by :

- Continuous improvement of existing facilities in pharmacy units and expansion of pharmacy services.
- Promoting efficient and quality use of medicine through clinical and pharmaceutical care activities.
- Expanding clinical pharmacy services by upgrading existing services and introducing new services.
- Creating Centre of Excellence for different clinical pharmacy service.
- Creating competitiveness and innovativeness through awards such as the best counter service.
- Ensure education to public on appropriate drug use is enhanced.

v) Ensure adequate supply of qualified and trained personnel to manage and operate the expanding services by :

- Identifying levels and categories of personnel required.
- Intensifying post-graduate and in-service training to enhance competency and expertise of pharmacists.
- Enhancing content modules of workshops and seminars for continuous professional development and skills development.

PROGRAMME RESOURCES

Human Resource

This division is headed by a director and assisted by the director of the National Pharmaceutical Control Laboratory, and two deputy directors responsible for the Pharmaceutical Enforcement Branch and Pharmaceutical Care Management, respectively. There are 50 professional and administrative staffs working in the division's headquarters. The categories of staff, grades and posts filled for the PSD at all levels are shown in Table 1.

TABLE 1
Manpower for Pharmaceutical Services, 2003

Category of Personnel	Posts	Filled	Vacant	% Filled
Pharmacists				
JUSA B	1	1	0	100
JUSA C	3	3	0	100
U54	13	13	0	100
U48	113	90	23	80
U41	972	512	460	53
Pharmacy Assistants				
U38	5	5	0	100
U36	47	38	9	81
U32	277	240	37	87
U29	2,407	2,062	345	86
Total	**3,838**	**2,964**	**874**	**87**

Finance

A total of RM8,945,449 was allocated for the various sections and administrative functions of the headquarters of the Pharmaceutical Services Division in 2003. The expenditure for the year was only RM6,478,973.56.

ACTIVITIES AND ACHIEVEMENTS

ORGANISATIONAL AND HUMAN RESOURCE DEVELOPMENT

In 2003, this division has acquired additional posts for the various categories of personnel to improve the service and this is illustrated in Table 2.

With the implementation of the New Remuneration System (SSM) pharmacists in MOH have been recognised as a critical service group and are entitled to a critical allowance of 5% of their basic salary.

The cabinet approved the memorandum on compulsory service (CS) in the public sector for newly registered pharmacists on 25Th June 2003, and the parliament approved it on 11th November 2003. Those dates are of historical significance to the pharmacy profession in this country and the CS should be viewed as a breakthrough in the division's effort to improve the pharmacist's shortage to expedite the changes and improvement of service rendered by pharmacists especially in Public Sector.

TABLE 2
Additional Posts Approved in 2003

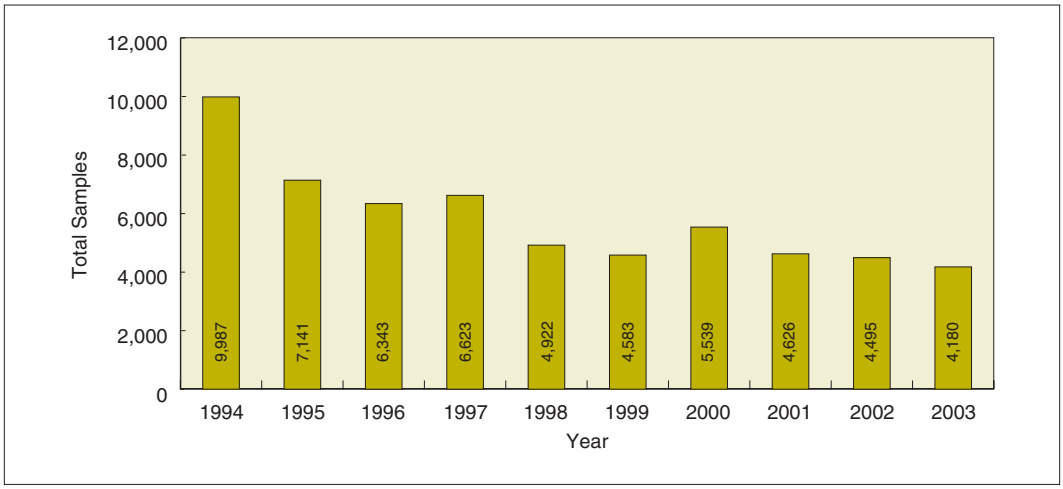
Posts and Grades	Number Approved in 2003 (Existing Services and New Policy)
Pharmacists Gred U48	16
Pharmacists Gred U41	122
Pharmacy Assistants Gred U38	5
Pharmacy Assistants Gred U36	6
Pharmacy Assistants Gred U32	32
Pharmacy Assistants Gred U29	88

REGULATORY CONTROL OF PHARMACEUTICAL

Pharmaceutical Product Quality Assurance

This activity is responsible in ensuring that drugs in the market are safe, efficacious and complies with established quality standards, and traditional preparations and cosmetics are evaluated for their safety and quality. Samples tested at the National Pharmaceutical Control Bureau (NPCB) laboratories are either for registration, surveillance or enforcement activities. A total of 4,180 samples were tested in 2003. The statistic of the test carried out by (NPCB) is shown in Figure 1.

FIGURE 1
No. of Samples Tested



Until the end of 2003, a total of 39,538 drugs were registered. The statistic of drug registration and licensing are shown in Table 3 and 4. A total of 28,197 applications were received for the year 2003 as compared to 2,774 for 2002. The number of applications has increased significantly through the cosmetic's on-line registration process that is 92.84% from the total products registered. The application for the registration of poisons, non-poisons and traditional products decreased significantly compared to the year 2002. The details on total revenue are shown in Table 5.

The National Drug Information Centre at NPCB publishes the Drug Control Authority Newsletter, Drug Information Circular and Drug Monograph as an effort to disseminate drug information and drug regulatory issues to health professional in the public and private sectors. The following publications were produced and distributed in the public and private sector throughout the year :

i) Drug Authority Newsletter - (1 issue)
ii) Drug Information Circular - (8 issue)
iii) Drug Monograph - (8 issue)

TABLE 3
Statistics on Product Registration

Year	Prescription Drugs	OTC Products	Traditional Medicines	Cosmetics	Total	
					Yearly	Cumulative
1999	796	789	1,347	610	3,542	3,542
2000	427	444	1,523	262	2,656	6,198
2001	578	487	1,154	150	2,369	8,567
2002	509	448	1,603	214	2,774	11,341
2003	263	266	1,471	26,177	28,197	39,538
Total	**2,573**	**2,434**	**7,098**	**27,413**	**39,538**	**69,186**

TABLE 4
Cumulative Products Registered

Year	Prescription Drugs	OTC Products	Traditional Medicine	Cosmetic	Total
1999	8,792	5,942	7,966	1,235	23,935
2000	8,813	6,072	8,550	1,467	24,902
2001	8,993	6,696	9,894	1,776	27,359
2002	9,335	6,931	10,758	1,935	28,959
2003	9,659	7,206	12,107	6,659	35,631
Total	**45,592**	**32,847**	**49,275**	**13,072**	**140,786**

TABLE 5
Comparison of the Revenues Received by the Various Divisions Between Year 2000-2003

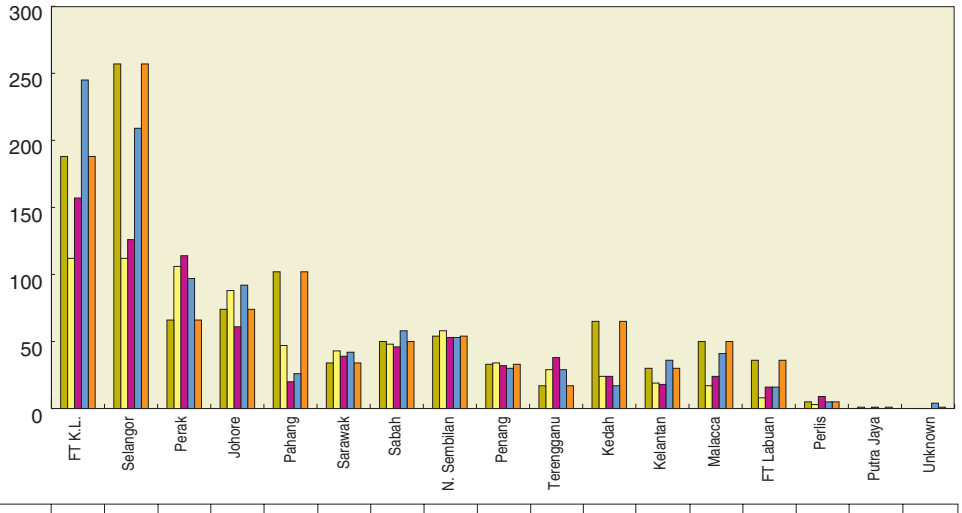
Division	2000	2001	2002	2003
1. Organisational Development & Information Technology Division				
a. Sale of printed material	28,340	26,485	28,875	18,420
2. Drug Evaluation & Safety Division				
a. Drug registration	1,111,440	914,020	1,883,825	5,290,250
b. Sale Certification			115,585	249,150
c. Registered product list enquiry			2,960	1,395
				5,540,795
3. Good Manufacturing Practice & Licensing Division				
a. Import License/Clinical Trial Import License			167,500	273,550
b. Manufacturer's License	152,100	203,200	183,500	264,000
c. Wholesalers Lisc			103,800	405,100
d. Inspection & Good Manufacturing Practice	6,500	12,200	24,700	62,700
				1,005,350
4. Analytical Services Division				
a. Laboratory services	502,620	460,880	745,839	1,126,027
b. Other sales	27,193	64,072	55,669	64,230
				1,190,257
Total	**1,828,193**	**1,680,857**	**3,312,253**	**7,754,822**

The Drug Information Centre received enquiries via telephone, fax, e-mail and letters pertaining to drugs and regulatory matters. The total number of enquiries has dropped drastically since information on product registration status or classification can be accessed through the NPCB web page (www.bpfk.gov.my).

The quality of drugs in the market is monitored by the NPCB through surveillance activities. A total of 2,037 samples have been taken for testing (7.03% of the total number of products registered with DCA). A total of 1,236 labels and package inserts have been checked and 214 warning letters have been issued. The number of degree-1 product recalls (within 24 hours) issued amounted to 346, from which 204 were traditional products and 142 were non-poisons (Pan Pharmaceutical, Australia). There were two degree-2 recalls (within 72 hours) for traditional medicines. One hundred and fifteen (115) directives were issued for Degree- 3 recalls (within 30 days) which comprised of a batch recall of 27 prescription drugs, 16 over-the-counter products and 72 traditional medicines. All product recalls were carried out at the level of sale or supply to the customer and none has reached the end users. The number of adverse drug reaction reports received increased in 2003, with a

total of 1,063 as compared to 1,000 in 2002. The number of reports received throughout the country is as shown in Figure 2. The highest number of reports was from Hospital Kuala Lumpur and from the state of Selangor, while the main reporters were doctors.

FIGURE 2
Analysis of ADR by States



1999	188	257	66	74	102	34	50	54	33	17	65	30	50	36	5	1	0
2000	112	112	106	88	47	43	48	58	34	29	24	19	17	8	3	0	0
2001	157	126	114	61	20	39	46	53	32	38	24	18	24	16	9	1	0
2002	245	209	97	92	26	42	58	53	30	29	17	36	41	16	5	0	4
2003	188	257	66	74	102	34	50	54	33	17	65	30	50	36	5	1	1

Pharmaceutical Inspection Co-operation Scheme (PIC/S)

Year 2003 marked a new era in Good Manufacturing Practice (GMP) inspection. Pharmaceutical industries in Malaysia now have to comply with the current PIC/S Guide to GMP for pharmaceutical product and its annexes, particularly on critical pharmaceutical utilities. The NPCB as a WHO collaborating centre for regulatory has been entrusted to carry out training; SEARO of WHO has appointed an officer from GMP and Licensing section to participate as a trainer and short term consultant to conduct lectures and training pertaining to GMP. The seminar was organised by the Drug Administration, Nepal Health Ministry in collaboration with WHO.

The NPCB sent an officer to ACCSQ Cosmetic Product Group meeting in Manila, Philippines in June 2003. In the first ASEAN Cosmetic Committee meeting held in Vietnam in December 2003, Malaysia was again entrusted to lead Cosmetic GMP implementation/interpretation between ASEAN countries.

Cosmetic On-Line Registration

Cosmetic On-Line registration started from 1st of February 2002 to help cosmetic entrepreneurs submit their applications. The NPCB organised a programme throughout the country including Sabah and Sarawak to brief on the complete procedure for cosmetic registration. The NPCB in collaboration with Technology Innovative Resources (TIR) Sdn. Bhd. organised a series of training to help Quest 2 system users to understand the on-line registration procedures. Throughout the year 2003, a total of 35,996 registration applications were received of which 7,578 were local products and 28,418 imported products.

A Cosmetic Technical Working Committee was set up to monitor the implementation of cosmetic control from the technical aspect. This committee comprises of members from NPCB, Cosmetic, Toiletry and Fragrance Association Malaysia (CTFA), FMM Malaysian Cosmetic and Toiletries Industry Group (FMM-MCTIG). NPCB has held 13 dialogue sessions with the industrial side through the Cosmetic Task Force meetings and 6 Technical Working Committee meetings throughout 2003.

Plan for Corporatisation of NPCB

A study was carried out by a company called Ernst & Young to study on the prospect of corporatisation of NPCB. The period of this study was from October 2002 till February 2003. Various aspects, which included financial management, career development for the present NPCB staff, and the role of NPCB in the overall pharmaceutical service structure were studied. The result obtained showed that NPCB should not be privatized due to legal implications. It is believed that the privatisation of NPCB would jeopardize the effectiveness of its regulatory functions.

Training for Visitors from Other Countries

NPCB as a WHO collaboration centre for pharmaceutical regulatory control, provides training for WHO fellows from other countries. A total of 25 visitors and WHO fellows from other countries such as Brunei Darussalam, Bangladesh, Bhutan, Islamic Republic of Iran, Papua New Guinea, Tonga, Uganda, United Arab Emirates, Vietnam and Sudan have been accepted in 2003.

LICENSING AND ENFORCEMENT

Advertisement Control

Control of advertisements is one of the main activities of the Advertisement Control Unit, Pharmacy Enforcement Branch, Pharmaceutical Services Division. Advertisements in the print and electronic media are monitored to ensure only approved advertisements are published or aired. Depending on the severity of violation, illegal advertisements

are then subjected to investigations that may result in the offending party being taken to court to face legal action.

On account of the large number of publications and the numerous television and radio stations that operate in the country, the monitoring activity is also carried out by the Pharmacy Enforcement Officers in the states. Each state has been assigned a number of publications that must be monitored and action taken if advertisements published do not have proper approval.

Apart from taking legal action against advertisers, the unit has also been actively seeking the cooperation of all involved to ensure misleading advertisements are not published or aired in any media in the country. Some of the initiatives undertaken are as follows :

i) Establishing relationships with other government departments and agencies in the control of advertisements.
ii) Dialogue sessions with the media.
iii) Discussions with the advertising agencies.
iv) Discussions with the advertisers on interpretations of guidelines.

Apart from Ministry of Health, there are other government departments and agencies that have controls over advertisements published or aired in various media. A memorandum was submitted to the cabinet in 2003 highlighting on the need for all the various government departments and agencies to carry out their activities in a more concerted manner. Subsequent to decisions made by the cabinet, any infringements detected by the staff monitoring the advertisements are notified to the relevant departments and agencies for their action.

Throughout the year 2003, a total of 24 cases were investigated for violations of the Medicine (Advertisement & Sale) Act 1956.

Statistics on the number of warnings that were issued to both the media and the advertisers are shown in Table 6 and 7.

TABLE 6
Warnings Issued to Various Media

Media	Total Number of Warnings
Newspapers	105
Magazines	6
Television	4
Radio	29
Pamphlets	40

TABLE 7
Warnings to Media and Product Owners

Media/Product Owners	Total Number of Warnings
Media	162
Product Owners	184

Raid Operations

Pharmacy enforcement activities of Pharmaceutical Services Division has escalated in 2003. Apart from the normal activities of issuing licenses, inspection of licensed/unlicensed and also registered/unregistered premises as well as the monitoring of precursor substances; special attention was also given to the importation, manufacturing and distribution of unregistered drugs preparation throughout the country.

Unregistered drug preparations include products without registration numbers, products using false registration numbers, products using registration number of registered products, products adulterated with poison, counterfeit products and cough mixtures containing codeine after 30th June 2003. Beyond this date cough mixtures containing codeine must be with drawn from the market.

Inspections and raids were carried out on all GMP Licensed Traditional Product Manufacturers, which are believed to also produce unregistered products. Private Medical Clinics and Pharmacies with records of high cough mixtures containing codeine purchases were also raided.

Enforcement activities in the year 2003 were basically based on the 'Action Plans' drawn out at the beginning of the year.

'The Action Plans' were :

i) To act on all the Traditional Product Manufacturers, which manufacture unregistered products.
ii) To act on all unregistered products in the market.
iii) To act on all cough mixtures containing codeine that was deregistered starting from 1/1/2003.
iv) To increase inspection of passengers' luggage at entry points.
v) To increase 100% inspection on 'containers' at entry points.

As a result the value of confiscation from 613 premises raided totalled RM7.24 million, of which the unregistered products/adulterated registered products amounted to almost RM6 million. The number of unregistered products/adulterated registered products cases brought to court was more than 100 cases compared to only 34 cases in the year 2002.

Apart from raids and inspections carried out by the individual state, a series of special raids and inspections on unregistered products from neighbouring countries, sex related items, and unregistered products sold at night markets, among others; were conducted all over the country, as follows :

i) Raids at all branches of one wholesaler concurrently throughout the country.
ii) Raid at pharmaceutical manufacturing plant.
iii) Audit inspection on all codeine containing cough mixtures manufacturing plant concurrently throughout the country.
iv) Audit inspection of all codeine containing cough mixtures wholesalers and retailers.
v) Inspections of all traditional product manufacturers.
vi) Inspections at night markets.
vii) 'North Zone' combined operations in Perlis, Kedah and Perak.
viii) Special operations in Kelantan, Malacca, Sarawak, Sabah, and Pahang.

Licensing

The issuing of license is stipulated under the Dangerous Drug Act 1952 (revised 1980), Poison Act 1952 (revised 1989), Registration of Pharmacists Act 1951 (revised 1989) and Control of Drugs and Cosmetics Regulation 1984.

Licenses are issued for the manufacture of dangerous drugs, wholesale of dangerous drugs, authorization to import or export dangerous drugs, authorization to import test kit containing dangerous drugs or psychotropic substances and authorization to import unregistered products for life saving matters. The following licensing activities were achieved in 2003 :

i) One license for dangerous drugs manufacturing was issued.
ii) 22 applications for wholesale dangerous drug license have been approved.
iii) 31 applications to import test kit containing dangerous drug or psychotropic substances were approved. 13 were the applications to import test kit containing dangerous drug and 18 for test kit containing psychotropic substances.
iv) Authorization was given for 149 from a total number of 153 applications received to import dangerous drugs. Three applications were not approved. One application was cancelled. Meanwhile, the total number of applications received to export dangerous drugs was 16 but only 15 authorizations were issued. One application was not approved.
v) The total number of applications received to import unregistered products considered life saving were 981. Twelve applications were not approved, 25 were rejected due to availability of alternative registered products and 30 were rejected due to incomplete information.
vi) The total number of import and export authorizations issued to local importer/exporter and manufacturer for the Import/Export Psychotropic Substances was 251 and 41, respectively.

vii) The value of confiscated Psychotropic substances increased in 2003. The quantity and value of the confiscated substances for the last 3 years are shown in Table 8.

TABLE 8
Confiscation of Psychotropic Substances

States	2001		2002		2003	
	Quantity (Tab.)	Value (RM)	Quantity (Tab.)	Value (RM)	Quantity (Tab.)	Value (RM)
Perlis	0	0	0	0	264	1,700
Kedah	0	0	0	0	0	0
Penang	0	0	0	0	0	0
Perak	72	106	0	0	7,530	9,240
FT Kuala Lumpur	650.5	650.5	0	0	968	1,529.20
Selangor	553	1,659	2,840	7,307	7,089	2,825
Negeri Sembilan	0	0	0	0	0	0
Malacca	0	0	0	0	0	0
Johore	527	1,136	55,886	22,094	0	0
Pahang	0	0	0	0	0	0
Terengganu	9,552	20,099	0	0	0	0
Kelantan	0	0	0	0	0	0
Sabah	0	0	33.5	922	0	0
Sarawak	0	0	0	0	24,569	25,482.70
Labuan	0	0	0	0	0	0
Total	**11,354.50**	**23,650.50**	**58,759.5**	**30,323**	**40,420**	**40,776.90**

Diversion Control

Malaysia is signatory to the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988. The Pharmaceutical Services Division is the competent authority for the implementation of article 12 of the Convention. As a member, Malaysia is obliged to monitor the import and trade in precursors and prevent diversion of precursors for illicit production of dangerous drugs and psychotropic substances.

The Director General of the National Drugs Agency signed the Project Document for Precursor Control in East Asia on 7 March 2003. The project is aimed at improving the control of licit trade in precursors in Malaysia, to prevent further

development of Amphetamine Type Stimulants (ATS) manufacture and to enhance regional cooperation between countries in East Asia to address regional problem. The Pharmaceutical Services Division acts as coordinator for the project.

A multi agency national workshop was held on 16-18 July 2003 to draft a National Action Plan. Senior officers from the Pharmaceutical Services Division, National Drugs Agency, Royal Malaysian Police, Royal Malaysian Customs and the Chemistry Department attended the workshop. At the workshop a number of issues were identified and recommendations made to strengthen the precursor control in Malaysia.

The Pharmaceutical Services Division and the National Drugs Agency hosted the Regional Workshop on Precursor Diversion and Illicit Manufacture of ATS in Penang, 2-3 September 2003. The International Narcotics Control Board, United Nations Office on Drugs and Crime and the Colombo Plan Secretariat jointly organized the workshop. Representatives from Bangladesh, Brunei, Cambodia, China, India, Indonesia, Japan, Laos, Malaysia, Mongolia, Myanmar, Pakistan, Philippines, Singapore, Thailand and Vietnam, and observers from Australia, Bhutan, Maldives, Nepal and Sri Lanka attended it. This workshop aimed at :

i) Establishing working mechanisms and standard operating procedures for precursor control among the governments concerned by focusing attention on the current situation in the region regarding the diversion and the trafficking of precursors as well as the nature and extent of illicit manufacture of ATS especially methamphetamine and MDMA.

ii) Identifying methods of close and practical cooperation and coordinating among competent regulatory and law enforcement authorities of the countries concerned with a view to : a) identifying diversion attempts from international trade and from domestic distribution channels, initiating investigations into such attempts, and immediate sharing of alerts; and (b) launching backtracking law enforcement investigations from the point of seizures/interceptions; and,

iii) Identifying technical and other assistance available within the region which could serve countries in preventing precursor diversion and suppressing illicit manufacture of ATS more effectively

The division has responded to 1,516 pre-export notifications (PEN) for precursor import and issued 595 PENs for precursor export in year 2003. Twenty eight (28) importation of precursors were not allowed because the importers did not have the necessary import permit and one export was not approved because the competent authority in the importing country responded that the importer denied ordering the precursor. Information on PENs was entered into a database and the report of import was distributed to the Enforcement Branches in the respective states to verify import and the use of precursors imported.

Besides precursors, the PSD monitors the purchase of dangerous drugs, psychotropic substances and products which have potential abuse such as cough mixtures containing pholcodeine and products containing dihydrocodeine and dextromethorphan by doctors and pharmacies. Reports of sale by importers, manufacturers and wholesalers are entered into the Pharmaceutical Services Division's database. The report was sent to the Pharmacy Enforcement Branches in the respective states for audit inspection or surveillance for further action.

Action on Professionals

i) ***Action on pharmacists who are involved in illegal selling of dangerous drugs, psychotropic substances and potential abused drugs***

The purchases and sales of drugs like codeine cough syrups, psychotropic pills e.g. Dormicum and Ephedrine tablets were closely monitored and analyzed for its abusal pattern. From there, several raiding operations have been conducted. In the year 2003, seven (7) pharmacists have had their type A license cancelled by the Licensing Officer due to their illegal activities in selling codeine cough syrups and psychotropic pills not according to the Act. All of them had appealed to the Minister of Health and this Unit had studied their appeals carefully. From this, comments had been forwarded to the Minister who agreed to the rejection of the appeals and the cancellations remained.

ii) ***Medical practitioners summoned to court and the Malaysian Medical Council preliminary inquiry***

Several medical practitioners have been summoned to the court and the preliminary inquiry of the Malaysian Medical Council for the offence of supplying codeine cough syrups and psychotropic pills not according to the Act. This achievement is due to success in collecting purchasing data by the errant medical practitioners and this data were closely monitored and analyzed in order to build information that can be turned into successful raiding operations.

PHARMACEUTICAL CARE

Procurement and Distribution

The total value of drug purchases from Pharmaniaga Logistics Sdn Bhd for the year was RM378 million. For these purchases, the classes of the 5 highest value drugs are shown in Table 9. The value of all drug contracts handled in 2003 was RM205.37 million. The top 5 classes of drugs in terms of value for drug contracts issued is shown in Table 10.

TABLE 9
Class of Drugs with the Highest Purchase Value

Class of Drugs	Purchase Value (RM)
Cardiovascular drugs	70.2 million
Antibiotics	60.7 million
Neuromuscular drugs	39.4 million
Metabolism drugs	38.1 million
Antimicrobials	21.1 million

TABLE 10
Class of Drugs with the Highest Value of Contracts

Class of Drugs	Purchase Value (RM)
Neuromuscular	46.2 million
Antimicrobials	35.8 million
Antibiotics	19.5 million
Metabolism drugs	18.9 million
Immunosuppressants	16.9 million

The year 2003 saw the culmination of efforts to obtain permission to import generic versions of patented antiretroviral drugs (Didanosine, Zidovudine dan Zidovudine + Lamivudine) from India by making use of Government's rights in the Patent Act 1983. This permission was given by the Ministry of Domestic Trade and Consumer Affairs on 29 November 2003. This will result in the annual cost of treating a HIV/AIDS patient dropping from RM9,600 to RM2,200.

This Division also acted as the Secretariat for the Price Negotiations Committee for the prices of drugs and medical devices whose supply was privatized to Pharmaniaga Logistics Sdn Bhd. Negotiations for the 2004 – 2006 supply started in March 2003 and were still continuing in December because the selection was disputed by Pharmaniaga Logistics Sdn Bhd.

This unit conducted 3 meetings to draw up the specifications of 76 drugs to be tendered and 9 meetings were held to evaluate tender offers for 90 drugs.

Ministry of Health Drug List

The Ministry of Health Drug List was first introduced in 1983 and contains all the drugs approved for use in all hospitals and Institutions under the Ministry of Health. The list is reviewed periodically by the Ministry of Health Drug List Review Panel

chaired by the Deputy Director-General of Health (Research & Technical Support) assisted by 16 working committees on various categories of drugs.

By end of 2003, the Ministry of Health Drug List consists of 1,358 preparations. 43 drugs were added to the List and 40 existing drugs were deleted. The Malaysian Drug Code (MDC), a unique identifier for each drug, was assigned to all the drugs in the list. Table 11 shows the number of drugs applied, approved and deleted from the List from 2000 to 2003.

Procurement and use of registered drugs outside the Ministry of Health Drug list require approval from the Director-General of Health. In 2003, approval was given to 714 requests from various hospitals and institution in the Ministry of Health which met the set criteria and was valued at RM8,088,467.00 for 160 types of drugs. 72 applications that did not meet the criteria were rejected. Table 12 shows the number of registered drugs outside MOH Drug List which was approved for use from 2000 to 2003.

TABLE 11
Application, Approved and Deleted Drugs in MOH Drug List from 2000 to 2003

Year	Proforma Received	Drug Approved		Drugs Deleted
		Proforma B	Proforma D	
2000	201	13	15	76
2001	206	26	63	3
2002	199	18	31	8
2003	270	20	23	40

TABLE 12
Approval for use of Registered Drugs Outside MOH Drug List from 2000 to 2003

Year	Number of Approved Application	Number of Types of Drugs	Value (RM)
2000	619	137	3,195,815.00
2001	1,024	170	5,775,582.00
2002	929	161	8,036,549.00
2003	714	160	8,088,467.00

Clinical Pharmacy Services

Hospital pharmacists in Ministry of Health have further expanded their role in providing clinical pharmacy services through direct patient care without compromising their traditional roles in drug procurement and supply to patients. In 2003,

i) A total of 52,660 cases had received individualized drug therapy through the clinical pharmacokinetic service provided by 76 hospitals through out the country.

ii) Cytotoxic drug reconstitutions service saw an increase of 30% in number of cases in the year 2003 (12,254 cases) as compared to 9,409 cases in 2002. This increase indicates the demand and the increasingly important role of the hospital pharmacy in providing reconstituted cytotoxic drugs to patients receiving chemotherapy and the awareness on safe handling of cytotoxic drugs to ensure the safety of healthcare providers and patients. Pharmacist ensures the appropriateness of the chemotherapy regime ordered in term of drug dosage, interaction, protocol adhered to and method of administration.

iii) Medication counselling through individual and group sessions conducted by hospital pharmacists is to help patients achieve intended health outcomes through good compliance as well as managing any adverse drug events that may be encountered through their medications use. A total of almost 69,000 patients were given medication counselling in 2003 as compared to 63,000 in 2002.

iv) With the upgrading of the Hospital Drug Information Services, a total of 107 hospitals now provide the service as compared to 96 in 2002. These centres received a total of more than 19,000 enquiries.

v) Hospital pharmacies in the country have adopted individualized drug delivery system for in-patients by implementing the Unit-of-Use/Unit Dose System. By 2003, almost 99% hospitals have adopted this system. Apart from providing personalized medication supply to inpatients, pharmacists are able to monitor patient drug use through their medication profile kept in the pharmacy.

vi) One important effort towards improving clinical pharmacy services is by establishing the 'Centre for Clinical Pharmacy Excellence'. This Division is working closely with clinical pharmacy lecturers from the School of Pharmaceutical Sciences, University of Science Malaysia to conduct a joint audit on these selected centres. These centres will serve as training grounds for various discipline of clinical pharmacy for local as well as foreign pharmacists.

vii) Specialised pharmacy services in the areas of Respiratory, Intensive Care and Cardiology are being provided by pharmacist in hospitals such as in Malacca, Kuala Terengganu and Kuching. The progress of hospital pharmacy services is as shown in Table 13.

TABLE 13
Hospital Pharmacy Services

Services		2003
1.	**Clinical pharmacokinetic service**	
i.	No. of hospitals	76
ii.	No. of cases	52,660
iii.	No. of tests	68,501
iv.	No. of drugs	15
2.	**Parenteral nutrition service**	
i.	No. of hospitals	19
ii.	No. of bags (adults)	5,403
iii.	No. of bags (children)	19,847
3.	**Intravenous admixture service**	
i.	No. of hospitals	10
ii.	No. of cases	50,748
iii.	No. of preparations	151,403
4.	**Cytotoxic drug reconstitution service**	
i.	No. of hospitals	10
ii.	No. of cases	12,254
iii.	No. of preparations	31,991
5.	**Drug and poison information service**	
i.	No. of hospitals	107
ii.	No. of enquiries	19,095
6.	**Patient medication counselling service**	
i.	No. of out-patients	35,475
ii.	No. of in-patients	11,268
iii.	No. of discharged patients	17,762
	Total	64,505
7.	**Drug dispensing service**	
i.	No. of prescriptions dispensed	14,900,797
ii.	No. (%) prescriptions screened	11,931,159 (80%)
8.	**'Unit of use/unit dose' drug supply service**	
i.	% (No.) hospital	99% (121/122)

SECRETARIAT TO STATUTORY BOARDS

Pharmacy Board

The Pharmacy Board of Malaysia (PBM) is responsible for the registration of pharmacists, body corporate and pupil pharmacists in the country. At the end of 2003, the total number of pharmacists is 4,153.

Besides the registration of pharmacist, the Pharmacy Board is also actively involved in other activities such as renewal of Annual retention for Pharmacist, Body Corporate, accreditation programme and conducting Forensic Examination.

The PBM is also actively monitoring the pharmacy programmes in universities from the beginning of the year, by examining the curriculum of the programme for its relevancy to the needs of the public and progress of the pupil in their pupillage year until they become a registered pharmacist.

With the increase in the need of pharmacists in the public, the PBM has carried out new plans and schedules throughout the year to ensure the progress of the profession. The achievements of the PBM in 2003 are shown in Table 14.

TABLE 14
Pharmacy Board Activities

Activities		2003
1.	No. of New Pharmacist Registered	393
2.	No. of Pupil Pharmacist Registered	329
3.	No. of body Corporate Registered	78
4.	No. of Renewals of Annual Retention Certificate	3,160
5.	No. of Renewal of Annual Certificate for Body Corporate	105
6.	Total number of pharmacists (including reregistration)	4,153
7.	Total no. of Active Pharmacist (Newly Registered and Renewal of Annual Retention Certificate)	3,553
8.	No. of New Premises Recognized for Pupillage Training	1
9.	No. of Evaluated Pharmacy Degree Qualifications	-

Medicine Advertisements Board

The Medicine (Advertisement and Sale) Act 1956 provides for the formation of the Medicine Advertisement Board (MAB), which is responsible for the regulation of advertisements of medicines, appliances, remedies and skill and services related to medical and health claims.

The MAB has approved a 'Fast Track Approval' process and this procedure has been fully implemented throughout 2003. An advertisement application must fulfil one of the criteria stipulated for the 'Fast Track Approval'. On the average, the secretariat takes about 3-5 working days to process the application and issue an approval. The list of fast track applications and approvals are then submitted to the subsequent MAB meeting for its endorsement.

For the year 2003, the Board received a total of 881 applications. Table 15 shows the summary of applications processed by the Medicine Advertisement Board for year 2003 and Table 16 shows the number of applications processed in the last 3 years.

TABLE 15
Types of Applications Processed by MAB, 2003

Activities	Products	Services	Total (%)
1. No. of applications	761	120	881
2. No. of approvals	689	114	803 (91.2%)
3. No. of approvals through Fast Track System	427	61	488 (55.4%)

TABLE 16
Number of Applications Processed by MAB

Activities	2001	2002	2003
1. No. of applications	709	1,029	881
2. No. of approvals	618	900	803
3. Fee collected	RM70,900	RM102,900	RM88,100

Poison Board

The Poisons Board acts as an advisory board and is responsible to advise the Minister of Health on the following issues :

i) Classification of new chemical entity as a Poison.
ii) Removing a substance from the Poisons List.
iii) Amending the classification of poison.
iv) Amending the list of Psychotropic Substances.

The Poisons Board has been empowered to assess the classification of medicinal/ chemical substances, thereby to advice the minister regarding their classification in accordance to the provisions of the Poison's Act 1952. The Board met for its 58th meeting on 23rd August 2003 and has decided on the following :

i) ***Classification of Poisons***

The Board has agreed with the classification of twelve (12) chemicals as shown in Table 17.

ii) ***Amending the Classification of a Poison***

- All external preparations containing Terbinafine HCL was reclassified as non-poison.
- Regulation 2 of Dangerous Drug Regulation 1952 was amended by adding a new definition *'registered product means a product currently under the Control of Drugs and Cosmetics Regulation 1884'.*
- Regulation 25 was rephrased *'Nothing in these regulations shall apply to registered product containing the drugs as in the Third Schedule except regulation 15(8) and regulation 16'.*
- Schedule Three was amended as in Table 18.

Drug Control Authority

The Drug Control Authority is responsible for the registration of pharmaceutical, traditional and cosmetic products and issue of manufacturers, wholesalers and importers licenses. The NPCB is the secretariat and the executive arm of the Drug Control

TABLE 17
Classification of New Chemical Entities

Name of Drugs	Therapeutic Classification	Classification
1. Drotrecogin Alfa (Recombinant human activated protein C)	Fibrinolytics	B
2. Insulin Glargine	Insulin and analogues	C
3. Lutropin alfa (Recombinant human luteinising hormone)	Sex hormone related drugs	B
4. Memantine	Anti-dementia	B
5. Miltefosine	To treat *'Cutaneous metastases of breast cancer'*	B
6. Mycophenolic acid	Immunosuppressant	B
7. Moxonidine	Antihypertension	B
8. Pimecrolimus	NSAID	C
9. Telithromycin	Antibacterial	B
10. Temozolomide	Antineoplastic	B
11. Verteporfin	Photosensitiser	B
12. Tadalafil	To treat *'erectile dysfunction'*	B

TABLE 18
Amendment of Schedule 3

Third Schedule (Regulation 25)
1. Any registered product containing the following Acetyldihydrocodeine Cocaine Codeine Dextropropoxyphene Difenoxin Dihydrocodeine Diphenoxylate Ethyl morphine Nicocodine Nicodicodeine Opium in powder Pholcodeine Propiram

Authority. Throughout the year 2003 the DCA has held 12 meetings. Among the states issued the manufacturer's licences for 2003, Selangor has the highest number of licensed manufacturers' premises followed by Johor and Pulau Pinang. Table 19 shows the manufacturers licences issued to the various states and the type of products manufactured.

TRAINING

The PSD was given 17 places for postgraduate training of which 13 were for Masters Degree and 4 for PhD. However only 11 places for Masters Degree and 3 for PhD were taken up due to the shortage of applicants.

The Pharmacy Services Division co-ordinated 7 training programmes for officers from foreign countries such as Vietnam, Bangladesh and Brunei Darussalam. This was done in the spirit of regional and international co-operation focusing on areas where the Malaysian pharmaceutical service (MOH) has expertise and skill to offer.

With the introduction of the Malaysian Remuneration System (Sistem Saraan Malaysia - SSM), the training unit has coordinated the development of the functional curriculum for the competency assessment (PTK) for pharmacists and pharmacy assistants to enable the Competency Development Division of the MOH to start conducting the examination and courses for them. This is a very significant move in ensuring the career development for the officers involved. The Pharmaceutical Management section has organised 19 in-service courses or workshops under the Continuous Professional Development programme for 2003.

TABLE 19
Categories of Licensed Manufacturers Premise

State	Pharmaceutical	Traditional	Cosmetic	Total
Perlis	0	2	0	2
Kedah	4	18	0	22
Penang	11	13	1	25
Perak	7	12	0	19
Selangor	32	41	0	73
FT Kuala Lumpur	6	8	0	14
Negeri Sembilan	1	2	0	3
Malacca	5	10	0	15
Johore	8	20	1	29
Pahang	0	0	0	0
Terengganu	0	1	0	1
Kelantan	1	8	0	9
Sabah	0	1	0	1
Sarawak	1	3	0	4
Total	**76**	**139**	**2**	**217**

CONCLUSION

Impact of Pharmaceutical Services on Health Problems and the Pharmaceutical Sector

The successful implementation of the various pharmacy service activities has contributed towards the availability and accessibility of medicines and pharmaceutical products that are of quality, safe and efficacious in the country. It has also contributed towards better provision of the service to patients and consumers.

Local products that entered the market are also ensured of their quality as the local pharmaceutical industries have to comply to the currents Pharmaceutical Inspection Cooperation Scheme (PIC/S). This is also a move forwards ensuring that Malaysian pharmaceuticals are of international standard and acceptable for international market. The maintenance of quality medication in the market is further strengthened by the Enforcement and Licensing Activity through constant monitoring, checks and raids on both licensed and unlicensed premises to ensure compliance with the relevant pharmacy legislations and guidelines. Raids and inspections have been stepped up to stamp the illegal sale of poisons, unregistered products and adulterated traditional medicines that can cause harm to consumers. Efforts have also been intensified in

improving the control of licit trade precursors to prevent the manufacture of Amphetamine Type Stimulants (ATS) through regional cooperation. Monitoring of advertisements has been enhanced towards ensuring public access to correct and reliable information on medicines and health services.

The provision of pharmaceutical care has been enhanced through the improvement of the various clinical activities. The improvements carried out include upgrading of infrastructure in various hospitals and strengthening of pharmacists' skills. More pharmacists were given training through workplace attachments either locally or overseas.

The effort put into procuring cheaper antiretroviral drugs has improved the availability and accessibility of the drugs and thereby enabled more HIV/AIDS patients to obtain the drugs. The Ministry of Health Drug List has been undergoing a major restructuring process with the inclusion of the Malaysian Drug Code that is based on the WHO's Anatomical Therapeutic Classification. This is to ensure that each chemical entity is unique in terms of substance, dosage, its salt and proprietary name. The code is important for the MOH Drug List for future incorporation into any computerised information system and also for drug utilisation studies.

Expectations and Future Directions

The PSD will continue to intensify its various activities in the coming years given the improved manpower situation, to develop its services in tandem with the Ministry of Health's mission and vision.

In the years ahead, the existing regulatory system focusing on safety and efficacy of pharmaceutical products to protect public health will be strengthened through enhancement of pharmacovigilance activities, exchange of technical information and collaboration with other regulatory authorities on product evaluations and Good Manufacturing Practice (GMP) inspections.

Activities in monitoring of drugs, precursors, essential chemicals with potential abuse of being diverted and counterfeit medicines remain the top priority of the pharmacy enforcement unit. Several amendments to the existing legislation need to be expedited to cope up with current demands. Guidelines on advertisements will be reviewed regularly and to collaborate actively with other relevant agencies to further strengthen the control of advertisements in mass media.

Improved health literacy among the public will augment the efforts taken in regulatory, enforcement and pharmaceutical care activities in ensuring the safety of medicines and pharmaceutical products that are available to them. Improved strategies in public education and health literacy improvement on medications and other pharmaceutical products will result in a more informed public and accord better consumer protection.

Greater involvement of the media and increase utilisation of information and communication technology would be looked into as strategies in improving public education in pharmaceutical-related matters.

Geared towards improving and upgrading the quality of pharmacy practice, various strategies have been outlined which include integrating pharmaceutical care service at all levels of healthcare, accreditation of pharmacy facilities, services and application of the latest information technology system in all pharmaceutical care service including drug management system. The PSD will also strengthen the rational utilisation of drugs and improve the inclusion process of drugs into the MOH Drug List through pharmacoeconomics evaluation and drug utilisation research.

Upgrading the proficiency of the pharmacy personnel will be through credentialing system, continuous professional development programme and specialization of pharmacy service for various disciplines of medicines.

Engineering Services

THE Engineering Services Division started off in 1968 as the Environmental Health and Engineering Unit under the Division of Health. During that time it had two sections; the Public Health Engineering Section and the Radiation Protection Section. In 1981 this Unit was upgraded to be the Engineering Services Division. The Engineering Services Division at present consists of four main sections :

i) Environmental Health Engineering
ii) Hospital Engineering
iii) Radiation Health and Safety
iv) Regulatory Unit

OBJECTIVES

Objectives of the Engineering Services Division are :

i) Establish and Implement suitable programmes to protect public health.
ii) Ensure that the National Drinking Water Quality Surveillance Programme is implemented effectively following the guidelines so as safe-guard the health of the consumer.
iii) Ensure that Environmental Sanitation Programme is implemented effectively so that potable safe drinking water and sanitation are available to every household in the rural areas and which are maintained satisfactorily.
iv) Provide quality technical services for the implementation of development projects and procurement of engineering and medical equipment.
v) Coordinate and monitor the maintenance & minor works programme for MOH's buildings & facilities and provide technical advice where appropriate.
vi) Issue licenses under the Atomic Energy Licensing Act 1984 for the usage of radiation apparatus and radioactive materials in medicine in a time frame of

2 months if all requirements are complied with.

vii) Provide services in the implementation of Quality Assurance Programme and radiation protection activities so as to ensure that radiation apparatus and radioactive materials meet the safety and performance standards.

ACTIVITIES AND ACHIEVEMENT

ENVIRONMENTAL HEALTH ENGINEERING

The Environmental Health Engineering activities have four core programmes, namely the Water Supply and Environmental Sanitation Programme, the National Drinking Water Quality Surveillance Program (NDWQSP), Clinical Waste Management Programme and the Environmental Health Protection. These programmes are formulated and planned to meet the following goals :

i) To plan, implement, monitor and coordinate preventive health programmes through the application of environmental health engineering principles and methods.

ii) To improve the environmental sanitation of the rural areas and reduce waterborne diseases.

iii) To ensure all public water supply is safe.

iv) To ensure that environmental health is protected through proper management of solid, clinical and toxic waste.

v) To protect public health through proper planning, design, implementation, operation and maintenance of wastewater management systems.

vi) To protect public health from adverse air quality and indoor environment conditions.

Water Supply and Environmental Sanitation Programme

This programme involves the construction of rural water supply systems, sanitary latrines and proper facilities for the disposal of sullage water and solid waste in the rural area. It was initiated in 1974 as an effort to reduce/control the incidence of water-borne and excreta related diseases, through the provision of water supply and sanitation facilities.

i) ***Rural Water Supply***

One of the objectives of this programme is to provide adequate safe water supply to rural community. The programme incorporates simple technological principles that emphasized on simple design, construction and maintenance. The requirement for the system is that to deliver sufficient quantities of water that meets the basic health and hygiene requirement at minimum cost. These

systems produce untreated but wholesome water and therefore the rural people are advised to boil their drinking water. The types of systems installed through out rural area in Malaysia are gravity-feed system, sanitary well, sanitary well with house connection and rainwater collection system.

The development of rural water supply in the water supply and rural environmental sanitation programme was planned according to 5 year Malaysia development plan. A total of 9,293 of various types of systems were installed up to 2003. These systems provided service to 11,716 houses with a population of 63,158. The overall status of rural water supply coverage is about 95.24% that represent 1,606,712 rural houses with a population of 8,104,773 (Table 1).

ii) ***Sanitary Latrines***

Sanitary latrine is to be constructed for every household in rural area. The most effective and cheap method for disposal of excreta in rural areas is by pour-flush latrine. Population densities, soil conditions, cultural habits, the depth of water table and the availability of water to flush the bowl are the criteria considered for the system to operate satisfactorily. The system eliminates odors flies and generally provides a more aesthetic environment.

The construction of sanitary latrines provides the means to initiate the effort to educate rural people on the use of more comfortable and hygienic method for disposal of excreta. It is hope that after sometime, the people will realise the benefit of such a practice and will construct their own latrines in the future when replacement becomes needed.

The end of 2003 MOH has constructed a total of 1,664,515 of pour flush latrines. The coverage of sanitary latrines at the end of 2003 was 98.67% that represent 8,379,760 of rural population (Table 2).

iii) ***Sullage and Solid Waste Disposal***

In the early stage of the BAKAS programme, the installation of sullage and solid waste disposal was given lower priority due to the urgent needs for water supply and sanitary latrines. As the coverage of water supply and sanitary latrines is almost 100% achieved, the installation of sullage and solid waste disposal has been given a higher priority. Up until the end 2003 a total of 954,166 houses with proper sullage disposal systems and 1,129,366 houses with proper solid waste disposal systems were constructed, representing a total household coverage of 56.56% and 66.95% respectively (Table 2).

TABLE 1
Construction of Rural Water Supply Project by Ministry of Health in 2003

State	Total Houses In Rural Area	Sanitary Well		Sanitary Well With House Connection		Gravity Feed System		Rainwater Collection		JKR/KKM Connection		Total		Total Houses Supplied (Cummulative)	Coverage (%)
		Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied		
Perlis	37,875	-	-	1	1	-	-	-	-	237	237	238	238	37,141	98.06
Kedah	173,755	14	19	-	-	-	-	-	-	2,823	2,830	2,837	2,849	167,151	96.20
Penang	93,570	-	-	-	-	-	-	-	-	142	142	142	142	93,281	99.69
Perak	148,949	7	7	-	-	3	73	8	8	356	356	374	444	146,878	98.61
Selangor	94,316	-	-	-	-	-	-	-	-	-	-	-	-	94,316	100.00
N. Sembilan	66,841	4	4	-	-	-	-	-	-	250	250	254	254	66,313	99.21
Malacca	68,267	-	-	2	23	2	81	-	-	138	138	142	242	66,470	97.37
Johore	143,492	8	8	2	2	7	362	64	64	27	27	108	463	143,154	99.76
Pahang	113,617	10	21	1	6	13	408	2	2	399	399	425	836	113,140	99.58
Terengganu	123,726	-	-	90	92	-	1	-	-	1,214	1,214	1,304	1,307	114,445	92.50
Kelantan	242,102	-	-	749	1,277	11	204	-	-	623	623	1,383	2,104	196,821	81.30
Sarawak	190,595	-	-	-	-	25	577	1,408	1,408	14	166	1,447	2,151	184,598	96.85
Sabah	189,890	-	-	-	-	1	48	638	638	-	-	639	686	183,004	96.37
Malaysia	**1,686,995**	**43**	**59**	**845**	**1,401**	**62**	**1,754**	**2,120**	**2,120**	**6,223**	**6,382**	**9,293**	**11,716**	**1,606,712**	**95.24**

TABLE 2
Construction of Latrines, Sullage and Solid Waste Disposal System by Ministry of Health in 2003

State	No. of Rural House	Sanitary Latrines			Sullage Disposal System			Solid Waste Disposal System		
		Nos. Built	No of Houses Supplied	Coverage (%)	Nos. Built	No of Houses Supplied	Coverage (%)	Nos. Built	No of Houses Supplied	Coverage (%)
Perlis	37,875	271	37,594	99.26	40	19,077	50.37	138	22,197	58.61
Kedah	173,755	2,245	172,971	99.55	886	30,349	17.47	1,120	67,825	39.03
Penang	93,570	214	93,346	99.76	219	75,942	81.16	174	85,875	91.78
Perak	148,949	362	147,336	98.92	1,038	79,084	53.09	659	100,831	67.69
Selangor	94,316	443	92,859	98.46	102	78,887	83.64	1,464	82,333	87.29
Negeri Sembilan	66,841	254	66,803	99.94	421	50,112	74.97	295	51,981	77.77
Malacca	68,267	294	67,831	99.36	335	47,572	69.69	449	59,675	87.41
Johore	143,492	110	142,941	99.62	428	126,329	88.04	391	127,732	89.02
Pahang	113,617	417	113,261	99.69	205	79,031	69.56	344	82,252	72.39
Terengganu	123,726	1,311	123,015	99.43	689	59,893	48.41	935	77,289	62.47
Kelantan	242,102	1,076	238,356	98.45	757	68,823	28.43	293	124,296	51.34
Sarawak	190,595	2,640	187,203	98.22	450	111,640	58.57	633	106,219	55.73
Sabah	189,890	1,182	180,999	95.32	834	127,427	67.11	10	140,861	74.18
Malaysia	**1,686,995**	**10,819**	**1,664,515**	**98.67**	**6,404**	**954,166**	**56.56**	**6,905**	**1,129,366**	**66.95**

National Drinking Water Quality Surveillance Programme

Guidelines for the implementation of an effective, systematic and comprehensive National Drinking Water Quality Surveillance Programme (NDWQSP) were formulated with the co-operation of agencies such as World Health Organization (WHO), Public Works Department, Department of Chemistry and Department of Environment in early 1980's. These guidelines were being the foundation for the launching of the NDWQSP in 1983.

The principal objective of NDWQSP is to enhance public health standard by ensuring the safety and acceptability of the drinking water provided to the consumer by reducing the incidence of water borne diseases or other effects associated with poor public water supplies through effective surveillance. This programme ensures that public health and water work personnel will be alerted in time if the quality of drinking water deteriorates. This will enable them to take preventive or remedial measures before any major outbreak of disease or poisoning can occur.

The NDWQSP that has been adopted by all states since 1986 provides a mechanism towards improving drinking water quality through five elements of the programme, i.e. monitoring, sanitary survey, data processing and evaluation, remedial action and institutional examination. Since the implementation of the programme, the drinking water quality in the country has generally improved and the current status of drinking water can be readily assessed.

To further enhance the effectiveness of the programme, a Quality Assurance Programme (QAP) for NDWQSP was launched in December 1992 and implemented nationwide in January 1993. The QAP standards were set based on four performance indicators, i.e. violation rate for residual chlorine, faecal coliform, combine residue chlorine and faecal coliform and turbidity. The standards are revised each year so that it can be made more stringent to be consistent with any improvement of the national annual average.

For the year 2003, the number of water treatment plants and watercourses monitored were 445 and 457 respectively for the whole Malaysia. 211 sanitary surveys were implemented for the whole Malaysia in 2003, with 19 water treatment plants need follow-up action. The water sampling performance for 2003 is shown in Table 3, while Table 4 indicates the performance of QAP in 2003.

Clinical Waste Management

The Clinical Waste Management consists of the following components :

i) Development of policy and guidelines
ii) Training and advisory services
iii) Programme monitoring
iv) Programme evaluation

TABLE 3
Summary of Sampling Performance for 2003, Malaysia

State	Group 1			Group 2			Group 3		
	A	B	C	A	B	C	A	B	C
Perlis	999	900	90.2	290	190	65.5	86	41	47.7
Kedah	9,683	9,406	97.1	2,039	1,977	96.9	604	591	97.9
Penang	4,622	4,293	92.9	861	778	90.4	291	274	94.2
Perak	12,481	11,407	91.4	2,641	2,295	86.9	1,078	930	86.3
Selangor	11,482	9,991	87.0	2,782	2,351	84.5	788	676	85.8
F.T. K.Lumpur	1,905	1,067	56.0	357	175	49.0	133	66	49.6
N. Sembilan	5,439	5,198	95.6	1,187	1,119	94.3	401	363	90.5
Malacca	3,176	2,995	94.3	1,633	1,381	84.6	203	161	79.3
Johore	15,115	14,518	96.1	3,801	3,591	94.5	854	790	92.5
Pahang	13,874	13,177	94.9	4,079	3,604	88.4	1,159	1,012	87.3
Terengganu	6,703	6,638	99.5	1,456	1,422	97.7	402	391	97.3
Kelantan	6,437	6,402	99.5	1,536	1,531	99.7	513	513	100
Pen. Malaysia	**91,916**	**85,992**	**93.6**	**22,622**	**20,414**	**90.1**	**6,512**	**5,808**	**89.2**
Sabah	8,763	6,583	75.1	1,973	928	47.0	671	336	50.1
Sarawak	20,441	13,389	65.5	4,380	2,188	49.9	1,537	787	51.2
Malaysia	**121,120**	**105,964**	**87.5**	**29,015**	**23,530**	**81.1**	**8,720**	**6,931**	**79.5**

Note : A = Number of samples scheduled (ideal schedule)
B = Number of samples taken
C = Percentage of samples taken (%)

In 1992, a policy and guidelines on clinical waste management that meets all requirements stipulated in the Environmental Quality (Scheduled Wastes) Regulation 1989 was formulated. The guidelines known as "Guidelines For The Management Of Clinical and Related Waste in Hospitals and Health Care Establishment, Ministry of Health" consist of three main section, i.e., policy, guidelines and action plan for clinical waste programme.

The clinical waste service was privatized to three concession companies on 1st of January 1997. The company and the zone that the service is provided is as following :

Faber Mediserve Sdn. Bhd. - Northern zone, Sabah and Sarawak
Redicare (M) Sdn. Bhd. - Eastern and Central zone
Pantai-Medivest Sdn. Bhd. - Southern zone

TABLE 4
Performance of QAP Programme for KMAM in 2003

Indicator / State	Residue Chlorine (QAP < 2.8%)			e-Coli (QAP < 0.5%)			Residue Chlorine and e-Coli (QAP < 0.3%)			Turbidity (QAP < 3.4%)		
	A	B	C	A	B	C	A	B	C	A	B	C
Perlis	771	50	6.49	771	7	0.91	771	0	0	768	1	0.13
Kedah	8,102	132	1.63	8,039	81	1.01	8,038	12	0.15	7,992	160	2
Penang	3,471	28	0.81	3,471	48	1.38	3,471	0	0	3,471	6	0.17
Perak	9,083	94	1.03	9,086	65	0.72	9,083	21	0.23	8,851	106	1.2
Selangor	8,621	277	3.21	8,621	24	0.28	8,621	0	0	8,605	152	1.77
F.T. K.Lumpur	974	9	0.92	974	0	0.00	974	0	0	974	3	0.31
Negeri Sembilan	4,224	109	2.58	4,211	25	0.59	4,211	15	0.36	4,224	187	4.43
Malacca	2,827	233	8.24	2,827	39	1.38	2,827	3	0.11	2,818	68	2.41
Johore	12,741	249	1.95	12,741	90	0.71	12,741	5	0.01	12,741	64	0.5
Pahang	10,296	657	6.38	10,290	106	1.03	10,289	181	1.76	10,292	788	7.66
Terengganu	5,856	39	0.67	5,856	15	0.26	5,856	0	0	5,850	41	0.7
Kelantan	5,168	475	9.19	5,158	15	0.29	5,168	12	0.23	5,157	958	18.58
Pen. Malaysia	**72,134**	**2,352**	**3.26**	**72,045**	**515**	**0.71**	**72,050**	**249**	**0.35**	**71,743**	**2,534**	**3.53**
Sabah	5,417	596	11	4,538	18	0.4	4,531	116	2.56	4,796	465	9.7
Sarawak	10,104	160	1.58	10,381	143	1.38	10,067	0	0	9,848	48	0.49
Malaysia	**87,655**	**3,108**	**3.55**	**86,964**	**676**	**0.78**	**86,648**	**365**	**0.42**	**86,387**	**3,047**	**3.53**

Note : A = Number of samples analyzed
B = Number of samples violated
C = Percentage of samples violated (%)

Source : Engineering Services Division, Ministry of Health

During year 2003, total of 5,864 tonnes of clinical waste were sent to the three concession companies.

With the implementation of this program, it is envisaged that a proper clinical waste management by all Ministry of Health's hospitals and health care facilities can be carried out in conformity with the legal and environmental health requirements.

Environmental Health Protection

The main components of environmental health protection programme cover the area of wastewater management, solid waste management, and air pollution and indoor environment. The principal goal of this program is to establish a system to monitor the health aspects of all activities related to wastewater, solid waste, and air pollution and indoor environment to enable timely intervention on policy development, planning and implementation of programme to protect public health.

The Environmental Health Protection Programme also places a special attention for environmental health requirements to be properly and adequately considered in Environmental Impact Assessment (EIA) process. The current practice of EIA study only involved mainly the study of the impact of development projects on the physical or natural environment with a nominal touch on the impact of such projects on human health. In 2002, EHIA Guideline submitted to the Department of Environment was accepted and agreed to be included as one of the requirement in the EIA to be carried out by the project proponent.

A study on health impact by air pollution is being carried by UKM in collaboration with the Engineering Division under the WHO allocation. The study on health impact is focused in the Klang valley area. For indoor air quality, an application was put forward to get IRPA funding to carry out studies on the status of indoor air quality of buildings in the country. The objective of the study is to produce guideline on indoor air quality requirements, surveillance and monitoring of indoor air quality.

RADIATION HEALTH & SAFETY

The Radiation Health & Safety Branch (RHSB) is responsible for ensuring the safe, effective and efficacious and optimum use of ionizing radiation in medicine. Two approaches are adopted to carry out this responsibility, i.e. via licensing and enforcement under the Atomic Energy Licensing Act 1984 (Act 304) for hospitals and clinics in the private sector and via implementation of all the requirements of Act 304 and its subsidiary regulation in the government hospitals and health clinics under the Ministry of Health (MOH). For the government sector the approach also includes Quality Assurance Programme (QAP) and medical physics advisory services. RHSB is also

responsible to develop Codes & Standards for ionizing radiation, non-ionizing radiation and medical devices. It is also responsible to improve and update existing Codes & Standards in these areas.

Objectives

The main objectives of the Radiation Health & Safety Branch are to ensure :

i) The safe, optimum and efficacious use of irradiating apparatus and associated facilities in medicine.
ii) That the hazards associated with application of ionising radiation (IR), non-ionising (NIR) radiation and Medical Devices are minimised and within acceptable levels.

Strategies

i) Provide an efficient and effective service in licensing by developing legislation, codes and guidelines and upgrading managerial and technical expertise in all aspects of licensing activities.
ii) Improve computerised information management for the purpose of situational analysis and comparative studies for policy formulation.
iii) Evaluate and review prosecution protocols and guidelines for carrying out enforcement activities.
iv) Provide consultative and advisory services in technical aspects of radiation protection as well as equipment performance to other Divisions or agencies.
v) Develop, coordinate, and monitor quality control activities for equipment and associated facilities.
vi) Develop and acquire technology for the purpose of monitoring and surveillance.
vii) Carry out continuous training programme for technical staff to ensure that they are well trained.

Resources

When additional posts were approved in the year 2002, the new organizational structure was updated. RHSB was divided into two sections; Licensing & Enforcement section and Codes & Standards section. The head of RHSB is the Deputy Director (Physicist Grade Jusa C), 1 Principle Assistant Director (Physicist grade C54) and 5 Principal Assistant Directors (Physicists Grade C48) posts, 15 Assistant Directors (Physicist Grade C41) posts and 2 Senior Radiographers (Grade U38) and 3 Radiographers (Grade U36) posts.

There were 8 physicist posts at the 6 State Health Department (SHD). 4 of these posts were filled. They are at SHD in Sarawak, Penang and Selangor. The responsibilities of these physicists include the monitoring activities for the medical use of ionizing radiation.

The RHSB had several sets of various QC and radiation measuring equipment to ensure that they can carry out their roles and responsibilities effectively.

Activities and Achievements

i) *Licensing*

A total of 650 evaluations for license applications were made in 2003 and this comprised of 88 evaluations for new licenses and 562 for license renewals. There was a total of l,652 licenses issued up to end 2003 and the classification of these licenses is as in Table 5.

TABLE 5
Number of Licensed Hospitals/Clinics According to Categories in 2003

Class of License	Number and Type of Premises						Total
	Dental	GP's Clinic	Hospital/ Radiological Clinic	Radiotherapy Centre	Veterinary	Consultant	
Class A	-	-	1	4	-	-	5
Class C	807	697	97	2	23	-	1,626
Class A & C	-	-	6	8	-	-	14
Class H	-	-	-	-	-	7	7
Total	**807**	**697**	**104**	**14**	**23**	**7**	**1,652**

ii) *Monitoring & Enforcement*

All enforcement activities including inspection, investigation, raid and prosecution are carried out on all licensed premises to ensure maximum compliance to licensing requirements. Warnings were given for minor non-compliances and enforcement, actions, including court action, for repeated offences or for cases of serious violations.

A total 154 premises were inspected to ensure they comply with all licensing requirements. From that inspection, 83 (54%) of the premises complied with all licensing requirements and 71 (46%) of premises did not comply with all licensing requirements. 41 warning letters were issued and 28 x-ray machines were sealed.

iii) ***Quality Assurance Programme (QAP) & Medical Physics Advisory Services***

This service is designed for all MOH's hospitals and clinics where ionising radiation is used for medical purposes. It is aimed at ensuring that the diagnostic images produced are of sufficiently high quality so that they consistently provide adequate diagnostic information at the lowest possible cost and with the least possible exposure of patient to radiation. The activities carried out in this service, namely, vetting and evaluation, inspection and monitoring and surveillance are implemented to assist MOH's hospitals conform to regulatory requirements.

In this activity, the radiology services of 132 MOH's hospitals/health clinics were monitored. A total of 104 plans were inspected and evaluated. New projects and upgrading of hospitals were also involved and all these projects were successfully implemented.

This Branch also successfully organized 3 National QAP workshops in radiology for Radiologists and Radiographers to increase and improve quality on radiation protection in medical diagnostic imaging for government hospitals and health clinics. The aims of these workshops were to increase the awareness to licensing requirements and to find ways to improve radiation protection and quality of medical diagnostic imaging service in government hospitals and health clinics.

iv) ***Development of Codes & Standards***

The activities carried out to develop Codes & Standards include :

- Related research activities and safety issues in ionizing radiation (IR), non-ionizing radiation (NIR) and Medical Devices.
- Compilation of international standards and references from other countries.
- Identify the system for control of IR, NIR and medical devices in other countries.
- Measurement of the NIR levels on selected populated areas and selected hospitals.
- Conference with stakeholders for the purpose of circulating information and obtaining feedback which are to be used for preparing regulations.
- Monitor the update developments in WHO's *'International EMF Project'*.
- Attend related training/courses in IR, NIR and Medical Devices.
- Involved in related International Conferences.
- Cooperation with SIRIM in developing standards for IR, NIR and medical devices.

Conclusion

In line with the Ministry of Health's vision of achieving the nation's vision, the RHSB had endeavoured to upgrade services in medical physics so as to expand rapidly and contribute towards the achievement of this vision. This service will also protect the public from the risk and danger that may result from the use of ionizing and non ionizing radiation for medical purposes and to ensure that the benefits from them (ionizing & non ionizing radiation) were maximized.

This Branch is also in the process of developing medical physics services in Malaysia at par, so that this service with that in the developed countries. It aims to give positive contributions in achieving the nation's vision.

HEALTHCARE FACILITY ENGINEERING

Objective

The main objective of Healthcare Facility Engineering Section is to provide technical services towards achieving optimum usage and functioning of equipment, plant and facilities in hospitals and other institutions of the MOH through proper selection, installation, testing and commissioning, operation and maintenance.

Strategies

i) Plan the need for continuous upgrading of engineering facilities, replacement of equipment and plant and physical improvement to the existing health institutions.
ii) Monitor the implementation of new facilities and the upgrading of engineering system in Hospitals.
iii) Provide engineering consultancy services in the procurement process for the engineering system in health institutions.
iv) Draft and legislate the related engineering guidelines for health institutions.

Activities and Achievement

Healthcare Facility Engineering Section's primary activities are to coordinate and monitor the maintenance and minor works programme for MOH buildings and facilities, implement selected projects and minor works and to provide technical advice for development projects, technology assessment and procurement of engineering and medical equipment.

i) ***Management of Budget on Renovation, Upgrading and Repairs of Clinics and Hospitals***

Under Dasar Baru programme, the Unit has been entrusted to carry out two major activities as illustrated in the following Table.

Activities	Cost (RM)	% Expenditure
1) Replacement of Central Supply equipment	10,000,000.00	100
2) Replacement of split/window airconditioning for Health Offices and Clinics	2,500,000.00	100

ii) ***Supervision of Upgrading of Engineering Facilities/System in Hospitals***

Type of Project	No. of Project
Projects under SPP7/99	3
Projects for Upgrading of Engineering Facilities	30
New Hospital Projects	3
Total	**36**

iii) ***Technical Advice Services (Engineering)***

Healthcare Facility Engineering Section also played a vital role in the procurement of medical and engineering equipment (electrical/mechanical) for Hospitals and Health Institutions. Majority of the requests for verification of specifications and tender technical evaluation came from Medical Division, Dental Division, Planning and Development Division and State Health Departments.

Technical Advise Services	Numbers
Verification of Specification	6 specifications
Technical Evaluation	40 tenders
Commissioning	14 units
Total	**60**

Conclusion

In view of the expanding of services in the health institutions set-up, the roles of engineers has become more relevant in assisting the medical team to realise the vision of Ministry of Health. The beautifully design building equipped with the high

technological equipment and systems requires proper planning for maintenance, replacement program and upgrading in the later part of their life span.

For the existing health institutions, the need for upgrading the building and equipment/ system to cater for the expansion of medical services is inevitable. The planning as well as the implementation of this program requires more manpower and resources. In most cases, upgrading of engineering systems and replacement of equipment are done on the ad-hoc basis due to lack of manpower and resources. With a more manpower and resources, achievement in the year to come should be done in a well-planned manner.

REGULATORY UNIT

The Supplementary Agreement to the Concession Agreement for the 5 hospital support services was signed between the 3 concession companies and the government which addresses contractual issues. It contains a number of provisions including fee variation for added facilities, fee deduction prior to the implementation of the deduction formula and service coverage.

Consequent to the signing of the Supplementary Agreement, variation to the fee for the respective services namely facility engineering maintenance services, biomedical engineering maintenance services and cleansing services were worked out, whereas for the other two services i.e. linen and laundry service and clinical waste management service, all fees had already been paid based on weights of linen supplied and clinical waste collected.

The concession companies had been disputing the status of facilities such as policlinics and training institutes as not included under their scope, and therefore were providing only partial services to these facilities. In the new schedule 3 all buildings and facilities which are to receive the services are listed, namely those facilities which were under the jurisdiction of the hospitals at the takeover date on 1st January 1997 and other facilities belonging to the Ministry which are not administered by the hospital but located within the hospital compound.

Monitoring services by SIHAT Consultant on the hospital support services were still provided, basing on the original service Agreement. Besides the normal monitoring activities at the existing contract hospitals SIHAT was also involved in the mobilization of hospital support services in the new hospitals, including testing and commissioning and briefing to hospital team.

Based on the progress achieved so far in overcoming contractual issues it is expected that for the coming year efforts will be focused on getting the concession companies to improve service delivery and towards meeting customer requirements.

Biomedical Research

THE Institute for Medical Research (IMR) as the research arm of the Ministry of Health Malaysia continues to carry out its 4 main functions viz. conduct research for the prevention and control of diseases and on pertinent health issues and problems in the country; (2) perform specialized diagnostic services; (3) provide training in various specialized fields; and (4) provide consultative and advisory services.

The IMR has a total staff strength of 604, of which 462 (76%) posts have been filled. There are 111 persons in the Managerial and Professional Group, comprising research scientists, medical doctors, veterinary doctors, librarians, systems analysts and administrative officers. Another 351 persons in the Technical and Support Group make up the remainder. The total budget available to the Institute for the year was about RM42.2 million, an increase of 11.1% when compared to RM38.1 million for 2002.

The IMR continues to serve as the SEAMEO TROPMED Regional Centre for Microbiology, Parasitology and Entomology, the World Health Organization (WHO) Regional Centre for Research and Training in Tropical Diseases, WHO Collaborating Centres for (1) Taxonomy, Immunology and Chemotherapy of Brugian Filariasis and (2) Ecology, Taxonomy and Control of Vectors of Malaria, Filariasis and Dengue (since 1986). The Institute is also the national focal point for the WHO Collaborative surveillance programme on antibiotic resistance in the Western Pacific Region and the National Influenza Centre.

RESEARCH ACTIVITIES

During the year, a total of 29 research projects were conducted. There was a total of 68 scientific publications comprising 40 published papers, another 10 accepted for publication and 18 others in proceedings of scientific meetings. A total of

25 reports were also prepared to meet specific requests of various government departments and agencies and there were 2 PhD dissertations. Another important output of the staff members is scientific presentations in local and international conferences and seminars. A total of 152 scientific presentations were made in the year.

Allergy and Immunology Research Centre

The main focus of allergy research in the Allergy and Immunology Research Centre is in allergy with particular emphasis on food allergy. IgE-binding patterns and major allergens of several species of local fish were described. Two new projects on food allergy and autism and fungal allergy have just commenced. The Centre also continues to produce new standardized extracts for use in diagnosis of allergy. A study was conducted to establish the frequency of HLA-B27 and its subtypes in the Malay population to determine why the incidence of Ankylosing spondylitis in the Malays has been observed to be low compared to the Chinese. The project on the evaluation of a low cost in-house serum lipoprotein (a) test kit for the rapid assessment of coronary heart disease is near completion. This project is in collaboration with CDNRC.

Cancer Research Centre

The Cancer Research Centre continued to use molecular and cytogenetic tools in their research and diagnostic activities. The *Haematology Unit* continued its research on advanced molecular cytogenetic techniques in order to provide fast and accurate diagnosis for patients with haematological malignancies. A new molecular technique using real time polymerase chain reaction technology for the rapid quantitation of bcr/abl transcript has been offered as a specialized diagnostic service for patients with chronic myeloid leukaemia. The Unit continues to provide Haemoglobin Analysis for the screening of thalassaemia and haemoglobinopathies using the High Performance Liquid Chromatography (HPLC) BioRad Variant and Serbia Agarose Electrophoresis System. The Unit is the sole provider of molecular testing for alpha thalassaemia for Ministry of Health Malaysia. The *Molecular Pathology Unit* was involved in two major projects on cancers. The first project involving molecular studies on colorectal cancer is an on-going topdown project (2002-2004) funded under the National Biotechnology Directorate, MOSTE. The second project is a new project (2003-2007) involving the screening of microalgae extracts for anti-neoplastic and antiviral properties on nasopharyngeal carcinoma cell lines and studies on the mechanisms involved at the molecular level. The Unit continues to provide molecular diagnostics for selected paediatric diseases such as MELAS, Angelman/Prader Willi syndrome, spinal muscular atrophy and Leigh's disease. The *Stomatology Unit* continues to carry out clinico-pathological studies of oral cancer and precancer in the country.

Cardiovascular Disease, Diabetes and Nutrition Centre (CDNRC)

The Cardiovascular Disease, Diabetes and Nutrition Centre (CDNRC) comprises of three units namely, Cardiovascular Disease (CVD), Diabetes and Metabolic Disorders (DMD) and Nutrition Units. The *CVD Unit* continues to provide specialized diagnostic services for serum concentrations of lipids and lipoproteins, vitamin A, vitamin C, vitamin E and carotenoids, and thiamin status via the erythrocyte transketolase test for heparinised blood. In the area of research, much effort was spent on i) updating relevant methodologies for the determination of dietary fibre and the fatty acid profile of common Malaysian meals/diets, ii) collaborative research in the establishment of an in-house low-cost rapid ELISA test kit for the assessment of coronary heart disease risk, and iii) compilation of a sugar database to determine daily sugar intake. During 2003, the Unit made significant contributions to training in food analysis and related methodologies for undergraduates from the local universities, as well as consultancy on nutrition for the Malaysian Palm Oil Industry, and technical advisory services for the Malaysian Food Regulations, Food Safety Programme of the Ministry of Health, National Codex Sub-Committees, and updating the Malaysian Recommended Dietary Allowances.

Among the several novel risk markers of cardiovascular disease (CVD) that have been identified in recent years is raised plasma homocysteine (Hcy). A study undertaken by the *DMD Unit*, to determine the reference Hcy concentrations of healthy Malaysians, showed that the difference between the mean [±SD] values for the males (10.8 [±3.7] μmol/l) and females (8.0 [2.0] μmol/l) was statistically significant *(P<0.0001)*, regardless of age or ethnicity. Though older subjects (i.e. ≥ 50 years) generally had higher Hcy levels than younger ones (≤ 49 years), the difference was statistically significant only for females. There appeared to be no significant differences in the mean of Hcy levels of the Chinese, Indian and Malay ethnic groups of the same sex. This study found that hyperhomocysteinaemia, defined as an Hcy of ≥ 14 μmol/l, was higher among males than females and, among either sex of the three races, was highest among Indian men. The "Study of Kacip Fatimah is an IRPA-funded project under the National Biotechnology Directorate, MOSTE, has progressed well. *In-vivo* toxicity studies with the water extract have shown it to be non-toxic to adult female rats tested at 5g/Kg body weight and did not cause congenital malformation when tested on pregnant rats. The extract has also been found to produce a dose-response effect on the reproductive hormones of female rats, notably on the estradiol and free testosterone levels. Prostate specific antigen is the most commonly used tumour marker for prostate cancer (CaP). However, it suffers from poor sensitivity and specificity and other markers have been proposed for this disease. Among these are increased serum concentrations of insulin-like growth factors–I (IGF-I) and decreased insulin-like growth factors binding protein-3 (IGFBP-3). The evidence for the usefulness of these markers for CaP, however, is contradictory. A small study that we undertook concluded that IGF-I and IGFBP-3 are inferior to PSA for CaP detection.

The *Nutrition Unit* continues to provide laboratory support in the Ministry of Health's monitoring of the Iodine Deficiency Disorders (IDD) Programme. The Sarawak Health Department sent its first batch of 900 urine samples to the Nutrtrition Unit in May and continued to do so until October 2003. A total of 5,400 urine samples were collected from six Divisions in Sarawak. Out of these, 1,678 samples were analyzed for iodine content by the Sandell-Kolthoff method. The rest will be analyzed in the following year. In order to reinforce its role as a reference centre for urinary iodine, three different levels of urine were introduced as control materials in mid-July as opposed to a single control previously. A future activity has been planned for the Unit to participate in the external urine iodine quality control programme. In collaboration with the Diabetes and Metabolic Diseases Unit, a study is being carried out to replace the chloric acid with a much safer and cheaper ammonium persulphate for the digestion medium of the Sandell-Kolthoff reaction. The Unit carried out a pilot study to evaluate the effectiveness of the iodized water supplementation programme amongst school children in Terengganu. This cross-sectional study involved school children aged between 8 to 10 years old from 36 selected primary schools which are equipped with and without the iodinization system. The Unit also continues to provide rapid test kits for the determination of iodine levels in salt and water samples. The number of salt test kits and water test kits prepared in 2003 increased by 34% and 4% respectively compared to 2002.

Environmental Health Research Centre (EHRC)

The Environmental Health Research Centre since its inception in September 1996, has developed its capacity and capability to carry out research on environmental health issues in the country. The use of the strategic plan, initiated and developed with the aid of WHO consultants and reviewed every six months has helped the Centre to keep abreast with the changing scenario of environmental health needs in the country. The Centre now has a national role as its research capability and capacity is recognized. Our expertise in water quality assessment and air quality in relation to its impact on human health is a significant contribution to environmental health studies in the country. We have also developed in-house capability to carry out environmental health impact assessment (EHIA) studies for Tenaga National Berhad, for the construction of power plants. Currently we are developing our capacity and capability to study the impact of pesticides and heavy metals in water and food on human health. Towards this end, we have purchased the necessary equipment and have appropriately trained staff for carrying out the relevant research. The EHRC is also playing an active role as an information clearing house, through the publication of the Environmental Health Focus, a journal that caters for the needs of policy planners, scientists, environmentalist and the lay public. The Centre, through its annual forum also brings together research institutions, policy advocates and NGOs to debate and identify relevant areas of research that the Centre should address. The current staff strength is 10 research officers (4 medical officers), 9 medical laboratory technologists, 6 support staff and 9 research assistants.

Herbal Medicine Research Centre (HMRC)

The Herbal Medicine Research Centre (HMRC) is continuing research in the areas of safety and efficacy of herbal medicine and medicinal plants. This year HMRC continued to be involved in several panel initiated projects which included local plants such as *Orthosipon spp* (misai kuching), *Andrographis paniculata* (hempedu bumi), *Centella asiatica* (Pegaga), *Labisia pumila* (Kacip Fatimah) and *Eurycoma longifolia* (Tongkat Ali) and IRPA research grants. The research emphasis was placed on toxicology as well as developing new anti-malarial and anti-cancer drugs. With more extensive toxicology results, some of the plant products that have been standardised will go for clinical trial.

The HMRC has been instrumental in ensuring the successful implementation of the Global Information Hub on Integrated Medicine project. This Commonwealth Health Minister-initiated project had its prototype www.Globinmed.com launched by the Most Honorable Deputy Prime Minister of Malaysia, Dato' Sri Abdullah Ahmad Badawi, during the "The 5th International Traditional/Complementary Medicine Conference and Exhibition (INTRACOM 2003) in October this year. Globinmed.com has local (Policy, Trade, Intellectual Property Rights and Herbal) databases as well other contents which are provided on demand by their first international partner, NHI. They include Traditional Chinese Medicine, Dietary Supplement Monograph, and Health Condition & Disease States.

Infectious Diseases Research Centre (IDRC)

The Infectious Diseases Research Centre (IDRC) comprises of 5 different units namely Acarology, Bacteriology, Entomology, Parasitology and Virology Units. The *Acarology Unit* continued on its new thrust into research on ticks and tick-borne health problems; research into other acarines was slowly decreased and terminated. Collaborative research with Hospital Tengku Ampuan Afzan Kuantan on tick otoacariasis was continued from the previous year. A total of 74 ticks were isolated and identified as *Dermacentor* and *Haemaphysalis* species. A new aspect of this research to be initiated next year is to correlate incidence of cases with local meteorological data. The Unit was invited to participate in 3 local scientific expeditions. These were to Ulu Muda Forest Reserve, Kedah; Gunung Stong Forest Reserve, Kelantan; and Belum State Park, Perak. Ectoparasitic acarines from natural hosts including small mammals, birds, bats, reptiles and insects were extracted and identified. The information thus obtained contributed much to our knowledge of acarine fauna in Malaysia.

The *Bacteriology Unit* continued to conduct more focussed research. The Unit, in collaboration with other Institutions, is planning to conduct a research programme entitled 'Tick-borne Diseases in Malaysia'. The main objective of the programme is to obtain more information about these diseases which can be utilized by policy makers to formulate health programmes in the country. In line with the current

approach to use molecular techniques in the diagnosis of infectious diseases, the Unit has started to incorporate molecular elements in the research work. A study on genomic diversity of mec regulator genes in methicillin-resistant *Staphylococcus aureus* was carried out. The aim was to obtain some information about the genes in the organisms isolated in the country. Based on the results obtained, further related studies will be performed in the future. Another study on the molecular approach in the diagnosis of invasive fungal infections was carried out. The objectives of the study were to evaluate the utility of polymerase chain reaction as a rapid detection method for the diagnosis of invasive fungal infections and to develop species-specific probes for the identification of several *Candida* spp.

The *Entomology Unit* continued to conduct research on vector biology and control. The nuisance caused by the chironomid (a non-biting midge) breeding in the oxidation ponds was successfully controlled by the application of the microbial control agent, *Bacillus thuringiensis* H-14 (Bti). Various aspects of insecticides were also researched: the bioefficacy of new and existing fly baits, interlab quality control assessment of commercial mosquito coils and the detection of acetylcholinesterase in human saliva as indicator for insecticide poisoning. To counter the development of insecticide resistance, the effect of piperonyl butoxide was tested on bednet materials and an insecticidal paint formulation. Piperonyl butoxide was effective in suppressing resistance due to oxidases. In the studies on malaria vectors, survey of Laotian mosquito vectors continued. A new formulation of residual-sprayed deltamethrin was evaluated in an aboriginal settlement in Pahang. Developing new methods of control was the main focus in dengue vector studies. A new formulation of an insect growth regulator, pyriproxyfen was evaluated against *Ae aegypti* larvae and found to be effective up to 4 months. A new concept of dengue control viz. "chemo-control" whereby the effectiveness of antiviral drugs administered to host was tested against *Ae aegypti* when it fed on treated host. *In vivo* testing in mice indicated that ribavirin induced high mortality in mosquitoes feeding on treated mice. A PCR-based dengue detection technique for vectors was also developed. The incrimination of the vector of dirofilariasis in dogs was central to the study of filariasis vectors. *Armigeres subalbatus* was incriminated as the main vector of canine dirofilariasis. Other studies included the preventive surveillance of mosquito fauna in the new city Putrajaya, the effect of sunlight on the bioefficacy of repellent against leptoconoid sandfly, biotic factors affecting distribution of sandfly and the production of microbial-free fly maggots of *Lucilia cuprina* for maggot debridment therapy.

The *Parasitology Unit* was re-designated as the WHO Collaborative Centre for filariasis in October, 2003 and in line with the new global strategy to eliminate the disease, the name was changed to "WHO Collaborating Centre for Training for Lymphatic Filariasis Elimination Programme". The Centre was requested to host and organise the 3rd SEARO-WPRO Programme's Managers Meeting, WPRO Proposal Review Group (PRG) meeting and training on the new mapping software for the Programme to Eliminate Lymphatic Filariasis (PELF), to be held in 2004.

The Unit continued to carry out research projects in support of the global and national elimination programme. For the year 2003, the Unit undertook 2 research projects in this area, one looking at the impact of interrupted drug intervention on microfilaria rates and densities and the other on the knowledge and perception about lymphatic filariasis among aborigines. The Unit also continued to collaborate with the Institute of Tropical Medicine, Nagasaki University Japan on the research in malaria immunology.

The Unit continued to support and strengthen the Malaria Control Programme of the Ministry of Health. In the year 2003, the Unit again contributed to the national programme through the establishment of the National Anti-Malaria Drugs Response Surveillance Programme. The programme was proposed by Parasitology Unit in 2002 and accepted and launched in 2003 with the Unit as the National Coordinator. This programme has allowed the programme managers to monitor drug response which is critical to control programmes and also provided the national programme with reliable and updated drug resistant data which is important in determining drug use policy, in line with evidence based medical and health practice. The Parasitology Unit started the External Quality Programme in malaria and filariasis microscopy for the State Vector Laboratories in 2003, in line with the National Quality Assurance programme. The Unit will continue to support the programme until the Public Health Laboratory in Sungai Buloh is capable of handling the programme.

The *Virology Unit* focussed on research pertaining to locally important medical viruses, aiming to determine the epidemiology of the viruses and the development of new technology for rapid diagnosis of these viruses. In 2003, the Unit was heavily involved in the investigation of the SARS outbreak. On 16 March 2003 the Virology Unit was designated the National Reference Laboratory for SARS. All samples from suspected SARS patients throughout Malaysia were to be sent to the Virology Unit for detection of SARS Coronavirus (CoV). From 19 March 2003 to 30 June 2003 the National Reference Laboratory received a total of 1,426 samples from 523 patients for SARS investigation. Of these 523 cases, only 338 cases fulfilled the WHO SARS criteria. Viral isolation and electron microscopy techniques were used as a catch-all method to investigate for all possible viral pathogens. Other screening and confirmation tests carried out included PCR for SARS CoV and paramyxovirus and also IFAT for SARS CoV and other respiratory viruses. Five of the 338 cases were confirmed positive by either virus isolation, PCR and/or electron microscopy. The Unit also carried out evaluation of the both serology and PCR kits for the detection of SARS CoV. This experience of handling a SARS outbreak has prepared the IMR for future pathogen level 3 outbreak investigation. The P3 laboratory is adequately equipped and staff are more confident and prepared to cope with future outbreaks. The Unit was also involved in the investigation of other outbreaks such as Dengue, Rotavirus, Hepatitis A, Meningoencephalitis and Influenza. The Unit also continued to provide laboratory support for the liver transplant services of Selayang Hospital.

The Unit as the WHO National Laboratory for Polio Eradication performed satisfactorily in WHO organised quality assurance programmes conducted in 2003 and has been accredited since 1998. Studies to determine the viral aetiology of acute and chronic hepatitis continue. The current data confirms earlier observations that hepatitis A is still the main cause of acute viral hepatitis in symptomatic/hospitalised Malaysia patients. A significantly larger proportion of chronic liver disease and liver cancer in our population is due to hepatitis B virus when compared with hepatitis C virus.

The project on maternal-child HIV initiated in 1990, is aimed at determining the epidemiology of paediatric HIV and evaluation of available diagnostic tests to facilitate early diagnosis of paediatric HIV infection. The Polymerase Chain Reaction (PCR) technique routinely provides early diagnosis of HIV infection in the paediatric age group. The programme of HIV sero-surveillance continues with the division serving as the National reference centre for the study of cases with difficult or unresolved serology. HIV-2 sero-surveillance was introduced several years ago and current data indicates that HIV-2 has not been introduced into the local Malaysian population. The Unit also carried out surveillance programme on circulating dengue virus serotypes, influenza and hand, foot and mouth disease for Ministry of Health. The dominant circulating dengue serotype for 2003 was Dengue 2 and Influenza A/Fujian/411/2002-like strain was found to be the causative agent of the acute respiratory disease outbreak in Perak.

Medical Research Resource Centre (MRRC)

The Medical Research Resource Centre (MRRC) consists of eight units, namely Epidemiology & Biostatistics, Information Technology, Biotechnology, Laboratory Animal Resources, Electron Microscopy, Library & Information Resource, Medical Photography & Audio Visual and Biomedical Museum. The core function of the centre is to provide all the above support services to all the other research centres in IMR and the Ministry of Health. The emphasis is to provide quality services to conduct quality research.

The *Biotechnology Unit* continued to carry out research on *Legionella pneumophila,* Systemic Lupus Erythematosus, *Giardia duodenalis.* Polymerase chain reaction was performed to amplify the macrophage infectivity potentiator gene (mip) of the local isolates of *Legionella pneumophila* as well as on the urinary bacterial DNA of suspected cases of legionellosis. DNA sequence analysis of the PCR products from the local isolates demonstrated varied percentage of identity with the *L.pneumophila* serogroup 1 in the GenBank database. The relatively low percentage of identity of the DNA sequence of the mip gene of certain local isolates to the *L.pneumophila* serogroup 1 in the GenBank database might suggest a lower degree of virulence of the isolates. The sequence of the PCR product of the urinary DNA from suspected legionellosis patient showed a high percentage of identity to the *L.pneumophila* serogroup 1. PCR of bacterial DNA in urine could be used in conjunction with other techniques for diagnosis of legionellosis.

Studies of the role of several cytokine genes in the susceptibility and pathogenesis of SLE were continued. These genes are namely, the TNF alpha and beta promoter and exon 5, IL1RA, and IL-4 intron 3 and promoter. Preliminary results showed that the polymorphism of the IL1RA gene does not influence susceptibility to SLE. However the TNF2 gene does not contribute to genetic predisposition but has a partial role in SLE disease pathogenesis among the Malay SLE population.

A study on random length polymorphism was carried out on six local isolates of *Giardia duodenalis,* originally obtained from faecal specimens of patients (Orang Asli) at Hospital Gombak. Primers were chosen to amplify giardin gene and that which encodes the homologous cystein rich trophozoite surface proteins. All primers used were able to detect and differentiate genus, species and surface antigens of *Giardia duodenalis.*

The main focus of research of the *Epidemiology and Biostatistics Unit* for this year was in the following areas namely, "Burden of Disease", the "Epidemiology of Antibiotics Resistance in Malaysia" and "Effectiveness study of Pneumococcal 23 - Valent Vaccine Among Malaysian Pilgrims attending Hajj in 2003". The Burden of Disease project is partially supported by the World Health Organization and the Ministry of Health Malaysia. This project is being conducted in collaboration with the Institute of Public Health. The Disability Adjusted Life Years (DALY) helps to measures the total impact of mortality and non-fatal health outcomes of disease and illness in a comprehensive manner. Years of Life Lost (YLL) was also critically measured. A report on burden of disease for the year 2000 will be ready soon. A workshop is planned for 2004 to present this report to the experts. The "Epidemiology of Antibiotics Resistance in Malaysia" project is being carried out over two years. The project is conducted in collaboration with the Bacteriology Unit. The aim of the project is to establish a systemic monitoring system, with the specific intention of establishing the prevalence rates of antibiotic resistance in bacterial pathogens both in hospitals and the community, as well as detecting newly emerging resistant strains. Another study on the Malaysian Hajj Pilgrims was conducted in 2003 was to determine the effectiveness of the Pneumococcal 23 - valent vaccine in preventing community - acquired pneumonia (CAP) among the Malaysian pilgrims and to estimate the potential health impact of implementing pneumococcal vaccination in reducing morbidity/mortality, cost-effectiveness/expenditure for medical services and to assess the quality of life of the Malaysian pilgrims. The other strengths of the unit are in providing epidemiological and statistical consultancy services and training in research methodologies and assistance in statistical analysis within and outside the institute. The *Biochemistry Unit,* Specialized Diagnostic Centre (SDC) has played a significant role in the reduction of infant morbidity and mortality from Inborn Error of Metabolic Diseases (IEMD) through our research in the development of new methods for faster and more reliable screening of this group of diseases. Further research projects will be developed to focus on setting up Neonatal Screening Program for IEM in Malaysia. A feasibility study for this programme is already ongoing. Development of new

methods for confirmation of specific IEM such as enzyme analyses for lysosomal storage diseases, galactosemia, peroxisomal disorders and fatty acids oxidation defects will be our main future research projects.

The *Molecular Diagnostic & Protein Unit,* SDC continued to be the referral centre in specific protein chemistries namely paraproteinemias and cryoglobulinemias for the peripheral laboratories across the country. There was a total number of 2,108 cases received in 2003 of suspected multiple myeloma and other paraproteinemias, 6.2% of which are new positive cases and 12% are follow-up positive cases. The total number of tests performed by the Unit in 2003 totaled up to 9,548 tests.

In an effort to establish itself as the Molecular Diagnostic laboratory for the country, the Unit has acquired two major instruments, namely the Denaturing HPLC and a low-to-medium throughput four-capillary Genetic analyzer with the "Dasar Baru for Inborn Errors of Metabolism". The DHPLC is for the mutation screening of the amplified genes of concern. The four-capillary Genetic Analyser is a system for the sequencing of the amplified gene segments for the confirmatory of mutations detected. With the acquisition of the two systems, the Unit is now able to strengthen its task in molecular diagnostics especially for the inborn errors of metabolic and genetic diseases.

Main research activities of the Unit were in the mutational analysis of genomic CDKN1B gene and certain mitochondrial genes such as the D-Loop gene and NADH Dehydrogenase 1 (ND1) gene which is one of the seven mitochondrial DNA (mtDNA) encoding subunits of the oxidative phosphorylation (OXPHOS) complexes, in colorectal carcinoma. In recent years, somatic mutations in mitochondrial genes (mtDNA) have been observed in human neoplasms. Studies in colorectal and pancreatic cancers have shown approximately two-thirds of the tumours showed mtDNA abnormalities and that base substitutions and deletions/insertions were detected both in coding and non-coding regions of the mitochondrial genes. Interestingly, from our observation, it was found that the region of 310 and 315 nucleotides of D-Loop gene is a frequent hot spot of mutations in tumors, either as an insertion or deletion of various degrees. Preliminary analysis of the first segment of ND1 gene from 16 colorectal cancer samples have shown 8 different SNPs all exhibiting a missense mutation with the exception of one silent mutation.

Studies have also been initiated in the gene analysis of newer molecular diagnostic markers for certain inborn errors of metabolic diseases such as the genotype for the confirmatory diagnosis of Carbohydrate-deficient glycoprotein (CDG) syndrome, and other genetic diseases. The Unit continued to conduct industrial training for undergraduate students from local Universities, training for Master of Pathology students, as well as training of Scientific Officers and laboratory technicians from other laboratories on instrument and laboratory methods.

DIAGNOSTIC SERVICES

During the year, a total of 188,653 diagnostic tests were performed compared to 197,945 in 2002, a decrease of 5%.

CONSULTATIVE SERVICES

Staff members of the IMR continued to provide advisory and consultative services to the Ministry of Health Malaysia, other government departments and agencies, as well as international organizations. Most units of the Institute also serve as referral centers for laboratories of the Ministry of Health all over the country. During the year, 14 staff members provided consultative services at the national level while 4 others served at the regional/international level.

SCIENTIFIC AND TECHNICAL TRAINING PROGRAMMES

Training activities carried out by the Institute include both regular courses offered annually as well as ad hoc training programmes and attachment to various units for industrial training. The regular courses include the three-year Diploma in Medical Laboratory Technology course and two other SEAMEO TROPMED postgraduate courses namely, the Diploma in Applied Parasitology and Entomology and Diploma in Medical Microbiology Courses.

The ad hoc programmes provided training opportunities for 199 scientists, medical doctors and allied personnel from other departments and institutes in the country and abroad. A total of 47 undergraduates from various local institutions of higher learning were also attached to the Institute for industrial training in various disciplines. The Institute also conducted 9 training courses during the year.

CONFERENCES AND STAFF DEVELOPMENT

Staff members of the Institute participated actively in both local and international conferences and seminars. A total of 171 staff members attended various conferences, seminars and scientific meetings while another 31 others attended short courses at both national and international levels. Two staff members obtained their PhD.

Health Systems Research

INTRODUCTION

HEALTH Systems Research (HSR) is one of the central fields in modern health system development. It is distinguished clearly from biomedical and clinical research by its systems in approach, use of multi-disciplinary skills in undertaking research issues that are important and relevant to health management. The ultimate goal of the HSR Programme is the improvement of health of the population by supporting the decision-making process of health managers with relevant information.

Historically since its inception in 1987, the development and implementation of the HSR programme was mandated to the Division of Health Systems Research of the Institute of Public Health. In recognition of its well-achieved performances, in January 2003, this Division was upgraded and formalised as an independent entity - the Institute for Health Systems Research (IHSR). This was an important milestone in the programme's endeavour towards further consolidating and strengthening of efforts in institutionalising HSR as a management tool.

In recognition of its efforts, the designation of the WHO Collaborating Centre for Health Systems Research and Quality Improvement (QA/QI), previously awarded to the Institute for Public Health was subsequently transferred to the IHSR. The latter, in addition to continuing its role to serve as the national coordinating body for the HSR programme, also functions as the National Secretariat for the Quality Assurance Programme for the MOH.

PROGRAMME OBJECTIVE AND STRATEGIES

The main objective of the HSR programme is to facilitate the use of evidence-based decision making at all levels through the provision of relevant information scientifically

obtained through research. To achieve this, the programme continues to pursue its strategies to institutionalise HSR and QA/QI as a management tool; develop human and physical resources; establish linkages; disseminate of information and enhancement of utilisation of findings obtained by undertaking HSR and QI efforts; and provide technical support.

Implementation and coordination of the HSR programme and its activities had been achieved through collaborations and partnerships between the IHSR and agencies and institutions within and outside the MOH, as well as those at international level.

ACTIVITIES AND ACHIEVEMENTS

Research Projects

Several international and national research projects had been successfully undertaken for the year. The most significant and resource intensive research implemented was the *World Health Survey 2002* - a multi-country survey aimed at providing a more objective assessment of the health systems performance within the country. Other international projects include the *WHO Effective Coverage: Diagnostic Item Property Study (DIPS)* and the *Health Research Systems Analysis (HRSA)*.

Other collaborative research projects undertaken included a *Situational Analysis of the Implementation of MSC-MOH Teleconsultation Services, Quality of Life of Asthmatics in Terengganu State, Quality of Life of Post Partum Females treated with Kacip Fatimah in Perak, Quality of Life of Hypertensive Patients in Kelantan, Health Outcomes of a Dental Intervention Programme among Standard 5 School-Children with High Risk of Dental Caries and Gingivitis in Penang, Evaluation of Patient Satisfaction in Putrajaya Clinic, National Evaluation of Family Medicine Specialists programme, Development of the QOL Index for the Malaysian Population, Young Adult's Oral Health, and the Evaluation of Client Charter Implementation in the Ministry of Health.*

Capacity Building through Training

A total of 683 participants had been trained through the 22 courses organised. The latter covered HSR Methodology, QA, Outcomes Research, and use of statistical software. Training activities on HSR and QA had also been extended to other long-term and short-term postgraduate courses conducted by the Ministry of Health and the local universities.

The successes in the implementation of the HSR programme and its activities continued to be shared with others in the Western Pacific region and other countries, in the form of Visiting Fellows and international visitors from Vietnam, Lao PDR, China, Jordan and Saudi Arabia.

Consultancy Services

In 2003, the expert groups from WHO Geneva provided technical support for projects on WHS and HRSA. In addition, Dr. A. F. Al-Assaf from the University of Oklahoma, USA, was brought in as a short-term WHO consultant to assist in the development of four new QA/QI training modules.

Members of IHSR also provided consultancies and technical support services at international and national level. They were appointed as Consultants, Temporary Advisers or Board/Council members to the WHO and other International Agencies, Editorial committee members as well as Reviewers for local and international bulletins and medical journals, members of Technical Working Group of national and international health committees and advisors for research projects and QI efforts.

Information Dissemination and Enhancement of Research Findings

A two-day National Quality Assurance Convention was successfully organised for the year. A total of 17 oral and 16 posters were presented and this Convention also succeeded in getting involvement from the private health sector and academic institutions.

Information on HSR related topics were also disseminated through 62 presentations at various national and international forums and symposia, 9 journal publications and 7 technical reports. In addition, the National Institutes of Health Bulletin and the Quality Assurance Bulletin were published to share news and activities related to research and quality improvement.

Development of Human Resources

Personnel from the IHSR continued to provide leadership by providing training input and technical assistance in HSR and QA/QI. As such, the continual upgrading of their knowledge and skill development continues to be a priority for the HSR programme. Two members of the institute had successfully completed the masters and diploma course respectively, whilst others were in various stages of completing their doctoral, masters and degree programmes. In addition, each member of the institute had participated in at least five self-development sessions in the form of courses, workshops, seminars and conference, both locally and internationally.

CONCLUSION

The year 2003 marked another major milestone in the development of the HSR Programme in Malaysia, with the formalisation of an independent Institute for Health Systems Research under the umbrella of the National Institutes of Health. The Programme has also succeeded in establishing national and international networks in its research and technical collaboration efforts. These recognitions are impetus for the HSR Programme to move ahead towards achieving its goal.

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PUBLIC HEALTH LEGISLATION

Public Health Legislations

IN 2003, there was one Act and several existing subsidiary legislation amended and those amendments are as listed below.

REGISTRATION OF PHARMACISTS ACT 1951 (ACT 371)

This Act was amended by the Registration of Pharmacists (Amendment) Act 2003 (Act A1207). Amongst the amendments made was to require a pharmacists to undergo compulsory service with the government after graduation for a period fixed in the amendment. A schedule was inserted listing the countries, institute of higher education and qualifications that are scheduled institutions or universities. The amendment was gazetted on 25 December 2003.

FOOD ACT 1983 (ACT 281)

There was an amendment towards the Food Regulations 1985 whereby the Food (Amendment) Regulations 2003 was approved. Amongst which is the insertion of the Codex Alimentarius Commission standards on pesticide residue and amendments to the Sixteenth Schedule.

MEDICAL ACT 1971 (ACT 50)

There were amendments made to Act 50 as follows :

i) Two amendments to the Second Schedule which was amended and inserted names of scheduled institutions of higher learning.

ii) The Third Schedule was amended to insert an institute receiving recognition.
iii) There were also nominations to vacant posts in the Malaysian Medical Council.

FEE ACT 1951 (ACT 208)

The Fee (Medical) (Amendment) Order 2003 was approved which listed new tariffs for government hospitals and clinics.

DESTRUCTION OF DISEASE-BEARING INSECTS ACT 1975 (ACT 154)

The Destruction of Disease-Bearing Insects (Compounding of Offences) Regulations 1975 was amended by the Destruction of Disease-Bearing Insects (Compounding of Offences) (Amendments) Regulations 2003. Amongst the amendments was the insertion of the word Inspector and to the schedule.

PREVENTION AND CONTROL OF INFECTIOUS DISEASES ACT 1988 (ACT 342)

A new regulation the Entry Of Persons Into Malaysia (Health Declaration) Regulations 2003 was gazetted on 17 July 2003 which required anyone entering Malaysia to fill the subscribed form and failure of which would be an offences with a prescribed penalty. This regulation also repealed The Entry of Persons Into Malaysia (Quarantine Declaration) Regulations 1993.

OTHERS

Several notifications on appointment and revocation of the members of the Boards or Council under the Ministry of Health such as the Drug Control Authority and Poisons Board were made and gazetted under the respective Act or Regulations.

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IMPORTANT EVENTS IN 2003

Important Events in 2003

13 - 21 January
Official visit YMBK and entourage to Arab Saudi and West Asia Country.

27 January
Officiating of 'Teranpeutic Garden' HKL, Oditorium Utama, HKL.

28 January
Officiating of Putrajaya Hospital.

18 February
Officiate the Opening of HSC Medical Center and Officiate Regional Press Conference on Siemens Sensation 16, HSC Medical Centre.

22 February
Officiating of the Langkawi Hospital by HRH Sultan of Kedah, Langkawi.

27 February
Official Opening of Tropical Home & Garden.

7 March
Launching of "World Health Survey 2002 Ministry of Health – WHO".

8 March
Launch of 'Arthritis Funal & Website', Armada Hotel, PJ.

13 March
Official Opening of Pantai Indah Hospital, Pandan Indah, KL.

22 March
Launching of National Committee for Research & Development in Herbal Medicine, IMR.

25 March
Lauching of World Tuberculosis Day 2003, Shangri-La Hotel, Penang.

29 March
Malaysian Physiotherapy Association 40th Anniversary cum Annual Conference 2003, Mandarin Oriental, KL.

9 March - 6 April
Official visit to India, India.

10 April
Officiate Klinik Kesihatan Parit Baru, Air Itam, Johor, KK Parit Baru, Air Itam, Johor.

17 April
Officiating of the Keningau Hospital, Sabah.

21 April
Economy Impact of the Iraq War and SARS on the Malaysian Economy Dialogue With Acting Prime Minister, YAB Dato' Seri Abdullah Ahmad Badawi, Hotel Palace of Golden Horses.

24 April
National Sports Medicine Symposium, Syuen Hotel, Ipoh.

25 April
Avon's Kiss Goodbye to Breast Cancer Campaign – Presentation of Mammotome Machine.

26 April
ASEAN Regional Workshop on HIV/AIDS Addressing Stigma & Discrimination.

27 April
Officiating the 27th Gen Delegates Conference of Federation of Chinese Physicians of Malaysia (FCPMDAM), Vistana Hotel, Kuantan.

Launch 'Jaiper Foot' project Sultanah Aminah Hospital, Johor Bahru, Hospital SAJB.

10 May
Healthy Lifestyle Campaign 2003 with theme 'Be Healthy for Life', Kompleks Sekolah Putrajaya.

13 May
Officiating of the Kepala Batas Hospital by YAB TPM, Pulau Pinang.

18 - 28 May
56 World Health Assembly on Mei 2003 and Pra-WHA meeting on 18 Mei 2003, in Geneva.

31 May
1st. Malaysian International Symposium on Respiratory Care, Legend Hotel, KL.

3 June
Launching of the Malaysian Twins Support Group at Damansara Fertility Centre, Damansara Fertility Centre.

6 June
Launching of Road Builder Blood Donation Campaign, Menara John Hancock.

8 June
Visit by the HRH Raja Permaisuri Agong to the Paediatric Institute, Kuala Lumpur Hospital.

10 June
Launching of 'Outreach Suicide Prevention in the Community', PJ Hilton.

10 - 11 June
The Special ASEAN + 3 Health Ministers Meeting on SARS, Cambodia.

12 - 14 June
3rd Malaysia-Thailand Health Conference, Phuket, Thailand.

17 - 18 June
Global SARS Science Meeting, Sunway Lagoon Hotel.

17 - 28 June
APEC Senior Officials Meeting and Special APEC Health Ministers Meeting on SARS, Bangkok Thailand.

19 June
Officiating of National Public Health Laboratory Sg. Buloh, Selangor.

20 June
Officiating of 1st Annual Report of National Cancer Registry.

23 June
To deliver Ministerial Keynote Address on 'Public Health – A Dinner of other Public Policies' in conjunction with 2003 Malaysian Health Conference.

5 July
Successful 'SARS' Control Thank's Giving Nite and Education Fund Raising for UTAR, Che Hoon Khor Moral Uplifting Society, Penang.

7 July
Case-Mix Conference, National Level, HUKM.

10 July
Officiating of Public Health Laboratory, Ipoh, Perak.

21 - 22 July
"Majlis Dialog 2003".

25 July
Officiating of Traditional Medicine & Health Expo 2003, Malaysia China Commerial City Exhibition Hall, UE3, KL.

11 August
Launching of the 'National Institute of Health' (NIH), Institute of Health Management, Bangsar.

21 August
8th World LAMANEH Conference KL – Officiating by Y.A.Bhg. Dato' Seri Utama Dr. Siti Hasmah Mohd Ali.

Officiating Poliklinik Komuniti Kampar, Perak by Y.A.B. Menteri Besar Perak, Kampar, Perak.

22 August
Homeopathy Conference Year 2003, Pan Pacific Hotel, Kuala Lumpur.

6 September
Launching of National Injury Prevention and Control Week, Dataran Merdeka.

7 September
Annual General Meeting of Malaysian Dental Technician's Association & Asia Pacific Dental Technician's Conference 2003, Penang.

12 September
International Nursing Conference, Shangri-La Resort Hotel, Kota Kinabalu, Sabah.

16 September
Officiating of 2nd National Conference On Emergency Medicine, HUKM.

Malaysia-China Business Forum – YBMK's Focus on Traditional Medicine & Health Tourism.

18 September
Officiating of 2nd Asia-Oceania Obesiti Conference, Renaissance Hotel.

26 September
11th International Healthcare Show 2003 Risk Management in the Healthcare Industry.

28 September
World Health Day – Officiating by Prime Minister, Taman Botanic, Putrajaya.

6 October
2nd Convention of the panel of National Health Advisers at Le Paris Hotel & Resort, PD.

21 October
Officiating of International Conference on Non Ionizing Radiation (ICNIR) 2003, University Tenaga Nasional, Kajang.

23 October
Ministry of Health Quality Day 2003, Legend Hotel, Kuala Lumpur.

Organ Donation Mass Media Award Night.

27 October
Official Opening of Penang Adventist Hospital Clinical Pathology Lab. Services and Launch of Architect 8200 Analyses the 1st fully Integrated System in Asia and 2nd in the World, Penang Adventist Hospital.

1 November
Official Opening of HOPE Haemodialysis Center of Canning Garden Methodist Church, Ipoh di 43, Jalan Lasam Ipoh, Ipoh, Perak.

4 November
Tun Tan Cheng Lock Nurses College Convocation, Assunta Hospital, Petaling Jaya, Selangor.

8 Disember
6th Asian Pacific Congress of Medical Virology, Hotel Shangri-La, KL.

15 Disember
Launching of the 5 years (1994-1998) Cancer Report, Penang Cancer Registry.