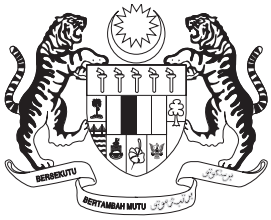
Annual Report 2002

Ministry Of Health Malaysia



ANNUAL REPORT

2002

MINISTRY OF HEALTH MALAYSIA

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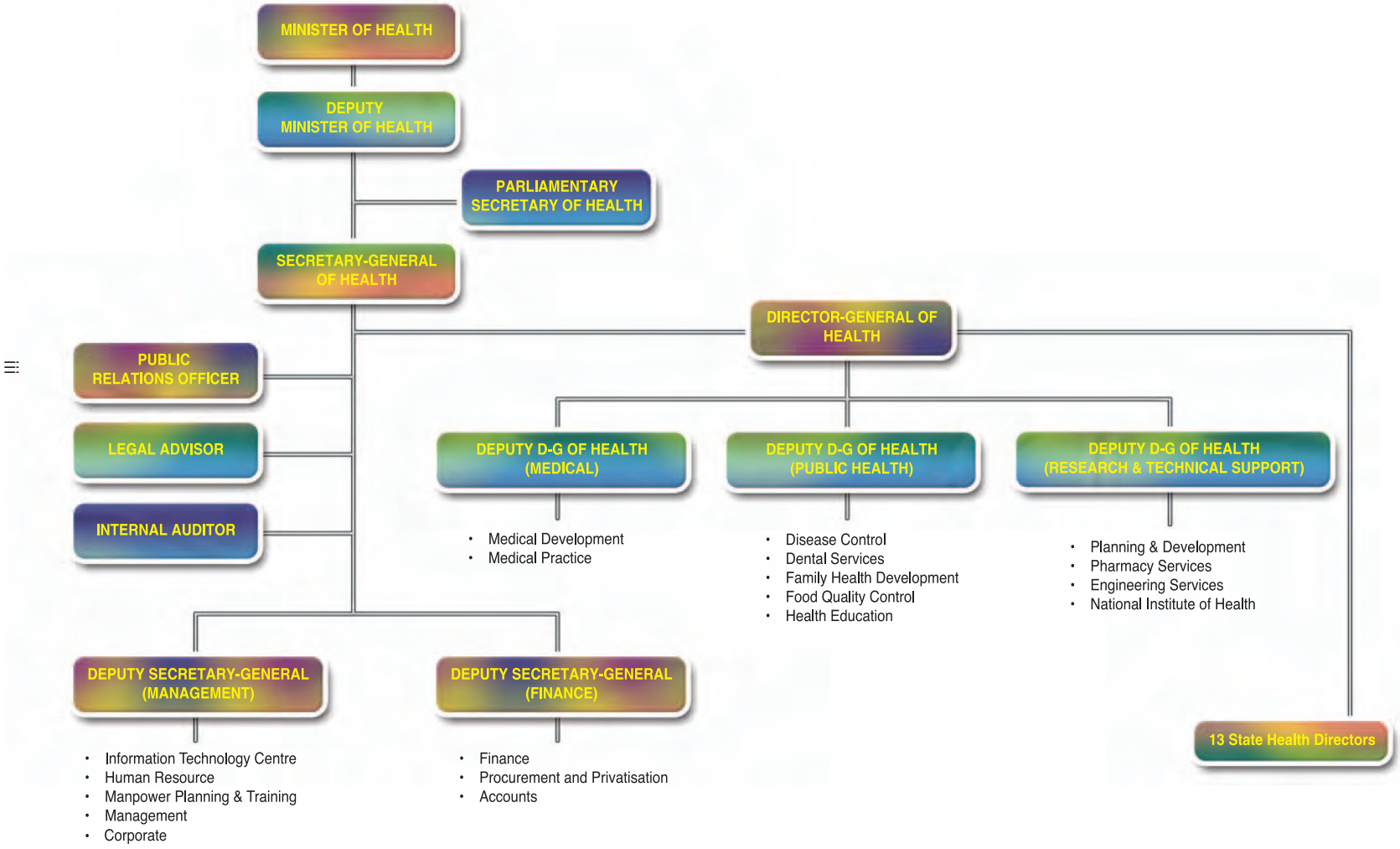
OF THE MINISTRY OF HEALTH, MALAYSIA



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

MALAYSIA is one country that seemed perpetually blessed with good fortune. The denizens are generally temperate and tolerant in any encounter with political, economic or social crisis, whether internally or externally. By virtue of this trait, the country has survived pretty much unscathed by the world economic recession of 1997. Within its own shores, the country may have its own share of modest social and political upheavals but which nonetheless were easily resolved because of the country's robust and stable political, economic and social system. It is within this climate of stability, prosperity and universal tolerance that the peoples of Malaysia continue to enjoy healthy and meaningful lives.

POPULATION SIZE

The population of Malaysia stood at 24,526,500 people in 2002. With an average population growth rate of between 2.3% to 2.8% between 1992 and 2002, this works up to an average of slightly over 500,000 additional persons each year. However, compared to 2001, there was an increase of 2.1% or 513,500 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 RM219 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 74 persons to a square kilometre of space belies the true picture. By contrast, densities by territory actually vary from as low as 17 persons per square kilometre in Sarawak to as high as 6,067 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 2002.

The population of generally young people below 20 years old is around 43% of the total population in 2002. 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

TABLE 1
Population Density by State, Malaysia, 2002

State	Population ('000)	Area (Sq. Km)	Density (Per Sq. Km)
Perlis	214.5	795	270
Kedah	1,743.1	9,425	185
Penang	1,390.3	1,030	1,350
Perak	2,162.2	21,005	103
Selangor	4,388.9	7,979	550
F.T. Kuala Lumpur	1,474.3	243	6,067
Negeri Sembilan	897.4	6,657	135
Malacca	674.0	1,652	408
Johore	2,891.8	18,987	152
Pahang	1,346.1	35,965	37
Terengganu	943.2	12,955	73
Kelantan	1,424.8	15,020	95
Pen. Malaysia	**19,550.6**	**131,713**	**148**
Sabah	2,730.1	73,997	37
F.T. Labuan	79.1	92	860
Sarawak	2,166.7	124,450	17
Malaysia	**24,526.5**	**330,252**	**74**

Source : Department of Statistics, Malaysia

economically-dependent, that is people aged below 15 years and above 64 years, is about half of this (38%). With an estimated 9.15 million employed persons (economically-active) in 2002, the labour force participation rate is thus about 65% (number of persons economically-active as a percentage of total number in the working-age population).

The population in respect of sex ratio showed near parity between the sexes. There were 12.48 million males and 12.04 million females in 2002. 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 2002, about 65% of the total population are Malays and Other Bumiputeras (the indigenous), while the Chinese makes up 26%, Indians 8% and a minority 1% compose of other races. Foreigners at any one time make up a whooping 6.2% 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 2002.

TABLE 2
Demographic Indicators, Malaysia, 2001-2002

Indicator	2001		2002	
	Number (thousands)	% of Total Population	Number (thousands)	% of Total Population
Population of Males	12,227.4	50.9	12,487.1	50.9
Population of Females	11,785.5	49.1	12,039.4	49.1
Population of Youths (Below 20 years old)	10,502.5	43.7	10,648.5	43.4
Population of Elderly (Above 60 years old)	1,494.8	6.2	1,544.1	6.3
Economically-Productive Population (Aged 15-64 years)	14,940.2	62.2	15,318.3	62.5
Economically-Dependent Population (Aged below 15 years and above 64 years)	9,072.7	37.8	9,208.0	37.5
Urban Population	14,940.1	62.2	15,310.7	62.4
Rural Population	9,072.8	37.8	9,215.8	37.6

Source : Department of Statistics, Malaysia

NATALITY, MORTALITY AND NATURAL INCREASE

In 2002, 533,200 live births were recorded. The crude birth rate was 21.7 per 1,000 population. With the crude death rate at 4.5 per 1,000, the rate of natural replacement was 17.3 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 2002. 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 2002.

TABLE 3
Vital Rates, Malaysia, 2001-2002

Indicator	2001	2002
Crude Birth Rate per 1,000 population	22.3	21.7
Crude Death Rate per 1,000 population	4.4	4.5
Perinatal Mortality Rate per 1,000 total births (live births and stillbirths)	6.1	5.9
Neonatal Mortality Rate per 1,000 live births	4.5	4.5
Infant Mortality Rate per 1,000 live births	6.3	6.2
Toddler Mortality Rate per 1,000 population aged 1-4 years	0.6	0.6
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:	 70.3 75.2	 70.4 75.3

Source : Department of Statistics, Malaysia

LIFE EXPECTANCY

Expectation of life for the average Malaysian continues to stay at around 70.4 years for males and 75.3 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 2002, 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 heart disease and diseases of pulmonary circulation. This particular trend has remain as such for the past ten years or more.

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.

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MANAGEMENT AND FINANCE PROGRAMME

Health Manpower

OBJECTIVE

THE objective of the Human Resource Division is to ensure that the Ministry of Health has a well-organized structure with an optimum number of productive personnel that will be able to implement its activities efficiently and effectively.

FUNCTION

To plan and implement management and service policies for the Ministry of Health.

DIVISION PROFILE

The Sections in the Human Resource Division are as follows :

i) Establishment Section [1]
ii) Establishment Section [2]
iii) Managerial and Professional Services Section
iv) Paramedic and Auxiliary Services Section
v) Support and Common User Services Section
vi) Promotion Section (Management and Professional)
vii) Promotion Section (Support)
viii) Disciplinary Section
ix) Scheme and Allowance Section
x) Human Resource Management Information System (HRMIS) Section
xi) Counseling Section

These 11 Sections have their own role and functions in areas such as establishment of posts, managing service matters, disciplinary matters, promotion exercises and others.

ACHIEVEMENTS

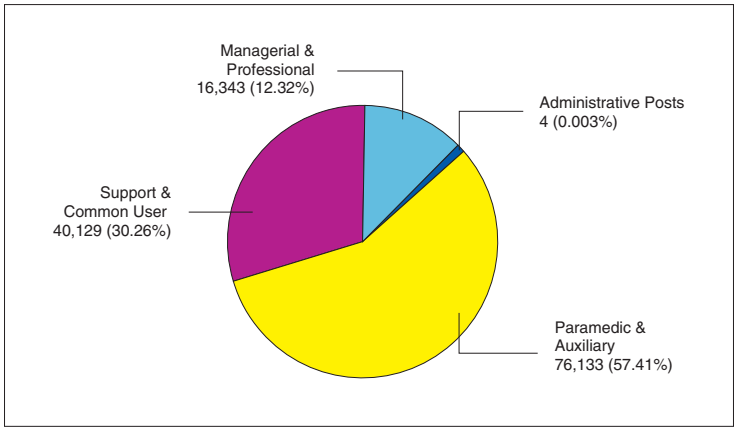
ESTABLISHMENT SECTION

Distribution of Posts

In 2002, the Human Resource Division managed a total number of 132,609 posts comprising of 4 Administrative posts, 16,343 Managerial and Professional posts, 76,133 Paramedic and Auxiliary posts and 40,129 Support and Common User posts, which is an additional of 7.3% from total number of posts in 2001.

The establishment of posts according to category of posts is shown in Figure 1.

FIGURE 1
Establishment of Posts According to Category of Posts, 2002



Source : Human Resource Division, Ministry of Health

Posts Filled

Until 31st December 2002, the total number of posts filled was 109,043 (82.23%). The details of the total number of filled posts according to categories are as in Table 1 and the details of total number of filled posts in the Managerial and Professional Group are as in Table 2.

Total number of filled posts according to discipline for the Medical Specialist as at 31st December 2002 is shown in Table 3.

TABLE 1
Number of Filled Posts According to Categories, 2002

Category of Post	Number of Post	Number of Filled Post	Percentage
Administration Members	4	4	100.00
Managerial & Professional	16,343	10,653	65.18
Paramedic & Auxiliary	76,133	62,576	82.19
Support & Common User	40,129	35,810	89.24
Total	**132,609**	**109,043**	**82.23**

Source : Human Resource Division, Ministry of Health

TABLE 2
Number of Posts, Filled Posts and Vacant Posts, Managerial and Professional Group, 2002

Posts/Grade (According To Scheme)	Number of Post	Number of Filled Post	Number of Vacant Post
Medical Administrative Officer	878	541	337
Medical Specialist	1,708	909	799
Medical Officer	10,122	6,452	3,670
Dental Administrative Officer	158	127	31
Dental Specialist	104	68	36
Dentist	956	645	311
Engineer	66	55	11
Pharmacist	959	515	444
Scientist	382	227	155
Administrative & Diplomatic Officer	164	150	14
Other Posts	847	685	162

Source : Human Resource Division, Ministry of Health

TABLE 3
Number of Posts, Filled Posts and Vacant Posts, Medical Specialist, By Categories, 2002

Specialists	Number of Post	Number of Filled Post	Number of Vacant Post
General Physician	207	132	75
General Surgeon	195	105	90
Obstetrician/Gynaecologist	141	64	77
Anaestheseologist	127	76	51
Ophthalmologist	103	50	53
Orthopaedic Surgeon	98	53	45
Paediatrician	169	97	72
Pathologist (Hospital)	115	65	50
Psychiatrist	96	50	46
TB/Chest Physician	12	4	8
Radiotherapist/Oncologist	7	6	1
Otorhinolaryngologist	75	24	51
Dermatologist	31	12	19
Urology Surgeon	12	5	7
Neurosurgeon	14	6	8
Neurologist	10	4	6
Nephrologist	15	8	7
Haematologist	5	2	3
Plastic Surgeon	20	5	15
Forensic Pathologist	10	6	4
Paediatric Surgeon	8	4	4
Cardiologist	12	2	10
Total	**1,482**	**780**	**702**

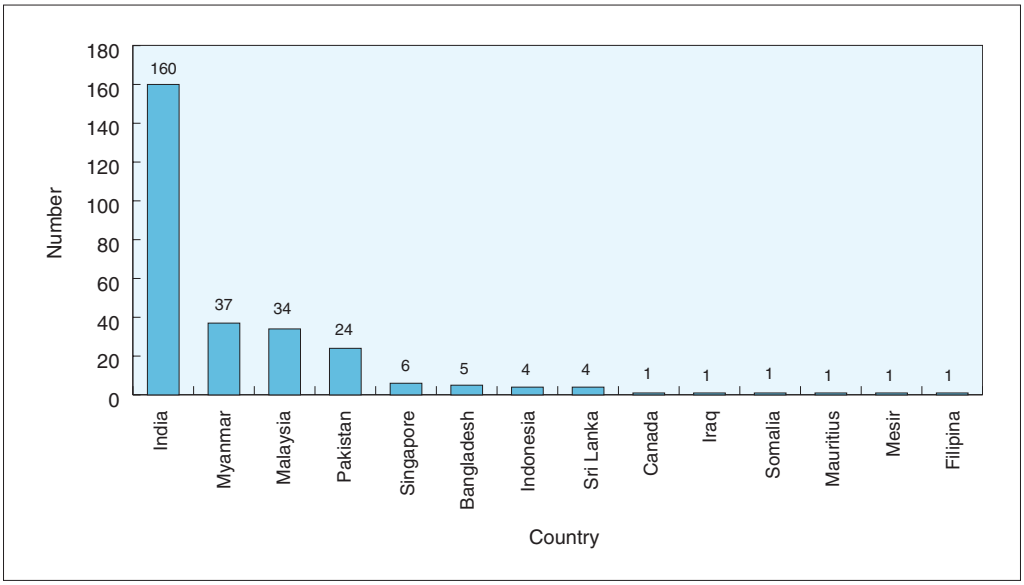
Source : Human Resource Division, Ministry of Health

Contract Medical Specialists and Officers

In addition to local recruitment, The Human Resource Division also recruits foreign doctors on a contractual basis to overcome shortage of doctors in the Ministry. These doctors are recruited from India, Myanmar, Pakistan, Indonesia and Bangladesh.

As of 31st December 2002, 280 Medical Officers and Medical Specialists were engaged from various countries. The number of Medical Officers and Medical Specialists employed according to countries in 2002 is shown in Figure 2.

FIGURE 2
Number of Medical Specialists and Medical Officers Employed According to Country, 2002



Source : Human Resource Division, Ministry of Health

RECRUITMENT OF SUPPORT STAFF GROUP

The Human Resource Division also conducts recruitment of support staff under the delegation of power from the Public Service Commision. The total number of support staff recruited in 2002 is shown in Table 4.

MANAGEMENT OF SERVICE MATTERS

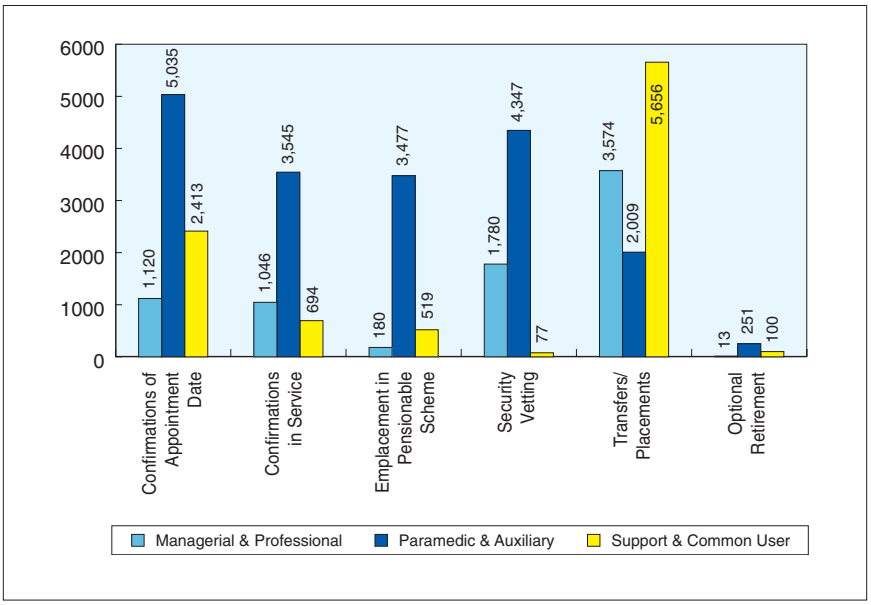
In 2002, a total number of 8,568 confirmations of appointment date, 5,285 confirmations in service, 4,176 emplacement in pensionable establishment, 6,204 security vetting, 11,239 transfers and placements and 364 applications for optional retirement were approved. The details of applications approved according to categories is shown in Figure 3.

TABLE 4
Number of Support Staff Recruited in 2002

Posts	Number of Staff Recruited
Attendant Grade U1	2,855
Driver Grade R3	735
General Worker Grade R1	487
Administrative Assistant (Clerical/Operation) Grade N17	345
Junior Administrative Assistant (Telephone Operator) Grade N11	233
Cook Grade N1	220
Junior General Assistant Grade N1	142
Hostel Steward Grade N17	54
Specialised General Worker (Autoclave Operator) Grade R3	39
Total	**5,110**

Source : Human Resource Division, Ministry of Health

FIGURE 3
Management of Service Matters, 2002



Source : Human Resource Division, Ministry of Health

PROMOTION EXERCISES

Acting of Posts and Promotion Exercise for Managerial and Professional Group

In 2002, the Promotion Committee has held 5 meetings to consider 137 recommendation papers for promotion and acting for the Managerial and Professional Group.

Promotion Exercise for Support Group

In 2002, the Promotion Committee has held 9 meetings to consider 62 recommendation papers for promotion of the Support Group.

Covering of Posts

In 2002, a total of 3,307 applications for covering of posts comprising of 1,020 applications from the Managerial and Professional Group and 2,287 applications from the Support Group personnel were approved.

DISCIPLINARY MATTERS

Disciplinary Actions

In 2002, the Disciplinary Board has held 12 meetings to consider 9 cases involving the Managerial and Professional Group and 70 cases involving the Support Group. The details on types of action taken and the number of staff involved is shown in Table 5.

Declaration of Assets

TABLE 5
Types of Disciplinary Action, 2002

Types of Disciplinary Actions	Managerial & Professional Group	Support Group
Warning	1	5
Fine	-	3
Forfeiture of Emoluments	-	-
Deferment of Salary Movement	2	3
Reduction of Salary	-	-
Reduction in Rank	-	-
Dismissal	-	25

In 2002, 640 application for declarations of assets from the Managerial and Professional Group and 670 application from the Support Group were approved by the Disciplinary Board.

Substitution of Chairman/Member of Disciplinary Boards

In 2002, a total of 12 application for substitution of chairman/member of disciplinary board were arranged.

Application for Outside Employment and Participating in Politics

In 2002, 3 application for outside employment and 2 application for participating in politics have been approved.

Integrity Management Committee

In 2002, the Integrity Management Committee convened 6 meetings.

ADMINISTRATIONS OF SCHEME AND ALLOWANCES

The Human Resource Division is also responsible in reviewing and improving existing scheme of services and allowances including developing new ones. As of 31st December 2002, 14 proposals have been submitted to the Public Service Commission for approval.

HRMIS

The Human Resource Division through the HRMIS Section is also responsible in planning, monitoring and ensuring successful implementation of Human Resource Management Information System (HRMIS) for the Ministry. In 2002, two series of seminars and training has been conducted to the relevant human resource personnel of the State Health Department and Institution.

Manpower Planning and Training

INTRODUCTION

THE Training Management Division (TMD) has the role to provide management services in human resource development in the Ministry of Health, Malaysia (MOH) especially in the field of health care. This encompasses the management of training of Allied Health Science Personnel (AHSP).

This division was expanded from the Manpower Planning and Training Division in June 2002. This expansion involved the restructuring of the organisation and its establishments and was approved through Finance Warrant No. S 49 Year 2002 dated 6 April 2002. With the expansion, the TMD has focused on the planning of training activities, development of training policies, training management and the development and evaluation of curriculum and examination.

The change was not only to meet the expanded role of the TMD but also to cater to the increasing demand for trained health care personnel. Beginning from the Sixth Malaysia Plan to the Eighth Malaysia Plan, new health care services and facilities have developed rapidly and extensively in line with the government's effort to further improve the quality of health care services.

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 and to meet the critical need of manpower in this area.

The development in the TMD caused increased workload and had stretched the capacity of the training colleges. As a result, they were facing shortage of trained teaching personnel. Hence, there was a great need to create more teaching posts in the training colleges to ensure that their functions could be carried out effectively and systematically. The training colleges were hence restructured which involved the upgrading of existing posts, and the increase in the strength of the teaching and support personnel to meet the increasing workload, the demand of the services and the yearly increase in the intake of trainees.

In the year 2002, there were 43 training colleges, conducting training in 13 disciplines. From that total number of training colleges, 19 were nursing colleges and 9 were community nursing colleges located in different parts of the country. There was more than one training college for the training of Medical Assistants, Health Inspectors, Radiographers & Radiotherapists and Medical Laboratory Technologists respectively there was meanwhile, one college for the training of Physiotherapists, Occupational Therapists, Dental Nurses/Technicians/Surgical Assistants and Assistant Pharmacists respectively.

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 to produce AHSP of caliber. TMD emphasizes on continuous improvement in all its activities to meet the needs of stakeholders and towards achieving the mission and vision of MOH.

STRATEGIES

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

i) Strengthen the linkages between manpower planning and development in the health care services;
ii) Interact actively with centre 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, skillful and incalcated with excellent work culture based on the values of caring, team-work and noble professionalism;
vii) Continuously expands 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

As on 31 December 2002, TMD has received 1,038 posts approved for the training management program (933 teaching posts and 105 posts in the TMD) and 661 of it have been filled. From the total posts that were filled, 63 were for various posts in the TMD, whilst 598 were for the teaching posts in the training colleges.

FINANCIAL RESOURCES

In 2002, the approved financial allocation for the current year under the Operating Budget amounted to a total sum of RM221,062,300 of which RM217,265,765 was spent, constituting 98.2% of the total budget. Under the Development Budget for training projects amounting to RM5,150,000, RM5,131,599 was spent until the end of 2002.

ACTIVITIES AND ACHIEVEMENTS

Health Care Sector Manpower Forecast

In ensuring that the goals of the health services are achieved through many health care projects, the TMD has updated the manpower requirement forecast of the sector especially for the period of 2002 to 2020. In this contact, the TMD has prepared the forecast of the supply and stock of Medical Officers, Dental Officers, Pharmacists, Medical Specialists in various fields and paramedics and auxiliaries especially for the period of the Eighth Malaysia Plan (2001-2005) and the forecast has been extended beyond the period until 2020.

Training

Training is a continuing investment to produce trained and competent manpower in the various health care fields. For the year 2002, the intakes for training according to the different categories are as follow :

TABLE 1
Types of Training

No.	Types of Training	No. of Participants
i.	Basic Training (Paramedics & Auxiliaries)	6,958
ii.	Post Basic Training	2,059
iii.	Basic Specialist Training	382
iv.	Sub-Specialist Training	62
v.	Master / Doctorate courses	78
vi.	Induction courses	6,830

There were short term in-service courses financed from MOH's budget or sponsored by other agencies and international bodies or foreign governments. In the year 2002, a total of 218 personnel of the MOH attended various courses as follow :

TABLE 2
Short Term In-Service Courses

No.	Sponsor	No. of Participants
i.	Ministry of Education	63
ii.	Public Service Department	89
iii.	World Health Organisation (WHO)	31
iv.	Japan International Cooperation Agency (JICA)	23
v.	Other Organisations	12
	Total	**218**

There are also opportunities of career advancement for Nurses, Medical Assistants and Medical Laboratory Technologists and other personnel to higher-level service scheme. This could be testified from the following in-service conversion courses conducted :

TABLE 3
In-Service Conversion Courses

No.	Conversion Course	No. of Participants
i.	Assistant Nurses to Nurses - Conversion (1 1/2 years)	77
ii.	Midwives to Community Nurses - Conversion (9 months)	17
iii.	Community Nurses to Nurses - Conversion (1 year)	180
	Total	**274**

Development of Curriculum

For curriculum management in the year 2002, TMD managed to merge the curriculums of the Medical Assistants and Nursing to meet the needs of current and future developments. The curriculum was completed and pending the approval of the Malaysian Nursing Board and The Malaysian Medical Assistants Board.

TMD also supervised the implementation of the basic training programmes to the credit system seven (7) disciplines : 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.

In restructuring the curriculum and the implementation of Post Basic training, TMD had undertaken the following activities :

i) Developed 15 new Post Basic curriculum : Anesthesiology, Epidemiology and Disease Control, Food Hygiene and Safety, Investigation & Prosecution, Sports Medicine, Forensic, Medical Transfusion, Homeostasis, Cytogenetic, Chemical Pathology, Medical Parasitology, Histopathology, Medical Microbiology, Biotechnology and Cytology.

ii) Restructured the curriculum for Public Health Assistants, converting it from in-service training to pre-service training. The Education Board of the MOH has approved this curriculum.

iii) Developed five (5) Post Basic curriculums using the telehealth system : Accident and Emergency, Midwifery, Management of Health Personnel, Public Health Nursing and Primary Health Care.

TMD had also reviewed the log books of housemen and also produced log books for these five (5) disciplines : Medical, Surgical, Orthopedic, Pediatric, Obstetric and Gynaecology.

MANAGEMENT OF EXAMINATION

The examination system was consolidated and further strengthened in the year 2002 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

Throughout the year 2002, the TMD had successfully evaluated the relevance of programmes offered by three (3) Public Institutions of Higher Learning and 5 Private Institutions of Higher Learning for the training of AHSP. In addition, TMD had fowarded to the relevant authorities to obtain qualified recognition for five (5) Masters programmes.

TMD would continue to monitor the teaching and training processes carried out in the training institutions. The monitoring will be carried out randomly at 43 training colleges.

CONCLUSION

The TMD is an important component of our health care system whereby it provides support services to three other divisions (Public Health, Medical Care and Research & Technical Support) in improving the health care status of the population in line with the vision of the MOH.

It is forecasted that the supply of health care manpower in the years to come may still be inadequate to meet the needs of the nation. However, the increase in intake of students in the health care fields by local Institutions of Higher Learning (public and private) and also the increase in the intake of AHSP trainees by the MOH training colleges will reduce the deficit in the supply of manpower to the health care sector. In gearing towards meeting the growing needs and expansion of health services and the development in health care technologies, the TMD will continue its unrelenting effort in developing flexible action plans that are adaptable to changes.

Financial Allocation and Expenditure

FOR the year 2002, Ministry of Health (MOH) has been approved an allocation of RM6,299,073,770 representing 6.27% of the National Budget. The total allocation comprising RM4,883,820,770 for operating expenditure (B) and RM1,415,253,000 for development expenditure (P). This represents an increase of 8.47% over the allocation approved in year 2001. However for the 4th quarter of the year, the Treasury has approved an additional allocation amounting to RM555,445,000 comprising RM255,445,000 for operating expenditure and RM300,000,000 for development expenditure. The financial allocation flow for MOH, percentage financial allocation for MOH as compared to the National Budget and as compared to Gross National Product (GNP) and allocation per capita for the year 1998 to 2002 is shown in Table 1.

OPERATIONAL BUDGET

Allocation

The operating allocation that has been approved for MOH for the year 2002 was RM4,883,820,770. From this amount, the expenditure target (ET) was RM4,550,748,770 and RM333,072,000 for New Policy and One-Off. For the 4th quarter of the year, the Treasury has approved an

additional allocation of RM255,445,000 comprising RM200,552,000 for emoluments, RM5,271,700 for services and supplies and RM49,621,300 for grants and fixed payments. The MOH operational allocation and expenditure for the year 2002 is shown in Table 2.

TABLE 1
Annual Budget Allocation for Ministry of Health, 1998-2002

Year	MOH Annual Allocation*		National Budget	National Budget**	Gross National Product (GNP)***	% GNP	Allocation Per Capital
	Development (RM)	Operating (RM)	(RM)	(%)	(RM)		(RM)
1998	743,186,000	3,494,774,000	64,124,392,000	6.61	172,866,000,000	2.45	191
1999	900,000,010	3,612,258,200	65,095,213,400	6.93	179,165,000,000	2.52	199
2000	908,153,000	4,023,162,300	78,025,291,600	6.32	190,324,000,000	2.58	212
2001	1,220,146,010	4,545,407,400	91,046,791,410	6.33	195,052,000,000	2.74	248
2002	1,415,253,000	4,883,820,770	100,518,506,120	6.27	**** 200,634,000,000	3.14	257

* Original allocation
** Actual
*** GNP (at constant 1987 price)
**** Estimates
Sources : Economic Report 2002/2003
Federal Budget 2002

TABLE 2
MOH Operating Allocation and Expenditure, 2002

Program Code	Program	Allocation RM*	Expenditure RM
010000	Management	470,940,380	435,833,535.12
020000	Public Health	1,131,441,375	1,180,777,404.59
030000	Medical Treatment	3,159,435,704	3,254,588,580.16
040000	Technical Support Service	90,922,580	83,490,766.08
050000	New Policy	237,098,731	157,651,368.84
060000	One-Offs	49,427,000	39,303,822.55
	Total	**5,139,265,770**	**5,151,645,477.34**

*Including additional allocation
Sources : Finance Division, Ministry of Health

Expenditure

The total expenditure for operating budget for the year 2002 was RM5,151,645,477 or 100.24% from the total operational allocation. The expenditure has increased this year from 102.77% to 105.48%. Comparison of expenditure for the year 1998 to 2002 is shown in Table 3. In the year 2002 MOH has issued grants or financial aid to 16 Non-Governmental Organization (NGOs) involved in providing comprehensive health care for the public amounting to RM18,096,183.73 as follows :

	Name of NGO	Total Grants (RM)
1.	Malaysia Aids Council	4,000,000.00
2.	National Kidney Foundation of Malaysia	11,349,221.00
3.	PROSTAR	200,000.00
4.	MAPTB	532,000.00
5.	NASAM	100,000.00
6.	National Nutritional Association of Malaysia	95,000.00
7.	*Yayasan Kebajikan Haemodialisis*	265,000.00
8.	PBSMM Klang	109,572.71
9.	NADI	270,000.00
10.	Malaysia Hospice Council	345,390.02
11.	MERCY Malaysia	50,000.00
12.	*Persatuan Buah Pinggang Sarawak*	40,000.00
13.	Foundation of Rotary Clubs of Malaysia	500,000.00
14.	St. John Ambulans Malaysia	200,000.00
15.	National Dietitian Association of Malaysia	30,000.00
16.	*Persatuan Kajian Obesiti Malaysia*	10,000.00
	Grand Total Financial Aid	**18,096,183.73**

TABLE 3
Operating Expenditure Performance, 1998-2002

Year	Allocation (RM)	Expenditure (RM)	Percentage
1998	3,494,774,000	3,313,870,815	94.82
1999	3,612,258,200	3,610,832,055	99.96
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

*Original allocation
Source : Finance Division, Ministry of Health

DEVELOPMENT BUDGET

Allocation

Year 2002 was the 2nd year for the implementation of the 8th Malaysian Plan (RMK8) (2001-2005). For the year 2002, an amount of RM665,166,000 has been allocated to implement 780 new projects while an amount of RM1,921,966,000 has been allocated to implement 660 committed projects. The Treasury has approved MOH development allocation of RM1,715,253,000. The total allocation including additional allocation amounting to RM300,000,000 has been approved in the 4th quarter of the year by the Treasury.

Expenditure

For the year 2002 the overall total allocation for development allocation that has been approved by the Treasury for MOH was RM1,715,253,000. However according to the original allocation, the performance of development expenditure for MOH in the year 2002 was RM1,513,611,555 representing 106.95% . The allocation and expenditure for the year 2002 by project details is shown in Table 4 while the total allocation and development expenditure of MOH for the year 2002 as compared to previous years (1998-2002) is shown in Table 5.

TABLE 4
MOH Development Allocation and Expenditure, 2002

Project Detail	Title	Allocation RM*	Expenditure RM
00100	Training	100,825,000	89,240,225
00200	Public Health	294,539,000	228,265,955
00300	Health Facility	488,873,000	415,567,431
00400	New Hospital	770,086,990	743,795,549
00500	Feasibility Study and Consultancy Services	3,000,000	1,966,553
00600	Renovation, Upgrading and Maintenance	43,622,000	24,383,418
00700	Procurement and Land Maintenance	14,307,010	10,392,424
	Total	**1,715,253,000**	**1,513,611,555**

*Including additional allocation
Source : Finance Division, Ministry of Health

TABLE 5
Development Expenditure Performance, 1998-2002

Year	Allocation* (RM)	Expenditure (RM)	Percentage
1998	743,186,000	716,229,385	96.37
1999	900,000,010	835,426,034	92.83
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	1,513,611,555	106.95

*Original allocation
Source : Finance Division, Ministry of Health

CONCLUSION

The increased allocation and expenditure for MOH reflects the Government's commitment to upgrade the quality of public health services in urban and rural area.

Information Technology In Health

MATERNAL AND CHILD HEALTH SYSTEM (MCHS)

THE 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). The main objective of this system is to reduce the incidence of maternal mortality and morbidity amongst mothers and children through effective home visits especially of high risk mothers and children. The system is also targeted to improve patient care by reducing waiting time through accurate and effective computerized appointment scheduling system. Information Technology Centre (PTM) was responsible for the requirements study and design of the system as well as preparation of specifications whilst coding and development of the application software was the responsibility of the vendor.

Before 2002, this project was implemented with its own network infrastructure. Mid of 2001, Maternal and Child Health Clinic Kangar was relocated to its new site in the compounds of Kangar Hospital. The ministry took this relocation as an opportunity to integrate MCHS network with the ministry's network. The integration exercise was successfully implemented early 2002. As a result of this integration, users at all levels are able to access and use the internet and email and this facility can be shared by other projects implemented in this state.

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. This application system is also connected to the Disease Control Division of Public Health Department as the user and monitoring division at the national level; Information and Documentation System's Unit of Planning and Development Division, Ministry of Health Malaysia as the coordinating unit at the national level for data and statistical reports pertaining to disease control; and Information Technology Centre (PTM) as the developer of the application system and the monitoring unit for implementation and maintenance of CDCIS through the same network system.

Through this system, communicable disease notification data as required under the Communicable Disease Surveilance and Control Act 1988 entered at the hospitals and District Health Offices (including actions taken on the notifications such as registration and transfer of cases) can be accessed directly from the state and national levels for surveilance and control actions apart from being able to generate reports and data for analysis. The main objective of this system is to create an early warning system to the occurrence of an epidemic.

Online implementation of CDCIS to the whole nation begun on the first epid week year 2002 through an official instruction sent out to all hospitals and District Health Offices and State Health Offices by the Director of the Disease Control Division.

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 (ICD10). The system was developed by Information Technology Centre (PTM) with input from the Information and Documentation System's Unit of Planning and Development Division, Ministry of Health Malaysia.

The system was fully installed and implemented in January 2000 in all hospitals all over Malaysia. The latest version currently in use is Verion 3.3.4 and has been in use since April 2001.

TELEPRIMARY CARE PROJECT

Teleprimary Care (TPC) is a pilot project carried out at all sites in state of Johor and Sarawak. The districts in Johor that are involved include Johor Bahru, Kota Tinggi and Mersing. While in Sarawak the districts involved are Sibu, Kanowit, Mukah, Sarikei, Julau, Kapit, Song and Belaga. The focus of this project is to improve the ability and efficiency of the health clinics (primary) in providing their health and medical services to achieve seamless and borderless care.

PROCUREMENT OF TENDERS AND QUOTATIONS

PTM has handled 1 tender and 3 quotations for the year 2002. 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 25 applications for the year 2002. All the applications will be submitted to MAMPU after a screening process by PTM.

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PUBLIC HEALTH PROGRAMME

Oral Health

INTRODUCTION

THE Oral Health Division is one of five divisions under the Department of Public Health of the Ministry and is the lead agency for oral health in the country. Its roles include policy development, management of national oral health services, oral health promotion, and the enactment and enforcement of laws related to dentistry in the country. The Oral Health Division also ensures collaboration between dental and non-dental agencies, both in the public and private sectors, in efforts towards achieving optimal oral health for the population.

While strategies and programmes are planned at the Division level, the implementation of oral health programmes is carried out by the state dental services. The state dental departments have a direct linkage with the Division regarding oral health matters.

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 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

ORAL HEALTH PROMOTION

Following on from the "History of Dentistry in Malaysia" exhibition which was held at the National Museum in conjunction with the 89th Federation Dentaire Internationale (FDI) World Dental Congress in Kuala Lumpur the year before, smaller scale exhibitions on the same theme were held in various states in Malaysia throughout 2002, utilising exhibits from the national showcase. This "roadshow" was undertaken to provide information to the public about developments in the field of dentistry in Malaysia, and to complement on-going oral health promotion activities.

The exhibitions were held at :

- Kedah State Museum (10.2.2002 - 30.5.2002)
- LADA in Langkawi, Kedah (9.6.2002 – 2.9.2002)
- Perlis State Museum (9.9.2002 – 18.1.2003)

The history was also proudly documented and pictorially presented in a hard cover coffee table book entitled "Through the Dental Mirror : History of Dentistry in Malaysia". The books were distributed to agencies with links with the Oral Health Division, from within the country and abroad.

Pamphlets on oral health are designed by the Oral Health Promotion Unit of the Oral Health Division. In year 2002, a total of 40,000 copies of pamphlets on oral cancer were printed and distributed to the states.

Work groups have been established to prepare guidelines on the implementation of oral health programmes. In 2002, while work continued with the guidelines on oral healthcare of the elderly, work committees started preparation of the following :

- Guidelines on oral healthcare for pre-school children
- Guidelines on the oral health programme for trainee teachers

The following books were printed and distributed :

- Position Statement on Use of Dental Amalgam
- Primary Prevention and Early Detection of Oral Precancer and Cancer

The Oral Health Promotion Unit participated in exhibitions by various agencies. One such exhibition was held at the Universiti Teknologi Malaysia (UTM) in July 2002, in conjunction with *Hari Kesihatan dan Keselamatan*. The theme of the exhibition was *"Kesedaran Kesihatan dan Keselamatan Menjamin Generasi Sejahtera"*. Dental exhibits were put up and free oral health screening was offered. In conjunction with the celebration of *Hari Warga Tua Kebangsaan 2002*, an exhibition, organised by the Institut Gerontologi, Universiti Putra Malaysia, was held at the KWSP Building, Jln Raja Laut, Kuala Lumpur in September, 2002 with the theme *"Warga Tua Sihat Hidup Produktif"*. Dental exhibits were put up. Apart from these, other dental exhibitions were conducted at state level.

As part of the preparation for the yearly health quiz for schools, workshops were organized for the selection of questions. The *Kuiz Kesihatan Sekolah Rendah Peringkat Kebangsaan 2002* was held at UiTM, Arau, Perlis from 7 – 10 October 2002.

Nationwide, a total of 166,888 dental health talks (DHT) were given to various target groups. Of these talks, 63.8% were at primary schools, while 23.2% and 7.1% were at pre-schools and secondary schools, respectively.

DHT was delivered to 49.9% of the estimated pre-school population in 2002. Overall, most states achieved more than 50% coverage of pre-school children. Selangor and Federal Territory Kuala Lumpur, although being urban areas, managed 36.2% and 42.7% coverage only, respectively. This may be due to the presence of private kindergartens, which were probably not included in the pre-school programme.

In 2002, the proportion of primary school children given DHT was 88.1%. Most states managed to achieve more than 90% coverage for this group. While Selangor had the lowest coverage of 63.2%, it is heartening to note that Penang and Kelantan, while representing either ends of the spectrum of rural and urban communities, had the highest achievement of more than 97% coverage.

Only 23.9% of secondary school children were given DHT in 2002. Pahang led with the highest achievement of 68.1% while Selangor showed the lowest coverage (8.2%). For the ante-natal mothers, 9.1% of the estimated ante-natal population had DHT. Negeri Sembilan showed the highest achievement of 26.7% while Sabah's coverage was lowest at 2.6%. It is observed that only 0.3% of the adult population attended dental health talks in 2002.

Of the other activities undertaken, toothbrushing drills (TBD) formed one of the major activities. About 80% of participants at TBD sessions were from primary schools and about 20% from pre-schools. Other activities carried out were slide shows, puppet shows, exhibitions, campaigns, in-service training, film shows, tv/radio shows and role play.

FLUORIDATION OF PUBLIC WATER SUPPLIES

The approval for the addition of fluoride to the water supplies as a programme for the prevention of dental caries was granted by the Malaysian Cabinet in 1972. The recommended optimum level then was 0.7 ppm with 1.0 ppm as the upper limit for safety. Considering the availability of alternative sources of fluoride and the higher average volume of water intake in a tropical climate, the level has been reviewed to between 0.5 to 0.7 ppm. This level has been included in the Safe Drinking Water Act.

The agencies involved in the programme are the Oral Health Division, the Engineering Division and the Public Health Department of the Ministry of Health, the Chemistry Department, the Public Works Department and the public and private water departments at state and national levels. Effective co-operation is required between these agencies to ensure success of the programme.

In year 2002, of the total 430 water treatment plants in Malaysia, 276 were equipped with fluoride feeders. Out of this, 263 plants were active (Table 1). By volume, this amounted to more than three-quarters of the public water supplies in Malaysia being fluoridated in 2002.

The benefits of fluoridated water reached 59% of the total population in year 2002, with the highest coverage being in Perak (96.9%), while the water received by the Kelantan and Terengganu population was not fluoridated. Fluoridation was discontinued in these states in 1995 and 2000, respectively. The total population coverage for fluoridated water in Malaysia in 2002 is shown in Table 2.

Water fluoridation has shown to contribute to the decline in caries level in Malaysia. This programme should therefore be continued and enhanced, particularly in terms of coverage of the fluoridated water supply such that more of the population will derive its benefits.

Table 1
Number of Water Treatment Plants With Active and Inactive Fluoride Feeders Malaysia, 2002

State	No. of Water Treatment Plants	No. of Water Treatment Plants With Fluoride Feeder	No. of Water Treatment Plants With Active Fluoride Feeder
Perlis	3	2	2
Kedah	29	20	20
Penang	11	10	10
Perak	45	34	34
Selangor & W. Persekutuan	33	32	32
Negeri Sembilan	25	17	17
Malacca	5	3	3
Johore	42	25	25
Pahang	81	44	44
Terengganu	13	13	0
Kelantan	31	33	33
Pen. Malaysia	**318**	**233**	**220**
Sabah	36	10	10
Sarawak	76	33	33
Malaysia	**430**	**276**	**263**

Source : Oral Health Division, Ministry of Health

PRIMARY ORAL HEALTH CARE

Primary oral health care is delivered to the population by target groups : pre-school children, primary and secondary school children, ante-natal mothers, adults, the elderly, and children with special needs. Programmes have been designed and implemented to ensure optimal oral health outcome. While the main thrust of the programmes is oral health promotion and prevention, clinical intervention seeks to support these aspects of delivery.

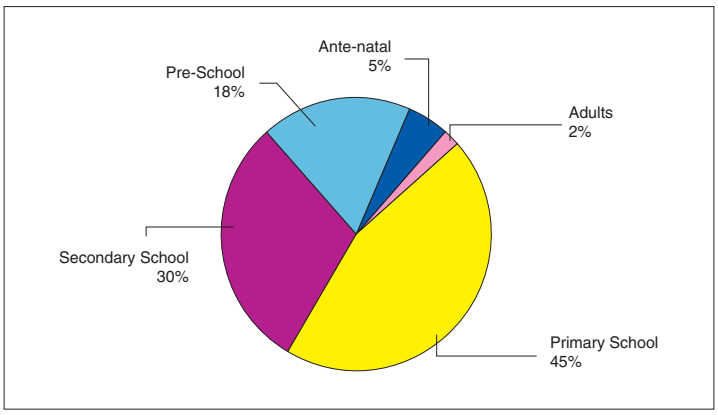
In year 2002, it was found that 25.0% of the population utilised primary oral health care facilities of the Ministry of Health. This marks a further drop from 25.7% in 2001, which was a drop from 27.8% in year 2000. The largest proportion of the population receiving oral health care at Ministry of Health facilities was the primary school children, as in previous years (Figure 1).

Table 2
Total Population Coverage Receiving Fluoridated Water Malaysia, 2002

State	Total Population Receiving Fluoridated Water	Total Population (Mid-year 2002)	Percentage Population Receiving Fluoridated Water
Perlis	197,465	214,100	92.23
Kedah	1,309,977	1,727,900	75.81
Penang	982,942	1,375,600	71.46
Perak	2,081,700	2,148,300	96.90
Selangor	3,523,472	4,386,700	80.32
Wilayah Persekutuan	315,000	1,444,500	21.81
Negeri Sembilan	670,115	900,500	74.42
Malacca	529,200	665,900	79.47
Johore	2,334,229	2,869,900	81.33
Pahang	968,784	1,349,100	71.81
Terengganu	0	941,300	0.00
Kelantan	0	1,375,201	0.00
Pen. Malaysia	**12,912,884**	**19,399,001**	**66.56**
Sabah	206,629	2,806,899	7.36
Sarawak	1,271,316	2,169,400	58.60
Malaysia	**14,390,829**	**24,375,300**	**59.04**

Source : Oral Health Division, Ministry of Health

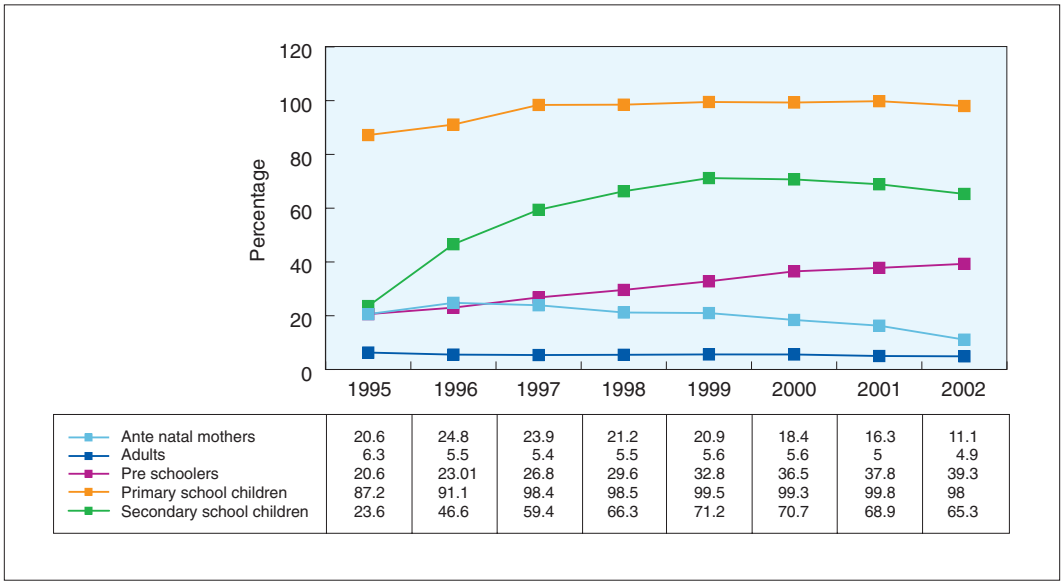
FIGURE 1
Population Receiving Oral Health Care Ministry of Health, 2002



Source : Information and Documentation System Unit, Ministry of Health

The utilisation of primary oral health facilities by pre-school children has shown an increase while the high utilisation by primary school children has reached a plateau (Figure 2). Secondary school children utilisation, although not as high as that by primary school children, was previously increasing but also appears to have plateaud-off. The low utilisation by adults seems to have stayed fairly constant. Meanwhile, the proportion of ante-natal mothers obtaining care at these facilities has dropped.

FIGURE 2
Patients Receiving Primary Oral Health Care, 1995-2002



	1995	1996	1997	1998	1999	2000	2001	2002
Ante natal mothers	20.6	24.8	23.9	21.2	20.9	18.4	16.3	11.1
Adults	6.3	5.5	5.4	5.5	5.6	5.6	5	4.9
Pre schoolers	20.6	23.01	26.8	29.6	32.8	36.5	37.8	39.3
Primary school children	87.2	91.1	98.4	98.5	99.5	99.3	99.8	98
Secondary school children	23.6	46.6	59.4	66.3	71.2	70.7	68.9	65.3

Source : Information and Documentation System Unit, Ministry of Health

Pre-school Children

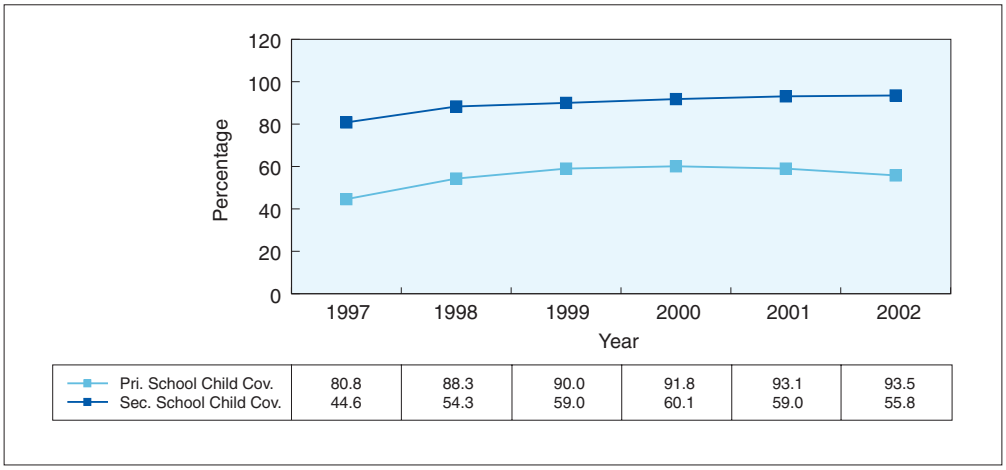
The pre-school oral health programme mainly focuses on promotive and preventive activities. The objective of the programme is to create awareness to pre-schoolers and their carers on the importance of oral health. Role-play and several interactive activities are carried out as means of imparting oral health knowledge and skills, in order to stimulate behavioral change. Clinical intervention using the Atraumatic Restorative Technique (ART) has also been introduced. More than 399,083 (56.2%) of the new attendances of pre-school children were given comprehensive clinical treatment.

School Children/School Dental Service

Priority for oral health care of school children is on the basis that more than 40% of the Malaysian population is below the age of twenty years. Care is delivered through the School Dental Service at school clinics, dental clinics at the health clinics, mobile clinics and mobile dental teams. The success of the oral health care programme for school children can be attributed to the Incremental Oral Health Care Programme. Through this programme, schools are visited on a yearly basis in an outreach mode, with provision of care to the primary and secondary school children closely monitored.

In 2002, the coverage of primary schools was found to be 94.9% while that of secondary schools was 58.1%. Of the 2,944,931 primary school children, the coverage (children rendered orally-fit) was 93.5% (Figure 3). About 56.4% did not require any treatment at all. For secondary school children, out of a total of 2,065,094 children, only 55.8% were rendered orally-fit while 44.1% did not require any treatment at all.

FIGURE 3
School Children Rendered Orally Fit, 1997-2002



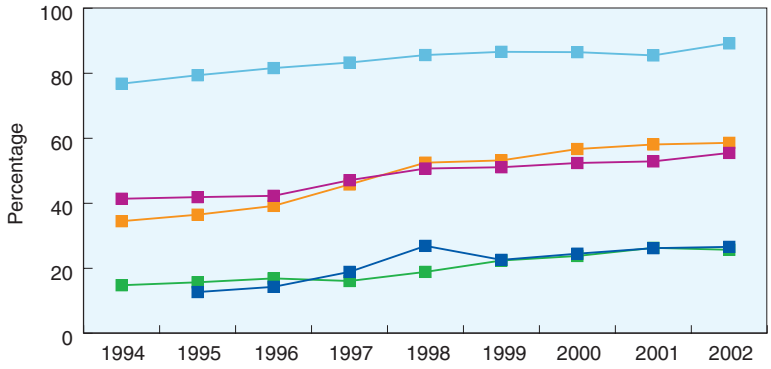
	1997	1998	1999	2000	2001	2002
Pri. School Child Cov.	80.8	88.3	90.0	91.8	93.1	93.5
Sec. School Child Cov.	44.6	54.3	59.0	60.1	59.0	55.8

Source : Information and Documentation System Unit, Ministry of Health

Impact Indicators for School Dental Service

The proportion of 6-year-olds with caries-free mouths has been increasing. There were 26.6% of these children in 2002 (Figure 4). Similarly, the proportion of caries-free (DMFX=0) 12-year-olds and 16-year-olds has also shown a gradual increase. There were 55.5% and 25.7% caries-free children for these ages respectively. The proportion of 12-year-olds with DMFX - 3 is observed as being 89.2% in 2002. It appears that severe caries is experienced by approximately 10% of the 12-year-olds.

FIGURE 4
Impact Indicators For School Dental Service, 1994-2002



	1994	1995	1996	1997	1998	1999	2000	2001	2002
% of 12-yrs-old DMFX < 3	76.8	79.4	81.6	83.3	85.61	86.6	86.5	85.5	89.2
% of 6-yrs-old with caries free mouth		12.7	14.3	18.9	26.9	22.6	24.5	26.2	26.6
% of 12-yrs-old with DMFX = 0	41.4	41.9	42.3	47.1	50.7	51.1	52.4	52.9	55.5
% of primary school children with NTR	34.5	36.5	39.2	45.8	52.5	53.2	56.7	58.1	58.6
% of 16-yrs-old with DMFX = 0	14.8	15.7	16.9	16.1	18.9	22.4	23.8	26.3	25.7

Source : Information and Documentation System Unit, Ministry of Health

Ante-natal Mothers

The role of mothers as agents of change for oral health in the home environment is being capitalized in this programme. The ante-natal mothers are given knowledge on oral health and thought oral hygiene skills. Aspirations are that positive oral health behaviour will be inculcated into their young. Free dental treatment is also provided to these mothers.

The coverage of ante-natal mothers based on new attendance remains poor and has in fact been showing a trend of decline over the last seven years, from 24.8% in 1996 to 11.10% in 2002. Out of 492,636 new attendance of ante-natal mothers registered at rural health facilities/government hospitals/private clinics in 2002, only 71,491(11.10%) utilised the primary oral health care facilities. Of these, only 8.6% were given dental health education. Very few antenatal mothers were given restorative care. There were 19,416 (23.5%) who attended for either tooth extraction or filling and less than 0.3 % who were given prostheses.

The critical shortage of dental officers may explain the decreased utilisation of public oral health services by ante-natal mothers. Poor compliance by this group to appointments may also be due to them obtaining care only upon referral from the maternity and child health clinics and not on their own initiative, as well as the prolonged gap that exists between appointments.

Adults and the Elderly

No structured oral health care programme for adults exists at present. Adult patients are provided care as outpatients at dental clinics. More complex cases are referred to dental specialists for further management. In 2002, only 748,172 (4.94%) of adults sought primary oral health care at the dental clinics. The highest proportion of new attendance was seen in the state of Terengganu. However, this was only 10.2%, the treatment provided was mainly extraction, scaling or fabrication of prostheses.

For the elderly group, oral health care is provided as part of adult oral health care in the dental clinics. To establish delivery of care to this group as a specific programme, a set of guidelines for oral healthcare of the elderly is being formulated to ensure that this group is captured through all possible avenues. The programme encompasses not only the elderly attending dental clinics, but also outreach services to institutions, community or day-care centers, and domiciliary care in their residences. Meanwhile, visits to institutions have been undertaken by certain states, but these are mainly carried out on an ad-hoc basis.

SPECIALIST ORAL HEALTH CARE

For year 2002, there were 188 dental specialists in the Ministry of Health. These comprised 31 oral surgeons, 27 orthodontists, 10 paediatric dental specialists, 7 periodontists and 3 oral medicine/oral pathologists. Public Health Dental Specialists, who are involved with management duties at district, state and national levels, totaled 110.

Expert Panels comprising mainly dental specialists have been established to formulate Clinical Practice Guidelines (CPG) on selected dental topics. The CPG on "Management of Avulsed Anterior Tooth" has been printed and distributed while the CPG on "Antibiotic Prophylaxis for Surgical Wound Infection" was finalised in 2002. The other CPGs being developed are :

- Management of Early Childhood Caries (Paediatric Dentistry)
- Management of Anterior Crossbite in the Mixed Dentition (Orthodontics)
- Management of the Unerupted Maxillary Central Incisor (Orthodontics)
- Management of the Palatally Ectopic Maxillary Canine (Orthodontics)
- Management of Periodontal Abscess (Periodontology).

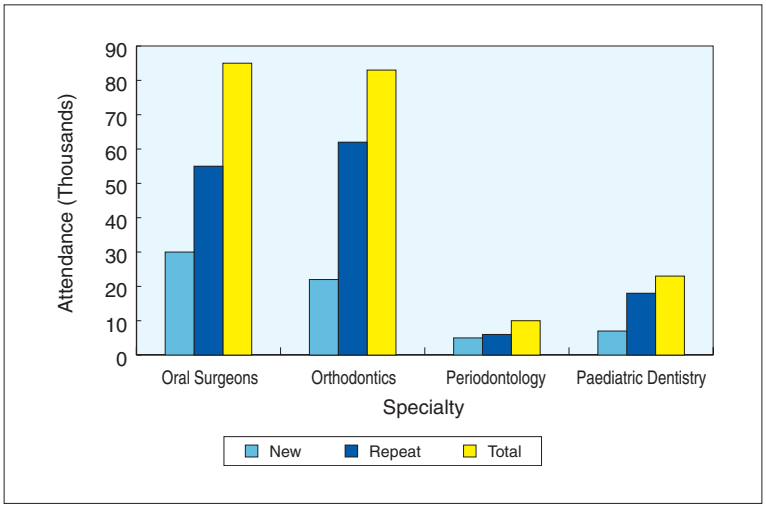
For officers who are posted to hospital oral surgery and paediatric dental specialist clinics, a course on basic surgical skills was conducted. There were 32 participants. The course was held from 8 to 10 March, 2003 at Hospital Selayang and Melaka-Manipal Medical College. The agenda consisted of lectures and sessions

at clinical skills stations for auscultation of heart/breath sounds, IV techniques, urinary catheterisation, airway management. Lectures and demonstrations were given by oral surgeons, physicians, general surgeons, anaesthetists, physicians, pathologists, radiologists and oncologists.

Oral Surgery

Utilisation of clinical specialist oral health care can be deduced through new, repeat and total attendances by patients for all disciplines (Figure 5).

FIGURE 5
Attendance At Dental Specialist Clinics, 2002

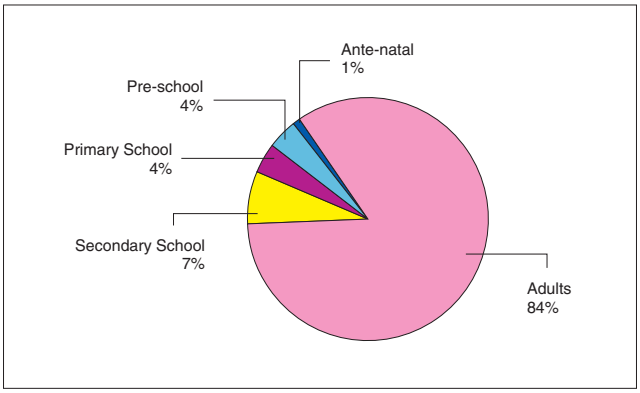


Source : Information and Documentation System Unit, Ministry of Health

For specialist oral surgery care, the new attendance of patients is seen to have decreased from 30,848 in 2001 to 30,560 in 2002. However, the total attendance in 2002 was registered as 84,694 as compared to 82,928 in 2001. Patients are seen as both in-patients (42.3%) and out-patients (57.7%). The adults formed the largest group provided care by the oral surgeons, as in previous years (Figure 6).

The care provided range from extractions, surgery, biopsies, and fracture management, to restorative care, prosthetics, and management of the temporo-mandibular joint. Surgical cases include major and minor surgery, soft tissue injury treatment, dental injury treatment and others, which may be for trauma or non-trauma. Traumatic fractures include those to the mandible, maxilla and to other facial bones. Categories of diagnosis are pre-cancerous lesions, tumours, cysts, abscesses, oral medicine cases, abscesses and complications.

FIGURE 6
New Attendance At Oral Surgery Clinics, 2002

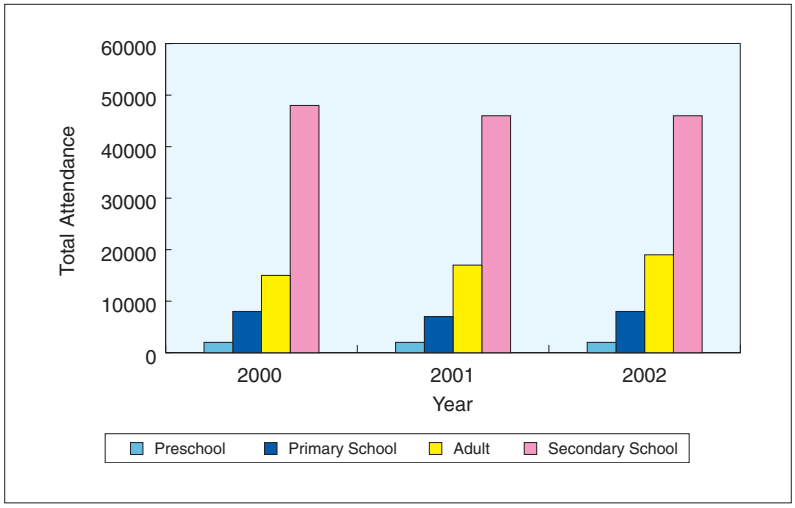


Source : Information and Documentation System Unit, Ministry of Health

Orthodontics

There has been an increase in new attendance for orthodontic patients to 21,499 as compared to 19,894 in year 2001. Total attendance was 82,512 whereas it was 79,948 the year before. The highest utilisers of the orthodontic service are the secondary school children, followed by adults, primary school children and pre-school children (Figure 7). The orthodontic waiting list continues to be a significant problem in urban areas.

FIGURE 7
Utilisation of Orthodontic Services, 2000-2002



Source : Information and Documentation System Unit, Ministry of Health

Orthodontic care includes counselling, provision of removable and fixed appliances, adjustment for both types of appliances, and change of archwire for fixed appliances. It was observed that active orthodontic treatment completed was 2,713 cases, while review/retention cases seen were 7,943.

Periodontology

There was quite a marked increase in total attendance for the periodontic specialty group, from 6,058 in year 2001 to 10,238 in year 2002. The new attendance registered was 4,832 for 2002 as compared to 2,116 in 2001. Data is available only for certain states in Peninsula Malaysia as there is still a limited number periodontists in the Ministry of Health. The patient profile comprises mainly adults as periodontal problems are mainly experienced by the older age group.

Periodontal surgery include flap surgery, gingivectomies, graft placement, frenectomies, root amputaton, guided tissue regeneration, crown lengthening and surgeries for implant placement. Other treatment provided include provision of prostheses (full, partial, implants and others), occlusal adjustments, splinting of teeth, laser treatment, extractions, and restorations including endodontic treatment. There were 402 completed periodontic cases for year 2002. There were 375 cases classified under "maintenance".

Paediatric Dentistry

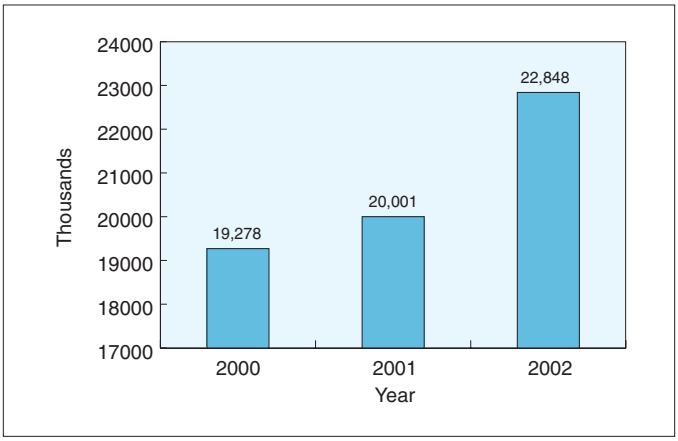
The paediatric dental specialist provides care to children below 16 years of age who have been referred from medical units, paediatric surgical units, wards, Accident and Emergency Departments, and out-patient departments in hospitals. Referrals are also obtained from public and private medical and dental clinics. These children comprise those with dental problems, the medically-compromised children, and also those with special needs. Dental problems attended to include developmental disorders e.g. amelogenesis and dentinogenesis imperfecta, ectodermal dysplasia and hypodontia. Children may present with traumatic injuries, ranging from soft tissue injuries to dento-alveolar complex injuries, to fractures of the basal bones. Others may present with oral medicine and oral pathology problems. Others may require dento-alveolar surgery e.g. removal of supernumeraries, apicectomies, exposure of unerupted teeth. Very young children with early childhood caries are also provided care by the paediatric dental specialist.

Severely medically-compromised patients include children with childhood cancers, those undergoing organ transplantation, those with cardiac disease, blood dyscrasias and other chronic illnesses such as diabetes, asthma and liver disease. Meanwhile, children with special needs include those with physical disabilities, children with severe learning difficulties and children with behavioural problems requiring specialised management techniques to be amenable for dental treatment.

The total attendance at paediatric dental specialist clinics has been increasing from 19,278 in year 2000 to 20,001 in year 2001 and subsequently to 22,848 in year 2002 (Figure 8). The new attendance in 2002 was 6,032 in comparison to 5,280 and 5,179 in years 2001 and 2000 respectively.

The treatment provided is categorised as follows : preventive, restorative, endodontics, trauma, interceptive orthodontics, minor oral surgery, oral medicine/ oral pathology, and general. Attendance was highest for preventive care while the lowest was for interceptive orthodontics.

FIGURE 8
Total Attendances at Paediatric Specialist Clinic, 2000-2002



Source : Information and Documentation System Unit, Ministry of Health

RESEARCH

National Oral Health Survey of Adults 2000 (NOHSA 2000)

A decision was made to weight the NOHSA 2000 data and to engage the services of a statistician for the purpose. It was decided that the expected deliverables from the weighted analyses would be in 3 parts :

- Oral health status data by defined variables
- Oral health perception by defined variables
- Cross-analysis of oral health status and perception

Work on Part I began in December 2002.

Survey on Young Adults

The project, initially entitled 'To determine knowledge, perception, practice and behaviour of young adults to oral health' was submitted to the MOH Research Dialogue 2002. The project is a collaboration with the Health Systems Research (HSR) Institute. A draft 68-item questionnaire was completed in December 2002, covering items on independent variables, knowledge, perception, attitudes, oral habits and utilisation of services.

Study on 'Urine Mercury Levels in Dental Personnel'

This is a collaborative project between the Institute for Medical Research (IMR) and the Oral Health Division. The project team will comprise of a mix of personnel from both IMR and the Oral Health Division. Protocol building and submission for funds will be undertaken in 2003, whilst implementation of the project is scheduled for 2004-2005. Visits to dental clinics were made in 2002 to assess the processes in dental amalgam handling.

The study is limited to assessment of mercury in urine only. A questionnaire shall be used to assess contributory risk factors within dental clinics. A decision was made that if services of the Department of Safety and Health, (DOSH) Malaysia were to be obtained, then the study may be extended to assess mercury vapour levels in dental clinics.

Identifying Risk Factors for Fluorosis Among 16-Year-Olds

This study follows on from the 1999 study on 'Fluoride Enamel Opacities among 16-year-olds'. A decision was made in 2002 to undertake analysis on the subset of data on possible risk factors for fluorosis. Logistic regression analysis will be undertaken; however due to the inability to secure a consultant for the purpose, the project is re-scheduled to 2003.

Cost Analysis of Private Primary Care Services in Malaysia

A 'Cost Analysis Study on Private Primary Care Services in Malaysia' was planned and conducted in 2002 in collaboration with the Division for Medical Practice, *Universiti Kebangsaan Malaysia* and the Primary Care Doctors' Organization of Malaysia (PCDOM). Eight states were identified and in each state, 1 urban and 1 rural district were selected. Out of 240 private medical and dental clinics targetted, 80 were private dental clinics. This consisted of five private dental clinics from each of the 16 districts. A specially designed self-administered questionnaire was used. Data on capital and recurrent costs as well as charges for items of care, was collected.

For each district, 1 government dental officer was assigned to take charge of data collection. The dental practitioners were given 1-3 days to complete the questionnaires. Data collection was undertaken from 1–15 September, 2002. This was followed by data cleaning in November 2002 and data analysis, which began in December 2002.

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

The instrument, which is the GOHAI, was translated and back-translated into *Bahasa Melayu* from English by lecturers from the Faculty of English Language and Linguistics, Universiti of Malaya in July 2002. The terms and statements in *Bahasa Melayu* were agreed to by members from the Oral Health Division, Dental Faculty, UM and the Clinical Research Centre. Two instruction manuals were subsequently formulated :

- Instruction Manual for Panel Review
- Instruction Manual for Conduct of Pre-test of GOHAI

Four investigators undertook the GOHAI pre-test (Phase I) beginning in December 2002 with the involvement of sixteen respondents. They were subjected to randomly administered English and Bahasa Melayu versions of the GOHAI. An MOH research grant was received for the project.

Compendium of Abstracts 2002

Abstracts from various journal articles, Master of Community Dentistry dissertation projects, state HSR projects and papers presented at scientific meetings were compiled for the "Annual Compendium of Abstracts" published by the Oral Health Division.

QUALITY IMPROVEMENT INITIATIVES (QII)

Quality Assurance Programme

i) ***National Indicator Approach (NIA)***

The data for the NIA indicators is collected at state level via the Health Management Information System (HMIS) formats, analysed and then compiled into the Quality Assurance Programme (QAP) format. Reports by the state QA Committees are subsequently forwarded to the Oral Health Division's QA Unit. For year 2002, six indicators were monitored (Table 3).

TABLE 3
NIA Indicators

No.	Indicator	Standard	
		2001	2002
1.	Percentage Of Repeat Fillings Done On Anterior Permanent Teeth	5%	3%
2.	Percentage Of Repeat Fillings Done On Posterior Permanent Teeth	2%	1%
3.	Percentage Of Primary And Secondary School Children Maintaining Orally Fit Status	Pri-45% Sec-60%	Pri-50% Sec-65%
4.	Percentage Of 12 Year-old Free From Gingivitis	95%	Maintain
5.	Percentage Of 16 Year-old Free From Gingivitis	80%	Maintain
6.	Percentage Of Non-Conformance Of Fluoride Level At Reticulation Points	<0.5ppm – 25% >0.7ppm – 10%	<0.5ppm – Maintain >0.7ppm – 7%

Source : Oral Health Division, Ministry of Health

Four new indicators were introduced. These are :

- Percentage of redo and failed fissure sealants
- Percentage of redo dentures
- Percentage of patients given appointment not given treatment by oral health care providers (Dental Nurse/Dental Officer/Dental Specialist)
- Percentage of cases with complications following mandibular third molar surgery

These indicators were introduced to the states for implementation on a trial basis. It was found that certain indicators did not show the existence of a national problem, e.g. the national achievement for the indicator 'patients given appointment not given treatment' was 2.1%, well below the set standard of <5%. It may be recommended that such indicators be removed as a national indicator or, if required, be retained as a district specific approach indicator.

ii) ***District Specific Approach (DSA) and Hospital Specific Approach (HSA)***

Almost all districts in the states have their own DSA oral health indicators and standards. Monitoring, identification of problems, and remedial measures are done at district level. Similarly, HSA is utilised by the staff in hospitals to solve their local problems. Several studies using the HSA have been conducted by the dental specialists based in hospitals.

The QAP has assisted managers and oral health care professionals in identifying and rectifying problems at the workplace, and in decision-making.

iii) ***MS ISO 9000***

The quality management system MS ISO 9002:1994 has been implemented at the Oral Health Division, and 32 other locations under the District Oral Health Services. By the end of December 2002, nineteen locations had completed their process of certification and were proud holders of the MS ISO 9002:1994 certificate. Another eight locations had completed their compliance audit and were awaiting certification results from MAMPU. However, the remaining locations were unsuccessful in completing their certification process by 2002 and were advised to implement their quality management system based on the year 2000 version of the MS ISO 9001.

iv) ***Accreditation of Institutions***

Accreditation exercises are conducted on dental educational institutions to determine that these institutions fulfill certain set criteria and to determine registrability of their dental qualifications with the Malaysian Dental Council. The dental faculty of *University Kebangsaan Malaysia* was the first local institution to be assessed. Subsequent to this, a team headed by the Director of Oral Health, went on an accreditation exercise to selected institutions of higher learning in Indonesia.

v) ***Other QII Initiatives***

The other QII initiatives such as corporate culture, quality control circles (QCC), innovations, etc. are being continuously monitored by the Oral Health Division.

ORAL HEALTH INFORMATION SYSTEM

In year 2002, a technical assessment of the existing oral health care primary and secondary information system application was carried out. The findings and recommendations were tabled at the Steering Committee of the Oral Health Care Information System. Recommendations were given on short-term, medium and long-term strategies for the nationwide implementation of the electronic patient dental record/management system.

Decision was made to discontinue expansion of the existing software to other sites in the country, but to upgrade it to customised software, to be pilot-tested in selected clinics. The project was awarded to a vendor in July 2002. The Enhanced *Sistem Maklumat Kesihatan Pergigian* (e-SMKP) software programme is a customised

version of the EXACT dental software programme. Two clinics were selected as pilot sites, i.e. Batu 9 Cheras and Ampang in Hulu Langat district. These clinics were chosen for the purpose of integration with the MSC Telehealth Lifetime Health Plan Project, which has also been implemented in the same locations.

It is hoped that by implementing the software, record-keeping of patient data will be done completely through electronic means. The scope, at present, is only limited to primary oral health care and oral surgery specialist care. Extension to other specialities and sites is being planned.

Discussions were held with the Telehealth Unit, MOH on issues relating to integration of the e-SMKP with the Lifetime Health Plan application system. Infrastructure and information between the two systems need to be shared. Other issues included registration, a standard coding system, billing and discharge summary.

With regards to the e-SMKP software for oral surgery care, it was pilot-tested at the Oral Surgery Clinic in Selayang Hospital in November, 2002. The software was also customised to include a Maxillofacial Chart and features for extra-oral and intra-oral examination, mid-facial and mandibular fractures, injuries and abnormalities, diagnosis and treatment. The system was also integrated with the imaging system.

Continuous monitoring and evaluation of the e-SMKP pilot implementation will be done. Through the commitment of the programme managers at all levels, and the vendors, it is expected that the e-SMKP application will be further expanded to other states.

Telehealth MSC Project

Several meetings, co-ordinated and organised by the Telehealth Unit, MOH, were held for the development of policies and to standardise work processes related to the development and implementation of Information and Communication Technology application systems in the Ministry. Other concerns were functionalities of systems, data requirements, coding and other requirements

The National Steering Committee on Implementation of the Personalised Lifetime Health Plan held meetings twice in the year to discuss the status of implementation and issues on problems to facilitate the progress of the project. Issues related to inadequate network infrastructure and hardware for the pilot sites were among the other problems identified. Also cited was the lack of time for staff to key in patient data due to staff shortage and heavy workload in the clinic. All dental clinics in the pilot areas were involved in data entry for patient registration and clinical data. Meetings were held between the Oral Health Division and the Telehealth Unit to ensure inclusion of a few dental clinics that were left out in the initial phase of implementation.

Lifetime Health Record

The Lifetime Health Record book or *'Rekod Kesihatan Sepanjang Hayat'*(RKSH) is a compilation of essential and relevant health and medical data, health plans and health messages appropriate for lifetime healthcare both in wellness and illness situations. Designed as an alternative to the electronic Personalised Lifetime Health Plan (PLHP) and existing home-based health records, there are dental items included in the book. The book was launched in June 2000, and the project was evaluated in January 2002.

Various evaluation methodologies were used, both quantitative and qualitative. Data collection was done from January 2002 to April 2002 followed by data analysis until December 2002. The evaluation report will be published in year 2003.

Multimedia Activities

A National Working Committee comprising dental officers from the Oral Health Division and from the states was set up to prepare the content for the Ministry of Health Homepage. Information for the content of the website was based on the Oral Health Division's Annual Report. The project was outsourced to a private company.

OTHER ACTIVITIES OF 2002

Documents were prepared and submitted for the recognition of the post-graduated degrees of Master of Clinical Dentistry from the University of Malaya in the following specialty areas :

- Oral Surgery
- Periodontology
- Pediatric Dentistry
- Oral Medicine and Oral Pathology
- Restorative Dentistry

Pursuit of recognition for the specialist qualification of Master of Dental Surgery in Forensic Dentistry from the University of Adelaide was also done.

The periodontology post-basic training course was conducted by the Dental Training College Malaysia in Pulau Pinang, from July 2002 until December 2002. Seventeen students reported for the training. The course was carried out in three phases :

- Phase 1 (4 weeks) at the College
- Phase 2 (20 weeks) at the Practical Training Centres, and
- Phase 3 (2 weeks) at the College again, for the final examinations

To overcome the shortage of dental manpower resource in the country, interviews were conducted in Indonesia during the year, to recruit foreign contract dental officers. Thirty-five of the 50 candidates interviewed were offered employment. Out of this, only 24 accepted.

CHALLENGES AND FUTURE DIRECTION

The shortage of dental officers has been an on-going problem for the dental services of Malaysia. In order to maximize care to the population, several alternative measures have been undertaken. Since the implementation of the three-year compulsory service, it is expected that the total number of dental officers will increase. However, the retention of these officers in the service has to be ensured. Improved promotion prospects as well as potential to pursue post-graduate courses are areas that need to be considered. Another means for increasing numbers during the interim period is through filling up contract dental officer posts.

With the existence of a more knowledgeable society, expectations on the oral health service will also be tremendous. Quality improvement efforts have to be implemented and continuously improved. While world–class facilities are being established and latest technology incorporated where appropriate, personnel are given opportunities for professional development in order to upgrade themselves to meet the challenges of the future.

Family Health Development

INTRODUCTION

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, implementing, monitoring and evaluating 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, it is committed to :

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 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 ACHIEVEMENTS

FAMILY HEALTH

Antenatal Care

The trend of the overall antenatal coverage for the total eligible population by public health facilities in Malaysia shows a wax and wane trend in the range of 68.8% to 78.1% (Table 1). Over the same period, the number of antenatal clinic visits showed

an increase from 5.8 in 1985 to 8.8 visits in 2002. The tetanus toxoid immunization coverage of antenatal mothers gradually increased from 66.3% in 1985 to 86.8% in 2000. However, the ATT coverage has reduced to 84.9% in 2002 (Table 2).

TABLE 1
Antenatal Service Coverage for Total Eligible Population by Public Health Facilities, Malaysia, 1985-2002

Region	Estimated No. of Pregnant Mothers					Antenatal Coverage				
	1985	1990	1995	2000	2002	1985	1990	1995	2000	2002
Pen. Malaysia	430,145	527,095	583,277	543,199	511,367	326,597 75.9%	412,363 78.2%	395,384 67.8%	398,773 73.4%	346,794 67.8%
Sabah	58,481	81,571	92,053	86,333	75,854	50,804 86.9%	69,291 84.9%	66,318 72.0%	64,073 74.2%	54,223 71.5%
Sarawak	51,823	67,716	67,201	62,132	57,127	42,283 81.6%	46,375 68.5%	49,213 73.2%	54,292 87.4%	44,266 77.5%
Malaysia	**540,449**	**676,382**	**742,531**	**691,664**	**644,348**	**419,684 76.5%**	**528,029 78.1%**	**510,915 68.8%**	**517,138 74.8%**	**445,283 69.1%**

TABLE 2
Average Antenatal Visits per Mother and Tetanus Toxoid Immunization Coverage, 1985-2002

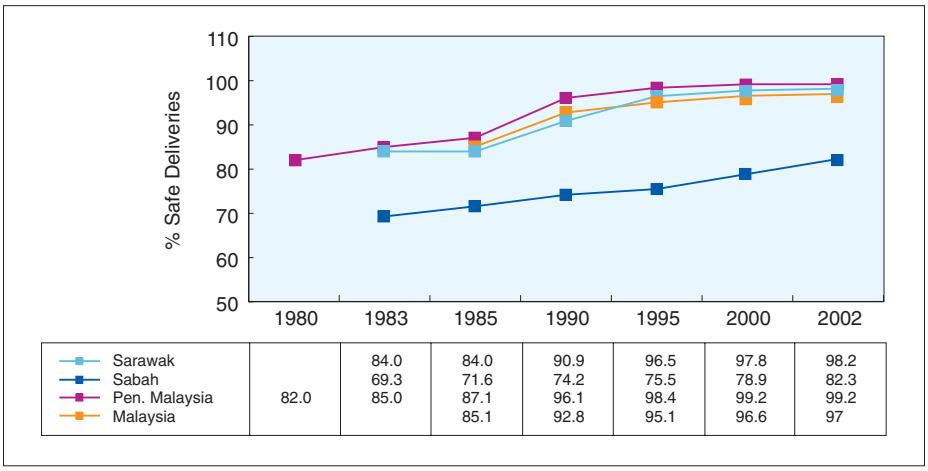
Region	Average Antenatal Visits per Mother					Tetanus Toxoid Immunisation Coverage Completed Immunisations (2nd & Booster Dose)				
	1985	1990	1995	2000	2002	1985	1990	1995	2000	2002
Pen. Malaysia	5.8	6.7	7.9	8.7	9.1	207,979 48.4%	316,375 80.0%	336,181 76.8%	337,043 82.9%	317,731 82.9%
Sabah	5.1	5.2	6.1	7.3	7.7	30,029 51.4%	54,205 88.6%	63,975 92.7%	59,887 97.5%	52,515 92.3%
Sarawak	6.5	7.3	7.7	8.3	8.4	33,327 64.3%	43,865 86.4%	46,318 91.9%	52,678 113.0%	40,007 93.4%
Malaysia	**5.8**	**6.6**	**7.6**	**8.5**	**8.8**	**271,335 66.3%**	**414,445 81.7%**	**446,474 80.2%**	**449,608 86.8%**	**410,253 84.9%**

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

Deliveries and Postnatal Care

The trend of safe deliveries in Malaysia has increased from 349,154 (85%) in 1985 to 469,802 (97.0%) in 2002. (Figure 1).

FIGURE 1
Percentage of Safe Deliveries in Malaysia, 1980-2002



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

The trend of postnatal coverage at government facilities in Malaysia has increased from 206,490 (50.3%) in 1985 to 417,232 (82.1%) in 2000. However, in the year 2002, the postnatal coverage at government facilities for Malaysia has reduced to 373,946 (79.9%) (Table 3).

TABLE 3
Postnatal Coverage for Total Registered Birth in the Public Health Facilities and Government Hospital, Malaysia, 1985-2002

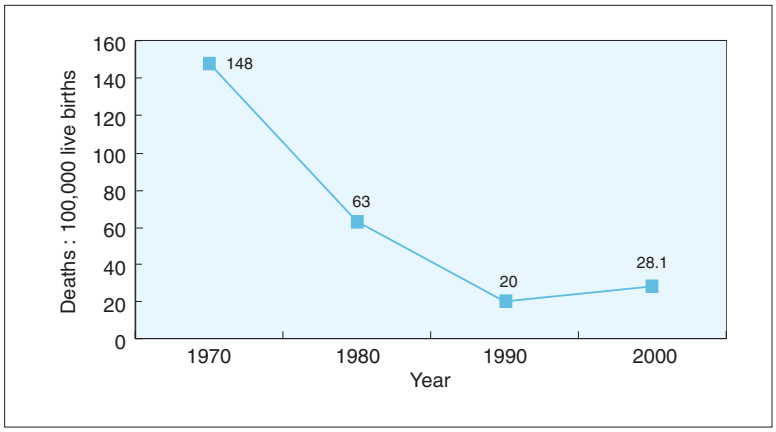
Region	Total Registered Births					Postnatal Coverage				
	1985	1990	1995	2000	2002	1985	1990	1995	2000	2002
Pen. Malaysia	326,618	371,519	377,572	400,690	369,347	162,173 49.7%	241,284 64.9%	277,229 73.4%	312,467 77.9%	280,539 76.0%
Sabah	44,770	59,927	65,296	61,722	55,809	19,941 44.5%	39,507 65.9%	55,347 84.8%	55,641 90.1%	52,438 94.0%
Sarawak	39,041	44,750	46,528	45,488	42,764	24,376 62.4%	38,162 85.3%	42,945 92.3%	49,124 107.9%	40,969 95.8%
Malaysia	**410,429**	**476,196**	**489,396**	**507,900**	**467,920**	**206,490 50.3%**	**318,953 67.0%**	**375,521 76.7%**	**417,232 82.1%**	**373,946 79.9%**

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

Maternal Mortality

Malaysia has witnessed significant reduction in maternal mortality ratio (MMR) from 148 per 100,000 live births (LB) in 1970 to 63 per 100,000 LB in 1980 for Peninsular Malaysia. In 1990, Malaysia's maternal mortality rates (including Sabah & Sarawak) was 20 per 100,000 LB. With the formation of the National Technical on the Confidential Enquiries into Maternal Deaths (CEMD) the maternal mortality for Malaysia has increased to 28 per 100,000LB in 2000. This increase has been attributed to the better reporting system (Figure 2).

FIGURE 2
Maternal Mortality Rate in Malaysia, 1970-2000



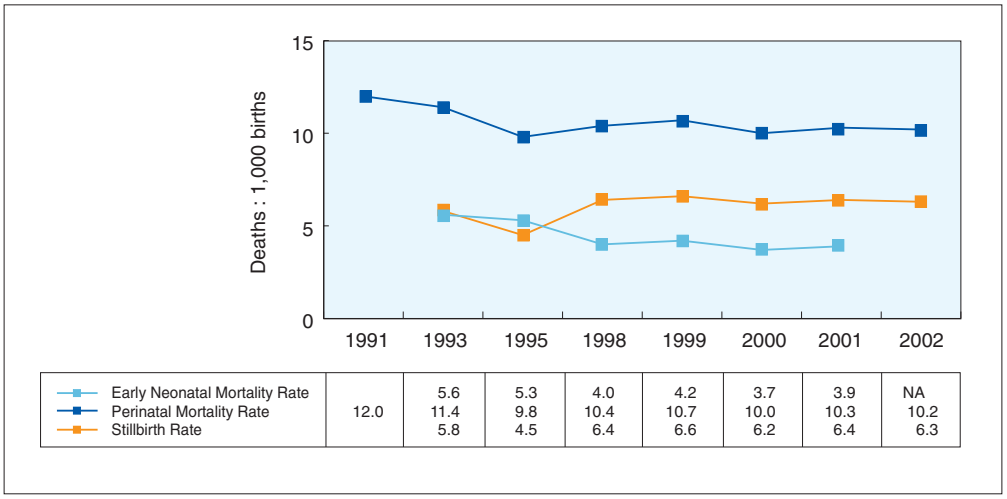
Note : Data for 1970 and 1980 are only for Pen. Malaysia
Data for 2000 is from Confidential Enquiry into Maternal Death, MOH
Source : Department of Statistics, Malaysia

A major initiative this year was the development and the training of health care providers in the Management of Heart Diseases in Pregnancy. The manual is the third of the series developed by the National Committee for Maternal Death. Continuous echo training has to be carried out at the state and district levels. Three Case illustrations on Maternal Deaths were distributed to the states.

Perinatal Mortality

The trend of perinatal mortality rate since 1991 – 2002, showed no difference in the incidence rate of each category. However, stillbirth rate (6.4 per 1000 births) is still the major component of the perinatal deaths as compared to the early neonatal death (3.9 per 1000 births). This reflects that pre-conception care and antenatal care is an important factor in the health of the newborn. The perinatal mortality rate has decreased from 12 per 1000 births in 1991 to 10.2 per 1000 births in 2002 (Figure 3).

FIGURE 3
Components of the Perinatal Deaths Rates based on HMIS and PNM, 1991-2002



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

Source : Information & Documentation System Unit, Ministry of Health

In July, training was conducted for the Perinatal Care Manual. The training involved in the use of the manual which has been divided into four sections Pre pregnancy care, Antenatal care, Intrapartum & Postpartum care and Neonatal Care. The manual contains the fundamental knowledge and skills required in the care for women starting from the Pre pregnancy period to the newborn. During 2002, the Perinatal Bulletin 2001 was published and distributed to the states.

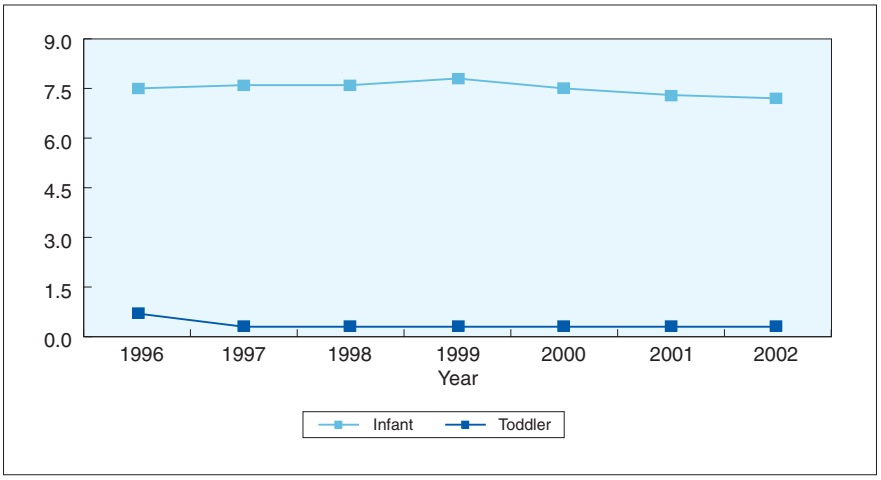
CHILD HEALTH SERVICES

Coverage of new and first clinic attendances at the government health facilities had dropped slightly among infants and toddlers, even though the attendance of pre-school children at the child health clinic had increased in 2002 compared to 2001. Coverage of infant attended the health clinic is 97.4%; 41.1% for toddlers and 31.4% for pre-school. The average clinic visits made per infant, toddler and pre-school was; 4.0, 3.1 and 1.9 visits respectively.

Infant and Toddler Mortality

Infant mortality rate in 2002 was 7.1 per 1000 live birth, which is slightly lower compared to in the year 2001 (7.3 per 1000 live birth). Toddler death had been constant at 0.3 per 1000 live birth since 2000 till 2002. Figure 4 shows the trend of the mortality in the year 1996-2002.

FIGURE 4
Infant and Toddler Mortality Rate, Malaysia, 1996-2002

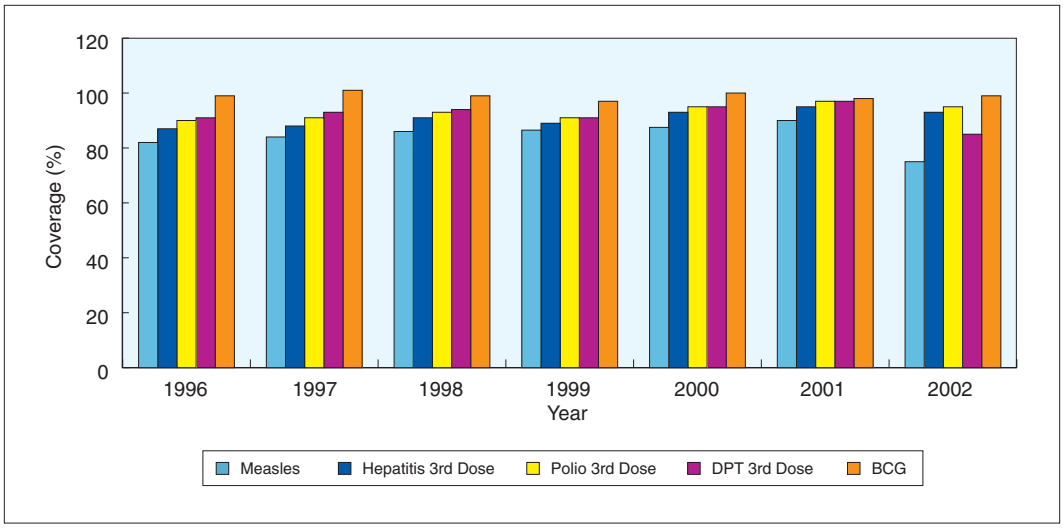


Source : Information and Documentation System Unit, Ministry of Health

Immunisation

As for the immunisation coverage in 2002, Malaysia has achieved 99.0% coverage for BCG, 85.7% for DPT 3rd dose and 94.9 for Polio 3rd dose. The immunisation coverage for Hepatitis B 3rd dose and Measles are; 93.1% and 75.5% respectively (Target by UCI are: BCG: 99%, Hepatitis B 3rd Dose: 93.1%, DPT 3rd Dose: 75.5%, Measles: 75.5%) (Figure 5).

FIGURE 5
Immunisation Coverage (%) for Infants in Malaysia, 1996-2002



Source : Information and Documentation System Unit, Ministry of Health

In July 2002, Hib and MMR immunization was officially launched and introduced. Hib immunization is given to baby at the age of 2, 3 and 5 months old and MMR at 12 months for the first dose and during Standard One for the booster dose. DPT is being given in accelerated schedule as Hib using combination vaccine DPT-Hib. Oral Polio Immunisation follows the DPT-Hib immunisation schedule. MMR immunization replaces Measles and Rubella immunization and is given to both boys and girls (Table 4). However, Measles monovalent vaccine is still maintained in Sabah and is given at 6 months old. The booster dose for BCG at Standard 1 ceased in July 2002 as being recommended by WHO.

TABLE 4
New Immunisation Schedule for Infants and Children

Immunisation	Age (months)									Age (years)	
	0	1	2	3	4	5	6	12	18	7 (Std 1)	15 (Form 3)
BCG											
Hep B											
DPT-Hib										DT	T
OPV											
Measles											
MMR											

Note : Primary immunization Booster Sabah only

National Congenital Hypothyroidism Screening

Screening for Congenital Hypothyroidism was initiated in 1998 as one of the activities to reduce morbidity and mortality among children. The screening programme was expanded further, and by 2002 all 14 state hospitals and all district hospitals in Malacca, Negeri Sembilan, Johore, Perak and Kedah had implement the screening programme. This involved about 50 hospitals and about 48.3% of the total births are screened. Expansion of the screening programme to all hospitals and home delivery is being plan. Involvement of private hospitals in this screening programme is also appreciated.

Early Child Development and Stimulation

Early Child Development and Stimulation programme is implemented at certain chosen clinic basically due to logistic problem, inadequate budget available and manpower. However, review of the checklist shows that the checklist needs further refinement so as for easy and friendly utilization to both parents and health providers. Meanwhile the checklist for 1 to 5 years is being prepared.

Integrated Management of Childhood Illnesses (IMCI)

Integrated Management of Childhood Illnesses, IMCI with specific WHO module has been reviewed and modified according to the situation in Malaysia. Until 2002, only Sabah has started the IMCI in 5 health clinics in Ranau District and 1 health clinic in Penampang. More training sessions will be carried out in future and implementation will then be extended to Sarawak and Peninsular Malaysia.

National Plan of Action for Children 2001 – 2020 has been developed with Welfare Department to strengthened and formalised national child health services and promotes inter-agency involvement and services.

In 2003 and near future, child health services will be strengthened by developing several activities such as 'Implementation of Mass Measles Immunisation Campaign'.

SCHOOL HEALTH SERVICES

School Health Services was established in 1967 as a joint programme between Ministry of Health and Ministry of Education. *Programme Bersepadu Sekolah Sihat* (PBSS) was officially launched by Minister of Education on 22nd September 1997 with the aim to create healthy school citizen within a safe, healthy and a quality environment towards achieving Vision 2020.

Manual titled *'Panduan Melaksanakan Program Bersepadu Sekolah Sihat'*, has been implemented with the school evaluation criteria and distributed to Ministry of Education and Health State Department.

School Health Team continued to provide services to all the primary and secondary schools under the Ministry of Education. For the year 2002, coverage by nurses and Medical Officer for both Standard 1 and 6 is shown in Table 5.

Morbidity Pattern among School Children

Table 6 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 are dental carries, head lice, worms infestation, visual defect, skin problem and scabies. However the rate of worm infestation and head lice are low among Form 3 students.

TABLE 5
School Health Coverage by the Nurses and Doctors from 1997-2002

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	97.6	52.9	52.6
1999	97.9	97.6	50.8	44.3
2000	97.7	96.8	41.4	42.3
2001	97.6	98.5	37.1	36.8
2002	97.8	98.7	43.0	37.4

Source : Information and Documentation System Unit, Ministry of Health

TABLE 6
Morbidity Pattern among the School Children, Malaysia, 1994, 2001 and 2002

Health Problem	Incidence Rate per 1,000 Children Examined								
	Standard 1			Standard 6			Form 3		
	1994	2001	2002	1994	2001	2002	1994	2001	2002
Head lice infestation	107.8	40.7	36.7	92.5	35.9	30.6	13.5	5.3	4.0
Worm Infestation	30.0	3.3	2.5	21.9	2.5	2.7	9.9	0.7	1.2
Scabies	6.1	5.1	5.2	6.1	5.7	5.8	3.6	3.8	4.1
Other skin condition	27.9	32.4	2.5	45.5	46.7	41.0	36.7	31.5	27.8
Visual defect	30.0	45.6	48.8	52.0	73.1	74.2	51.5	2.5	66.7
Anaemia	0.6	0.8	1.2	0.3	0.9	1.5	0.3	0.2	3.4
Hearing defect	0.6	0.5	0.0	0.8	0.4	0.7	0.8	0.2	0.2
Heart disease	1.9	1.1	1.1	1.7	0.9	0.9	1.6	0.8	0.7
Skeletal deformity	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1
Slow learner	2.7	1.8	0.0	1.5	0.4	1.1	0.4	0.8	1.4

Source : Information and Documentation System Unit, Ministry of Health

Immunisation Coverage among School Children

Table 7 shows the immunization coverage for Malaysian school children in 1994, 1999, 2001 and 2002. The overall immunization coverage among the school children was maintained above 90%.

TABLE 7
Immunisation Coverage among the School Children, Malaysia, 1994, 1999, 2001 and 2002

State	Standard 1								Form 3			
	Polio Booster (%)				Double Antigen Booster (%)				Tetanus Toxoid (%)			
	1994	1999	2001	2002	1994	1999	2001	2002	1994	1999	2001	2002
Pen. Malaysia	96.4	96.4	95.3	97.8	97.1	96.4	97.4	97.7	95.1	90.1	94.3	96.8
Sabah	94.5	96.4	97.0	96.4	94.6	96.4	95.5	96.4	90.6	96.3	97.0	96.9
Sarawak	89.2	91.5	87.7	94.3	89.2	91.5	92.9	94.3	78.2	98.5	87.7	91.7
Malaysia	**95.5**	**96.0**	**96.8**	**97.3**	**96.0**	**96.0**	**96.8**	**97.3**	**93.4**	**91.1**	**94.9**	**96.4**

Source : Family Health Development Division, Ministry of Health

Quality Assurance Programme for School Health Programme which is the percentage of visual defect detected was evaluated every 6 month. Districts which have visual defect detection of less than 2 percent among the school children in Standard 1 need auditing. Table 8 shows the rate of visual defect for the first 6 months and second 6 months in the year 2002 among the Standard 1 school children in Peninsular Malaysia, Sabah and Sarawak.

TABLE 8
Rate of Visual Defect Detection Among the Standard 1 School Children in 2002

	Pen. Malaysia (%)	Sabah (%)	Sarawak (%)
January - June	3.0	3.8	1.7
July - December	1.8	0.8	1.6

Source : Family Health Development Division, Ministry of Health

ADOLESCENTS HEALTH

Adolescent Health Program was established in 1996 as part of the expanded scope of Family Health Development Division program. In this programme the services and activities for the adolescents are being planned and developed.

To establish the health services and support that are adequate in an environment that nurtures the adolescents, this programme has the following objectives :

i) To develop plan of actions and implement the National Adolescent Health Policy.
ii) To identify real health needs and plan the services for the adolescents.
iii) To plan and obtain the resources required for the implementation of the adolescent health services.
iv) To monitor and evaluate the Adolescent Health Services at the Primary Health Care level.
v) To promote adolescent health through active adolescent participation and interagency collaboration.

Training

Adolescent Health and Counseling training was conducted at the Ministry of Health level for 45 health staff who were medical assistants and health nurses. They were trained to diagnose, treat and counsel adolescent problems. Fifty training sessions were conducted at the state levels for 537 health staffs.

Health Services

Some of the activities conducted include health services, counseling, aerobic exercises and outdoor activities. A total of 361,864 adolescents received treatment at the health clinic in the year 2002 and 105,253 had some form of morbidity related to general ill health, nutrition, physical health, mental health, risk behaviours and others. 14,661 adolescents were given counseling and 2,162 were referred to hospital and other agencies for further management.

Program Development

Two meetings were held to develop a Standard Operating Procedure in managing Adolescent Health Clinic at the Primary Care level in April and June 2002. The Standard Operating Procedure focused on the concept and scopes of the adolescent health clinic as well as developing guidelines on managing specific adolescent health problems.

WOMEN'S HEALTH

Family Planning

Family planning service in Malaysia has undergone great improvement since first introduced in early 1930's. At present, various agencies are providing this service either in government, non governmental agencies or private sector. In 2002, annual report NPFDB, showed that 57,726 (75.8%) new family planning acceptors were recruited by the Ministry of Health followed by FFPAM 11,458 (15.1%).

The choice of contraceptive methods among new acceptors for 2002 indicated that 73.1 percent preferred pill followed by 10.2 percent condom, 6.1 percent injection, 4.8 percent IUD, 4.5 percent sterilization and 1.3 percent other methods. The choice of injection had increased tremendously in 2002 (6.1 %) as compared to 1.2 percent in 1990. The contraceptive pills are still the most preferred methods since family planning was introduced.

Pap Smear

Pap smear, a screening procedure to detect cervical cancer at the very early stage has been extended its coverage to all women age between 20 and 65 years in 1995 following the Healthy Lifestyle campaign themed cancer. In 2002, out of 207,177 smear reported, 1.34 percent (2,771 slides) indicated positive result as in the Bethesda classification system. And out of those positive results, 2.31 percent (64 slides) were reported as carcinoma. From the total slides reported 0.031 percent was carcinoma.

Since 2000, 3 quality indicators for Pap smear activities were introduced. One of it is percentage of unsatisfactory smears. This indicator directly assessed the process of smear taking by health care providers at clinic level. In 2002, 3.4 percent (7,046) smear were reported unsatisfactory i.e within the acceptable standard set that is not more than 5%.

Breast Self-Examination (BSE)

Breast Self- Examination (BSE) is continuously being taught, demonstrated and encouraged in all health clinics. Currently, only diagnostic mammogram is carried out in breast clinics throughout the country.

COMMUNITY MENTAL HEALTH PROGRAMME

World Mental Health Day 2002: "Effects of Trauma & Violence on Children and Adolescents"

The above theme was chosen for Healthy Lifestyle Campaign 2002 to increase awareness among general public on the increased incidence of violence against children and young people worldwide. The aim of the campaign is to create awareness among the government and non government agencies to develop and implement effective preventive strategies in order to reduce the suffering of the children and adolescents. The World Mental Health Day 2002 was launched by Y.B. Dato' Chua Jui Meng, Minister of Health, Malaysia at J.W.W. Marriot Hotel on 12th July 2002.

Management of Care for Mental Patients

The care for the mentally ill in the community had take a stride forward towards providing more effective services by the introduction of a new programme which is **Home Care for Mentally Ill**. This programme will be implemented along with the **Follow up Treatment for Stable Mental Patients** and **Psychosocial Rehabilitation** in health clinics.

To further strengthen the knowledge and skills of health staff, a workshop was organized in Awana Hotel, Genting on the 6th to 9th May 2002. Seventy five participants have been identified to attend the workshop which comprised of Psychiatrists from Hospital Kuala Lumpur, Public Health Specialists, Family Medicine Specialists, Medical Officers, Medical Assistants and Public Health Nurses from Hospital Bahagia, Hospital Permai and Hospital Kuala Lumpur, Health District of Kinta and Johor Bahru. As a follow up from the workshop two pilot projects for Home Care for the Mentally Ill had been identified in Kinta and Johor Bahru districts. The pilot projects also had the advice and financial support from the World Health Organization.

Follow up Treatment for Stable Mental Patients

In the year of 2002, a total of 630 (73%) health clinics had provided the above services. By the end of 2002, a total number of 13,158 mentally ill cases received follow up treatment in health clinics, with a total of 31,656 attendances. In the same year, 1,078 new cases were registered and 2,492 (18.9%) had defaulted follow up From the total number of defaulters only 683 (27.4%) home visits had been done and subsequently 601 cases returned for follow up.

For the state of Perlis, all cases that had been followed up at health clinics had been registered as new cases. This is due to the new format *'Laporan Kemajuan Rawatan Susulan Pesakit Mental di Klinik Kesihatan (PKM 17/2001 Pin.2003)'* which was introduced in 2002. For the state of Perak, Kelantan and Sarawak, it was noted that there was no treatment given by Family Medicine Specialists and Medical Officers as shown in Table 9. This is due to inaccuracy of the reporting by the states as there was lack of understanding in the usage of the reporting format. To enhance the implementation of follow up treatment of mentally ill at health clinics by the medical assistant a training course was carried out by *Institut Kesihatan Umum* on 6th to 9th June 2002 attended by 52 medical assistants from various states.

TABLE 9
Reports of Achievement of Mental Patients for at Health Clinics 2002

State	New Reference cases		Follow-up cases				Defaulter cases			
	New Case	Total	Family Medicine Specialist	Medical Officer	Medical Assistant	Total	No of defaulters	No. of Home Visiting	No. of defaulters returned to clinic	No. of cases referred to hospital
Perlis	136	136	9	74	138	221	25	20	8	2
Penang	50	466	15	156	361	532	16	8	1	15
Kedah	151	1,024	0	0	85	85	0	0	0	0
Perak	0	2,373	0	0	4,035	4,035	835	198	131	69
Selangor	191	1,091	296	1,011	270	1,577	74	25	42	9
Negeri Sembilan	248	1,313	63	296	1,045	1,404	6	4	0	11
Malacca	43	2,047	154	1,593	300	2,047	58	3	31	1
Johore	123	2,601	72	2,057	3,920	6,049	963	200	379	5
Pahang	7	417	7	100	312	419	34	2	2	14
Terengganu	72	620	12	2,817	637	3,466	455	10	7	19
Kelantan	0	318	0	0	0	9,420	0	0	0	0
Sabah	48	991	0	135	904	1,039	26	13	0	0
Sarawak	9	9	0	0	1,362	1,362	0	0	0	0
Malaysia	**1,078**	**13,406**	**628**	**8,239**	**13,369**	**31,656**	**2,492**	**483**	**601**	**145**

Source : Community Mental Health Unit, FHDD, Ministry of Health

Psychosocial Rehabilitation (PSR) for Mental Patients in Health Clinics

Psychosocial Rehabilitation (PSR) Programme was started in 1998 and by the end of 2001 a total number of 18 health clinics had implemented the programme. In 2002 another 3 health clinics were provided with allocation to build and start PSR services adding the total number of clinics to 21. The three new PSR centers are Klinik Kesihatan Kupang, Kedah; Klinik Kesihatan Beseri, Perlis and Klinik Kesihatan Wakaf Baru, Kelantan.

By the end of 2002, 168 mentally ill had attended the PSR centers with a total attendance of 6,054, and 75 new cases registered as shown in Table 10.

TABLE 10
Number of Attendances by Mental Patients
attending Psychosocial Rehabilitation in Health Clinics Year 2002

No	State	Health Clinic	New Cases	Total Cases	Total Attendance	Number of Defaulters > 1 month	Number Re-work	Discharge
1.	Penang	Sbg Perai Utara	8	20	322	10	3	
2.	Kedah	Pendang	1	18	1,198	19	1	1
		Kupang	7	7	34	1		
3.	Perlis	Beseri	0	0	0			
4.	Perak	Selama	4	13	599	8	1	8
		Kg. Simee	13	12	553	1	3	9
		Bagan Datoh	4	6	345	2	1	
5.	Selangor	Seri Kembangan	0	7	83	1		
		AU2 Taman Keramat	1	4	14	1		
6.	N.Sembilan	*Bahau	0	0	0			
7.	Malacca	Ujung Pasir	4	9	163	2		4
8.	Johore	Kulai	3	6	151	1		
		Pekan Nenas	1	11	239	8		
		Pesta	9	9	94	4		
9.	Pahang	Temerloh	5	5	5	3		
10.	Terengganu	Wakaf Tapai	3	5	480	1		
11.	Kelantan	Bachok	3	13	524	4		
		Ketereh	3	3	45	1		
		*Wakaf Baru	0	0	0	0	0	0
12.	Sabah	Kuala Penyu	0	9	9	3		
13.	Sarawak	Jln. Oya	6	11	1,196	2		
	Malaysia		**75**	**168**	**6,054**	**72**	**9**	**22**

Note : *Not in Service
Source : Community Mental Health Unit, FHDD, Ministry of Health

HEALTH CARE FOR THE DISABLED

Health Care for the Disabled was initiated in 1996 and includes health care for children with special needs, prevention and control programmes for visual and hearing disabilities. The main activities for the year 2002 focused on implementing Programmes for Children with Special Needs and development of a National Programme on the Prevention and Management of Deafness and Hearing Impairment.

The Format for Registration and Placement of Children with Special Needs was piloted in Perak. The four pilot districts identified 201 new cases over a period of four months. Of this figure, 72.7% of cases registered only with Department of Social Welfare, 29% of cases registered only with Special Education Department and 16% of cases failed to register.

Of the total cases, 90% were confirmed at the hospital level. The current data collected through the Health Management Information System only focuses on cases from health centers. The pilot test shows a need to revise the data collection to ensure proper data collection on cases of children with special needs.

Training of staff on care of children with special needs focused areas of gross motor and fine motor function and improving child's abilities in activities of daily living. Training also included the use of a standardized assessment format that will be used in all health clinics carrying out rehabilitation activities.

An additional 19 health clinics have been equipped with rehabilitation equipment, making a current total of 93 health clinics providing rehabilitation services. In 2002, a total of 1,432 new cases were detected throughout the country (Table 11) and 2,567 children with special needs received rehabilitation services at the health centers.

Coordinating Committee for the Prevention and Management of Deafness and Hearing Impairment was established on 15 November 2000 following the recommendations of a national workshop in 1999. The final draft of the National Plan of Action on the Prevention and Management of Deafness and Hearing Impairment was approved by the Public Health EXCO Committee in July 2002.

HEALTH CARE SERVICE FOR THE ELDERLY

The health care for the elderly programme was started with the National Health Conference for the Elderly which was held from 12 to 15 June 1995, followed by the approval of the budget under the New Policy in 1995.

TABLE 11
Total Number of Disabled Children below the age of 7 Years Detected at the Health Clinics According to Disabilities, 2002

State	Types of Disabilities							
	Visual	Hearing	Speech	Physical	Mental Retardation	Mental Disabilities	Others	Total
Perlis	1	0	1	4	2	0	2	10
Kedah	4	1	3	12	4	2	19	45
Penang	0	0	2	4	2	0	18	26
Perak	13	4	8	24	7	2	85	143
Selangor	2	2	19	19	23	11	71	147
W. Persekutuan	0	0	1	0	0	0	0	1
Negeri Sembilan	2	2	5	7	7	0	28	51
Malacca	0	0	0	8	5	1	21	35
Johore	4	8	4	29	35	15	59	154
Pahang	3	3	7	41	16	3	56	129
Terengganu	1	8	2	23	15	5	79	133
Kelantan	7	10	8	34	15	7	55	136
Sabah	5	5	14	35	5	11	65	140
Sarawak	13	9	26	35	46	12	141	282
Malaysia	**55**	**52**	**100**	**275**	**182**	**69**	**699**	**1,432**

Source : Information and Documentation System Unit, Ministry of Health

Till December 2002, 513 (60.0%) health clinics, all over the country have implemented the health care service for the elderly (Figure 6). The services given include health promotion and education, health screening and assessment, medical examination and treatment, counselling, exercise for the elderly and recreational, social and welfare activities.

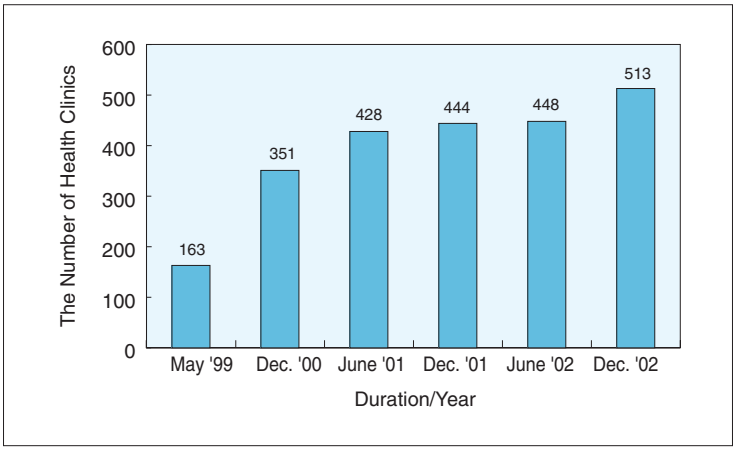
Due to lack of infrastructure and trained staff, other services like rehabilitation, occupational therapy, home visit and home care nursing, were done by certain health clinics. Till end of 2002, there were 282 health clinics, which run rehabilitation activity (55.0% of total number of health clinic which run health care programme for the elderly). Out of this, only 240 (85.1%) had a space or room for this activity.

Till December 2002, 10,159 of health staffs (Medical and Health Officers, Dental Officers, Nurses, Physiotherapists, Occupational Therapists and Medical Assistants) have undergone training for health care of the elderly. 9,387 personnel

have been trained for care for the elderly ('care givers'). These included health personnel, elderly care givers, non-governmental organisations, voluntary bodies and other agencies. There were 212 *Kelab Warga Tua* formed all over the country. Fourteen (14) health education materials had been produced and distributed all over the country by the end of 2002.

In 2002, a total amount of RM1,615,000 (RM1,015,000 under OS20000 and RM600,000 under OS30000) has been received and distributed to the states and other agencies/institutions to run the activities related to health care for the elderly.

FIGURE 6
The Number of Health Clinics with Health Care Program for the Elderly



Source : Family Health Development Division, Ministry of Health

PRIMARY HEALTH CARE SECTION

In line with the stipulated strategies, the year 2002 was fully occupied with implementation and improvement of the existing activities, without significant addition of human resource in the section. Among the main achievements during that period were :

- **Integration of Various Health Activities Implemented at the Primary Healthcare Level**

  Implementation of Expanded Scope of Primary Health Care Service

  Expansion of services at health clinics as planned during the Seventh Malaysia Plan has progressed more rapidly with the support of improved and upgraded infrastructure, and clear operational policies and implementation guidelines.

The public have come forward for health screenings and involved themselves in activities available at the health clinics. Table 12 gives an outline of various activities carried out under the expanded scope in the various states.

❒ Human Resource Development

Primary Health Care is the thrust of health services in this country. This has created high expectation of a more comprehensive and better quality care provided at the primary health care level. Hence, adequate and appropriate human resource together with infrastructure support including drugs and equipment are vital for the program.

Human Resource Shortage

One of the main constraints in implementing the expanded and extended scope of PHC through out year 2002 was inadequate human resource. Only 52% of the doctors' posts were filled with another 914 posts vacant. This was also hampered by other vacancies, which included 13% (452 posts) for Public Health Nurse, 18% (1,194 post) for community nurse, 33% (780 posts) for Assistant nurse, 27% (214 post) for Midwife and 17% (284 posts) for Medical Assistant. New categories such as physiotherapists, occupational therapists, clinical psychologists, counselors, speech therapists, medical social workers and dietitians were still very much lacking at primary care clinics, whereas they are highly needed to carry out the functions of follow-up care in the community.

Revised Norms for Health Clinic and Community Clinic

The standard norms for human resource requirement of health and community clinics were developed last year in response to the demand for more comprehensive and equitable services for urban and rural areas. The norms which were developed in 1996 was reviewed based on the generic medical brief of requirement for health clinic, taking into consideration the new programmes in the expanded scope, the flow and needs of patient care, fitted into the new building design. This would enable community-based activities to be carried out in wider population groups and areas.

Expanded Scope Activities

The Family Health Development Programme continued to implement the concept of the expanded scope of Family Health Services throughout last year. To date 630 clinics are doing mental health activities, 513 elderly care, 173 adolescent health and 84 rehabilitative services for special needs group. Five Home Care Nursing Teams were also approved from the New Policy Budget and the services will be piloted in Melaka dan Johor.

TABLE 12
Number of Health Clinics Which Implement the Expanded Scope of Primary Health Care Services by States, Malaysia, 2002

State	Programme											Quality Assurance			
	Mental	Elderly	Adolescent	Rehabilitation	Well Adult	Women's Health	Alternative Birthing Centre	Ultrasound	Workers Health	Home Nursing	FMS Training	Diabetes Mellitus	Asthma	Referral	Client Friendly Clinic
Perlis	9 (3)	9 (8)	9 (2)	6 (4)	0 (4)	9 (9)	1 (0)	3 (2)	9 (2)	9 (1)	0 -	9 (9)	9 (9)	9 (9)	9 (10)
Kedah	11 (14)	45 -	10 (7)	8 (6)	15 (23)	29 (31)	15 (11)	15 (14)	43 (14)	36 -	3 (3)	39 (37)	27 (38)	4 (1)	47 (29)
Penang	20 (6)	24 -	21 (13)	11 (7)	25 (19)	25 (29)	0 -	6 (5)	14 (8)	21 (15)	1 (2)	12 (16)	12 (12)	3 (6)	14 (28)
Perak	63 (54)	72 (78)	24 (24)	23 (23)	54 (40)	83 (52)	14 (12)	42 (16)	23 (33)	58 (28)	1 (0)	22 (10)	27 (0)	1 (1)	32 (6)
Selangor	15 (14)	23 (24)	6 (11)	13 (15)	15 (11)	25 (37)	4 (4)	21 (20)	9 (13)	19 (40)	5 (9)	20 (14)	9 (5)	4 (3)	26 (10)
Negeri Sembilan	6 (27)	6 (29)	2 (21)	4 (5)	1 (0)	5 (9)	3 (2)	5 (5)	1 (15)	3 (10)	2 (3)	6 (11)	6 (10)	4 (9)	6 (22)
Malacca	7 (5)	6 -	4 (4)	7 (4)	8 (5)	0 -	0 -	3 (7)	0 -	2 (0)	0 -	8 (6)	8 (4)	2 (2)	15 (14)
Johore	30	31	22	16	57	55	6	22	9	17	2	9	6	4	3
Pahang	42 (34)	58 -	44 (39)	38 (36)	51 (35)	61 (54)	37 (33)	20 (16)	41 (24)	0 -	2 (2)	54 (22)	53 (15)	0 (13)	58 (5)
Kelantan	41 (37)	43 (50)	29 (24)	38 (38)	13 (25)	39 (36)	19 (19)	21 (12)	18 (21)	40 (0)	4 (2)	21 (12)	14 (7)	6 (8)	17 (8)
Terengganu	28 (37)	38 -	33 (39)	21 (12)	34 (12)	34 (40)	22 (17)	22 -	18 (41)	15 (39)	3 (4)	35 (8)	38 (5)	32 (6)	41 (6)
Sarawak	0 (1)	1 -	0 (1)	5 (4)	1 (1)	23 (7)	15 (78)	5 (6)	1 (1)	0 -	0 -	1 -	1 -	0 -	23 -
Sabah	34		10	20	12	28	7	42	1	94	5	4	2	6	1

Note : ( ) figures for 2001

Routine Medical Examination for Civil Servant

The Government in 2002 announced the new policy on routine medical examination for public servants. Consequently a task force was formed to work out implementation issues. The Public Service Department (JPA) was invited to the workshop held in July 2002 at Renaissance Palm Hotel. This service has yet to be implemented as Ministry of Health awaits the Circular from JPA. The new routine medical examination process will emphasise on early screening and risk management.

Family Medicine Specialist (FMS)

The posting of Family Medicine Specialist (FMS) at health clinics has opened new opportunities to further develop primary health care services. Till December 2002, a total of 102 FMS are serving in health clinics throughout the country. Specialized care was introduced such as psychosocial rehabilitation, appropriate diabetic management, care for children with special needs, and quit smoking clinic. The existing staff was also trained to acquire special skill and knowledge to complement them in carrying out the services.

Sixty-four posts of U2 FMS have been approved so far. For year 2002, another 26 FMS were promoted making a total of 56 FMS with U2. Requests for 50 additional U2 posts were sent to JPA for approval. For Year 2002, 20 FMS has put up their application and been gazetted. The total number gazetted so far has come up to 80 (78.4%). Nine FMS were appointed to become assessors for the gazettement process.

The FMS has identified a few areas of sub specialty namely Community Mental Health, Community Geriatrics, Child Health, Women's Health, Rehabilitation, Non-Communicable Disease and Clinical Epidemiology. A paper on this will be submitted to the Training Division Ministry of Health for approval.

❒ Public Health Nursing

The scope of Public Health Nursing that has been centred on Maternal and Child Health Programme and Home Nursing has now been expanded to include various new health programmes.

For the year 2002, this section has strived to strengthen the formation of new policies and review existing ones involving the nursing staff at primary health care level. The role and functions of each category of nursing personnel at *Klinik Desa* and *Klinik Kesihatan* had been reviewed.

A few meetings, workshops and forum have been held which was actively participated by Primary Health Care Section to strengthen the role and functions of nursing personnel.

❒ Medical Assistants in Public Health

Medical Assistants have been involved directly in Primary Health Care services ever since the existence of health clinics in this country and they have rendered promotive, preventive, curative and rehabilitative services especially in rural health clinics. Recently, there has been a dynamic expansion in Primary Health Care Services and Medical Assistants, as primary health care providers, have played an important role in the efforts towards achieving the "Health For All" goal through "Primary Health Care". In 2002, the following activities were carried out successfully by the Family Health Development Division, Ministry of Health Malaysia.

Meeting of the Technical Committee of Medical Assistants (Public Health)

The formation of this technical committee is one of the strategies to enhance the involvement and contribution of Medical Assistants in Public Health Programs. This effort will enable the Ministry of Health, State Health Departments and District Health Offices to cooperate and find ways to enhance the services of Medical Assistants at the Primary Health Care level, which has not reached a satisfactory standard yet. With this approach we expect to identify problems faced by Medical Assistants in Primary Health Care and take positive measures to strengthen, expand and develop their careers in the Public Health Program. The first meeting for the year 2002 was held in Port Dickson from 4 - 6th February 2002 and was attended by 36 members of the Technical Committee and 20 other Medical Assistants currently working in Health Clinics.

Updates in HIV/AIDS/STD for Medical Assistants in Primary Health Care

This course was held from 17 – 19 February 2002 in Kuala Lumpur. The objective of the course was to give updates on the primary health care management of HIV/AIDS/STD patients to Medical Assistants working in clinics. A total of 62 Medical Assistants attended this course. Many of the participants showed keen interest in pursuing further training in HIV/AIDS counseling.

Workshop in Trauma and Emergency Care for Health Clinic Staff

A workshop in Trauma and Emergency Care was held in Ipoh from the 6 - 9 May 2002 and was attended by 40 Medical Assistants, 10 Nurses and 10 Medical Officers. The workshop included lectures by consultant surgeons, physicians and pediatricians followed by hands-on practical sessions. This workshop was well accepted by the participants and it was suggested to include Obstetric and Gynecology emergencies in such future workshops.

Meeting of the Technical Committee of Medical Assistants (Public Health)

This meeting was aimed at providing the latest information on the various programs and activities in Public Health that were relevant to Medical Assistants. Several current issues that required urgent attention by Medical Assistants were discussed, especially for the benefit of Medical Assistants who have just been promoted to more senior posts in the various State Health Offices. This meeting was held in Kuala Lumpur from the 20 – 23 May 2002 and was attended by 51 participants.

Workshop to Prepare Standard Operating Procedures for Medical Assistants - Part 2

A senior Public Health Specialist from the Family Health Development Division, Ministry of Health Malaysia, coordinated this workshop, attended by 42 senior Medical Assistants and 5 Family Medicine Specialists. The task was to prepare 20 new topics on Standard Operating Procedures for Medical Assistants in Primary Health Care - Part 2. In this workshop, held in Bangi from the 23 - 26 September 2002, the first draft was successfully prepared.

Workshop to review the draft of Standard Operating Procedures for Medical Assistants - Part 2

Twenty members of the Technical Committee of Medical Assistants (Public Health) were involved in the review of the draft copy of Standard Operating Procedures for Medical Assistants in Primary Health Care - Part 2. This workshop was held from the 14 - 15 October 2002 in the Family Health Development Division, Ministry of Health. Following the review, it was decided to send out the draft document to the clinicians in hospitals and also Family Medicine Specialists for their comments before printing and distributing to all states in 2003.

Diabetes Management Course for Medical Assistants

In conjunction with the launching of the National Diabetes Day by the Honorable Minister of Health Malaysia, a course was held from 12 – 14 December 2002 in Kota Bharu, Kelantan for Medical Assistants working in Health Clinics with the objective of giving them updates and knowledge on the National Diabetes Program besides emphasizing their specific roles and functions in the management of diabetes clinics. A total of 40 Medical Assistants chosen from all states attended this course.

Meeting of the Technical Committee of Senior Medical Assistants (Public Health)

This meeting was held from the 26 - 27 December 2002 in the Family Health Development Division, Ministry of Health and was attended by 25 Medical

Assistants. The roles and responsibilities of the members of this technical committee was emphasized and all states prepared their plan of action for the development of Medical Assistants in Primary Health Care for the year 2003. It is hoped that, with the cooperation and support from the State Directors of Health, the quality of services provided by Medical Assistants in Primary Health Care will be further improved.

❒ Infrastructure, Support Services and Information Technology for the Primary Healthcare

Physical Facility for the Primary Healthcare

By 31st December 2002, the total number of primary healthcare facilities was 858 health clinics, 94 maternal and child health (MCH) clinics, 1,934 community clinics and 168 mobile clinics. Reduction in number of MCH clinics was due to the integration of the service into the health clinic. The distribution of primary healthcare facilities under the Ministry of Health in 2001 is as shown in Table 13.

TABLE 13
Distribution of Primary Healthcare Facilities under the Ministry of Health, by State, Malaysia, 2002 and 2001

States	Health Clinics	Maternal and Child Health Clinics	Community Clinics	Mobile Clinics
Perlis	9 (9)	1 (1)	30 (30)	0 (0)
Kedah	56 (54)	7 (9)	220 (225)	0 (0)
Penang	30 (30)	6 (6)	62 (62)	0 (0)
Perak	81 (81)	7 (7)	249 (253)	8 (17)
Selangor	59 (59)	8 (11)	133 (136)	0 (4)
Negeri Sembilan	38 (38)	5 (5)	104 (104)	1 (2)
Malacca	28 (27)	1 (1)	62 (63)	1 (1)
Johore	90 (89)	3 (6)	270 (270)	0 (2)
Pahang	65 (67)	8 (8)	246 (246)	19 (19)
Terengganu	42 (43)	2 (2)	131 (134)	0 (1)
Kelantan	58 (58)	3 (3)	200 (200)	11 (11)
Sarawak	196 (195)	24 (23)	21 (22)	120 (120)
Sabah	90 (90)	18 (18)	195 (195)	8 (8)
FT – Kuala Lumpur	15* (14)	0 (0)	0 (0)	0 (0)
FT – Labuan	1 (1)	1 (1)	11	0 (0)
Malaysia	**858 (855)**	**94 (101)**	**1,934 (1,940)**	**168 (185)**

( ) denotes number in 2001. * including Putrajaya
Source : Information and Documentation System Unit, Ministry of Health

A number of newly developed or upgraded health clinics start operation in 2002. Among of them were KK Greentown, KK Gunung Rapat and KK Sitiawan (Perak), KK Ayer Keroh, KK Durian Tunggal and KK Selandar (Melaka), KK Ayer Hangat (Kedah), KK Serendah (Selangor), KK Maharani, Kempas and Mengkibol (Johor), KK Jengka (Pahang) as well as KK Seri Langkap and KK Rahmat (Terengganu).

Pathology Service

Tremendous progress was achieved in pathology service in the primary healthcare facilities. Table 14 shows increasing trend in the number of laboratory tests done in those facilities. Main laboratory test done in the health clinics are biochemistry and microbiology. Cytology tests done in the health clinics are pap smear screening and pap smear speciment preparation.

TABLE 14
Number of Laboratory Tests done at the Primary Healthcare Facilities, Malaysia, 1998-2002

State	1998	2000	2001	2002
Perlis	134,590	250,629	291,957	405,238
Kedah	519,063	581,572	914,467	940,269
Penang	190,383	359,641	425,001	579,426
Perak	680,319	na	878,685	1,289,670
Selangor	1,429,027	849,225	1,023,668	na
Negeri Sembilan	393,005	383,452	445,048	811,801
Malacca	304,255	407,094	478,480	520,434
Johore	800,171	992,429	1,009,390	1,345,954
Pahang	555,931	570,646	603,138	651,105
Terengganu	509,046	447,813	679,227	565,981
Kelantan	618,455	1,063,183	1,265,039	719,163
Sarawak	207,039	206,312	270,908	1,395,693
Sabah	286,656	419,294	649,910	na
FT - Kuala Lumpur	1,626,648	1,689,816	na	na
FT - Labuan	-	-	-	45,938
Total	**8,254,588**	**8,221,106**	**8,934,918**	**9,270,672**

Note : *Data for 2001 and 2002 is not complete. na = no data available
Source : Information and Documentation System Unit, Ministry of Health, except for the year 2002

This trend was in line with improvement in laboratory equipment and staffing. Number of health clinics with upgraded laboratory was increasing. For example, in the year 2002, the number of 'automated chemistry analyser' and 'automated hematology analyser' in health clinics were 115 and 156 or 13 and 18 percent of total number of health clinics, respectively. The number of medical laboratory technologists working in health clinics in 2002 was 448.

Pharmacy Service

Pharmacy service in the primary healthcare facilities has expanded tremendously in the year 2002. The number of prescription handled by the pharmacy counters in the health clinics was increasing tremendously. In Perak, number of prescriptions increased by 56.02% while number of item dispensed by the public health facilities was increased by 33.06% respectively. During the same period, the drug and non-drug expenditure were also increased by 127.08% and 33.05%. List A drugs consists of 7.17% of the total drug expenditure in the year 2002 in Perak. The average number of items per-prescription was 2.42 while the drug cost per-prescription was RM5.97.

Through the New Policy mechanism, additional allocation for the purchase of List A drugs was distributed to health clinics throughout the country. Total allocation for List A drug by 2002 was RM 10.3 million. At the same time, the number of List A drugs approved for use in health clinics increased to 97 in 2002, compared to 86 in the previous year.

Number of pharmacy units upgraded with new equipment such as tablet counting machine, liquid filling machine, labelling guns and pharmaceutical refrigerator was also increased.

The progress of this service was also seen in human resource. In 2002, the number of pharmacists posted to health clinics was 27, increased by 92.30% compared to the previous year. They are responsible for the pharmacy service in the district.

Diagnostic Imaging Service

There was tremendous progress made in 2001 for this service. The number of x-ray examination done in the health clinics was increased. More than half were done for routine medical examination (RME). Among the diagnostic examination, limb and chest x-ray were the most frequently done.

TABLE 15
Number of Prescription and Expenditure in the Primary Healthcare Facilities of Selected States, Malaysia, 2002

State	Prescriptions		Expenditure (RM)			Total
	No Prescriptions Dispenced	No Item Dispensed	Drugs		Non-drugs	
			List A	Total		
Perlis	320,578	859,741	253,612	1,563,450	112,694	1,676,144
Kedah	1,571,291	6,029,398	845,639	5,893,597	942,007	6,835,604
Penang	905,819	2,092,609	860,063	3,863,753	331,227	4,194,980
Perak	2,440,653	5,896,357	1,046,631	14,582,336	1,661,747	16,244,084
Selangor	5,238,341	14,878,105	3,005,946	25,903,138	3,047,676	28,950,814
Malacca	360,164	937,848	53,742	2,621,803	233,171	2,854,975
Negeri Sembilan	669,355	2,991,130	1,209,114	561,276	5,912,781	1,152,554
Johore	1,164,875	3,433,806	na	1,267,944	402,240	1,670,185
Kelantan	1,710,494	6,018,119	743,295	8,274,123	9,770,553	18,044,676
Terengganu	1,128,048	3,300,543	781,089	6,591,173	757,560,31	7,348,733
Sarawak	1,145,842	3,316,398	0	9,815,116	544,544	10,359,660
FT - Kuala Lumpur	828,093	1,295,291	0	10,924,940	7,725,526	11,697,492
FT - Labuan	53,441	137,430	10,050	405,643	104,479	510,122
Total	**17,536,994**	**51,186,775**	**8,809,181**	**92,268,292**	**31,546,205**	**111,540,023**

Source : Pharmacy Service Division, Ministry of Health

The number of health clinics with diagnostic imaging facility was also increased to 120. Sixty seven (53.04%) units were *WHIS-RAD* or *BRS* type while the rest were conventional type. The progress on this service is shown in Table 16.

In the same year, there were 67 Radiographers (Diagnostic) working in the health clinics compared to only 52 in the previous year (or 28.8% increment). They filled 78% of total posts for primary healthcare facilities.

Maintenance Service for Public Health Facilities

The outsourcing of maintenance service for public health facilities was started in 2002. A steering committee was formed in the headquarters to monitor the implementation, chaired by the Deputy Director General of Health (Public Health).

TABLE 16
Number of Diagnostic Imaging Units in Health Clinics, Malaysia, 1998-2002

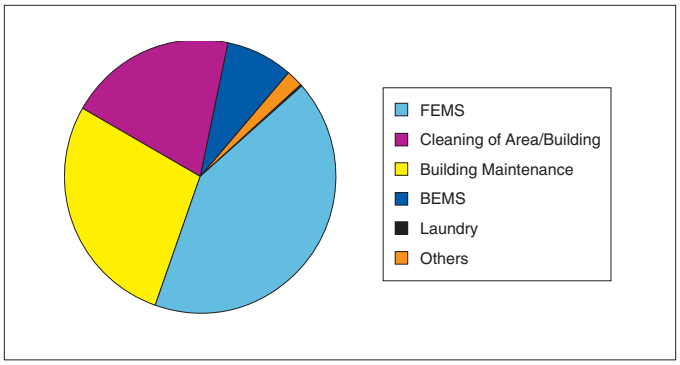
State	1998	1999	2000	2001	2002
Perlis	1	1	1	2	2
Kedah	5	5	7	9	11
Penang	3	3	3	4	7
Perak	4	4	7	7	16
Selangor	6	6	11	11	13
Negeri Sembilan	6	8	9	11	13
Malacca	2	2	3	3	7
Johore	5	5	5	8	9
Pahang	1	1	1	3	4
Terengganu	2	3	4	5	6
Kelantan	2	3	4	10	5
Sarawak	9	10	10	20	20
Sabah	1	4	4	5	5
FT - Kuala Lumpur	0	0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

The facilities covered in this activity are health clnics, community clinics, maternal and child health clinics, dental clinics, health offices and training school/colleges. Total alocation distributed to states in 2002 was RM60.5 millions. Services included in this activity are :

i) Mechanical and Electrical Engineering Maintenance Service (FEMS)
ii) Biomedical Engineering Maintenance Service (BEMS)
iii) Cleaning of Building and Area Service
iv) Building Maintenance Service
v) Laundry Service.

All states expended more than 94% of their respected allocation. The distribution of expences is shown in the Figure 7. Most of the allocation was spent for the cleaning and maintenance of building and area, followed by the mechanical and electrical engineering maintenance service.

FIGURE 7
Distribution of Expenditures Allocated for Maintenance Services in Selected States, Malaysia, 2002



ICT INITIATIVES

Family Health Information System

The pilot project was started in 1997 with the requirement study and system design conducted by the Ministry's Information Technology Centre (PTM). Network and hardwares were installed in 1998 and application development was outsourced on the same year.

The Family Health Development Division together with Perlis State Health Department (JKNPs) and PTM conducted a study on the progress of the pilot project in the middle of 2002. It involved interviews and discussions with stakeholders at the management and end-users level.

The study concluded that :

i) The network developed for the project was out-dated and being upgraded and integrated into the HMIS network by PTM on 2002.
ii) The hardwares installed for the project were also outdated and PTM is planning to upgrade them.
iii) The development of application system was not completed, but the content is still relevant for future application development for family health activities.

Lifetime Health Record

This project had been approved in the year 2000. Pilot project on the use of this paper-based record system was carried out in 4 districts, namely Jempol (Negeri Sembilan), Besut (Terengganu), Larut-Matang-Selama (Perak) and Miri (Sarawak) for 6 months starting from June 2001. A total of 10,307 people from

about 2000 families were involved in the study. They were selected randomly. The RKSH book was handed over to each of them. Beside that, promotional and educational materials, as well as, special training sessions for the public were carried out at the selected health facilities.

Evaluation was conducted from January to April 2002. For this purpose, 16 research assistants and 50 data collectors were recruited for the four districts. They were trained in the end of 2001. Study was done by quantitave and qualitative methods, through interviews and Focus Group Discussion with samples from public and health staff (from public and private sectors). Reviews on the recollected RKSH books were also done. Report of the evaluation is being prepared and will be presented to the relevant authorities by 2003.

PLHP Implementation Committee

The Implementation Committee on Personalised Lifetime Health Plan (PLHP), which was launched on 13 December 2001 and chaired by the Deputy Director General of Health (Public Health) has met twice in 2002. The committee identified critical issues in the implementation of PLHP, among others are :

i) Planned and proper change management is vital for the implementation and acceptance of ICT projects, such as PLHP.
ii) End-users need study is also an important aspect before such application being developed and enrolled.
iii) Availability of hardware and network/telecommunication infrastructure shall be at optimal level to meet the needs of the healthcare facilities.

Besides studies, dialogues, consultations and training, the committee had also successfully obtained the budget to acquire additional hardware and networking infrastructure for healthcare facilities in one of the pilot district, Hulu Langat. As a result, the use of the system was increased significantly.

The Director General of Health Quality Awards on Counter Service

For the second year, this division coordinated the Director General of Health Quality Awards on Counter Service. Two categories involved in the competition, i.e. health clinic and hospital counters. Evaluation was based on observation by jury panel and interview with clients. Recipients for 2002 are as in Table 17.

Training

The first annual scientific meeting for Medical Laboratory Technologists working in health clinics was conducted on 25-27 October 2002 in Melaka. 56 MLT's from all over the country attended the meeting.

TABLE 17
Recipients of the Director-General of Health Quality Awards on Counter Service, Malaysia, 2002

Position	Health Clinic	Hospital
First	Tampin Maternal and Child Health Clinic, Negeri Sembilan	Hospital Sipitang, Sabah *(Follow-up Clinic registration counter)*
Second	Klinik Kesihatan Bedong, Kedah *(Dental Clinic counter)*	Hospital Teluk Intan, Perak *(Medical Outpatient Clinic center)*
Third	Klinik Kesihatan Labuan, Sabah *(Dental Clinic counter)*	Hospital Port Dickson, Negeri Sembilan *(Accident and Emergency Unit counter)*

The first annual scientific meeting for Pharmacists and Assistant Pharmacists working in health clinics was conducted on 25-27 June 2002 in Kuantan, Pahang. 28 Pharmacist and 34 Assistant Pharmacist from all over the country attended the meeting.

OPERATIONAL POLICY

Pilot Project : Private General Practitioners Services at Health Centres

A pilot project to procure services of private general practitioners at health centers was carried out in 2002 for a period of 3 months. This project was initiated to overcome the problem of manpower shortage at health centers. It is also an effort by the government to encourage active participation of the private sector in the delivery of health services especially in the rural areas.

The private General Practitioners treated a total of 6,936 (15.6%) cases during the period of the pilot project. Percentage of cases seen varied from State to State depending on several factors such as the number of Health Staff available at the Health Centres, workload, location of clinic and working hours as agreed by the General Practitioners themselves. Table 18 gives the breakdown of cases by State.

TABLE 18
Total Number of Cases Treated by Private General Practitioner by State, 2002

State	Total Cases Treated by GP		Total Cases Seen at the Clinic
Malacca	2,568	(26.9 %)	9,543
Kelantan	873	(15.4%)	5,654
Kedah	251	(6.9%)	3,664
Penang	3,244	(11.7%)	27,697
Grand Total	**6,936**	**(15.6%)**	**46,558**

The overall response to this project was not very encouraging. Several factors contributed to this poor response, but the most striking one is the low rate of payment. However, the actual cost borne by the Ministry is actually quite low compared to paying a full time medical officer. The workload on existing staff was reduced by the presence of these private General Practitioners. Due to the poor response and the short time period, it was decided to prolong the pilot project into 2003.

TRADITIONAL/COMPLEMENTARY MEDICINE (T/CM)

A Technical Working Group was formed and has met twice. The meetings were held from 10 – 12th January 2002 in Shah Alam, Selangor and between 24 – 27th June 2002 at Kuantan, Pahang. Concept paper and draft for the Act have been prepared. Till 31st December 2002, all umbrella bodies have submitted the registration list once. The total number of practitioners registered was 3,557. By 31st December 2002, 58 applications related to T/CM have been received, in which 91.4% were to bring in expatriates, 5.2% for opening business premises and 3.4% for company registration. Applications related to Traditional Chinese Medicine amounted to 67.2%, Traditional Indian Medicine 19% and Complementary Medicine 13.8%. Out of 58 applications that were received, 62% were approved, 19% rejected and 6.9% were still pending feedback from umbrella body.

An International Conference on T/CM (INTRACOM 2002) was organized at Sunway Pyramid Convention Center from 14 – 16th October 2002. The theme was "Paradigm Shift Towards Integrated Medicine". There were 300 participants to this conference, which was officiated by the Minister of Health.

Ministry Of Health and PUTRAMAS had jointly organised a seminar for Traditional Malay Medicine on 20th September 2002 at PWTC. It was officiated by the Deputy Minister of Health. This was followed by a workshop from 21st – 22nd September 2002, in which 100 practitioners were assisted to document the different practices under Traditional Malay Medicine. Facilitators from various Universities helped to conduct the workshop. A delegation of 48 people comprising Ministry officials, representatives from umbrella bodies, universities, and manufactures headed by the Minister of Health Malaysia made a study tour to Yangon, Myanmar. The itinerary included visits and briefings at the Department of Myanmar Traditional Medicine, Traditional Hospital, Department of Medicinal Research and Pharmaceutical Factory.

HEALTH CLINIC ADVISORY PANEL

The Technical Committee was formed and had their first meeting on 16th May 2002. It was chaired by Director of Family Health Development Division and represented by State Health Officers and Advisory Panel from all states. A new format for reporting has been given to all states. However only 5 states i.e. Perlis, Perak, Selangor, Malacca, Terengganu and Sarawak have sent in their yearly returns using the new format.

QUALITY ASSURANCE PROGRAMME

The four new indicators in Primary Healthcare, which was launched in 1999, were :

- Appropriate Management of Asthma
- Appropriate Management of Diabetes
- Appropriate Referral Admission to Medical Ward
- Client Friendly Clinic

The response has been encouraging where almost all states had implemented the new indicators. However there were some confusion in the methodology and analysis. Therefore, PHC had reviewed all the manuals and in January 2002, all states have been briefed on the revised version that included software for data collection and analysis. However due to problems in the use of the software the states have not been able to submit returns for the year 2002. Steps are being taken to rectify this problem. Eight states i.e. Perlis, Penang, Selangor, Malacca, FT Kuala Lumpur, Pahang, Terengganu, Kelantan, Sabah and Sarawak did send their reports using manual forms.

STANDARD OPERATING PROCEDURES (SOP)

Development of Standard Operating Procedures (SOP) is another effort to improve service quality. The document has two-pronged objective; be a fast and effective reference by various level of staff at the ground in carrying out their duties and be an important tool towards integrating services effectively. The Primary Health Care section had also actively coordinated SOP development by other divisions/sections such as family health, nutrition and disease control. The SOP for Family Health Development Division is in the final draft and is planned for printing in 2004.

NUTRITION

Nutrition activities continued to be carried out in all the health facilities. The target groups for these activities are in line with that of the Family Health Services. The nutrition activities were grouped into three areas, namely Programme Planning and Development, Promotion and Rehabilitation.

Programme Planning and Development had focused on the review of the National Nutrition Surveillance System and activities under the National Plan of Action for Nutrition in Malaysia (NPANM). Nutrition promotion had focused on the promotion of breastfeeding, nutrition training and planning for the Healthy Lifestyle Campaign (HLC). The theme of HLC for this year is **"Promotion of Healthy Environment"**. The nutrition rehabilitation activities included the provision of food baskets to undernourished children from poor families, while the salt iodisation and water iodination activities were implemented to prevent and control iodine deficiency disorder (IDD).

Nutrition Planning & Development

This section is responsible for the future direction in the development and management of nutrition services as well as in the development of National Nutrition Policy. Other responsibilities of the section include planning and career development of Nutrition Officers and training for the nutrition services.

The National Plan of Action For Nutrition Malaysia (NPANM)

The National Coordinating Committee for Food and Nutrition (NCCFN) continued to coordinate and monitor the implementation of the National Plan of Action for Nutrition. Reflecting the multi-sectoral involvement in NPANM, the members comprised of several ministries and NGOs. The secretariat for NCCFN is Nutrition Section of the Family Health Development Division of the Ministry of Health. Four Technical Working Groups (TWG) have been set up at the national level to assist in the implementation of the activities in the NPANM. They are the TWGs for Training, Research, Dietary Guidelines and Policy.

Role of NGOs in Nutrition

The Nutrition Society of Malaysia (NSM), The Malaysian Association for the Study on Obesity (MASO) and The Malaysian Dietitian Association (MDA) are the non-governmental organizations which have been actively involved with nutrition related activities under the NPANM. They had been given allocations to carry out nutrition promotion activities. Such activities include the development of two recipe books "Healthy Recipes, a Wise Choice" Volume 1 and Volume 2 which were produced by NSM in collaboration with the Ministry of Health. In 2002 the NSM had conducted several nutrition promotion activities in various communities

through its road shows. MASO is actively involved in the development of a guideline on Obesity Prevention. MDA had continued its participation in several nutrition activities this year such as in the launching of The World Health Day and The Nutrition Month.

Nutrition Surveillance

The Ministry of Health monitors the nutritional status of children through the Nutrition Surveillance System (NSS). The system uses weight attainment for age as an indicator of nutritional status of children aged less than five years who attended the government health clinics. The National Center for Health Statistics (NCHS), which is a standard for international comparison is used as a reference.

For 2002, the percentage of children with moderate underweight is 11.3% and 0.8% for severe underweight as shown in Table 19. The proportion of children with underweight (moderate and severe) varies in different states. Pahang and Kelantan showed the highest percentage of severe and moderate undernutrition, 20.1% and 16.1% respectively, while Federal Territory and Johor showed the lowest rate, 4.2% and 4.6% respectively.

Nutrition Promotion

The Nutrition Promotion Section is responsible for planning, developing and monitoring nutrition promotion activities based on the concept "Healthy Eating". It also focuses on breastfeeding promotion and implementation of the "Baby Friendly Hospital Initiative".

World Breastfeeding Week (1 – 7 August 2002)

The World Breastfeeding Week themed " Breastfeeding: Healthy Mothers and Healthy Babies" was successfully launched by the Honorable Minister of Health Malaysia at the Pantai Medical Centre, Kuala Lumpur on 1st August 2002, which was organized by the Malaysian Breastfeeding Association (PPPIM). Various activities were co-organized and implemented during the week throughout the country.

Baby-Friendly Hospital Initiative (BFHI)

Till December 2002, 113 out of 115 (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 being undertaken. Until December 2002, 85 baby-friendly hospitals were reassessed. The Baby-Friendly Hospital Initiative Recognition Committee met once in November 2002 to evaluate the reassessment exercise. On November 2002, Kinabatangan Hospital, Sabah, which is a new government hospital, gained the status of Baby-friendly Hospital.

TABLE 19
Nutritional Status of Children Aged Less Than Five Years by State, Malaysia, 2002

State	Number of Children Weighed	Nutritional Status of Children (weight for age)			
		Over Weight (%)	Normal Weight (%)	Moderate Underweight (%)	Severe Underweight (%)
Perlis	2,523	4.4	80.4	14.7	0.6
Kedah	25,676	3.1	83.7	12.5	0.7
Penang	17,762	2.8	85.6	11.2	0.5
Perak	25,603	1.2	88.2	9.7	0.9
Selangor	47,117	3.8	86.1	9.6	0.3
FT Kuala Lumpur	1,429	8.3	87.5	3.9	0.3
Negeri Sembilan	10,842	3.4	85.0	10.7	0.9
Malacca	10,441	1.4	92.6	5.9	0.1
Johore	33,639	1.7	93.5	4.6	0.1
Pahang	20,629	3.6	76.3	18.7	1.4
Terengganu	16,207	4.7	84.0	10.8	0.5
Kelantan	27,381	3.9	79.9	15.1	1.0
Sabah	32,292	2.1	86.1	10.6	1.2
Sarawak	51,044	2.4	82.5	13.4	1.7
Malaysia	**322,585**	**3.0**	**84.8**	**11.3**	**0.8**

Source : Information and Documentation System Unit, Ministry of Health

In addition, several training sessions were conducted for health personnel to ensure the **10 STEPS TO SUCCESSFUL BREASTFEEDING** are practised and maintained. The Family Health Development Division and Public Health Institute (IKU) jointly conducted training sessions on Breastfeeding Counseling Course for health personnel and National Assessor Training for Baby-Friendly Hospital.

Code of Ethics for Infant Formula Products

The Code of Ethics for Infant Formula Products in Malaysia was first introduced on 1st July 1979 upon the initiative taken by the Ministry of Health, with the co-operation of the infant formula industry. The aim of this Code is to assist in the provision of safe and adequate nutrition among Malaysian infants by the protection and promotion of breast feeding and to ensure adequate standards and proper use of Infant Formula Products when required. The Code covers the basic principles of marketing and product information for all Infant Formula Products (including

feeding bottles and teats) in Malaysia. It also provides guidelines on ethical practices for the Infant Formula Industry and medical and health professionals in the health care system.

- ***Implementation***

  Three committees have been set up at federal level to preside over the implementation of the Code. They are the National Committee on the Code of Ethics for Infant Formula Products, the Vetting Committee on the Code of Ethics for Infant Formula Products and the Disciplinary Committee on the Code of Ethics for Infant Formula Products.

- ***Vetting of Materials Related to Infant Formula Products***

  In 2002, the Vetting Committee on the Code of Ethics for Infant Formula Products received 217 materials related to Infant Formula Products, of which 77 were new submissions and the rest consisted of materials resubmitted after amendments were done on them. 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. Of the total number of submissions, 128 were product labels (including metallic lid printing), 7 were can inserts, 42 were educational materials related to infant formula products for medical and health professionals (in the form of leaflets, booklets and articles taken from press publications), 3 were medical advertisements meant for placement in medical journals and 2 were brochures for distributors. Besides these, a formula preparation instruction chart and a product catalogue for medical professionals were also received. A total of 85 approval codes were issued this year, both for new materials received this year as well as some new materials received in 2001.

- ***Violation of the Code of Ethics for Infant Formula Products***

  This year, the Disciplinary Committee on the Code of Ethics for Infant Formula Products received complaints on 11 activities, which possibly violated the Code of Ethics for Infant Formula Products. All of these complaints were brought to the Disciplinary Committee Meeting. These activities involved 6 Infant Formula companies. The Disciplinary committee decided that 5 of these complaints were confirmed violations, and the companies involved were given warnings. Activities of confirmed violations included the distribution of gift bags and educational materials, which contain logos of Infant Formula Products, distribution of free samples of Infant Formula Products to medical and health professionals and marketing Infant Formula Products without an approval code.

❒ ***Monitoring of the Code of Ethics for Infant Formula Products at state level***

As an aftermath to the meeting on the monitoring of the Code of Ethics for Infant Formula Products in 2000 and the setting up of monitoring teams at the state level, the Disciplinary Committee on the Code of Ethics for Infant Formula Products received monitoring reports from Selangor, Perak, Penang and Sabah.

❒ ***Revision of the Code of Ethics for Infant Formula Products***

The Code of ethics was first printed and implemented in 1979 and revised three times in 1983, 1985 and in 1995. To keep in line with the current developments in marketing practices amongst the Infant Formula Industry, and to close several existing loopholes present in the application of the Code, it was felt that another revised version of the same was thoroughly necessary. Following an initial proposition exercise to amend the Code in 2000, a meeting-cum-workshop was held at the Grand Blue Wave Hotel, Shah Alam from 18-21 November 2002. Several improvements to the Code were suggested during the workshop which included coverage of childcare facilities and the marketing of all forms of food marketed for infants. The revised draft of proposed amendments will be further discussed and clarified in several forums in 2003, before the final version of the Code is printed.

Nutrition Rehabilitation

The nutrition rehabilitation unit is responsible for developing, planning, coordinating and evaluating intervention programmes to prevent and control malnutrition. Its primary targets are pregnant mothers and children. In 2002, the two main programmes this section had implemented were: the Nutrition Rehabilitation Programme for Undernourished Children, also known as Food Basket Programme and the Prevention and Control of Iodine Deficiency Disorder (IDD).

❒ ***Nutrition Rehabilitation Programme for Malnourished Children***

In 2002, 7,043 children from all states in Malaysia, including those in Federal Territory of Kuala Lumpur, were recipients of the Food Basket Programme (Table 20). Out of these 7,043 children, 5,017 had started receiving the food baskets from previous years, and 2,026 were new recipients who had begun receiving their food baskets in 2002. The new recipients of the 2002 Food Basket Programme comprised 55.5 % severely underweight children (weight-for-age more than 3 SD below the median of NCHS), 41.5 % moderately underweight children (weight-for-age between 2SD – 3SD below the median of NCHS), 1.3 % with clinical signs and symptoms of malnutrition and 1.9 % were those chronically-ill.

TABLE 20
Distribution of the Food Basket Program Recipients by States, 2002

States	Number of new recipients (1)	Total numbers of recipients for the year (2)	Number of recipients stopped in 2002 (3)	Number of recipients still receiving food basket in December 2002 (2-3)
Perlis	10	69	20	49
Kedah	33	197	68	129
Penang	4	67	19	48
Perak	177	808	245	563
Selangor	62	112	24	88
Negeri Sembilan	31	99	29	70
Malacca	10	34	14	20
Johore	5	21	8	13
Pahang	124	436	116	320
Terengganu	44	354	123	231
Kelantan	217	989	222	767
Sabah	647	2,099	572	1,527
Sarawak	658	1,854	674	1,180
FT Kuala Lumpur	4	14	2	12
Malaysia	**2,026**	**7,153**	**2,136**	**5,017**

Source : Information and Documentation System Unit, Ministry of Health

Throughout 2002, 2,136 children had stopped receiving the food basket. Out of the 2,136 children terminated from the programme, 1,019 (47.7 %) were rehabilitated, 520 (24.4 %) had gone to school and 597 (27.9 %) due to other reasons, such as relocation, death, refusal and family no longer considered poor. There were 5,017 children still receiving the food basket on 31 December 2002.

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

❒ *Iodine Deficiency Disorders (IDD) in Malaysia*

The Government of Malaysia is fully committed to the elimination of iodine deficiency disorders (IDD) in this country. In 1994-1996, the Ministry of Health Malaysia had conducted a National IDD survey of school children.

UNICEF funded this survey. In this survey, the country was divided into 3 regions that comprised Peninsular Malaysia, Sabah and Sarawak. Thyroid volume was measured by ultrasound. Using the provisional WHO/ICCIDD reference, the goitre prevalence was 2.2% in Peninsular, 18.0% in Sabah, and 0.7% in Sarawak. The median urinary iodine level was 82.2 μg/litre in the Peninsular, 66.0 μg/litre in Sabah and 126.0 μg/litre in Sarawak.

Interventions for prevention and control of IDD in Malaysia employed several strategies such as Mandatory Universal Salt Iodisation in the state of Sabah, Mandatory Salt Iodisation in sixteen endemic districts and three sub-districts in Sarawak, in addition to the iodisation of the water supply in villages and schools located in remote area in various states, distribution of iodised salt to pregnant women living in endemic areas, and health education on food choices and preparation.

Monitoring of urinary iodine among school children 8-10 years is being carried out in the state of Sabah. The result of state level monitoring in the year 2002 among 771 school children, showed that the median urinary iodine level was 240.0 μg/litre. This indicates a significant improvement of the IDD situation in Sabah as well as the effectiveness of the salt iodisation programme. Individual district level monitoring in 2002 also showed that all nine priority districts (Kota Belud, Ranau, Pitas, Kota Marudu, Keningau, Tenom, Tambunan, Nabawan and Kinabatangan) recorded median urinary iodine level above 150.0 μg/litre.

Anaemia among Pregnant Mothers

The level of haemoglobin (Hb) in the blood is being used as an indicator of anaemia among pregnant women who attended government clinics. Data is based on Hb level at 37 weeks gestation. There was a small decrease in the percentage of severe anaemia (Hb less than 9 gm%), from 2.9 % in 2001 and to 2.8% in 2002. Moderate anaemia (Hb 9 – <11 gm%) also decreased from 25.7% in 2001 and to 24.4% in 2002 (Table 21). Pahang, Selangor and Sabah had the highest percentage of anaemia. From 1999 onwards, Hb reading was taken at 36 weeks gestation. But before that year, Hb reading was taken at any time of gestation when Hb level reached below 11 gm%.

In 2002, the HMIS format for Hb status among pregnant mothers was revised to include the indicator for normal Hb level, which is ≥ 11 gm%. This format was revised because not all pregnant mothers were screened for Hb status at 36 weeks of pregnancy. Therefore, it was felt that using a denominator that referred to new cases of pregnancy was not accurate. A more suitable denominator would be the total number of pregnant mothers with known Hb status, that is Hb < 9 gm%, Hb 9 - < 11 gm% and Hb ≥ 11 gm%.

TABLE 21
Haemoglobin Levels among Pregnant Mothers Attending Health Clinics, Malaysia, 2000-2002

State	Hb < 9 gm% % (No.)			9- < 11 gm% % (No.)		
	2000	2001	2002	2000	2001	2002
Perlis	2.1 (83)	1.5 (57)	1.6 (63)	13.1 (527)	8.9 (340)	6.5 (254)
Kedah	2.2 (754)	1.6 (517)	1.0 (321)	19.1 (6,667)	17.3 (5,663)	15.1 (4,778)
Penang	3.2 (616)	2.8 (526)	1.4 (267)	17.7 (3,451)	13.9 (2,650)	10.2 (1,977)
Perak	2.3 (755)	2.9 (859)	2.6 (781)	17.5 (5,644)	22.5 (6,629)	25.0 (7,279)
Selangor	3.4 (1,836)	2.9 (1,511)	3.6 (1,989)	46.8 (25,023)	40.6 (21,224)	35.6 (19,669)
Negeri Sembilan	5.1 (737)	5.8 (806)	5.2 (742)	33.4 (4,822)	31.1 (4,355)	29.1 (4,109)
Malacca	2.0 (235)	2.0 (222)	2.6 (293)	25.3 (2,965)	27.1 (3,051)	28.2 (3,137)
Johore	2.3 (1,338)	1.9 (958)	1.0 (493)	24.9 (14,339)	20.6 (10,633)	15.4 (7,893)
Pahang	4.0 (1,002)	5.7 (1,345)	6.3 (1,489)	44.9 (11,371)	42.2 (9,881)	42.5 (9,938)
Terengganu	0.5 (103)	0.5 (97)	0.7 (140)	6.9 (1,531)	5.8 (1,236)	13.0 (2,715)
Kelantan	1.2 (380)	1.2 (354)	1.2 (371)	13.6 (4,312)	9.4 (2,863)	9.2 (2,721)
Sabah	5.7 (3,483)	4.4 (2,647)	4.5 (2,415)	46.5 (28,198)	32.6 (19,635)	32.2 (17,156)
Sarawak	3.0 (1,617)	3.0 (1,328)	3.1 (1,392)	33.7 (18,128)	29.4 (12,931)	29.4 (12,904)
FT Kuala Lumpur			1.6 (34)			7.9 (163)
Malaysia	**3.1 (12,939)**	**2.9 (11,227)**	**2.8 (10,790)**	**30.1 (126,978)**	**25.7 (101,091)**	**24.4 (94,693)**

Source : Information and Documentation System Unit, Ministry of Health

Others

Telehealth Project

The Nutrition Section was involved in the content development of the nutrition component for the Telehealth Project. Three workshops were conducted in 2002 to develop the nutrition content for the lifetime health plan of various age groups including infants and children, adolescents, male and female adults, elderly and pregnant women. The preparation of the content had also involved both Nutrition Officers at State and Ministry levels and Dietitians.

Nutrition Resource Center

The Nutrition Resource Center has been established since 1997. It functions as a reference center for nutrition information. This unit is also responsible for compiling and distributing various information on nutrition to all staff of this division and the general public.

Activities and Achievements

The main function of this unit is to coordinate the subscription of various journals, soft ware, and all relevant nutrition materials. It manages the development and printing of pamphlets, booklets, posters and nutrition education materials for yearly "Healthy Lifestyle Campaign". Besides, this unit also handles requests from state officers on nutrition information. Presently, this Center provides useful nutrition information through its yearly Nutrition Bulletin. Several journals have also been subscribed by this unit include *The American Journal of Clinical Nutrition, American Journal of Epidemiology and American Journal of Public Health.*

By the year 2002, this center had purchased two units of a computer software (The Nutritionist Pro version 1.3) to be used for the analysis of data on "The Malaysian Food Consumption Survey 2002/2003". The software for spelling correction and thesaurus in Bahasa Melayu (The Dewan Eja version 3000) was purchased for several users.

Disease Prevention and Control

INTRODUCTION

THE Disease Control Programme in the Ministry of Health began since 1961 through vertical disease control programmes such as the National Tuberculosis Disease Control Programme (1961), the Malaria Eradication Programme (1967) and the National Leprosy Control Programme (1969). In 1971 an epidemiology unit was established under the Health Services Division. This unit focuses on Communicable Disease Control Programmes based on the current epidemiology pattern of communicable diseases. In 1985, the restructuring of the control programmes of malaria and other vector borne diseases led to the programme's name being changed to Vector Borne Disease Control Programme.

In 1991, the Epidemiology Unit was also involved in the organisational restructure of the Ministry of Health Malaysia under the New Remuneration System. The restructure of the disease control programme in the Epidemiology Unit brought into existence a programme called the Disease Control Programme.

PROGRAMME OBJECTIVES AND STRATEGIES

General Objectives

i) To reduce the incidence of diseases and number of deaths caused by communicable diseases, non-communicable diseases as well as

environment-related diseases so that they will not pose a threat to public health.

ii) To encourage a healthy life-style, a healthy, safe and hygienic work environment and workplace, suitable preventive measures, immediate detection and treatment, continuous monitoring and suitable rehabilitation services.

iii) To encourage the participation of members of the public and cooperation among departments so as to build a healthy and caring society.

Specific Objectives

i) To reduce the incidence of disease and death due to vector borne diseases.

ii) To reduce the incidence of tuberculosis and leprosy.

iii) To prevent the occurrence and spread of HIV and sexual transmitted diseases (STD).

iv) To reduce the incidence of air and food borne diseases, acute respiratory infection (ARI) by means of vaccination and through the prevention of the entry of quarantinable diseases such as plaque and yellow fever.

v) To conduct laboratory services for the purpose of diagnosis and disease control.

vi) To reduce the incidence of disease and death caused by non-communicable diseases so that they will not pose a threat to public health.

vii) To encourage and maintain excellent physical, mental and social health among workers in all sectors.

viii) To encourage and maintain a healthy environment and prevent the occurence of health disturbances caused by unhealthy environments.

ix) To improve the health condition of the population and the environment in urban areas through close cooperation with relevant agencies and the involvement of members of the public.

Programme Strategies

i) Adopting the following approaches: promotion, prevention, early diagnosis and treatment, prevention of deformity and rehabilitation.

ii) Updating the existing surveillance system.

iii) Structuring policies and updating the disease control programme.

iv) Improving the methods of surveillance, prevention and control used for certain diseases.

v) Human resources training and development planning.

vi) Development facilities planning.

vii) Improving cooperation among departments.

vii) Improving the active involvement of members of the public in disease control programmes.

ix) Establishing information systems and conducting research.

x) Privatisation.

xi) Coordinating control activities.

xii) Assessment and surveilance.

xiii) Develope the usage of suitable technologies.
xiv) Further enhance operational research activities.
xv) Facilitate disease control activities through legislation.

VACCINE-PREVENTABLE DISEASES

With the introduction of specific national vaccination programmes it was noticed that there was a dramatic decline in the incidence of the related childhood vaccine-preventable diseases. The vaccine-preventable diseases includediseases under the Expanded Programme on Immunisation (EPI) like diphtheria, Pertussis (whooping cough), neonatal tetanus, polio, measles, hepatitis B and non-EPI diseases like adult tetanus, rabies, meningococcal meningitis, influenza and other relevant diseases. There are national vaccination programmes for some of these diseases especially the childhood diseases like diphtheria, pertussis, neonatal tetanus, polio, measles and hepatitis B.

There has been a dramatic decrease in the incidence rate of some of the childhood vaccine-preventable diseases over the years as a result of effective sustained vaccination strategies. The incidence rates of the childhood vaccine preventable diseases except for measles, tuberculosis and hepatitis B have reached a satisfactory level, i.e. below 1 per 100,000 population. (Please refer Table 1) Nevertheless some of these diseases have recently shown an increasing trend as a result of specific disease re-emergence due to globalisation aided mainly by the increasing presence of susceptible population groups like the unvaccinated children of illegal immigrant workers, unprotected mobile groups, etc.

As for polio, no cases of wild poliovirus were reported since 1984. In order to strengthen the surveillance on the occurrence of acute poliomyelitis cases, surveillance on acute flaccid paralysis (AFP) cases were conducted and the AFP incidence surveillance target of achieving the rate of 1 per 100,000 population has been achieved since the past three years. Strategies are in place to address the current issue of emerging vaccine-preventable diseases.

As the result of sustained activities under the polio eradication programme, the Western Pacific Region was only the second WHO Region to be declared polio free on 29 October 2000 in Kyoto, Japan. Nevertheless post certification activities which includes quality acute flaccid paralysis has to be implemented in this Region until global certification. Nevertheless post certification high quality AFP surveillance has to be carried out until global eradication is achieved.

Strategies are in place to address the current issue of emerging vaccine-preventable diseases.

TABLE 1
Incidence of the 6 Vaccine-Preventable Diseases Reported in Malaysia, 1989-2002

Year	Diphteria		Whooping Cough		Neonatal Tetanus		Measles		Polio		Hepatitis B	
	Case	IR	Case	IR	Case	IR	Case	IR	Case	IR	Case	IR
1989	35 (6)	0.20	25	0.14	21 (4)	0.12	1,027 (2)	5.87	0	0.00	938 (1)	5.36
1990	9 (1)	0.05	24	0.13	11 (3)	0.06	563	3.13	0	0.00	942	5.24
1991	12 (2)	0.06	20	0.11	13	0.07	275	1.51	0	0.00	724	3.98
1992	4 (1)	0.02	21	0.12	28 (8)	0.15	363	2.01	3	0.02	723	4.00
1993	4	0.02	18	0.09	20	0.10	517 (3)	2.66	0	0.00	576	2.97
1994	0	0.00	12	0.06	9	0.05	346 (1)	1.77	0	0.00	335	1.71
1995	1	0.01	8	0.04	27 (4)	0.13	654 (6)	3.22	0	0.00	551	2.71
1996	0	0.00	7	0.03	23 (3)	0.11	460 (4)	2.17	0	0.00	627	2.96
1997	2 (1)	0.01	3	0.01	15 (1)	0.07	565	2.61	0	0.00	307	1.42
1998	5 (1)	0.02	6	0.03	13 (4)	0.06	483	2.18	0	0.00	5,010 (3)	22.59
1999	6 (1)	0.03	17	0.07	10 (2)	0.04	2,068 (10)	11.48	0	0.00	5,295 (1)	23.31
2000	1 (1)	0.01	42	0.19	20	0.09	6,187 (7)	27.87	0	0.00	2,863 (2)	12.89
2001	4 (4)	0.02	26	0.11	8	0.03	2,207 (4)	9.27	0	0.00	2,926 (3)	12.30
2002	7	0.03	27	0.11	11	0.04	899	3.67	0	0.00	2,706 (1)	11.03

Note : IR - Incidence Rate per 100,000 population
( ) - death case

Status of Individual Diseases

Whooping Cough

Due to improved reporting there has been an increase in the incidence rate of the disease from a low 0.01/100,000 population in 1997 to 0.11/100,000 population in 2002. For the past 4 years (1999-2002) the number of cases has remained at above 15 cases. But it had increased more than two-folds in 2000 to 42 cases but declined to 27 cases in 2002. No deaths has been reported. All the cases reported were clinically diagnosed. The re-emergence of cases since 1999 and affecting older age groups has been of concern.

Neonatal Tetanus

As in the previous years this disease has remained a very localised problem occurring mainly in Sabah. The decrease in incidence rate has been from 0.13 in 1995 to 0.04 in 2002. There has been a decreasing trend over the years. This is the second

lowest rate in the last 8 years with high rates recorded in 1995 and 1996 with 0.13/100,000 and 0.11/100,000 population respectively. The cases have been mainly occurring among the foreigners who has no access to proper health care facilities due to sociocultural and other reasons. There were no deaths reported in the last 3 years as compared to case fatality rates of 28.5, 55.5, 30.7 recorded in 1992, 1994, 1995, and 1998 respectively. There were 2 reported deaths in 1999.

In 2002, a total of 11 cases have been reported out of which 7 were from Sarawak, 2 from Selangor and 1 each from Sabah and Kedah. The situation in Sabah has improved tremendously.

Measles

There has been a tremendous increase in the reported incidence rate from 2.18/100,000 population in 1998 to 11.48/100,000 in 1999, 27.87/100,000 in 2000, 9.27/100,000 in 2001 and 3.67/100,000 in 2002. This has been due to outbreaks and improved reporting of the disease in the 1999/2000 period. There has been 7 reported cases of death attributed to measles infection out of a total reported 6,187 cases in 2000. In the middle of the last decade there has been 6 deaths reported in 1995 and 4 deaths in 1996. Last year 2,207 cases with 4 deaths were reported. The incidence rates for the period 1999-2001 ranged from 9.27 to 27.87/100,000 population. As compared to 1990-1998 period, it has been observed that there has been a increased trend in measles case occurrence during the recent 3 year (1999-2001) period.

Acute Poliomyelitis

Since the notification of 2 imported polio cases in 1992 there has been no reported cases of the disease due to wild poliovirus infection since then. There is an ongoing acute flaccid paralysis (AFP) surveillance under the National Polio Eradication Programme to detect any case of polio especially those of imported origin. There is a National Plan of Action for management of imported cases of wild poliovirus.

The national target for AFP cases have been achieved in during the 1998-2000 period. Several workshops focused on strengthening AFP surveillance and improving Oral Polio vaccination coverage among high risk population groups have been conducted over the last few years. The national documentation for the certification of the eradication of polio had been prepared and scrutinised by the Regional Eradication Commission from the 3-4 August 2000 in Manila. The Western Pacific Region was officially declared polio free on 29 October 2000 in an historic meeting in Kyoto, Japan. Nevertheless quality AFP case surveillance will be ongoing until global certification.

Diphtheria

There were 7 cases of confirmed diphtheria reported in 2002. From the investigations conducted it appears to be well localised and contained. Immediate active measures were taken to detect and manage further symptomatic and asymptomatic cases and improve on the effective vaccination of high risk children in the affected and neighbouring localities. No secondary cases were detected. There has been 18 cases with 8 deaths reported in the 1997-2001 period. To counter the re-emergence of this disease, specific surveillance has been strengthened to detect early any cases in the future. Measures are also been taken to improve the vaccination coverage of identified high risk children.

The resurgence of this disease since 1997 with increasing fatal cases is of concern and various specific strategies have been implemented to urgently address this issue.

Vaccination Coverage

The overall vaccination for infants achieved the Universal Child Immunisation target. The reported vaccination coverage for all the other childhood antigens have been sustained at above 90%. Even the reported measles vaccine coverage has improved from 81.1% in 1994 to 92.2% in 2001. The coverage for DPT 3rd. dose is 96.8%, 96.7% for Oral Polio 3rd. dose, and 95.0% for Hepatitis B 3rd. dose. To further improve this as one of the Quality Assurance Indicators, a coverage of 90% or more for the 3rd. dose of DPT has been taken as the standard in 2000. This is in accordance with the EPI and the Mid-Decade Goals for Children.

Table 2 shows the coverage of the vaccination activity conducted to prevent the spread of vaccine preventable communicable diseases. The target determined was to achieve a minimum vaccination coverage of 90%. From the information stated in Table 2 it is noted that apart from booster doses of DPT & OPV, rubella for primary school children and tetanus toxoid for pregnant women, the majority of the vaccination activity specified for those who are exposed to risk has achieved the specified level.

As reported, the incidence of whooping cough (pertussis), neonatal tetanus and measles has increased in 2001 compared to the year before. Hence, the vaccination activity for measles, booster DPT & OPV and tetanus toxoid for pregnant women and school children must be strengthened to ensure that those who are exposed to high risk are identified and vaccinated according to the schedule specified by the Ministry of Health, Malaysia.

TABLE 2
Number of People Vaccinated and the Coverage of Communicable Disease Vaccination in Malaysia, 1997-2001

No.	Type of Vaccination	Number of Vaccination and Coverage Percentage				
		1997	1998	1999	2000	2001
1.	BCG for Newborns	527,974 (100.9%)	478,948 (100.3%)	503,742 (101.9%)	522,668, (99.9%)	482,800 (99.3%)
2.	Third Hepatitis B Vaccine Dose for Babies	488,915 (88.8%)	482,522 (91.1%)	465,345 (90.7%)	484,547 (93.5%)	471,823 (95.0%)
3.	Third DPT & OPV Dose for Babies	512,147 (93.0%)	498,784 (94.1%)	478,552 (93.2%)	494,430 (95.4%)	480,968 (96.8%)
4.	Measles Vaccine for Babies	464,258 (84.3%)	456,764 (86.2%)	444,495 (86.6%)	458,081 (88.4%)	458,232 (92.2%)
5.	DPT Booster & Oral Polio Vaccine for Children (1-2 yrs)	376,573 (73.6%)	374,348 (70.1%)	376,851 (72.5%)	364,872 (70%)	378,588 (74.7%)
6.	BCG Booster for Standard 1 Students (Sabah Only)	45,053 (99.5%)	45,325 (99.4%)	45,591 (98.9%)	47,242 (99.1%)	355,074 (99.9%)
7.	BCG Booster for Standard 6 Students (Peninsular Malaysia and Sarawak)	383,039 (99.3%)	396,022 (98.7%)	377,299 (97.0%)	434,769 (99.3%)	354,826 (99.9%)
8.	DT & OPV Booster for Standard 1 Students	443,089 (95.6%)	439,122 (95.3%)	447,045 (96.0%)	465,093 (97.3%)	485,920 (97.5%)
9.	Rubella Vaccine for Standard 1 Female Students	105,378 (44.1%)	97,900 (41.0%)	24,786 (10.2%)	64,772 (28%)	64,578 (28%)
10.	Tetanus Toxoid for Form 3 Students	319,590 (92.3%)	341,075 (90.1%)	344,674 (91.1%)	373,997 (95.7%)	378,379 (94.9%)
11.	Tetanus Toxoid for Pregnant Mothers	448,062 (81.4%)	426,605 (80.5%)	439,505 (85.6%)	449,608 (86.8%)	415,953 (83.7%)

Note : ( ) Coverage Percentage

Activities and Achievements

In the area of childhood vaccine-preventable disease control, Malaysia has achieved significant success from the endemic and epidemic situation as recent as in the 70s and the 80s and has reached a current point where we are at the stage of having either eradicated or on the verge of eliminating or having had significantly reduced most of these diseases. This decade has seen dramatic decline in the incidence rates of the major vaccine-preventable diseases. We have to sustain these successes by adopting innovative strategies.

VECTOR BORNE DISEASE CONTROL PROGRAMME

Malaria

There has been a great success in the control of malaria in the country since the programme has been initiated in the early sixties. Prior to the eradication era, there has been about 250,000 cases in Sabah (1956), about 40,000 cases in Sarawak (1956) and about 20,000 cases in Peninsular Malaysia (1965). The number of reported cases has declined to 11,019 in 2002.

Most of the cases are confined to Sabah, interior part of Peninsular Malaysia and along international border in Sarawak. In 2002 there are 5,096 cases (46.3%) reported from Sabah, 3,427 cases (31.1%) from Peninsular Malaysia and 2,496 cases (22.7%) from Sarawak.. The states which have recorded high incidence rate are Sabah (18.69/10,000), Pahang (11.58/10,000), Sarawak (11.50/10,000), Kelantan (2.42/10,000) Johor (2.01/10,000), N. Sembilan (1.99/10,000), Terengganu (1.48/10,000) and Perak (1.48/10,000). For other states the incidence rate is below 1/10,000 population (Table 3).

In 2002 there are 39 malaria deaths reported of which 14 are from Peninsular Malaysia, 18 from Sabah and 7 from Sarawak.

P.falciparum was the predominant parasite species with 5,486 cases (49.78%) followed by *P.vivax* 4,921 cases (44.65%), *P.malariae* 320 cases (2.90%) and mixed infection 292 cases (2.64 %).

TABLE 3
Number of Cases of Vector Borne Diseases Reported by Type, 1996-2002

No.	Vector Borne Diseases	Number of Cases and Deaths						
		1996	1997	1998	1999	2000	2001	2002
1.	Malaria	51,921 (40)	26,649 (25)	13,491 (27)	11,106 (21)	12,705 (34)	12,780 (46)	11,019 (39)
2.	Dengue (DF/DHF)	14,255 (32)	19,429 (52)	27,381 (82)	10,146 (37)	7,118 (37)	16,368 (50)	15,493 (99)
3.	Filariasis	1,180	572	282	535	535	389	205
4.	Japanese Encephalitis	75 (3)	45 (4)	91 (10)	142 (38)	69 (6)	49 (1)	37 (2)
5.	Yellow Fever	0	0	0	0	0	0	0
6.	Plague	0	0	0	0	0	0	0
7.	Scrub Typhus	108 (0)	83 (0)	58 (0)	68 (0)	38 (0)	86 (0)	17 (0)

Note : ( ) Deaths

Special groups have been identified as high-risk for malaria notably the traditional villages, Orang Asli population and the landscheme workers.The population from traditional villages contributed 25.8 % from the total case reported for the year 2002. The Orang Asli group has contributed 50 % to the total cases reported in 2002 in Peninsular Malaysia.

The impregnated bednet programme has been launched in 1993 with the objectives to replace DDT residual spraying and to obtain community participation and commitment in malaria control. It is given priority in malarious areas where the coverage of spraying is poor due to inaccessibility or refused by the community.

Dengue

In 2002 there was an increase of incidence rate to 63.6 per population as compared to 36.4 per 100,000 population in the year 2001. A total of 15,493 confirmed cases were reported in 2002 compared to 8,669 in 2001.

In 2002, 99 deaths has been reported from serologically positive patients where as the case fatality rate for combined dengue fever and dengue haemorrhagic fever is 0.30.

For 2002, the most affected states and their respective incidence rates (per 100,000) are Federal Territory Kuala Lumpur (465.5), Selangor (213.9), Negeri Sembilan (178.4), Perak (152.6), Johor (137.8), Kelantan (129.3), Terengganu (125.0), Pahang (96.3), Perlis (83.6), Penang (68.4), Malacca (53.3), Sarawak (45.8), Kedah (43.5) and Sabah (14.0)

Other Vector Borne Diseases

The incidence rate of Japanese Encephalitis (J.E) averages was 0.30 per 100,000 populations over the last 5 years (1998-2002). In 2002 the incidence rate of J.E was 0.14 per 100,000 populations.

In 2002 the incidence rate of filariasis is 1.84/100,000 populations. The incidence is based on case detection activities. There were 205 cases for 2002.

The predominant parasite species are *Brugia malayi* (subperiodic) which contributes to 84.4% followed by *Brugia malayi* (periodic) (9.3%) and *Wuchereria* bancrofti 8.8%.

The incidence rate of typhus is 0.07/100,000 (17 cases in 2002).

Vector Surveillance in Airports and Seaports

Rodent surveillance carried out in airports such as Bayan Lepas International Airport, Azlan Shah Airport, Malacca Airport, Senai Airport, Kota Kinabalu Airport, Kuantan Airport and Kuching has shown *X.cheopis* index to be 0.01. The seaports which include Port Klang, Port Dickson, Melaka, Pasir Gudang, Tanjung Berhala, Kuantan, Teluk Ewa, Pulau Pinang and Kuching have shown the index to be 0.62.

As part of surveillance activity for yellow fever , ovitraps are set up in ports such as Subang, Senai, Kota Kinabalu, Port Klang and Bayan Lepas to assess the density of *Aedes aegypti*. The ovitrap indices for *Aedes aegypti* at airports and seaports are 0.1% and 0.68% respectively. Breeding of *Aedes albopictus* found at the airports is 6.9% and seaports is 6.8%.

NATIONAL PUBLIC HEALTH LABORATORY

NPHL is an organization which provides laboratory services to support activities in public health program which involved prevention and control of disease and food safety.

Disease Section

Laboratory testing done in this section were rendered by 5 unit labs ie Bacteriology, Biochemistry, Serology/virology, Tropical Disease and Cytology. Table 4 showed the number of specimen received for year 2002.

In 2002, Disease Section had been involved in a number of surveillance program and projects with Disease Control Division, Family Health Development and Selangor Health Department. Table 5 below showed the program and projects done.

TABLE 4
The Number of Specimen Received by Respective Unit Labs for Year 2002

Unit	Specimen Received
Bacteriology Lab	4,059
Chemical Pathology	10,346
Serology/Virology	3,458
Tropical Diseases	3,596
Cytology	376
Total	**21,835**

TABLE 5
Surveillance Program and Special Projects with Disease Section Involvement

No.	Programme	Unit	No. of Specimens Received	% of Positive Results
1.	Outbreak investigations for cholera	Bacteriology	2,649	3.2
2.	Outbreak investigations for typhoid	Bacteriology	370	0
3.	Iodine Deficiency National Screening Program	Biochemistry	4,826	54.4
4.	Congenital Hypothyroid Screening Program	Biochemistry	4,622	0.04
5.	HIV Screening among prisoners and in drug rehabilitation centers	Serology	1,786	
6.	TB screening among prisoners in Kajang Prison	Tropical Disease	587	2.4*
7.	Serum cholinesterase among foggers in Hulu Langat Health District Office	Biochemistry	67	
8.	Measles seroprevalence study	Serology/ Virology	63	23.8
9.	Cervical cancer screening program (Selangor only)	Cytology	4,056	20

Note : *from 450 samples cultured

Food Section

The main role of Food Section is to provide analytical analysis on food samples, water, environmental swabs and tobacco products in support of program activities from Food Quality Control Division and Disease Control Division, Ministry of Health in order to minimise public exposure to unsafety and unhygienic foods. Table 6 showed number of samples received for analysis by this section in year 2002 according to sample category.

About 8.8% samples analysed by this section contravene with Food Act and Regulation 1985 standard or by other standard (*) whereby microbiological testing showed the highest contravening percentage of 15.4%.

Food section was also actively developing new methods and validation of certain analytical tests which was not offered by any Food Quality Control (FQC) labs in the country. The activity was successfully carried out with the cooperation between FQC Division and Japan International Cooperation Agency (JICA) under the 'Strengthening of Food Safety Program in Malaysia'. JICA had provided NPDL with new equipments, JICA experts and sponsored training for our staff to Japan. Among

TABLE 6
Number of Samples Received for Microbiology and Chemical Analysis According to Sample Category

Sample category	Number of samples received		Total samples
	Microbiology Test	Chemicals Test	
Survey	483	1,226	1,709
Outbreak	1,031	1	1,032
Operation	13	12	25
Complaints	23	3	26
Others	21	44	65
Total	**1,571**	**1,286**	**2,857**

new test parameters developed in 2002, were test for pesticides, drug residue and genetically modified organism/food and also a few bacteriology tests and molecular technique. Food section was identified as a training center for food technologist from FQC Lab all over Malaysia, and more training will be conducted in 2003.

Epidemiology Section

This section was responsible to collect data from food and disease sections as well as from other Public Health Labs, analyse and provide epidemiological information from those data. Table 7 showed the number of notifiable diseases detected by all Public Health Labs. Epidemiology section had been actively involved in planning and developing the National Laboratory Based Notification in cooperation with Surveillance Section, Disease Control Division that was carried out in October this year.

TABLE 7
Number of Notifiable Diseases Detected by All Public Health Laboratories

No.	Disease	NPHL Sg Buloh	PHL Ipoh	PHL Johor Bahru	Total
1.	Cholera	87	7	-	94
2.	Dengue	240	-	-	240
3.	Measles	15	-	-	15
4.	Syphilis	25	34	22	81
5.	Hepatitis B	12	147	6	165
6.	Hepatitis C	126	-	-	126
7.	Hepatitis A	16	-	-	16
8.	HIV	1,471	134	85	1,690
	Total	**1,992**	**322**	**113**	**2,427**

INJURY PREVENTION AND CONTROL PROGRAMMES

Objectives

To reduce morbidity, mortality and disability due to injury and the focus is given to prevention of injury at home and playground.

Specific Objectives

i) To develop an epidemiological surveillance for injury.
ii) To increase the knowledge of health personnel on injury prevention.
iii) To educate and promote injury prevention in the community.
iv) To increase the knowledge of health personnel on the first aid.
v) To develop an effective system on monitoring of injury prevention programmes.

Strategies

i) To develop a data collation and tabulation system for injury cases.
ii) To conduct health promotions on injury prevention.
iii) To conduct training on injury prevention and on the first aid.
iv) To integrate injury prevention and control activities in the existing primary health care programmes.
v) To strengthen the first responder life support programme.
vi) To help in strengthening the management of injury cases.
vii) To increase monitoring system of injury prevention programmes.
viii) Collaboration with other related agencies in the prevention and control of injury.
ix) To involve in research and development.

Activities

i) ***Epidemiological Surveillance***

A database of injury cases admitted to the government hospitals is now in the process of development.

ii) ***Health Promotion***

Disease Control Division in the Ministry of Health has launched The National Injury Prevention and Control Week in the first week of September 2003. This programme will be held annually and expended to all states in Malaysia.

iii) ***Human Resource Development***

To conduct training for the health staff on Emergency Medicine and Trauma Services.

iv) ***To Strengthen Pre Hospital Management of Injury Cases***

Injury unit has been conducting training on the first responder life support (FRLS) and Malaysian Trauma Life Support (MTLS). Improvement of the training systems will be done in the future.

v) ***Integration of Injury Prevention and Control Activities in the Existing Primary Health Care Programmes***

Injury prevention activities has been integrated in the existing primary health care programmes such as maternal and child health, school health, out patient services and etc. Manual on Safety and Injury Prevention of Children was launched recently and it will be used by the health staff in the districts for injury prevention programmes.

vi) ***To Involve in Strengthening the Management System of Injury Cases***

Injury unit has been cooperating with other department in the Ministry of Health in strengthening the management system of injury cases which include emergency treatment and rehabilitation

VIOLENCE PREVENTION AND CONTROL PROGRAMMES

Objectives

i) To reduce case of violence and to strengthen management of violence cases

ii) Focus - Domestic violence
- ❒ Partner abuse
- ❒ Child abuse
- ❒ Elderly abuse

Strategies

Prevention and control strategies were based on the recommendation by the World Health Organisation (WHO).

i) Create, implement and monitor a national action plan for violence prevention.
ii) Enhance capacity for collecting data.

iii) Promote primary prevention response.
iv) Define priorities for support research on the cause, consequences, cost and prevention of violence.
v) To involve in strengthening responses for victims of violence.
vi) To collaborate with other agencies and to promote sharing of information.

Activities

Injury unit was appointed as the 'focal point' for violence prevention programmes in the Ministry of Health. This unit is responsible in planning, implementing and evaluating violence prevention programmes in the Ministry of Health. A few activities have been carried out in the response WHO recommendations

i) ***Create, Implement and Monitor a National Action Plan for Violence Prevention***

The first meeting with relevant agencies within and outside the Ministry of Health was done on the 16 of July 2003 to develop a national committee for violence prevention. It was followed by a workshop on the 11 – 14 of August 2003.

ii) ***Enhance Capacity for Collecting Data***

Non communicable disease section (NCD) will work together with One Stop Crisis Centre (OSCC) in the emergency department, Family Health and Development Division and universities in developing a database for violence and suicide cases.

iii) ***Promote Primary Prevention Response***

Injury Prevention and Control Week will be made as an annual event. This programme covers prevention and control of unintentional as well as intentional injuries .

iv) ***To Involve in Strengthening Responses for Victims of Violence***

Non communicable disease section (NCD) will work together with One Stop Crisis Centre (OSCC) in conducting training for health staff on the management of violence cases.

v) ***Define Priorities for Support Research on the Cause, Consequences, Cost and Prevention of Violence***

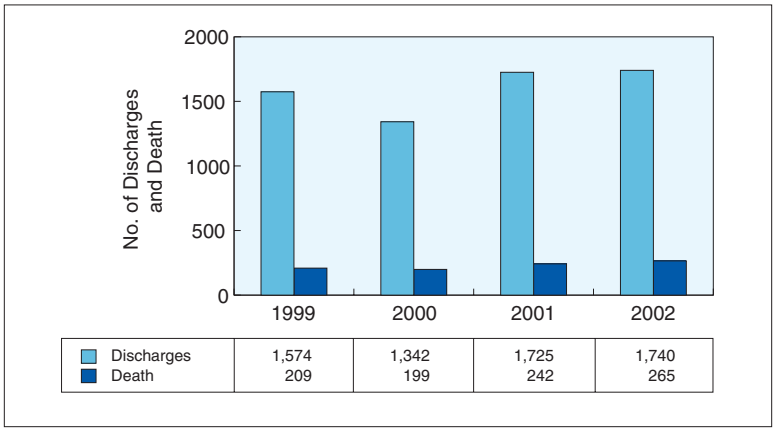
To work together with universities in conducting the related research.

SUBSTANCE ABUSE PREVENTION PROGRAMME

Substance abuse prevention unit was established in 1995. The general objective of this programme is to minimise the level of alcohol consumption and to prevent other substance abuse problem through intersectoral collaboration.

Although the real magnitude of alcohol abuse in this country is not truly known, available data shows that diseases related to alcohol consumption is high. See Figure 1 and Figure 2.

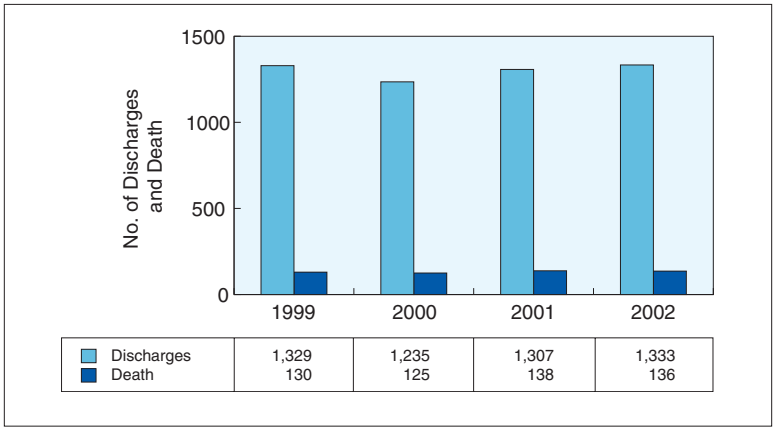
FIGURE 1
Number of Admission of Government Hospitals Due to Malignant Neoplasm of Liver and Intrahepatic Bile Ducts 1999-2002



	1999	2000	2001	2002
Discharges	1,574	1,342	1,725	1,740
Death	209	199	242	265

Source : Information and Documentation System Unit, Ministry of Health

FIGURE 2
Number of Admission to Government Hospitals Due to Fibrosis and Liver Cirrhosis 1999-2002



	1999	2000	2001	2002
Discharges	1,329	1,235	1,307	1,333
Death	130	125	138	136

Source : Information and Documentation System Unit, Ministry of Health

Similarly the number of cases admitted to government hospitals due to Fibrosis and Liver Cirrhosis is still high and remained in the range of 1,250-1,350 per year since 1999.

Activities in Year 2002

i) CERAH (Cegah Rokok, Alkohol dan Dadah) Programme is conducted at every states. This programme aimed for school children, similar with the PROSTAR concept is now carried out at every states following the distribution of the training modules in 2001.
ii) Health Education materials on Alcohol and ATS/Ecstasy have been developed and have been distributed to all states.
iii) This unit have been actively participated in giving input to relevant agencies whenever needed.

Conclusion

This unit will continuously play an active role in creating awareness on health impact of substance abuse and will always contribute in the strengthening of its prevention and control activities.

PREVENTION AND CONTROL OF DIABETES PROGRAMME

Diabetes is one of the chronic diseases which pose a large problem in many countries in the world. Diabetes was known as a mother of chronic diseases. It shares a common risk factor with other chronic diseases like coronary heart disease, hypertension, renal diseases, blindness and nerve problem. Diabetes can cause mortality and morbidity like blindness, renal disease and lost of the organ. Diabetes also a main cause of End Stage Renal Disease (ESRD) in Malaysia. National Renal Registry showed 44% of ESRD who need a dialysis are Diabetic patient. Diabetes and its complication can give social and economic impact for the patient, their family as well as the country. Management of Diabetes is a great challenge in the 21st century

Program Activities and Achievement in Year 2002

In 2002, Diabetes Control and Prevention Program focus on :

i) Strengthening the current activities at all level especially in health centre.
ii) Development of guidelines, policy training manual and module.
iii) Refresh and strengthen the knowledge of paramedics through training and continuous training.
iv) Develop and distribute health promotion and education materials.
v) Strengthen record and monitoring system.
vi) Strengthen health promotion and collaboration with other agencies including NGO.

The activities which have been implemented in 2002 were :

i) Diabetes screening in Health Clinic (Figure 3).
ii) Monitoring of Diabetes via Urine Microalbuminuria (Figure 4).
iii) Diabetes Retinopathy by Fundus Camera in 7 Health Centre (Figure 5).
iv) ACE Inhibitor and Statin are available at primary care level. Ace inhibitor also has been approved as list B drug...
v) Diabetes Courses : Kursus-Kursus Diabetes.
vii) Guideline for HbA1c and Microalbuminuria Test.

FIGURE 3
Diabetes Screening in Health Centre, 2002

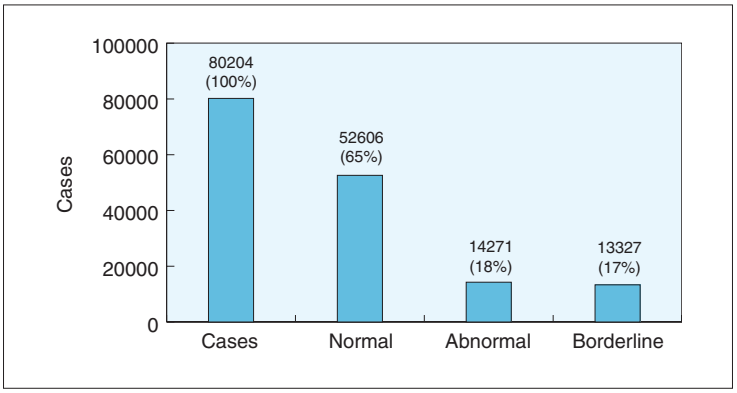


FIGURE 4
HbA1c and Urine Microalbuminuria in Health Clinic, 2002

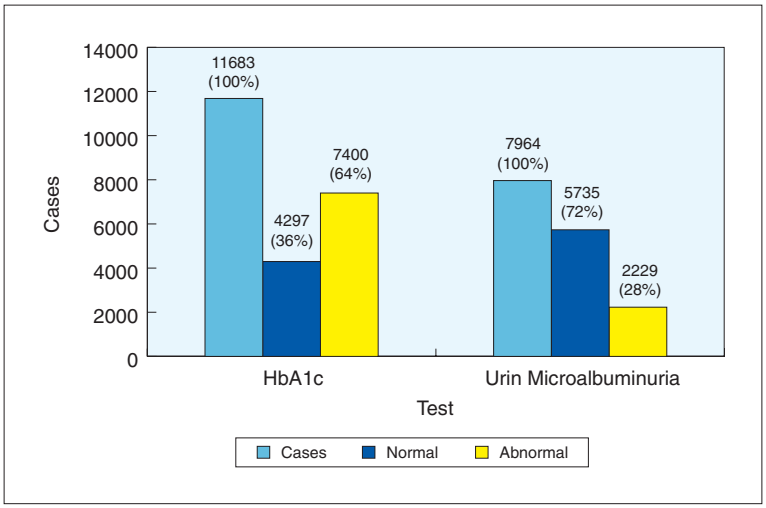
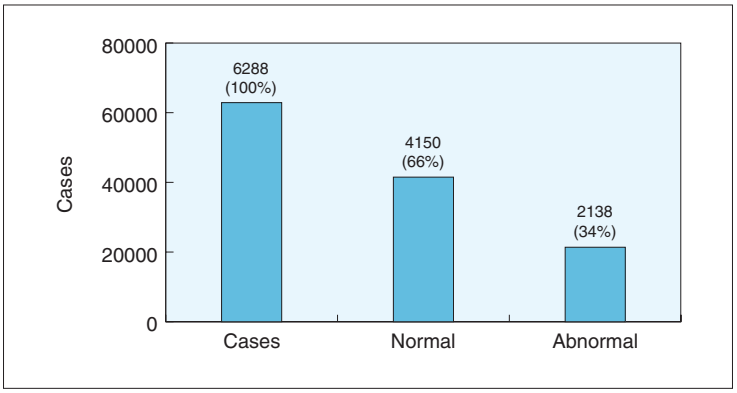


FIGURE 5
Fundus Photography for Diabetes Cases in 7 Health Centre in Malaysia



World Diabetes Day and Diabetes Awareness Week

Diabetes Awareness Week was organised in conjunction with World Diabetes Day celebration on 14 November. It was a collaboration between Ministry of Health Malaysia and Diabetes Association of Malaysia (Persatuan Diabetes Malaysia). The World Diabetes Day theme for the year 2002 was : Reduced the Burden : Diabetes and Your Eyes. The World Diabetes Day in 2002 was celebrated in Kelantan and was launched by Health Minister.

INTERNATIONAL HEALTH/QUARANTINABLE DISEASES

Information in Table 8 showed the achievement of plaque and yellow fever activities at the international entry points for the past five years as stipulated under the International Health Regulations (IHR 1969). Based on the information in Table 8, 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, a vigilant aedes and rodents control should be carried out at all entry points in Malaysia.

Table 9 and Table 10 showed the medical examination carried out among foreign workers for the purpose of applying for work permit in Malaysia.

Based on the information in Table 9, it was noted that there was a declining trend for unfit workers among foreign workers carried out by FOMEMA. All those found to be unfit were not be allowed to renew their work permit in Malaysia, thus reducing the risk of spreading infectious diseases among both the workers and the locals.

TABLE 8
Vector Control Activities of International Health at the Entry Points in Malaysia (1998-2002)

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

TABLE 9
Statistics Show Percentage and Total Number of Unfit in Sabah and Peninsular Malaysia between 1997 until 2002

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

Source : FOMENA Sdn. Bhd.

TABLE 10
Types of Unfit Diseases During Medical Examination
in Sabah dan Peninsular Malaysia by Years Carried Out by FOMEMA

No.	Diseases	1998	1999	2000	2001	2002
1.	HIV	178	80	98	91	122
2.	TB	1,909	1,203	1,204	1,460	1,278
3.	Malaria	4	7	6	1	0
4.	Leprosy	16	8	3	0	1
5.	Syphilis	3,623	2,462	1,517	756	657
6.	Hepatitis B	16,742	7,830	4,976	4,107	4,505
7.	Cancer	22	14	7	5	6
8.	Epilepsy	13	4	4	0	1
9.	Psychiatric Illness	19	9	6	4	19
10.	Pregnancy	1,289	675	605	456	495
11.	Urine Opiates	256	296	122	103	71
12.	Urine Cannabis	690	206	153	137	69
13.	Others	270	1,310	1,340	2,134	1,603
	Total	**24,415**	**13,939**	**10,558**	**9,264**	**8,826**

Source : FOMENA Sdn. Bhd.

Table 10 showed that major causes of foreign workers considered to be unfit during the screening was due to for Hepatitis B (surface antigen), VDRL Test, abnormal chest X-ray for TB infection.

Disease surveillance among Muslims who were performing their haji between 1998 to 2001 showed that the respiratory tract and lung diseases were the main diseases occuring among them, followed by the muscular skeletal diseases, skin diseases and gastrointestinal diseases (Table 11). 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 that the death trends (by percentage) for those performing haji between 1997 and 2002 was declining. Of 0.65% (167 death out of 25,474 number of pilgrims) in 1997 decreased to 0.42% in 1998, but there was a slight increase to 0.54 in 1998 but went up again to 0.37 in 2000 and 0.39% in 2001 and in the year 2002 the death percentage declined to 0.28%.

The main causes of death recorded among the pilgrims were heart attack i.e. Acute Myocardial Infraction (AMI), followed by lung infections (Bronchopneumonia) and the main cause of death was quite similar as recorded in Malaysia i.e. heart attack.

TABLE 11
Total Number of Pilgrims Attending for Treatment with Disease Classification in 1998 until 2002

No.	Cases Treated	Year				
		1998	1999	2000	2001	2002
1.	Communicable Diseases	0	0	5	7	0
2.	Cardiovascular Diseases	1,244	3,094	3,846	3,254	3,742
3.	Chest Diseases	64,024	63,418	73,349	86,453	85,660
4.	Gastrointestinal Diseases	2,337	3,631	4,098	4,690	5,364
5.	Genitourinary Diseases	405	828	630	673	840
6.	Gynecology and Obstetrics	240	375	405	596	1,161
7.	Skin Diseases	1,921	3,385	4,664	5,979	5,053
8.	Musculoskeletal Diseases	2,460	2,967	4,797	6,117	5,589
9.	Mental & Psychiatric Diseases	160	196	128	174	172
10.	Metabolic Disorder	386	555	0	1,199	1,539
11.	Eye Diseases	1,108	1,470	2,849	2,906	2,862
12.	ENT Diseases	1,040	2,089	2,209	2,130	5,004
13.	Mouth and Dental Disorder	289	860	2,352	1,519	3,311
14.	Wound, Fractures and Burns	176	239	439	343	1,114
15.	Minor Surgery	10	6	10	2	36
16.	Heat Exhaustion	85	172	0	45	42
17.	Heat Stroke	0	0	0	0	0
18.	Cancer	0	0	0	0	0
19.	Others	547	1,231	2,587	1,639	2,109
	Total No. Treated	**76,432**	**84,516**	**102,368**	**117,726**	**123,651**
	Total No. of Pilgrims	**29,404**	**34,920**	**39,393**	**44,282**	**49,864**

Source : Lembaga Tabung Haji, Malaysia

However, lung infection, which were reported in the second place earlier, dropped to fourth place instead. It was due to the new classification of diseases, which was introduced and put in place in 2002. For the year 2002, all those intending to perform haji in Mecca were vaccinated with the meningococcal meningitis quadrivalent. The effectiveness of this preventive measures can be observed with no reported cases of meningococcal meningitis infection in 2002.

Food Quality Control

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

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

ii) To ensure that food sold are :

   a) Free from contamination and non-permitted additives;
   b) In compliance with the required standards in the food legislation; and
   c) Labelled 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) Enforcement of food legislation.
iii) Monitoring, surveillance and enforcement of local and imported food.
iv) Tackle food safety problems at the source.
v) Inculcate food handling and hygienic practices.
vi) Carry out research and studies on food safety.
vii) Assist small and medium size food industries (SMI).
viii) Coordinate and collaborate with other relevant agencies at the national and international level.
ix) Strengthen the implementation of Quality Assurance Program.

ORGANIZATION

Implementation and enforcement of the provisions as provided for in the Food Act 1983 and Food Regulations 1985 is under purview of the Food Quality Control Division (FQCD), Ministry of Health Malaysia (MOH).

The FQCD in MOH, as the agency given the mandate to ensure a safe food supply for whole country, carries out a series of activities through the Food Quality Control Programme. The scope of activities initially encompassed only mandatory food inspection, sampling, analysis and prosecution. But these have been expanded over the years to cover wider aspects of food quality control including promoting food safety assurance system, provision of advice to food industry, consumers education and the protection of the national economic interest in the highly competitive world food market. The districts, entry points and laboratories established at the state level implement policies formulated by the FQCD.

SECTIONS AND ACTIVITIES

ENFORCEMENT SECTION

Function

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

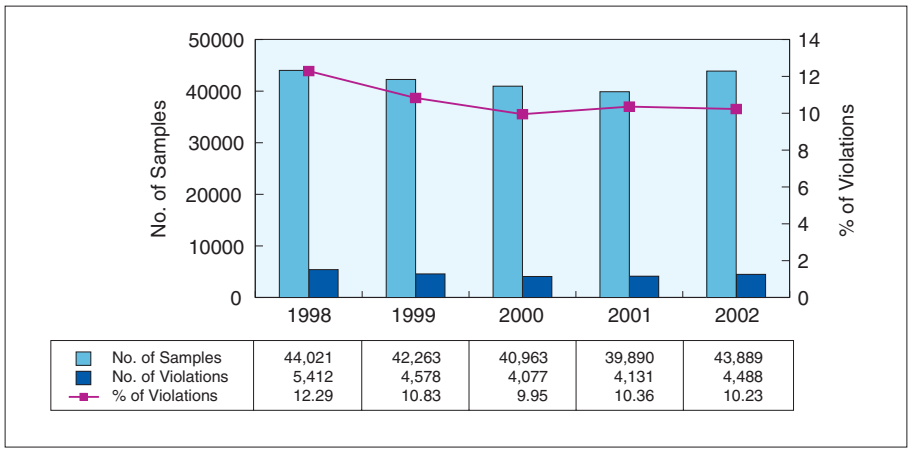
- The sampling target for the year 2002 was based on the norm established in the National Work Plan (NWP) of 2 samples/1000 population fixed by the Food Quality Control Division. The parameters of analysis of these samples were divided into Microbiology (40%), Chemical (55%), Physical (5%).

- A total of 43,889 food samples were taken for analysis in 2002, out which 4,488 (10.23%) contravened the Food Act 1983 and the Food Regulation 1985 (Figure 1). The number of offenders fined were 434 cases with fines amounting RM485,700.00 were collected. There were five (5) offenders who were sentenced to imprisonment. There were 84 cases that were Acquitted Not Amounting to Discharge and 6 cases that were Discharged and Acquitted.

ii) Inspection and Closure of Food Premises

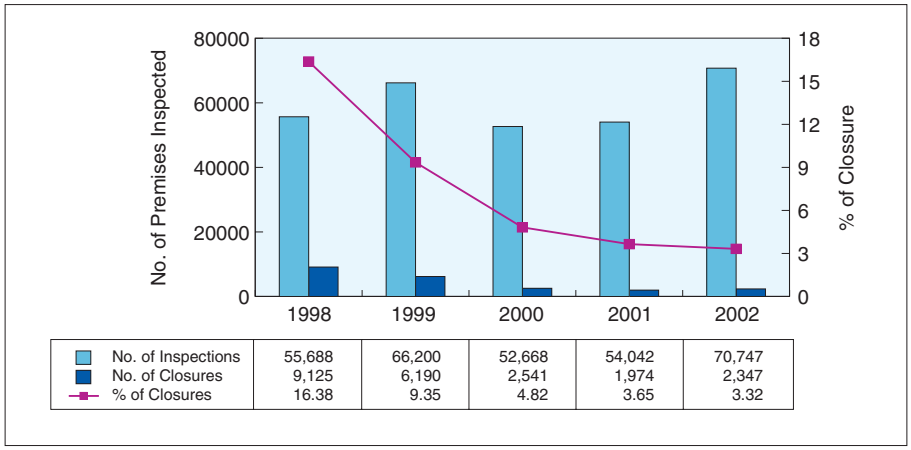
The inspection of premises is a routine activity to ensure the sanitation and hygiene of premises and to ensure food safety. In 2002, a total of 70,747 premises were inspected, where 2,347 premises were closed under provisions provided in Section 11 of the Food Act 1983 (Figure 2).

FIGURE 1
Food Sampling, 1998-2002



	1998	1999	2000	2001	2002
No. of Samples	44,021	42,263	40,963	39,890	43,889
No. of Violations	5,412	4,578	4,077	4,131	4,488
% of Violations	12.29	10.83	9.95	10.36	10.23

FIGURE 2
Food Premises Inspection and Closure, 1998-2002



	1998	1999	2000	2001	2002
No. of Inspections	55,688	66,200	52,668	54,042	70,747
No. of Closures	9,125	6,190	2,541	1,974	2,347
% of Closures	16.38	9.35	4.82	3.65	3.32

iii) **Pesticide Residue**

In the year 2002, a total of 4,008 samples were taken for vegetables and fruits for pesticide residue analysis. Results of analysis indicated only 51 samples (1.27%) 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).

iv) **Veterinary Drug Residue**

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

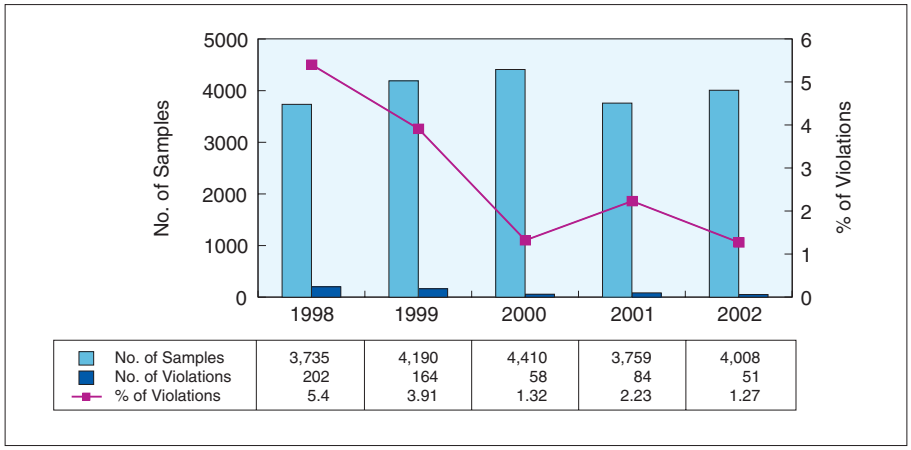
Nitrofuran

The Ministry of Health is monitoring the problem related to the abuse of nitrofuran. A total of 370 samples of chicken and 21 samples of eggs were taken for analysis and non was found to contravene the Food Regulations 1985 (Figure 4).

Chloramphenicol

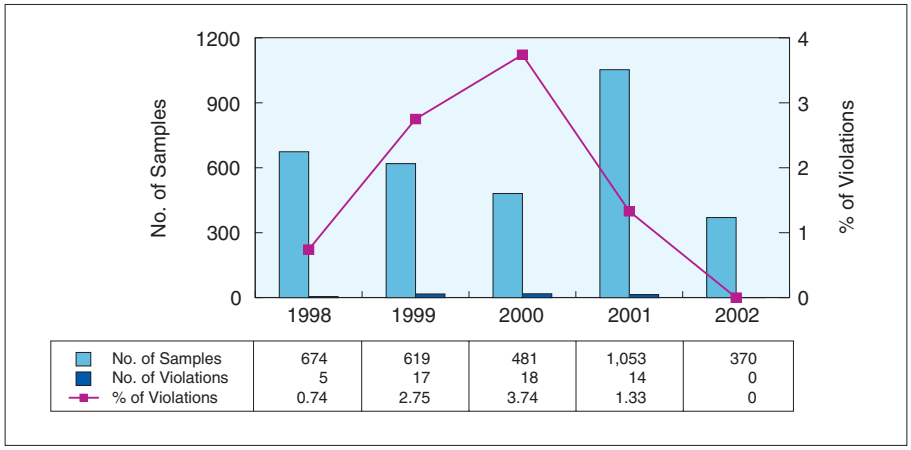
Samples were taken to trace the use of Chloramphenicol in chickens and fish. A total of 346 samples of chicken were taken with no violations (Figure 5).

FIGURE 3
Sampling of Vegetables and Fruits for Pesticide Residue, 1998-2002



	1998	1999	2000	2001	2002
No. of Samples	3,735	4,190	4,410	3,759	4,008
No. of Violations	202	164	58	84	51
% of Violations	5.4	3.91	1.32	2.23	1.27

FIGURE 4
Sample for Nitrofuran in Chicken, 1998-2002

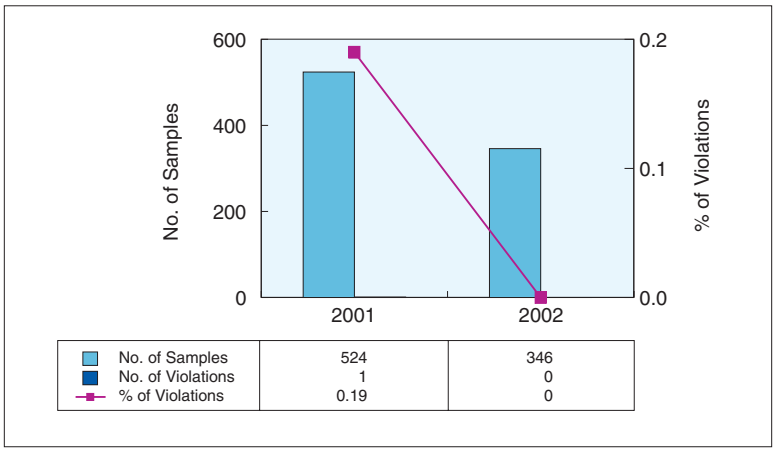


	1998	1999	2000	2001	2002
No. of Samples	674	619	481	1,053	370
No. of Violations	5	17	18	14	0
% of Violations	0.74	2.75	3.74	1.33	0

Beta-agonist

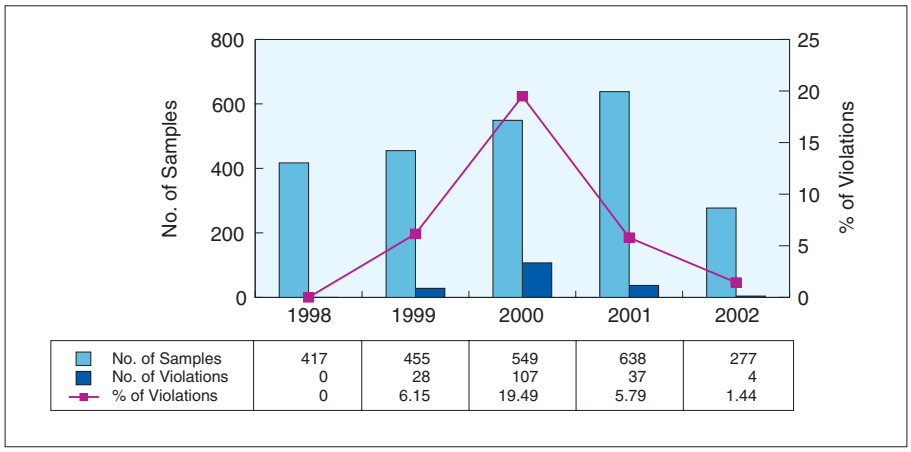
In 2002, a total of 277 samples were taken for analysis of beta-agonist. This includes pork (167 samples), beef (88 samples) and mutton (22 samples). The abuse of beta-agonist has been ongoing since 1996 even though the Ministry of Health had been carrying out enforcement through routine checks as well as operations. However, the detection of beta-agonist had been reduced. There are only 4 (1.44%) violations with 3 in pork and 1 in beef (Figure 6).

FIGURE 5
Sample for Chloramphenicol in Chickens, 2001-2002



	2001	2002
No. of Samples	524	346
No. of Violations	1	0
% of Violations	0.19	0

FIGURE 6
Monitoring of Beta-Agonist, 1998-2002



	1998	1999	2000	2001	2002
No. of Samples	417	455	549	638	277
No. of Violations	0	28	107	37	4
% of Violations	0	6.15	19.49	5.79	1.44

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.

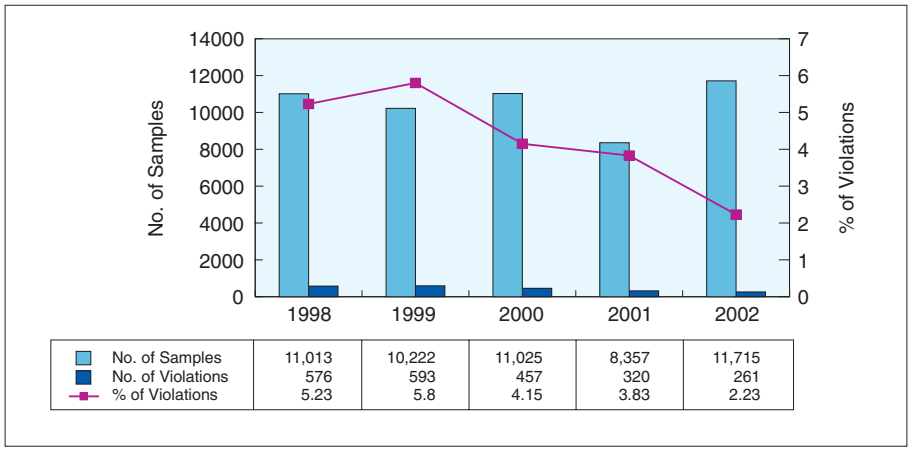
Achievements :

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 2002, a total of 202,964 food consignments were inspected and 11,715 samples were taken for analyzing. 261 samples or 2.23% of the analyzed samples were found to be positive (Figure 7).

FIGURE 7
Violation of Imported Food, 1998-2002



	1998	1999	2000	2001	2002
No. of Samples	11,013	10,222	11,025	8,357	11,715
No. of Violations	576	593	457	320	261
% of Violations	5.23	5.8	4.15	3.83	2.23

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 2002, 36 sources of natural mineral water is being licensed with a collection of RM216,000.00 (Table 1).

From the 36 sources of natural mineral water, 9 are from foreign sources and 27 are from local sources.

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	0	0	0	0
Perak	2	0	2	12,000.00
Selangor	2	8	10	60,000.00
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
Federal Territory	0	0	0	0
Total	**27**	**9**	**36**	**216,000.00**

FIGURE 8
No. of Licences Issued for Natural Mineral Water from Year 1993 to 2002

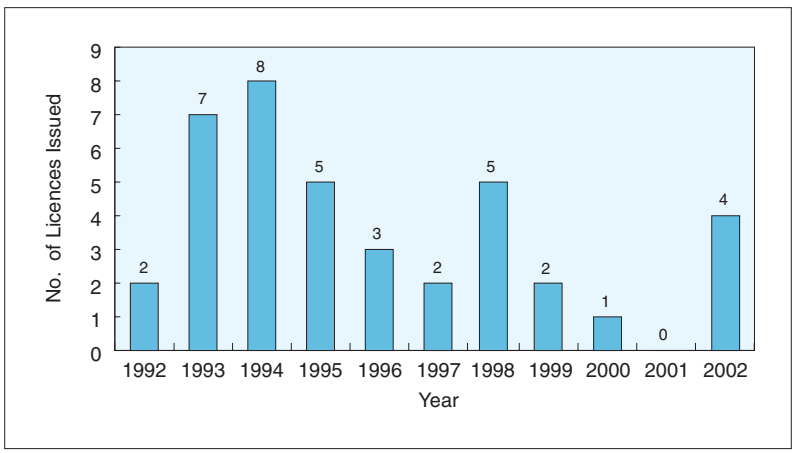


TABLE 2
List of Countries of Foreign Sources for Imported Natural Mineral Water

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

Packaged Drinking Water

Regulation 360B, Food Regulations 1985 was gazetted in the year 2000 whereby the sources of packaged drinking water need to be licensed. Since 2002, a total of 41 sources of packaged drinking water was approved.

TABLE 3
Breakdown of the Licences Approved According to States from 2001 to 2002

State	2001	2002	Fees Collected (RM)
Perlis			0
Kedah			0
Penang		3	18,000.00
Perak		5	30,000.00
Selangor	6	11	102,000.00
F.T. Kuala Lumpur	1	1	12,000.00
Negeri Sembilan		1	6,000.00
Malacca			0
Johore	1	4	30,000.00
Pahang		1	6,000.00
Terengganu			0
Kelantan		2	12,000.00
Sarawak		2	12,000.00
Sabah		2	12,000.00
F.T. Labuan		1	6,000.00
Total	**8**	**33**	**246,000.00**

Non-Nutritive Sweetener

The Ministry of Health issues 5 different types of licenses for non-nutritive sweetening substances as provided for under Regulation 133(5) of the Food Regulations 1985. These licenses are :

- License to import and use Non-nutritive Sweetening Substance in food preparation for sale (Form B).
- Licence to import and sell Non-nutritive Sweetening Substance (Form B1).
- Licence to manufacture for sale and use in food preparation for sale of Non-nutritive Sweetening Substance (Form B2).
- Licence to purchase and use Non-nutritive Sweetening Substance in food preparation for sale (Form B3).
- Licence to purchase and sell Non-nutritive Sweetening Substance in retail premises (Form B4).

STANDARD DEVELOPMENT SECTION

Function

- Review and update the Malaysian Food Regulations 1985, to be in line with Codex and regulations of other countries, whenever possible.

STANDARD DEVELOPMENT SECTION (LABEL)

Function

- To provide technical advisory services to the industry on nutrition labeling, advertising and nutritional claims based on the 1983 Food Act and 1985 Food Regulations.
- To classify food products based on the decision tree for 'food drug interface' products.
- To revise and amend the 1985 Food Regulations relating to the labeling of food products.

INDUSTRY SECTION

Function

- Promote the implementation of food safety assurance system including HACCP in the food industry and provide and advisory services to the food industry.

LABORATORY SECTION

Function

- Plan the development and co-ordinate activities of all 11 Food Quality Control Laboratories (FQCL).
- Monitor the activities and services provided by FQCL.
- Plan, co-ordinate and assist in the training of all technical staffs in FQCL.

CODEX AND INTERNATIONAL SECTION

Function

- The Codex Contact Point for Malaysia, the Secretariat for the National Codex Committee (NCC).
- Secretariat to 13 National Sub-Committee on Codex and 3 Task Forces and Working Groups on Codex.

INFORMATION TECHNOLOGY UNIT

Function

- Plan and co-ordinate ICT System that are used for implementing the food quality activities.
- Plan, co-ordinate and assist in the training of food quality control activities.

Health Education and Promotion

INTRODUCTION

THE Health Education Division is one of the divisions under the Public Health Department of the Ministry of Health Malaysia. The division started its operation as a Health Education Unit at the Headquarters of the Ministry of Health Malaysia in 1968. Its main function then was to publish printed health education materials for use by the health staff of carrying out their health activities throughout the country.

In 1993, the Health Education Unit was upgraded into a Division under the New Remuneration System. Its scope of service was extended from the national and state levels to state and district hospitals and selected district health offices. In the light of this development, the Health Education Division was strengthened to focus on health promotion including training, research and the mass media. Presently, the main functions of the Health Education Division are to plan, implement, co-ordinate and evaluate Health Promotion Programmes throughout the country.

The services rendered by the Division are as follows :

i) Plan, develop, implement and evaluate Health Promotion Programmes.
ii) Manage campaigns such as the Healthy Lifestyle Campaign, health days celebration and special programmes.
iii) Produce, loan and distribute health education materials.

iv) Manage Health Promotion Programmes through the mass media.
v) Formulate training programmes in health education and promotion.
vi) Conduct research in health promotion.
vii) Provide consultation services in health promotion.

VISION AND MISSION

Vision

To become a centre of excellence in health education and promotion to enable the people of Malaysia to practise a healthy lifestyle as well as to enjoy optimum health.

Mission

To promote the health of Malaysians through :

i) The dissemination of accurate, essential and relevant information in a timely, just and innovative manner.
ii) The strengthening of the individual and community so that they can respond to factors that influence their health.
iii) Collaboration between relevant government and non-government agencies and the private sector.

ACTIVITIES AND ACHIEVEMENTS

Various health education and promotion programmes and activities have been carried at the national, state and hospital level throughout the year.

HEALTHY LIFESTYLE CAMPAIGN 2002

Promotion of a Healthy Environment was the theme choosen for the Healthy Lifestyle Campaign 2002. The objective of the campaign was to improve the quality of the environment through the promotion of a healthy lifetyle.

The campaign covered two scopes. The first scope is focused on the promotion of a healthy environment, with emphasis on actions that can be taken by the individual, the family and the community towards maintaining and safeguarding a healthy environment. The second scope is focused on several healthy environment related aspects and practices such as greening the environment, proper waste disposal, reducing domestic and industrial wastes, refraining from smoking, no open burning, recycling of waste materials, respecting public amenities, controlling the breeding of mosquitoes, rodents and other pests and reducing noise pollution.

Many strategies were used in implementing the campaign such as communication, training, organisation, healthy public policy and re-orientation of health services. The campaign activities were carried out through the use of mass media, interpersonel, communication, co-operation with government and private agencies as well as community projects.

National Level Activities

The Healthy Lifestyle Campaign was launched by Y.B. Dato' Chua Jui Meng, the Minister of Health on 28 February 2002 at the Tun Hussein Onn Hall, Putra World Trade Centre. Activities at the national level include media campaign, training and publishing and distribution of health education materials.

i) ***Media Campaign***

The media campaign that was conducted included :

- Trailers were aired through TVI, TV2, TV3 and NTV7 with a total of 144 times (spot).
- Broadcasting of a jingle and radio advertisements in 4 languages over Radio 1, 2, 5 and 6 with 1,305 spots.
- Two advertorials on Promotion of a Healthy Environment was published. The first one was on 28 February 2002 in *The New Straits Times, Berita Harian, Utusan Malaysia, The Star, Nan Yang Siang Pau* and *Tamil Nesan*. The second was published on the day of the launch (1 March 2002) in *The New Straits Times, Berita Harian, Utusan Malaysia, The Star, The Sun, Sin Chew Jit Poh, Nan Yang Siang Pau* and *Tamil Nesan*.
- 100 bus panel advertisements were displayed over a period of 6 months, i.e. from March to August 2002.
- The trailer on 'Promotion of a Healthy Environment, in Malay and English, was shown in cinemas throughout Malaysia (except Terengganu) for a duration of 15 weeks, i.e. from June to September 2002.

ii) ***Production and Distribution of Health Educational Materials***

For the 2002 Healthy Lifestyle Campaign, 4 types of posters, 3 types of leaflets, 1 booklet, 1 Prime and Supportive Messages manual, 1 training module and a poster panel set were produced and distributed through the State Health Education Units to health facilities, community centres and government agencies.

Eight types of collaterals were produced such as collared T-shirts, hats, paper napkins, pens, UV bags and badges. Ten and six minutes' video documentaries in Malay and English were also produced. An audio jingle was also specially produced for telecast over TV1, TV2, TV3 and NTV7. A video clip for the campaign logo was produced in conjunction with the launching of the 2002 Healthy Lifestyle Campaign.

Materials such as video documentaries, training modules, audio jingles, and video clips were duplicated and distributed to TV and radio stations to be telecast. The above materials were also distributed to State Health Education Units for the implementation of the campaign at the respective state level.

iii) ***Health Education Activities at the Target Group Level***

Various activities such as talks, discussions, dialogues, demonstrations, video screening, exhibitions, seminars or forums, quizzes, and *gotong royongs* were conducted. A total of 299,894 health education activities for the Healthy Lifestyle Campaign were conducted at various locations such as schools or universities, work place, health clinics, food premises, housing estates, land schemes and others, involving 2,799,997 participants from the target groups.

iv) ***Special Projects***

Several special projects were organized at the state level in 2002. 46 projects were reported in Sabah, Terengganu, Johore, Malacca, Negeri Sembilan, Perak, Kedah, Perlis and Pahang. The projects included *Projek Lalat Sifar*, Quit Smoking Campaign, Anti-Dengue Promotion, PRISMA Programme (Check Your Own Food Premises), and Excellent Canteen Project which involved various parties including local authorities, non-governmental agencies, leaders and communities.

PATIENT EDUCATION PROGRAMME

The programme aims to improve and maintain the health status of patients by managing their illness in an effective way.

Activities

i) The Malacca Hospital has implemented patient education programmes for diabetes, heart rehabilitation, high blood pressure, asthma, breast feeding, accompanying mothers in labour and breast self-examination, involving 4,616 patients and their close contacts.

ii) The Diabetes Patient Education Programme at the Alor Setar Hospital involved 1,199 patients and 1,490 close contacts.

iii) The Ipoh Hospital implemented Ward Patient Education Programmes for diabetes, heart rehabilitation, HIV/AIDS, renal, ophthalmology, STD, cadio-pulmonary and antenatal, involving 2,048 patients. For the Outpatient Education Programme, the Ipoh Hospital held education sessions for 797 patients through the Diabetes, HIV/AIDS, Breast Self- Examination and the Heart Support Group Education Programmes. The Ipoh Hospital also held education sessions on the use of the inhaler, insulin injection technique, blood glucose self-monitoring, HIV/AIDS counselling, ante and post natal education and exercises for pregnant mothers for 2,535 patients under the Hospital Day Care Programme.

Special Projects: The Ipoh Hospital Quit Clinic

The Quit Clinic of the Ipoh Hospital received the National Excellent Clinic Award in conjunction with the 2002 National Tobacco Free Week. In 2002, 219 (53%) of the 412 patients who received treatment at the Quit Clinic quit smoking.

SPECIAL PROGRAMMES

Organ Donation Promotion

The programme started in 1999 and activities carried out for 2002 were as follows :

i) The Joint Organ Donation Promotion Programme together with Projek Usahasama Transit Aliran Ringan (Putra LRT) Sdn. Bhd. and Big Tree Sdn. Bhd. was launched in Kuala Lumpur on 9 May 2002. The activities held included the launching ceremony, exhibition, a display of organ donation posters in 24 light boxes at Putra LRT stations for a year and the printing of the 'Donate Your Organ, Save a Life' message on the Putra LRT season pass for a year.

ii) The Organ Donation Awareness Campaign was held at the Kuala Lumpur hospital from 6 to 11 May 2002, Penang from 9 to 13 June 2002 and in Kuantan, Pahang on 14 September 2002. Each awareness campaign comprised launching ceremonies, talks, forums, exhibitions and registration of donors.

Doctor Muda Programme

The concept for this programme is from the students, for the students, to the students. The objective of this programme was to empower primary school children with the knowledge and skills in health.

Programme Implementation

The Doktor Muda Programme was one of the packages under the Health Promoting School Programme (PBSS) implemented in schools through a smart partnership between the Ministry of Health and the Ministry of Education, with the support of other agencies. The programme was aimed at educating schoolchildren about healthy practices that should be instilled from an early age. The programme, which adopted the "Peer Group Counsellors" approach, was implemented in stages based on the existing resources. Students who were chosen as Doktor Muda were selected according to certain criteria, and training was provided based on a module designed to enhance their knowledge and skills.

The activities carried out for 2002 are as follows :

i) The Doktor Muda Programme team in Kelantan and Pahang, comprising 1 Information Officer (Health Education) S41 and 1 Health Nurse U29, was approved under the new 2002 Policy.
ii) Training and teaching kits and modules were produced as support materials for teaching.
iii) A research protocol was also developed to support the programme.
iv) In 2002, 6,197 Doktor Muda were trained in 260 primary schools in Pahang, Kelantan, Terengganu, Selangor, Malacca and Kedah.
v) The Kelantan Doktor Muda Self-Excellence Convention and Camp were held from 27 to 29 October 2002, involving 100 students.

Involvement of Non-Governmental Organisations

Non-governmental organisations such as the Malaysian Mental Health Council, MAPTB, the National Cancer Council (MAKNA), the Malaysian Breast Feeding Advisory Association, the National Heart Foundation, NASAM, the Malaysian Diabetes Association, PUSPANITA, the Islamic Consumer Association and many other organisations provided a lot of support to the Health Promotion Programme through the distribution of health information, preparation of educational and health promotion modules and materials and training. They were also involved in special programmes/ projects such as organ donation, mental health, heart diseases, AIDS, and nutrition as well as the celebration of special health days.

In appreciation of such co-operation, the Health Education Division gave its full support to non-governmental organisations in the following ways :

i) Distribution of health educational and promotional materials produced under the Health Promotion Programme such as pamphlets, booklets, posters and loan of videos to non-governmental organisations.
ii) Working with NGOs to disseminate health messages through the free airtime provided by the radio & TV stations.
iii) Provide technical advisory services in the planning and implementation of health promotion activities.
iv) Indirect financial assistance was also provided to non-governmental organisations, eg. production of health education materials and payment for accommodation or food.
v) Established Health Education Units network in each state and hospital to support the implementation of the organisations' activities.
vi) Briefings and orientations were also conducted for non-governmental organisations to enable them to receive training that was in line with the campaign of the current year.

Health Camps

In 2002, 881 health camps were held throughout Malaysia involving 244,827 participants. Johore organised the most number of health camps, i.e. 212 (24%) camps followed by Penang with 147 (17%) camps and Negeri Sembilan with 125 (14%) sessions. Penang recorded the most number of participants with 46,179 (19%) participants, followed by Johore with 32,274 (13%) participants and Selangor with 22,066 (9%).

CELEBRATION OF HEALTH DAYS OR SPECIAL DAYS

Special days were celebrated with the objectives of disseminating special health messages to the public as well as encouraging the participation of various government and private agencies as well as NGOs in health programmes. Throughout the year 2002, the health days/events that were celebrated included :

i) ***World Tuberculosis Day***

The launching ceremony was officiated by the Minister of Health Malaysia on 26 March 2002. The theme was "Stop TB, Fight Poverty: Do It with DOTS". Two radio interviews were held, three coverage by the print media and one set of display materials was produced.

ii) ***World Health Day 2002***

The World Health Day was launched by the Deputy Minister of Health Malaysia on 7 April 2002. The theme for the year was "Be Active for Health". The main activity for the day was the "Fun Walk", which involved schoolchildren, the disabled and senior citizens.

iii) ***Tobacco Free Week***

The Tobacco Free Week was launched by the Director General of Health on 7 June 2002. The theme was "Tobacco Free Sports: Clean Sports". Three types of posters, three types of pamphlets and a set of 33 exhibits was produced.

Apart from that, messages were also aired over the television stations. A 7-second anti-tobacco slide was aired after every cigarette advertisement on television. Six slides on health factors were also aired. The airtime was sponsored by the *British American Tobacco Company*, which supported the government's aspiration towards realising a tobacco free nation. Twenty reporters were present to cover the event. TV1, TV2 and TV3 aired the launching ceremony on their news slot on the day of the launch.

Newspaper advertisements of the World Tobacco Free Week was published in four languages in the country's major newspapers, i.e. *Utusan Malaysia, Berita Harian, New Straits Times, The Sun, Nan Yang Siang Pau* and *Tamil Nesan* on 31 June 2002. On 7 June 2002, the advertisements were again published in two languages in *Utusan Malaysia, Berita Harian, New Straits Times* and *The Star* in support of the week. Twenty-news coverages and 11 articles were published by the print media throughout the campaign.

iv) ***World Diabetes Week***

Various activities were carried out at state and hospital level with the purpose of educating the public about diabetes, particularly those related to the theme of the celebration, i.e. 'Reducing Burden: Diabetes and Your Eyes'. Nine states and two hospitals also launched the World Diabetes Week. The activities carried out were a forum, talks, health screening, counselling, diabetes quiz, exhibition, a diabetes run, poster competition, radio promotion and the distribution of pamphlets.

v) ***World Mental Health Day***

The World Mental Health Day was launched by the Deputy Minister of Health Malaysia at the J.W. Marriot Hotel, Kuala Lumpur on 12 June 2002 in conjunction with the 3rd Kuala Lumpur Mental Health Conference. Among the activities organised were quizzes, multimedia screenings and exhibitions.

Mental health promotion activities based on the theme "The Effects of Trauma and Violence on Children and Adolescents" were carried out in the states, districts and hospitals from 12 July to 10 October 2002.

vi) ***Systemic Lupus Erythematosus (SLE) Week***

For the first time, the Health Education Division joined forces with the Malaysian Systemic Lupus Erythematosus Association in efforts to educate patients, families and the public about the disease through the production of video documentaries and posters. Apart from that, 100,000 pamphlets about SLE in Malay were also printed and distributed. The launch of the National SLE Awareness Week was officiated by the Minister of Health Malaysia on 18 May 2002 at the Sunway Convention Centre. Among the activities carried out were health talks, exhibitions, the printing and distribution of pamphlets, forums for the public and health personnel, press conferences, and counselling sessions.

vii) ***Breast Feeding Week***

The World Breast Feeding Week is celebrated from 1 to 7 August each year. The launching ceremony was officiated by the Deputy Minister of Health Malaysia at the Pantai Medical Centre Hall in Kuala Lumpur on 1 August 2002. The theme for the year was "Breast Feeding: Healthy Mother and Active Child". Among the activities carried out were talks, dialogues, small group discussions, breast-feeding quizzes, lactose management courses, breast examinations, facilitator training, and announcements in the mass media and articles in magazines and newspapers.

viii) ***World Heart Day***

The World Heart Day was launched by Datuk Amar Puan Seri (Dr.) Hajjah Laila Taib, wife of the Chief Minister of Sarawak cum President of the Sarawak Heart Foundation on 29 September 2002 at the Sibu Town Square in Sarawak. The theme of the celebration, "What Shape Are You In" highlighted three main aspects in the prevention of heart diseases, i.e. obesity, physical activities and nutrition. Activities carried out in conjunction with the World Heart Day were forums, talks, health camps, cartoon strip drawing competition, rope skipping demonstration, the "Heart For Life" run and an exhibition.

ix) ***World AIDS Day***

An interview with Dato' Dr Tee Ah Sian, the Deputy Director-General of Health (Public Health) representing the Minister of Health on the theme of the World AIDS campaign, i.e. "Stigma and Discrimination" was held on RTM *Jendela Pagi* programme on 28 November 2002. The campaign theme slide,

2 types of trailer and a video screening on steps taken by the government in handling the AIDS problem were telecast on television. Apart from that, articles on HIV/AIDS were published in two newspapers. Launch of The World AIDS Day campaign was also reported in six newspapers (including those in Sabah and Sarawak).

HEALTH EDUCATION PROGRAMME THROUGH THE MASS MEDIA

The mass media plays a vital role in disseminating health messages to the public. Throughout the year 2002, a total of 27 health promotion and educational programmes on various topics were aired on government and private television stations such as TV1, TV2, TV3 and NTV7 and 70 slots of various health education and promotion topics were aired over Radio 1 (Malay) and Radio 4 (English).

QUALITY ASSURANCE PROGRAMME (QAP)

Two QAP indicators used were training and distribution of printed materials of the 2002 Healthy Lifestyle Campaign.

i) **Training on 2002 Healthy Lifestyle Campaign 2002**

Indicator

- Percentage of health staff briefed/orientated on the campaign.
- Percentage of health staff trained in the "Prime and Supportive Messages Training".

Standard

- 80% of identified health staff who were given briefing or orientation on Healthy Lifestyle Campaign 2002.
- 70% of identified health staff who were given training on the "Prime and Supportive Messages Training".

Achievement

On the whole, 19,620 (55%) health staff throughout Malaysia received briefing or orientation. 7,025 (69%) health staff were given training on the Prime & Supportive Messages. The failure to attain the standard set was due to the problem of identifying the number of personnel to be trained and logistics problem.

ii) **Distribution of Printed Materials on 2002 Healthy Lifestyle Campaign**

Indicator

The percentage of Health Clinics that received the 2002 Healthy Lifestyle Campaign printed materials within a period of 1 month (30 days) from the date the materials were received by the respective State Health Education Units.

Standard

80% of the Health Clinics received the materials within a period of 1 month (30 days) from the date of receipt by the respective State Health Education Units.

Achievement

On the whole, 24 (20%) of the Health Clinics received the printed materials within 1 month while 34 (28%) of the Health Clinics received the materials within a period of more than 3 months. The failure to achieve the stipulated target was due to various factors and the study will be continued in 2003 to monitor its performance.

PUBLISHING OF HEALTH EDUCATION MATERIALS

Printed Health Education Materials

In 2002, 16 pamphlets, 16 posters, 7 booklets and 1 flip charts were also produced in various languages. The materials were distributed to health facilities throughout the country, including schools, institutions of higher learning, government agencies, non-governmental organisations and the private sector.

Non-Printed Health Education Materials

Besides printed materials, other materials produced were 1 multimedia presentation (Mental Health Day Celebration), 4 video documentaries (Systemic Lupus Erythematosus Week, the Agong's Visit, Food Cleanliness Campaign, AIDS Watch in Malaysia), 1 trailer (Dengue) and 1 jingle (Dengue).

HEALTH PROMOTION AND EDUCATION ACTIVITIES BY HEALTH STAFFS

On the whole, health promotion and education activities covered areas related to family health, control of communicable diseases, vector borne diseases, food quality control, environmental health, control of non-communicable diseases, control of AIDS/STD and substance abuse and health campaigns.

Health promotion and education activities are targeted to clients of the clinics and the community. Activities carried out included talks, dialogues, small group discussion, individual counselling, demonstrations, exhibitions, video screenings, talks over the radio, spot announcements by the Health Education Mobile Units, public forums and *gotong royong*.

Target Groups

i) ***Clinic Clients***

Clinic clients included patients, antenatal and postnatal mothers, adolescents, adults or parents, senior citizens and the disabled.

In 2002, 5,407,411 clients were exposed to health promotion and education activities in the health clinics.

ii) ***Community***

The community comprised students, factory workers, public sector workers, land scheme settlers, aborigines, adolescents, parents or guardians, senior citizens and food handlers.

For 2002, a total of 6,174,725 members of the community were exposed to health education activities. 2,473,973 (40%) of the community was exposed to health education activities on vector borne diseases, followed by 1,630,912 (26%) on family health development.

Health Education Activities

Health Education activities included individual counselling, 1,454,360 sessions which accounted for 53% of activities carried out, followed by demonstrations (396,406 session) and talks (388,068 session).

Most of the activities carried out were on family health development, except for small group discussion, demonstration and spot announcements which were on vector-borne diseases.

i) ***Individual Counselling***

Of the 1,454,360 individual counsellings reported, 783,272 (54%) sessions were on family health development, 338,226 (23%) sessions on vector borne diseases and 148,219 (10%) sessions on non-communicable diseases.

ii) ***Demonstrations***

Of the 396,416 sessions reported, 251,782 (63%) sessions were on vector borne diseases and 113,464 (29%) sessions on family health development.

iii) ***Talks***

Of the 388,068 sessions reported, 335,700 (87%) sessions on family health development and 14,533 (4%) sessions on non-communicable diseases.

OTHER HEALTH CAMPAIGNS

i) Food Safety Campaign
ii) Robin Good Health Programme
iii) CERAH Programme
iv) PROSTAR Programme

CONCLUSION

Throughout the year 2002, planning, implementation, monitoring and evaluation of the health education programmes, projects and activities were conducted as planned. The Health Education Division hopes that in future more efforts will be carried out through the collaboration with other agencies such as other relevant government agencies, non-government organisations and the private sector in planning and implementing health education and health promotion programme.

4

MEDICAL CARE PROGRAMME

Medical Care Services

INTRODUCTION

THE Medical Programme is one of the 5 main programmes in the Ministry of Health. The Medical Programme which comprises of two Divisions, the Medical Development Division and the Medical Practice Division, is headed by the Deputy Director General (Medical). The objective of the Medical Programme is to provide medical services that are comprehensive, effective, accessible, comfortable, technologically appropriate and at an excellent level of quality to patients who need treatment.

5 main activities were identified under the Medical Programme in the 8th Malaysia Plan. 4 of those activities, as listed below, are under the purview of the Medical Development Division :

i) Hospital Medical Care
ii) Extended Medical Care
iii) Medical Care Quality
iv) Health Technology Assessment

HOSPITALS AND MEDICAL INSTITUTIONS

There were 122 Ministry of Health hospitals and medical institutions throughout the country in the year 2002. 45 of those hospitals have been identified as specialist hospitals (Table 1).

TABLE 1
Number of Hospitals and Medical Institutions by States, 2002

State	Medical Institution	Hospitals	
		Hospitals with specialists	Hospitals without specialists
Perlis	-	1	-
Kedah	-	4	5
Penang	-	3	2
Perak	1	5	9
Selangor	1	4	4
Federal Territory	-	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**	**71**

Source : Information and Documentation System Unit, Ministry of Health

HOSPITAL MEDICAL CARE

Hospital Medical Care has the following components :

i) Medical Services Management
ii) Medical and Specialist services
iii) Professional development
iv) Medical resources

Medical Services Management

Medical Services Management comprises of hospital management and interagency collaboration. Hospital management encompasses medical facilities, organization and delivery systems, medical treatment charges and medical information.

Medical facilities

The total number of beds in the whole country is 29,068 beds in hospitals and 5,456 in medical institutions. The total number of beds in hospitals has reduced by 0.04% in 2002 when compared with 2001. The overall bed population ratio is 1.19 beds to 1000 population (excluding medical institutions).

TABLE 2
Bed Per 1000 Population Ratio by States, 2002

State	Total Population	Number of Beds	Ratio (number of beds to 1000 population)
Perlis	214.5	404	1.88
Kedah	1,743.1	2,067	1.19
Penang	1,390.3	1,993	1.43
Perak	2,162.2	3,458	1.60
Selangor	4,388.9	3,162	0.72
Federal Territory	1,474.3	2,670	1.81
Negeri Sembilan	897.4	1,327	1.48
Malacca	674.0	807	1.19
Johore	2,891.8	2,668	0.92
Pahang	1,346.1	1,707	1.27
Terengganu	943.2	1,242	1.32
Kelantan	1,424.7	1,614	1.13
Sabah	2,730.1	2,699	0.99
Sarawak	2,166.8	3,141	1.45
FT Labuan	79.1	109	1.38
Total	**24,526.5**	**29,068**	**1.19**

Source : Information and Documentation System Unit, Ministry of Health

The overall bed occupancy rate in 2002 is 62.68% as compared to 61.63% in 2001 (Table 3).

Organization and Delivery Systems

Basic specialist services are available in all the state hospitals and sub-specialist services are available in selected hospitals within a region. Access to specialist services is made possible through the referral system and specialist visits.

TABLE 3
Bed Occupancy Rate by State, 2001-2002

State	Bed Occupancy Rate (%)	
	2001	2002
Perlis	66.22	61.20
Kedah	62.82	63.44
Penang	59.47	55.57
Perak	47.17	48.46
Selangor	52.98	55.89
Federal Territory	60.14	65.08
Negeri Sembilan	61.27	64.98
Malacca	69.27	72.39
Johore	67.22	69.96
Pahang	64.65	64.89
Terengganu	64.75	61.95
Kelantan	62.66	60.96
Sabah	61.94	60.61
Sarawak	52.91	54.19
Medical Institutions	75.66	75.93
Malaysia	**61.63**	**62.68**

Source : Information and Documentation System Unit, Ministry of Health

To ensure optimal use of resources, specialist services have also been expanded through hospital networking where several hospitals cooperate and share resources to provide specialist services. The hospital networking system has been implemented in several hospitals in the Klang Valley and Seberang Perai.

Medical Treatment Facilities

MOH hospitals provide a comprehensive range of medical services which is affordable to all. The charges are in accordance to the Medical Fees Ordinance 1982 which could be as low as 10% of the actual cost. There are provisions for free treatment such as for the poor and school children.

The MOH has provisions to aid those needing medical treatment that is unavailable in the government hospitals. For government personnel, applications for reimbursements can be made in accordance to the guideline circulated by the Public Services Department. For other treatments not under the purview of this guideline,

applications for financial aid can be made. Both types of applications need to be furnished with a confirmation that the treatment is really needed by the patient. In 2002, the confirmation of treatment for 492 applications for reimbursement and 66 applications for financial aid were received and processed.

Medical Information

Patient particulars and treatments received in MOH hospitals are documented in registries and medical records. An integrated medical record is maintained for all inpatient treatments. Discharge summaries are done for all admissions upon discharge while medical reports are supplied upon request.

Hospitals submit returns on patient care statistics using predetermined formats. Statistics for 2002 showed increased hospital admissions by 3.38% as compared to 2001. 19% of all admissions are those under 12 years old and 9% are those aged 65 and above (Table 4)

As in 2001 the main causes for hospital admissions were deliveries, complications of pregnancy, accidents, disorders of the circulatory system and disorders of the respiratory system.

TABLE 4
Hospital Admissions by Age, 2001-2002

Age Group	2001	2002
12 years and below	315,066 (19.51%)	330,151 (19.74%)
12-65 years	1,148,643 (71.11%)	1,179,764 (70.57%)
65 years and above	149,559 (9.26%)	161,799 (9.67%)
Total	**1,613,268**	**1,671,714**

Source : Information and Documentation System Unit, Ministry of Health

Interagency Collaboration

Interagency collaboration includes the usage of facilities, specialists, equipment and information and others for service deliveries, training and research. There is collaboration with the other government agencies, the private sector, the non-government organizations and the community.

i) Outsourcing of medical services from the private sector is done according to the guidelines and procedures and a contractual agreement is signed by both parties. Currently outsourcing of services is carried out by selected hospitals for radiotherapy (Queen Elizabeth Hospital, Malacca Hospital, HSA Johor Bahru, TAR Klang Hospital, Putrajaya Hospital, Penang

Hospital, Ipoh and Alor Setar Hospital), cardiology and cardiothoracic (Kuala Lumpur General Hospital, Sarawak General Hospital) and diagnostic imaging services (Penang Hospital, Sungai Petani Hospital, Kulim Hospital and Miri Hospital).

ii) The collaboration between the MOH and the Training Institutions both government (IPTA) and private (IPTS) in medical training program started in 1993. Under the agreement signed by both parties, the Training Institutions are allowed to use the MOH facilities for the training of medical students. In 2002 the numbers of Training Institutions involved were 6 public institutions and 4 private institutions (Table 5). The collaboration also includes MOH specialists being involved in training of medical students and vice versa the IPTS and IPTA specialists being involved in patient care. A Joint Committee at the Ministry level has been formed to monitor the smooth running of all collaboration activities.

TABLE 5
Collaboration between MOH and IPTA and IPTS

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	

iii) All hospitals are required to form a Hospital's Board of Visitors comprising of 9-18 members from all levels of society. A guide to the activities that should be held by the Hospital's Board of Visitors is outlined in the guidelines produced in 1989. In 2002 the most active Hospital's Board of Visitors, Tengku Ampuan Afzan Hospital, was chosen to recognize and acknowledge their contribution to the improvement of services in the hospital.

iv) Under community participation, the public are encouraged to participate either in groups or as individuals in the hospital volunteers program run by the Medical Welfare Unit.

v) Apart from that, there are several active non-government organizations which run activities outside of the hospital, for example rehabilitation programmes for stroke patients, palliative care for terminal cancers and haemodialysis centers for renal failure patients. Some of the NGOs receive grants from the MOH to carry out the activities.

Medical and Specialist Services

Medical and Specialist services encompasses ambulatory, medical, surgical, paediatric, O&G and diagnostic & support services.

Ambulatory Services

Ambulatory care is defined as a service where patients are given treatments which do not necessitate a stay in hospital for more than a day. Thus the activities covered by ambulatory care include emergency services, specialist clinics and day care services.

Table 6 shows the number of patients attending the ambulatory services by age for the year 2001 and 2002. The attendances by age do not indicate a marked difference from the previous year. In 2002, 27.24% of patients seen in ambulatory services were children. Thus efforts to improve facilities according to the needs of children will have to be address.

TABLE 6
Number of Patients Attending the Ambulatory Services by Age, 2001-2002

State	2001			2002		
	Adult	Child < 12 yrs	% of Attendance by Children < 12 yrs	Adult	Child < 12 yrs	% of Attendance by Children < 12 yrs
Pen. Malaysia	16,553,254	5,207,806	23.93%	15,541,664	5,050,424	24.52%
Sabah	2,424,132	1,672,781	40.83%	2,451,377	1,679,128	40.65%
Sarawak	2,579,756	1,078,428	29.48%	2,777,088	1,048,845	27.41%
Total	**21,557,142**	**7,959,015**	**26.96%**	**20,770,129**	**7,778,397**	**27.24%**

Source : Information and Documentation System Unit, Ministry of Health

The 5 major causes of visits to the emergency department and specialist clinics for 2002 and 2001, do not show a marked difference as noted below in Table 7. However it is noted that the leading cause of visits in 2001, injury, poisoning and certain other consequences of external cause, has dropped to second place in 2002 while the second major cause in 2001, Disease of the respiratory system, is ranked first in 2002.

TABLE 7
5 Major Causes of Visits to the Emergency Department and Specialist Clinics, 2001-2002

5 Major Causes of Visits 2001		5 Major Causes of Visits 2002	
Injury, poisoning and certain other consequences of external cause	23.79%	Disease of the respiratory system	22.91%
Disease of the respiratory system	20.16%	Injury, poisoning and certain other consequences of external cause	22.91%
Symptom, sign and abnormal clinical and laboratory finding not elsewhere classified	11.99%	Symptom, sign and abnormal clinical and laboratory finding not elsewhere classified	11.80%
Disease of digestive system	8.51%	Disease of digestive system	8.62%
Disease of circulatory system	5.37%	Disease of circulatory system	4.95%

Source : Information and Documentation System Unit, Ministry of Health

i) ***Emergency Services***

Since 2001, the number of emergency departments operational has increased from 113 to 116 departments, with the operation of three new hospitals. Thus, the population covered by emergency services has increased. Table 8 shows the number of patients attending emergency services in the year 2000 to 2002. The average attendance has increased to 6.78%, 1.0% higher than the increase reported in 2000. The number of patients attending emergency departments increased from 3,042,980 in 2000 to 3,469,169 in 2002.

TABLE 8
Number of Patients Attending the Emergency Departments and Number of Admissions from the Emergency Departments in 2000, 2001, 2002

Emergency Department	Year			Average % of Increase/ Decrease
	2000	2001	2002	
Total attendance	3,042,980	3,203,497	3,469,169	6.78%
Repeat case	390,720	422,380	452,098	7.55%
% of repeat to attendance	12.84%	13.18%	13.03%	0.19%
No of Admission	440,722	454,201	593,897	16.90%*
% of admission to attendance	14.48%	14.18%	17.12%	2.64%
% to total admission	27.97%	28.07%	35.26%	4.00%

Source : Information and Documentation System Unit, Ministry of Health

The 3 year average percentage of repeat visits to emergency departments is 0.19%. Efforts to reduce the number of patients needing these repeat visits have to be studied to ensure that the emergency department is able to direct patients to definitive care accurately.

There were 593,897 patients, admitted to the ward from the emergency department in 2002. The average percentage of admissions to attendances in the year 2000 to 2002 is 16.9%. Overall there is an increase in the number of patients admitted to the ward from emergency departments by 4%, from 27.97% in 2000 to 35.26% in 2002. This indirectly reflexes that the number of critical cases seen in emergency department has increased.

ii) ***Specialist Clinic Services***

There were 78 hospitals providing specialist clinic services in 2002, an increase of 10 hospitals compared to the year 2000. This was made possible through the policy of networking of specialist services, specialist visits are made to hospitals without specialist services, thus bringing care closer to patient's environment. Table 9 shows the number of attendances to specialist clinics and the admission rate from these clinics.

TABLE 9
Number of Patients Attending Specialist Clinics and Number of Admissions from Specialist Clinics in 2000, 2001 and 2002

Specialist Clinics	Year			Average % of Increase/ Decrease
	2000	2001	2002	
Total attendance	3,405,388	3,606,124	3,858,125	6.45%
New cases	728,075	816,056	905,789	7.55%
% of new to total attendance	21.38%	22.63%	23.48%	1.05%
No of Admission	431,366	276,618	205,918	-30.72%
% of admission to attendance	12.67%	7.67%	5.34%	-3.67%
% to total admission	27.37%	17.09%	12.27%	-7.55%

Source : Information and Documentation System Unit, Ministry of Health

The 3 year average increase in the number of patients attending specialist clinics from 2000 to 2002 is 6.45%. A quarter of the cases seen in 2002 were new cases. However, the rate of new cases seen increased by only 1.05%. Basically the major cause of increase in attendances may thus be attributed to the increased number of repeated cases been reviewed. Data available also indicates that the average number of admissions via specialist clinics has shown a marked

gradual decrease of 30.72%. This may indicate that with frequent follow up, the number of admissions may be reduced, thus indirectly contributing to better outcome. In 2002, only 12.27% of patients attending the specialist clinics required admission.

iii) ***Day Care Services***

Daycare services were started in 1997, with the intention of treating patients who need surgical treatment which do not require overnight observation post surgery. These patients can therefore be discharged within the day post operation. Since then the concept of daycare has expanded to include other procedures such as blood transfusions, chemotherapy and other medical and pediatric procedures. Thus, the Ambulatory Care Center (ACC) provides services to patients undergoing specific procedures that do not necessitate continuous monitoring of more than 8 hours. Under the 8th Malaysian Development Plan, 12 ambulatory care centers were planned. Of these, the ACC in Malacca Hospital is already operational while the ACC in Kuala Terengganu Hospital will be fully operational by 2004.

Medical Services

The specialist medical services consist of General Medicine, Dermatology, Tuberculosis and Respiratory Diseases, Leprosy, Psychiatry, Nephrology, Neurology, Radiotherapy and 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 3.64% in the year 2002 as compared to the year 2001. This constitutes 35.13% of the total specialist clinic attendance for the year 2002. Only one speciality had an increase of more than 10% attendance, namely Nephrology. Attendances at the TB and Respiratory Diseases, Leprosy and Cardiology clinics showed a decrease of 3%, 11.1% and 5.01% 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 2001 and 2002.

ii) ***Medical Inpatient Service***s

Table 11 shows the total number of patients from the various medical disciplines who were admitted to the ward and treated as inpatients. 26% of the total government hospital admissions were from the medical based specialities. In general, these admissions increased by 9.79% from 400,459 in the year 2001 to 439,672 in the year 2002. The increase in the number of inpatients was most pronounced for the disciplines of nephrology, cardiology, dermatology and general medicine. The bed occupancy rate (BOR) for the various disciplines ranged from 25% to 87%.

TABLE 10
Total Number of Patients Who Received Treatment at the Specialist Clinics According to Discipline, 2001-2002

Discipline	Total Outpatients		% Increase or Decrease
	2001	2002	
General Medicine	580,383	613,863	5.77
Dermatology	181,653	187,178	3.04
Tuberculosis and Respiratory Diseases	216,673	210,259	-3.0
Leprosy	8,131	7,226	-11.1
Psychiatry	236,722	247,748	4.66
Nephrology	9,365	11,587	23.73
Neurology	35,511	36,604	3.08
Radiotherapy/Oncology	24,958	27,270	9.26
Cardiology	14,423	13,700	-5.01

Source : Information and Documentation System Unit, Ministry of Health

TABLE 11
Total Inpatients and the Bed Occupancy Rate (BOR) for the Various Medical Disciplines, 2001-2002

Discipline	Total Inpatients		% +/- difference between 2001/2002	Bed Occupancy Rate (BOR)	
	2001	2002		2001	2002
General Medicine	355,911	390,905	9.8	66.85	71.16
Dermatology	695	764	9.9	22.17	24.89
Tuberculosis & Resp. Diseases	5,130	5,123	-0.14	37.45	29.96
Leprosy	154	118	-23.4	27.29	26.34
Psychiatry	23,661	23,275	-1.63	79.35	78.90
Nephrology	5,728	8,927	55.8	88.63	84.48
Neurology	774	834	7.75	54.74	67.89
Radiotherapy/Oncology	5,677	5,847	2.99	76.19	72.58
Cardiology	2,729	3,879	42.1	86.89	87.81
Hepatology	N/A	N/A	N/A	N/A	N/A

Source : Information and Documentation System Unit, Ministry of Health

Paediatric and O&G Services

Maternal and Child Health have been given emphasis in the 8th Malaysian Plan. A total of 35 hospitals provide Paediatric and O&G specialist services namely at Hospital Kuala Lumpur, 13 state hospitals and 24 in district hospitals. There are 17 paediatric subspecialties in addition to two new subspecialties i.e. Adolescent Medicine and Paediatric Rheumatology in the year 2002.

Certain conditions originating in the perinatal period are the principal causes of admission to the government hospitals (HMIS year 2000-2002). Due to these reasons, neonatology subspeciality has been given importance and this service is currently available in 8 hospitals i.e. Hospital Kuala Lumpur, Putrajaya, Klang, Selayang, Malacca, Kuantan, Mentakab and Kota Bharu. In addition to this, the total number of paediatric outpatients has increased by 15.94% from the year 2001 to 2002, with the highest number of patients registered in Federal Territory, Kedah, Selangor, Perak and Johore respectively. The total number of inpatients has also increased by 5.54% with the highest bed occupancy ratio in Sabah (83.28), Federal Territory (76.42), Malacca (73.78), Pahang (70.34) and Selangor (69.11) respectively.

In the year 2002, RM4.0 million has been allocated to upgrade the existing Paediatric services, whilst focusing on developing subspecialities in neonatology, genetic, paediatric neurology, respiratory through the purchase of ventilators and basic equipment in several hospitals which provide specialist services. Other projects that have been initiated were the OSCC and cardiology clinic services at the Paediatric Institute which were conducted in the same year. The Ministry of Health together with the Prime Minister's Department and other government agencies are in the process of preparing guidelines for a 'Standard Operating Procedure for Child Abuse' to be implemented at government hospitals and departments. The Ministry of Health is also represented in the Steering Committee for the Preparation of Children for Court Proceedings Project headed by the Legal Affairs Division of the Prime Minister's Department. The role of the Ministry of Health is in the management and development of a one stop crisis centre (OSCC) and to conduct medical examination on the child witness.

The genetic services are also given priority with the formation of National Committee for Genetic Services in the year 2002, whose purpose is to improve clinical and diagnostic services. Issues on cloning are also given emphasis with the first National Committee Meeting on Reproductive Human Cloning in August 2002. The National Committee was formed to study and draft laws on cloning. 2 delegates from the Ministry of Health have attended the Ad-Hoc Committee Meeting in New York for the International Convention against Human Reproductive Cloning in February and September 2002.

The Obstetric and Gynaecology services have improved vastly with the availability of subspeciality services in Reproductive Medicine, Feto-maternal, Gynae-oncology and Uro-gynaecology. Being a National Referral Centre, Hospital Kuala Lumpur is currently providing all the subspeciality services. Besides HKL, Reproductive Medicine subspeciality is also available in Hospital Seberang Jaya and Ipoh, while Feto-maternal subspeciality is available in Hospital Klang, Ipoh and Penang. Assisted Reproductive Technology services are recently introduced in Hospital Kuala Lumpur with an initial allocation of RM400, 000 in the year 2002, for laboratory renovation and purchasing of equipment. For Gynae-oncology subspeciality, 3 specialists have undergone fellowship training to subspecialise in this area. A total of RM 5.0 million was given in the same year to upgrade the feto-maternal services and to introduce newer techniques in minimal access surgery.

The total number of normal delivery cases in hospitals has shown a decline of 5.91% between the years 2001 to 2002, while there is an increase in the number of Caesarian section cases of about 10% compared to the previous year. From the total number of cases delivered, a total of 12.45% were from Caesarian section cases. The State that showed the highest bed occupancy rate (BOR) was from Selangor (112.2%), Malacca (73.25%), Sabah (71.94%), Kedah (68.00%) and Terengganu (66.84%). Apart from building hospitals in the Klang Valley to overcome the existing BOR, 'alternative birthing centre' (ABC) offers another alternative to reduce the workload of normal delivery cases in these hospitals. Hospital Seremban has started its service in the year 2002 besides Hospital Kuala Lumpur, Johor Bharu, Ipoh, Kota Kinabalu and Tawau.

Surgical Services

Surgical services are divided into basic surgical specialities (e.g general surgery, orthopaedic and urology) and surgical subspecialities (e.g hepatobiliary, hand & micro surgery and endocrine). Table 12 shows the number of hospitals which provide the surgical services according to disciplines. For hospitals without specialists, the specialist clinics are still run through the networking of services through the respective visiting specialists. As a result, the number of specialist clinics was higher as compared to the number of hospitals with specialists. In 2002, the number of surgical clinics increased from 255 to 264. The number of beds for the surgical specialities also increased from 7,131 (2001) to 7,357 (2002). The total increment was 226 beds i.e. 21.49% of the total beds in government hospitals. The increment was obviously seen in general surgery, orthopaedic and ophthalmology.

TABLE 12
Total Number of Facilities for Surgical Specialities in Government Hospitals, 2001-2002

Discipline	Number of Specialist Hospitals		Number of Specialist Clinics		Number of Beds	
	2001	2002	2001	2002	2001	2002
General Surgery	39	39	55	59	3,726	3,802
Orthopaedic	25	25	51	55	2,148	2,220
Ophthalmology	28	28	52	58	580	588
ENT	20	20	47	46	274	274
Urology	7	7	26	22	127	182
Neurosurgery	5	5	5	5	136	136
Cardiothoracic	3	3	4	4	30	30
Plastic Surgery	9	9	13	13	110	113
Hand and Microsurgery	1	1	1	1	NA	12
Hepatobiliary	1	1	1	1	NA	NA
Total	**138**	**138**	**255**	**264**	**7,131**	**7,357**

Source : Information and Documentation System Unit, Ministry of Health

i) ***Surgical Specialist Clinic Services***

Overall, the total number of patients treated in the surgical specialist clinics increased to 8.98%. This is 42.46% of the total number of out patients who came to the specialist clinics and 22.34% of the total number of out patients who came to government hospitals. There were three main disciplines namely Cardiothoracic, Orthopaedic and ENT, where number of patients increased more than 10%. The number of patients in Hand & Microsurgery and Hepatobiliary clinics had decreased by an average of about 5%. Cardiothoracic cases had increased by nearly 65% (Table 13).

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

Table 14 shows the number of surgical patients who were admitted to the wards. 20.06% from the total number of patients admitted in the government hospitals were surgical patients. Generally, the percentage increased by 6.98% from 316,424 in 2001 to 338,494 in 2002. The increment was obviously seen in Cardiothoracic and Urology discipline. Generally, the BOR rate was around 40% to 65%. There was lack of beds in two disciplines, namely Cardiothoracic and Neurosurgery.

TABLE 13
Total Number of Patients Treated in the Surgical Specialist Clinics in 2001 and 2002

Discipline	Number of Outpatients		% Increase or Decrease
	2001	2002	
General Surqery	354,774	373,634	5.32
Orthopaedic	402,278	455,324	13.19
Ophthalmology	409,133	429,870	5.07
ENT	181,401	204,632	12.81
Urology	107,446	119,981	11.67
Neurosurgery	2,257	2,407	6.65
Cardiothoracic	9,933	16,407	65.17
Plastic Surgery	21,832	22,551	3.29
Hand and Microsurgery	11,218	10,438	-6.95
Hepatobiliary	1,703	1,608	-5.59
Total	**1,501,975**	**1,636,852**	**8.98**

Source : Information and Documentation System Unit, Ministry of Health

TABLE 14
Total Number of Patients Who Were Admitted to the Surgical Wards

Discipline	Number of Inpatients		% +/- difference between 2001/2002	Bed Occupancy Rate (BOR)	
	2001	2002		2001	2002
General Surgery	194,997	204,784	5.02	53.57	54.35
Orthopaedic	79,274	85,896	8.35	64.49	64.08
Ophthalmology	21,644	23,508	8.61	46.43	45.25
ENT	8,569	9,113	6.35	47.59	48.17
Urology	4,937	6,627	34.23	69.52	63.25
Neurosurgery	4,749	5,491	15.62	109.52	118.68
Cardiothoracic	530	696	31.32	73.34	96.23
Plastic Surgery	1,724	1,887	9.45	50.75	48.80
Hand and Microsurgery	NA	492		NA	45.21
Hepatobiliary	NA	NA		NA	NA
Total	**316,424**	**338,494**	**6.98**		

Source : Information and Documentation System Unit, Ministry of Health

Generally, the number of operations increased by 7.93%. An obvious increment was seen in Cardiothoracic (23.15%), Plastic Surgery (23.09%) and Neurosurgery (21.36%) while there was a negligible increment in Orthopaedics (1.42%).

TABLE 15
Number of Operations Done in 2001 and 2002

Discipline	Number of Operations		% Increase or Decrease
	2001	2002	
General Surgery	166,649	190,366	14.23
Orthopaedics	198,745	201,575	1.42
Ophthalmology	29,849	32,692	9.52
ENT	23,896	26,365	10.33
Urology	16,163	17,476	8.12
Neurosurgery	4,653	5,647	21.36
Cardiothoracic	1,015	1,250	23.15
Plastic Surgery	3,659	4,504	23.09
Hand and Microsurgery	NA	NA	NA
Hepatobiliary	NA	NA	NA
Total	**444,629**	**479,875**	**7.93**

Source : Information and Documentation System Unit, Ministry of Health

In 2002, 66.20% of the total number of operations done consisted of emergency cases. Emergency cases were mostly done by the Orthopaedics surgeons (50.46%), followed by General Surgery (42.60%). The number of emergency operations done increased by 9.16% as compared to 2001, while elective cases increased by 5.58%. Both Cardiothoracic and Plastic Surgery showed higher increment in the number of elective and emergency cases done. The Orthopaedics discipline undertook a lot of operations for elective and emergency cases (Table 16).

Diagnostic Services

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

i) *Pathology Services*

Pathology Laboratory Service is a nucleus service provided in each hospital of the Ministry of Health. It is available in 122 hospitals and 800 health clinics throughout Malaysia. The service comprises of biochemistry, microbiology,

haematology, histopathology, cytology, bacteriology, mycology, immunology and forensic. Overall, the workload of pathology services increased by 22.59% for the year 2002 as compared with 2001. Haematological investigations showed the highest increase of 46.1%, as compared to 2001. Implementation of new tests carried out in 2002 is outlined in Table 17.

There are 7 pathologists undergoing sub-speciality training abroad. They are as follows: - Cytogenetic/Molecular Hematology and Hematopathology (2), Infectious Disease (1), Gynae Pathology (2), Endocrine and Metabolism (1) and Scene of Crime Pathology (1).

TABLE 16
Number of Elective and Emergency Cases in 2001 and 2002

Discipline	Number of Elective Operations			Number of Emergency Operations		
	2001	2002	% Increase or Decrease	2001	2002	% Increase or Decrease
General Surgery	54,988	54,965	0.04	111,661	135,401	21.26
Orthopaedics	37,730	41,212	9.22	161,015	160,363	0.40%
Ophthalmology	24,748	26,921	8.78	5,101	5,771	13.13
ENT	17,689	18,729	5.87	6,207	7,636	23.02
Urology	13,626	14,584	7.03	2,537	2,892	13.99
Neurosurgery	973	1,249	28.36	3,680	4,398	19.51
Cardiothoracic	865	1,019	17.80	151	231	52.98
Plastic Surgery	2,988	3,503	17.23	671	1,001	49.18
Hand and Microsurgery	NA	NA	NA	NA	NA	NA
Hepatobiliary	NA	NA	NA	NA	NA	NA
Total	**153,607**	**162,182**	**5.58**	**291,023**	**317,693**	**9.16**

Source : Information and Documentation System Unit, Ministry of Health

TABLE 17
New Services Available, 2002

No	Test	Hospitals
1	CD4/CD8 Test	Hospital Kangar, Hospital Queen Elizabeth, Hospital Kuching
2	Renal Pathology	Hospital Kuala Terengganu
3	Bacteriology	Hospital Pasir Mas
4	Endocrine and Tumour Markers	Hospital Tawau
5	Protein Electrophoresis	Hospital Umum Kuching

ii) ***Blood Transfusion Services***

Blood transfusion services are available in 111 government hospitals, private medical centres and the National Blood Centre. The service comprises of procurement, processing and banking services. Statistically, there was an increase by 10.78%, of blood donors in the year 2002 as compared to 2001. Regular blood donors also increased by 37.3% and so was the blood collection by 83.4%. Amongst the programmes carried out to ensure the quality of the service provided are the National Quality Programme and the External Quality Programme. Besides this, the National Blood Centre, through the Ministry of Health has acquired two new machines, namely a Flowcytometer Unit with Cell Dyne 400 Haematology Analyzer and Prism 6 Channel Abbot Analyzer so as to facilitate the provision of quality service.

iii) ***Forensic Services***

The medical forensic service is currently available in 11 Ministry of Health Hospitals i.e. in hospitals with specialists. Overall there is 2.58 % increase in post mortems carried out for police cases. However for the other cases, there is a drop of 0.71% (Table 18).

In 2002, the mortuaries at Hospital Tengku Ampuan Afzan, Kuantan and Hospital Kuala Lumpur were upgraded to Biosafety Safety Level 2.

TABLE 18
Number of Forensic Cases, 2002

State	2001		2002	
	Ordinary Cases	Police Cases	Ordinary Cases	Police Cases
Peninsular Malaysia	18,248	4,644	18,187	4,794
Sabah	1,306	206	1,232	203
Sarawak	213	225	207	209
Total	**19,767**	**5,075**	**19,626**	**5,206**

iv) ***Diagnostic Imaging***

The Diagnostic and Imaging services are currently available in 122 Ministry of Health (MOH) hospitals and 82 health centres.

There has been an increase in the number of radiological investigations by 7.5% in 2002 as compared with 2001. General radiology investigations form a major proportion i.e. 88.09% of all investigations done in 2002.

TABLE 19
Total Number of Investigations Done 2000-2002

Type of Investigations	2000	2001	2002
General Radiology	1,937,568	2,024,929	2,158,694
Special Examinations	31,317	24,145	26,529
CT Scan	58,313	65,902	80,243
MRI	4,956	6,224	8,690
Ultrasound	138,966	140,410	152,400
Additional Examinations	15,600	17,288	23,837
Total	**2,186,720**	**2,278,898**	**2,450,393**

In 2002, CT Scanners were installed in three hospitals namely Hospital Klang, Hospital Ipoh and Hospital Kuala Lumpur whilst MRI 1.5 Tesla was installed in Hospital Kuantan, Hospital Kuching and Hospital Penang.

A total of 9 courses on diagnostic imaging were held in the year 2002 for specialists and radiographers.

v) ***Nuclear Medicine***

Nuclear medicine services were started in 1996 in Malaysia. There are 11 centres, which provide the service, four of them being under the Ministry of Health (Hospital Kuala Lumpur, Hospital Umum Sarawak, Hospital Pulau Pinang and Hospital Sultanah Aminah Johor Bahru), three of them being under the Ministry of Education (Hospital UKM, University Malaya Medical Centre and Hospital USM) while the other four are private medical centres (Sentosa Medical Centre, National Health Centre and Ampang Putri Medical Centre). There are about 27 types of scan and therapy services provided from these centres (namely Bone Scan, 131 Iodine Ablation Therapy, etc.). Statistically there was a 2.86% reduction in the services provided in 2002 as compared to 2001, in government hospitals under the Ministry of Health.

In the year 2001, the Ministry of Health identified Hospital Pulau Pinang to be a centre of excellence for nuclear medicine services. The Ministry of Health has spent RM1.41 million on this centre since 1996.

Professional Development

Professional development comprises of two components, specialist and medical officers and Allied Health personnel.

TABLE 20
Number of Scans/Therapy Cases Done in Government Hospitals

Hospital/Service Centre	Total Number of Scans/Therapies done per year		% Increase or Decrease
	2001	2002	
Hosp. Kuala Lumpur	3,344	3,219	-3.74%
Hosp. Umum Sarawak	166	140	-15.66%
Hosp. Pulau Pinang	1,151	1,020	-11.38%
Hosp. Sultanah Aminah Johor Bahru	793	1,009	27.24%
Total	**5,454**	**5,388**	**-2.86%**

Specialists and Medical Officers

i) *Gazettement of Clinical Specialists*

Gazettement is a process to ensure a doctor with a recognized post-graduate qualification is capable of functioning as a specialist independently. In the Ministry of Health, the Director General of Health on the recommendation of 3 senior consultants can appoint a doctor as a specialist if he has fulfilled all the requirements. In the year 2002, 303 specialists have been gazetted and increase of 30% as compared to the year before in Orthopaedics Surgery being the higher groups gazetted followed by O&G specialist.

ii) *Credentialing System*

The credentialing system has been implemented in phases since the establishment of NCC in the year 2001. Credentialing is part of hospital risk management program should cover all healthcare professional but due to enormous task involved, the initial phases will be limited to specialist performing specialized procedure. NCC has made a stand that all clinical specialists who undergo gazettement will be automatic credentialing in their care procedure. In implementing the process the NCC has received 67 applications for credentialing.

iii) *CME/CPD*

This unit is also responsible for planning to coordinate CME activities related to career development of specialist. Under the new policies 2002, a grant of 3 million had been approved for this activity. Until the end of 2002, 108 courses have been sponsored & 3,764 participants had been nominated an increase of 23% as compared to the previous year.

iv) ***Specialist & MO Manpower Needs***

This unit is responsible for planning and identifies the manpower needs required for development and expansion of the specialist services. For the year 2002, the central Agency has approved 365 new post of grade U1/U2 for the specialty of various discipline. However, placement of MO of specialist working in government hospital stills show shortage in various subspecialty.

v) ***Training Program for Junior Doctors***

To improve the training for junior doctors, junior doctors are required to complete 12 months of training as House Officers followed by another 12 months in the same state, as Junior Medical Officers. During these 2 years, the junior doctors are required to complete training in 6 basic disciplines, Paediatrics, General Medicine, General Surgery, Obstetrics and Gynaecology, Orthopaedics and Anaesthesia or any other basic discipline. The duration for each attachment is 4 months. Guidelines regarding this change in the training program were circulated in early 2002 and implemented by the middle of 2002.

vi) ***Buying of Private Specialist Services***

Buying of Private Specialist Services is based on availability of certify specialty recognized in certain hospital to be carried out by government parties without specialist on "standby" is paid a sessional/honorarium basis. For the year 2002, 10 applications were process as compared to 24 in 2001.

Allied Health Personnel

The term 'Allied Health Professions' has been used to reflect the diversity of professions involved in medical care and the natural affinity these professions have with each other, while recognizing their individuality and uniqueness.

i) ***Improvement of Scheme of Service***

The proposal paper on upgrading scheme of services for various professions has been forwarded to the Public Services Department for their attention and consideration.

The proposal on the change of designation for *'pegawai pembangunan masyarakat'* to 'medical-social officer' *(pegawai kerja sosial perubatan)* and *'pegawai penyeliaan makanan'* to 'dietitian' *(pegawai dietetik)* has been approved by the Public Services Department.

ii) ***Continuous Medical Education***

- The 'Combined Scientific Meeting of Allied Health Professionals' has been organized by the Allied Health Unit every two years since 1996. In 2002 the fourth conference was held on 7th -10th October 2002 in Kota Kinabalu, Sabah, with a very good response from more than 300 participants.
- This unit also had organized three series of management courses specifically for the middle and senior hospital managers which ran in July 2002. The theme for the courses was 'Leadership Change Management & Management at a Strategic Level'.
- The training for health attendants in the MOH are divided into 3 levels in which level 1 & 2 are conducted at the state level, and level 3 are conducted centrally. Six series of training in level 3 were conducted with a total of 860 trained in the year 2002.

iii) ***Foreign AHPs Employed by the Private Hospitals/Institutions***

The employment of foreign AHPs by private hospitals/institutions follows strict guidelines and procedures. A total of 280 applications from foreign nurses and 25 applications from foreign allied health professionals (excluding nurses) have been approved in the year 2002.

iv) ***Allied Health Profession Bill***

The MOH is at the final stages of drafting the 'Allied Health Profession Bill' where we are awaiting deliberation with the MOH legal advisor.

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 5 applications from the private institutions has been received and approved in 2002, and is in the process of signing agreement.

Medical Resources

The Medical Resource Section is responsible in managing the budget and also to render technical input for any medical equipment required to be procured.

Medical Budget

i) ***Expenditure Target (ET)***

In year 2002, Medical Program was provided a total allocation (ET) of RM3,159,435,704.00. This amount was 62% of the total amount allocated to the Ministry of Health. About 103% was spent and emolument was the main component which made up to 116.3%. Expenditure for the *"bekalan dan perkhidmatan"* was 92.29% and for asset, it was 65.13% from the total allocation of RM57 million.

ii) ***"New Policies"***

Total of 21 "New Policies" were approved for the year 2002 which involved RM 69.3 million. RM 57.075 was under OA 20000 and RM 12.225 million was under OA 30000. Only 53.85 % and 65.64% was spent for OA 20000 and OA 30000 respectively. The overall expenditure by the Medical Program was 56.23%.

iii) ***Development Budget***

In year 2002 RM 65 million was allocated to the Medical Program under "projek BP 301 *(ubahsuai dan naiktaraf hospital)*". Among the equipments purchased was the Dual Head Gamma Camera for Hospital Pulau Pinang and Hospital Umum Sarawak. Money was also allocated for rendering the Hepatobiliary dan Colorectal services in Hospital Selayang. About RM 4.5 million was allocated for the Haemodialysis Unit in Hospital Kangar, Jitra, Kapit, Pekan and additional related equipment for other centres throughout the country.

With the cooperation of the Finance Division, Ministry of Health every effort is made to ensure that any allocation approved abide to the Treasury Regulations and used accordingly to the needs and requirements.

This Section is also responsible for the preparation of Agreement Report and Exceptional Report for the Medical Program, and in the evaluation of Modified Budgeting System.

Medical Equipments

This Section with the cooperation of *"Cawangan Perkembangan Perkhidmatan Kepakaran"* will identify medical equipments required for government hospitals. This Section is also responsible in preparing specifications for all medical equipments that are been purchased.

For the year 2002, only two (2) tenders were done at the central level i.e. the "closed blood collection system" and the "C-Arm". The remaining allocation was distributed to the State Health Department which was largely procured through quotation. Some of the equipments were tendered at the state level as the amount of the equipments were more than RM 200,000.00 and involved only one *Pusat Tanggung Jawab*. Medical Resource Section is responsible in monitoring the tender procurement processes and below is the list of equipments tendered at the state level (Table 21).

In conjunction with the Summit Meeting of the Non Aligned Movements (NAM) countries in February 2003, this section was responsible for the procurement of nine (9) medical equipments amounted to RM277,701.00.

TABLE 21
Equipments Tendered at State Level, 2002

No.	State	Hospital	Medical Equipment
1	Kedah	Hosp. Alor Setar	Urodynamic system
2	Penang	Hosp. Penang	Intense Pulse Light System
3	Penang	Hosp. Penang	Carbon dioxide laser
4	Perak	Hosp. Ipoh	Haemodialysis Machine
5	Perak	Hosp. Ipoh	Image Intensifier
6	Perak	Hosp. Taiping	Central Monitoring System
7	Perak	Hosp. Seri Manjung	Endoscopic video imaging system with gastroscope and bronchoscopy
8	Kuala Lumpur	Hosp. Kuala Lumpur	Atomic absorption spectrophotometer
9	Kuala Lumpur	Hosp. Kuala Lumpur	Flowcytometer
10	Kuala Lumpur	Hosp. Kuala Lumpur	Amino Acid Analyser
11	Kuala Lumpur	Hosp. Kuala Lumpur	GCMS
12	Selangor	Hosp. Selayang	Sleep Diagnostic System
13	Selangor	Hosp. Selayang	Bone Densitometer
14	Selangor	Hosp. Selayang	Ultrasonic Liver Dissector
15	Selangor	Hosp. Kajang	Central Monitoring System
16	Malacca	Hosp. Malacca	Refrigerated Centrifuge
17	Malacca	Hosp. Malacca	Semi Automated Microplate & Gel Cord Blood

Source : Medical Resource Section

This Section acts as the coordinator in the technical evaluation for consumables items that are supplied by REMEDI Sdn. Bhd. (now known as Pharmaniaga Sdn. Bhd.) As for the year 2002, more than 80 items were evaluated.

Privatisation of Support Services

This Section works hand in hand with the Procurement & Privatisation Division and the Engineering Division in monitoring the performances of the three Concession Companies which involve :

- Clinical Waste Management Service
- Cleansing Services
- Linen and Laundry/Services
- Facility Engineering Maintenance Services
- Biomedical Engineering Maintenance Services

(The Concession Companies are Faber Medi-Serve Sdn. Bhd., Radicare (M) Sdn. Bhd. and Pantai Medivest Sdn. Bhd.)

Audit Report

This Section is responsible to coordinate all feedbacks that are needed from the queried states or Hospitals (Internal or External Audit).

EXTENDED MEDICAL CARE

Extended Medical Care is a new activity under 8th Malaysia Plan and is derived from Medical Rehabilitation Activity under the 7th Malaysia Plan. Being part of the total patient care provided in hospitals, its aim is at reducing disability, improve functionality and enhance the capacity of an individual to lead a meaningful, productive and quality of life.

Rehabilitation Medicine

Cheras Hospital has been chosen as the Centre of Excellence for Rehabilitation Medicine Programme. Since the hospital has yet to be established, Putrajaya Hospital has been identified as the temporary Centre of Excellence for Rehabilitation Medicine Programme.

The purpose of Smart Partnership between MOH and the Social and Welfare Department is to make sure that Rehabilitation Medicine service will cover the social, vocational and psychological aspects. The Social and Welfare Department offered the hospital block in Pusat Latihan Perindustrian dan Pemulihan Orang Kurang Upaya (PLPP), Bangi and MOH will provide man power and expertise.

Types of cases seen at Rehabilitation Medicine Clinic HKL, HPJ and PLPP are as follows :

'Core services'

- Paediatric Disability (Cerebral Palsy/Spina Bifida)
- Amputee
- Stroke/Neurology Deformity
- Foot and Hand Deformity
- Poliomyelitis

'Generic services'

- Driving licence assessment for the disabled
- Counselling
- Registration
- Education
- Financial Status

HKL also provides orthosis services

At the moment, there only 3 specialists who are currently in service with MOH. 2 of them are posted to Putrajaya Hospital and one posted to Hospital Seremban. The number of specialists is hoped to increase with the coming postgraduate qualifications. (Masters Programme is only available at University Malaya).

Physiotherapy Service

The purpose of Physiotherapy service is to help patients in a disabled state after an accident or illness so that they can achieve an optimal life. Patients who are treated are from all age groups and all forms of illnesses.

Table 22 shows that there is an increment of 4.17% in the number of hospitals which provides this service in year 2002 if compared to year 2001. This involves 45 hospitals with specialists, 27% hospitals without specialists and 3 special institutions.

There are 2 types of physiotherapy services and these are in-patient and out-patient service. In year 2002, there is an increment in the number of in-patients (469,939 patients) and out-patients (517,874 patients) i.e. 5.24% and 4.90% increment respectively. Workload also increase and this is shown by the increment in the number of treatments given in year 2002 i.e. 1,129,836 in-patient treatments and 1,521,845 out-patient treatments and these are 10.3% and 6.63% increment respectively.

In 2002, there is an increment of 129 posts (31.4%) for physiotherapists to cater for the increasing needs of patients, but the number of filled up posts has not increased. In year 2001, the number of posts filled up was 71.29% whilst in 2002

TABLE 22
Number of Hospitals with In-Patient Physiotherapy Services by States, 2001-2002

State	No. of Hospital Providing Inpatient Physiotherapy Services					
	2001			2002		
	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	1	4
Perak	5	4	9	5	5	10
Selangor	5	1	6	5	1	6
Federal Territory	2	0	2	3	0	3
Negeri Sembilan	2	0	2	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	5	3	8	4	3	7
Sarawak	5	3	8	5	4	9
Total number of hospital	45	24	69	45	27	72
Special institutions			3			3
Total			**72**			**75**

*P = Hospital with specialists *TP = Hospital without specialists
Source : Information and Documentation System Unit, Ministry of Health

the number of posts that were filled up was only up to 57.04%. The number of posts that were filled is quite low because the number of trainees for physiotherapy is low. In addition, the output for trainees who passed the exams is only about 20 to 30 per year.

Occupational Therapy

Occupational therapy aims to help patients that they can achieve the best physical condition that can cope with their daily activities. It caters for all age groups of patients and for all kinds of illnesses. The service can be found in 40 hospitals (including hospitals with specialists and special institutions).

There is an increment of 80 posts i.e. 32.65% in the year 2002 if compared to the year 2001. But there is no increment in the number of posts filled. In year 2002, only 59.70% were filled-up posts whereas in 2001, 66.94% were filled up posts (7.24% decline). The reason for the decline in the number of posts filled is mainly because of the fact that the number of trainees for occupational therapy is also low and they also may be receiving better offers from the private sector.

Speech Therapy and Audiology

Speech therapy and Audiology services are still new in Malaysia. These services are mainly provided in hospitals with ENT services. In year 2002, there are 12 hospitals with speech therapy services and 18 hospitals with audiology services.

MEDICAL CARE QUALITY

The goal of the Medical Care Quality Activity, represented by the Patient Care Services Quality Assurance Programme (QAP) is internalising and institutionalising quality within the Medical Programme so that our clients can obtain better health and better health care.

National Indicator Approach (NIA)

From 1986 till 2000, a total of 19 indicators have been in use. They were reviewed following the recommendations of a nation-wide survey conducted by the MOH in 1997. After a series of reviews by the relevant expert committees, 8 out of the present 19 indicators were retained as part of the new set of 53 indicators endorsed by consensus at the meeting in Port Dickson in August 2000. After piloting in 4 hospitals at the end of 2000, a series of road shows were conducted nation-wide and data collection for field testing of the 53 indicators began in July 2001.

A different approach for the NIA is currently being implemented using "care pathways" to address the problem of data accuracy as well as the capability to perform *primary risk adjustment* for the NIA data, thus making benchmarking a future possibility. The next step will be to develop a computerised Care Pathway for Acute Myocardial Infarction to be piloted in a number of hospitals in 2003.

Hospital-Specific Approach (H.S.A.)

A data-base on the H.S.A studies is currently being compiled by the HSR Unit at the Public Health Institute that functions as the National Secretariat for MOH QAP. The Section on Quality in Health Care of the Medical Development Division, as the Secretariat for the Patient Care Services QAP will work closely with the National Secretariat to utilise the shared information in order to develop more quality improvement activities for nation-wide implementation in the future. Training in Problem-Solving Methodology will be held in 2003 for the training of Trainers.

Perioperative Mortality Review (POMR)

28 hospitals are involved in this study which comprises of 23 Public Hospitals (State Hospitals and Hospitals with Specialists), 4 University Hospitals and 1 Military Hospital as well as the National Heart Institute (UN) which became an official member in 2002. 4 POMR meetings were held in 2002 where 583 cases were discussed. The implementation of a new format for POMR was done throughout 2002 and focused on 5 surgical groups, which are Paediatric Surgery, Obstetrics& Gynaecology, Colorectal Surgery, Polytrauma and Neurotrauma.

The 19th Edition of the POMR Bulletin has been published. It contains examples of Peri-Operative deaths that can serve as reminders to all doctors and paramedical staff. The 4th Biennial Report (January 1998 to December 1999) has also been edited and will be distributed in January 2003. A number of recommendations have been discussed and is now in the process of implementation at the National level. Among them are :

i) Major cases in Paediatric Surgery to be performed by Paediatric Surgeons.
ii) To form a Specialised Ambulance Unit that handles Neonates.
iii) To form a Paediatric ICU at every state or at a regional level.
iv) Patients requiring a medical service that is not available at public hospitals can receive such services at private hospitals provided that the case is referred by the Specialist in a public hospital (out-sourcing of a service).

National Adult ICU Audit

This Program commenced on 1 February 2002. The program is chaired by Dr Ng Siew Han (Head of Anaesthesiology Department, Ipoh Hospital). This audit is generally aimed at identifying the shortcomings present at the country's ICUs. Henceforth, measures can be implemented to improve the standard of care offered by the ICUs. 2 workshops were held to provide explanation and training to the Anaesthesiology Specialist and paramedical staff who are directly involved with ICU care regarding the ICU Audit program.

14 hospitals are involved in this program and it consists of all State hospitals with 4 or more ICU beds. Also included in this group is Selayang Hospital. The trial period for data collection was between July-December 2002 using a format prepared by the Specialists Committee. The analysis of the collected ICU data is scheduled for June 2003.

Medical Audit

The resolutions of an initial meeting to discuss issues regarding Medical Audit held on 19 June 2002 are as follows :

i) The Medical Audit will concentrate on cases of Acute Myocardial Infarction.
ii) Initially, there will be a Committee consisting one U3 and two U7s.
iii) The methodology for the POMR Program will be used.
iv) Medical Audit cases will be used in CME sessions.

A proposal paper for the implementation of Medical Audit will be prepared for a pilot implementation in 2003.

Hospital Infection Control Program

The National Infection Control Unit was set up at the Quality in Healthcare Section to co-ordinate the national level Infection Control Program. Achievements include: Surveillance Program Meeting for Infection Control held in Pulau Pinang between 2 to 5 June 2002. International and local expert speakers were invited. Participants consisted of 86 from the MOH and 75 from the private sector. The meeting formulated a clear direction for the nationwide Infection Control teams :

i) A national "Point Prevalence Survey" to be conducted in 2002. Personnel will be trained in September at Hospital UKM.
ii) Data collection to commence with MRSA infection. It is to start on 1 July 2002 and will involve all State Hospitals. In the second phase of implementation, data concerning ESBL *Klebsiella* infection will be collected. Training will be conducted in IMR.
iii) For MOH hospitals, there must be 1 Infection Control Nurse for every 250 hospital beds (1:250). Link Nurses to be stationed at each ward.
iv) The development of long-term Post-Basic and Short Courses for Infection Control was also discussed. A working paper will be submitted to Human Resource Planning Division and it is hoped that the courses could be started in 2003. For the short courses, the task will be undertaken by the Infection Control Association of Malaysia.

The Pro-Tem Committee for the Infection Control Association of Malaysia was established. The Association was formally registered in October 2002.

Occupational Safety and Health (OSHA)

2 National level meetings were held by the Quality in Healthcare Section. The meetings determined that all safety and health activities carried out at MOH hospitals are to be under the control of Hospital Directors and the hospitals' Occupational Safety and Health Units. There has been no suggestion to start the post of a Safety Officer at Public hospitals. Overlapping functions between the categories of staff need to be streamlined.

A Guidebook on Occupational Safety and Health will be published early 2003. Templates concerning these disciplines have been prepared and have been published :

- A&E
- Operation Theatres
- O&G
- ICU&CCU
- CSSD
- Pathology
- Pharmacy
- Food Preparation
- Dental Division
- Radiology

Hospital Accreditation Program

The following are the achievements of the programme since inception in 1998 until the end of 2002 :

TABLE 23
Hospitals Accredited Up to 2002

Implementation Level	State Hospital	Specialist District Hospital	Non-specialist District Hospital	Total
Undergone training	11	23	49	83
1 year ACCREDITATION	0	2	2	4
3 year ACCREDITATION	4	6	9	19

In 2001 and early 2002, studies have concluded that the ISO 9000 and Accreditation programs are complementary of each other in that one cannot replace the other. It was not possible to combine these 2 programs into one hybrid product. In addition, the bodies granting these certifications are separate entities i.e. SIRIM and MAMPU for ISO; MSQH for Accreditation. The study done on Hospital Kota Bharu (which has obtained both certifications) has reinforced this point and shown that the staff members of that hospital initially started with efforts towards obtaining Accreditation. The recommendation is for Accreditation to be used as a "Framework for Quality" whereas the preparation of documents can follow the ISO methodology. The institution concerned can use the standards set forth by Accreditation to complete ISO documentation. In that way, an institution will be able to achieve 2 certifications at once as was done by Hospital Kota Bharu.

MS ISO 9000 Certification - MOH Hospitals Group

The Quality in Healthcare Section is the Secretariat for the implementation of the MS ISO 9000 Certification Program for hospitals under the MOH group. The 8 hospitals that have successfully obtained the MS ISO 9000 certification are Hospital Kulim, Hospital Kota Bharu, Hospital Tanah Merah, Hospital Pasir Mas, Hospital Tengku Ampuan Rahimah, Klang, Hospital Kuala Pilah, Hospital Muar dan Hospital Kemaman.

38 hospitals within the MOH group are in various stages of implementation for the MS ISO 9000 certification program as shown in Table 24.

TABLE 24
Status of Implementation of MS ISO in MOH Hospitals

Status of ISO Implementation	No. of Hospitals
Awareness of ISO concepts	2
Sending staff for ISO courses	1
Appointed Quality Management representatives	3
In the process of preparing required documents	12
In the process of implementing Quality Procedures and Quality Manuals	1
Internal Audit Training	4
Adequacy Audit	2
Compliance audit	5
Full organization-wide ISO	8
Total	**38**

Caring Culture Program : MOH Hospitals

The Corporate Culture Program was introduced in the MOH in 1990. The Training Module was produced in 1994. The training program for Medical Officers was planned by the Training Division, Public Health Institute and was held for the first time in May 1999. The Section on Quality in Healthcare monitors the Caring Culture program as well as reviewing the Caring Culture Modules that have been in place since August 2001.

A meeting to formulate the Guidelines for the Implementation of Caring Culture courses was held on 12-14 August 2002 where the following were agreed to :

i) Each hospital to allocate between 5-10 minutes at the beginning of its monthly Assembly or its CPS/CME/Journal Club/meetings towards the inclusion of a short presentation concerning the values within the Corporate Culture or any of its components.
ii) To embrace the Corporate Culture by for example, greeting all staff members and individuals. Each month the hospital is expected to emphasise on 1 component of the Corporate Culture through announcements by using banners, sign boards or brochures. The announcements are to be made at the beginning of each month by the Director and have to be practised by all staff members. The Quality Secretariat of each hospital will be responsible for the implementation of this program.
iii) Knowledge of Corporate Culture will be tested in promotional interviews

TABLE 26
Implementation of the Caring/Corporate and Other Cultures, 2002

State	Medical Officers			Professional	Support 1 Paramedic	Support 2 (c&d)	Total	No. of courses
	Specialist	M.O	H.O					
Perlis	-	8	-	1	30	7	46	2
Penang	-	48	-	20	96	123	287	6
Kedah	-	23	-	13	387	389	812	26
Perak	-	3	-	38	180	31	252	10
Selangor	45	61	2	57	485	450	1100	20
Fed. Territory	-	24	-	5	32	15	76	4
N. Sembilan	1	50	-	5	128	356	540	11
Malacca	-	-	10	3	6	116	135	5
Johore	1	22	49	61	562	720	1415	47
Pahang	-	38	-	15	91	175	319	10
Terengganu	-	-	-	-	21	29	50	4
Kelantan	-	9	-	2	47	47	105	5
Sabah	7	25	-	15	659	339	1045	27
Sarawak	-	-	-	12	-	3	15	1
Total	**54**	**311**	**61**	**247**	**2,724**	**2,800**	**6,197**	**178**

The script for the Communications Skills CD has been produced by a special working group. It has been fine-tuned with the co-operation of the Health Education Division. At the time of his report, the script has been submitted to the Medical Education Division for the production of the CD and the project is expected to be completed in January 2003.

National Therapeutic Gardens Competition

19 MOH hospitals representing 10 states participated in the National Level Therapeutic Gardens Competition in 2002. Terengganu, Sarawak and Perlis were not represented. The results are as follows :

1st – Tenom Hospital, Sabah
2nd – Tengku Anis Hospital, Pasir Puteh, Kelantan
3rd – Tampin Hospital, Negeri Sembilan

All the participating hospitals have shown tremendous improvement. The implementation of a Therapeutic Gardens competition has transformed the hospitals into recreational areas for the enjoyment of the public and made the hospital a "less sterile" place. This competition has also fostered the spirit of co-operation of all staff members.

Health Tourism

In the effort to promote Health Tourism, MOH act as the co-coordinators. Other agencies such as APHM, MATRADE, MITI and MoCAT have important supporting roles.

A meeting for the Sub-committee on Fee Packaging was held on 26 November 2002. The APHM, as the chair for the Fee Packaging Sub-Committee will table a completed Fee Package Schedule in February 2003.

The National Committee for the Promotion of Health Tourism Meeting 2/ 2002 was held on 28 November 2002. It was co-chaired by H.E the Minister of Health and H.E the Minister of Culture, Arts and Tourism. Participants included representatives from MOH, MATRADE, MITI and private agencies involved directly with Health Tourism. Among the resolutions from the meeting include :

i) All Private Hospitals are required to give more emphasis on efforts towards obtaining Accreditation as opposed to the ISO Certification.
ii) MSQH is urged to formulate an Accreditation standard that is internationally recognized for global acknowledgement.
iii) Specialists employed in Private Hospitals are allowed to advertise their services using their photos and listing their qualification, work experience and the university granting them with their Specialist Degrees.

Incident Reporting

For the Incident Reporting Programme, a Manual was published in 1999 by the Quality Unit of the Medical Development Division and has been distributed to all MOH hospitals for implementation. Included in the Quality Manual is a list of Reportable Incidents for different hospital locations e.g Operating Theatres, ICU etc. to enable preventive measures to be carried out. At present, Incident Reporting activities are only monitored at the State level where reports regarding any particular Incident are collected for further actions to be taken. There are 31 Incidents that are reportable by the MOH hospitals.

A Cabinet Note on "Patient Safety Council of Malaysia" which will be the main body for the promotion of Patient Safety has been prepared and will be tabled at the Cabinet meeting in early 2003.

Other Activities

There are a number of quality improvement activities that centre of the "inter-personal" aspect of quality such as patient-centered services, health-promoting hospital, patient complaints and patient satisfaction studies. Surveys are being conducted to ascertain the level of implementation at hospital level.

HEALTH TECHNOLOGY ASSESSMENT

The Health Technology Assessment Unit was established In August 1995, under the Medical Programme, Ministry of Health Malaysia, to provide input for policy making with respect to adoption or continued use of technology, in line with the ministry's policy of ensuring the safety, effectiveness and cost effectiveness of technology 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.

Achievements in 2002

Health Technology Assessments

In 2002, health technology assessment was started on 5 new issues by the respective expert committees, while assessments on 12 issues from previous years were continued. 4 issues were recommended by the TAC and approved by the Council.

i) Medical Management of Benign Prostatic Hyperplasia
ii) Maternal Screening for Foetal Abnormalities
iii) Vitamin K Administration for Newborn
iv) Heat Treatment for Degenerative Changes in Skeletal System

Recommendation from the reports :

i) In the case of medical management of benign prostatic hyperplasia, there is sufficient evidence that alpha blockers and 5 alpha reductase inhibitors are effective to treat moderate symptoms of BPH, with alpha blockers being more cost effective. There is insufficient evidence to support the effectiveness and safety of phytotherapy. Medical management is thus recommended for elderly patients with mild to moderate BPH.
ii) In Maternal screening for foetal abnormalities, due to ethical and religious issues associated with screening for Down Syndrome, neural tube defects and Thalassaemia, routine screening of pregnant mothers is not recommended. However, screening will be offered to mothers on request.

iii) For Vitamin K administration in the newborn, there is sufficient evidence to recommend that routine Vitamin K injection is continue to be administered to newborns to prevent Vitamin K Deficiency Bleeding.

iv) In Heat Treatment for Degenerative Changes in Skeletal System, various methods for treatment are discussed. There is sufficient evidence of effectiveness only of Capsaicin, while more evidence is needed to confirm the effectiveness of the other treatment modalities. There is also a need for standardization of the clinical use of the various types of heat treatment.

Clinical Practice Guidelines (CPG)

The Unit has provided assistance in the preparation of 30 CPGs produced by colleges or societies within the Academy of Medicine Malaysia or by the Unit itself. A CPG produced by the Dental Division, MOH, 'Avulsion of tooth' was approved by the Council.

Health Technology Reviews

18 requests for review (Table 26) were received and 13 of these have been completed while 5 are at the stage of preparation of the final report.

Training Sessions

i) ***Seminar***

5 seminars were organized by the Unit :

- Seminar for Allied Health Personnel held from 13-14th May 2002, at KL International Hotel, Kuala Lumpur. The 40 participants were from various categories of Allied Health Group from Peninsular Malaysia as well as from Sabah and Sarawak.
- Seminar for nurses held at Vistana Hotel on 17-18th June 2002, with 40 participants.
- Seminar (HTA & CPG) for pharmacists on 24-25th June 2002, at Vistana Hotel, Kuala Lumpur.
- A hospital seminar was held at Hospital Kuala Terengganu, on 9-10th July 2002, for clinical specialists, pharmacists, health officers, and hospital directors.
- A critical appraisal seminar was held for clinical specialists and other medical personnel in Johor Bharu, on 12th October 2002.

TABLE 26
List of Request for Review, 2002

No	Issues
1	Red Palm Olein
2	ASPIRO Air Therapy System
3	Routine Medical Examination
4	Intense Pulse Laser
5	Smartlock Safety Syringe
6	Directed Electromagnetic Microwave Energy Technology
7	Haemodialysis machine
8	Nucleic Acid Testing
9	NIDO hair transplant
10	Svenson Hair System
11	Low level energy ultrasound for wound healing
12	Bioherbalogy Hair Care System
13	Positron Emission Tomography
14	Hyperbaric Oxygen Therapy
15	Infrared Color Mammography for screening of breast cancer
16	Ultrasound bone densitometry
17	Screening tools for mental disorder
18	Colon hydrotherapy and Chelation Therapy

ii) ***Training Course***

The annual training course was held at Ferringhi Beach Resort Hotel, Pulau Pinang from 27th to 30th August 2002. The 55 participants included clinicians from various disciplines, including, hospital directors, and officers from technical divisions in the Ministry of Health headquarters.

iii) ***Systematic Review Workshops***

Two workshops were organized mainly to assist clinicians in preparing clinical practice guidelines as follows :

- 5th - 6th August 2002, at Institute of Health Management, Ministry of Health, Bangsar.
- 29th - 30th October, at Vistana Hotel, Kuala Lumpur.

iv) ***CPG Workshops***

4 additional workshops were organised at the request of various divisions :

- Workshop for Dental Officers, at UKM from 28th - 29th March 2002.
- Workshop for Pharmacists, from 24th - 25th June 2002, Vistana Hotel, KL.
- Workshop for Dental Technologists at Langkawi, from 2nd - 3rd July 2002.
- Workshop for Dental Officers, at Institute of Public Health, on 2nd - 3rd October 2002.

Other Activities (local and international)

i) ***Annual ISHTAC Meeting***

An officer from the HTA Unit attended the 16th annual meeting of International Society of Technology Assessment in Health Care (ISTAHC) held in Berlin, Germany from 9th to 12th June, 2002, sponsored by World Health Organisation (WHO) and presented a paper at the meeting. He was also elected to the Executive Board of Directors of the Society. In addition, the officer also attended the International Conference on Clinical Practice Guidelines in Berlin from 7th-8th June 2002.

ii) ***Lectures to Masters in Public Health (MPH) Students***

Lectures were given to MPH students from University of Malaya and Universiti Kebangsaan Malaysia. In addition, MPH students from Universiti Sains Malaysia came to the unit for attachment.

MEDICAL LEGISLATION AND REGULATION

Introduction

The Malaysian health care system has evolved significantly since independence. The general health standards of Malaysia remain remarkably good and continue to improve as evidenced by health status indices. This is attributed as much to the country's social and economic development and improvements in living standards as to its public health services. Alongside an effective public healthcare delivery system, there is also a private sector that primarily delivers urban based and curative services. The private sector comprise mainly of general practitioners that provided affordable, good quality primary care. Prior to the 1980's, about 45% of doctors were in the private sector. Since 1980, the government encouraged greater private sector involvement in the provision of health care and primed the private sector as the driver of socio-economic development. As a result, between 1983-2002, the number of

private hospitals, maternity and nursing homes increased from 119 to 221 providing 9989 beds. Most of these private facilities are located in the larger towns and provide mainly secondary and tertiary care.

The seventh Malaysia Plan is unequivocal in its stance: ....the corporatization and privatization of hospitals as well as medical services will be undertaken during the Plan period. The Government will gradually reduce its role in the provision of health services and increase its regulatory role and enforcement functions. A health financing scheme to meet health care costs will also be implemented. However, for the low-income group, access to health services will be assured through assistance from the Government. The 8th Malaysia Plan reinforces and consolidated the policies as envisioned in the 7th Plan with minimal changes in input and participation from the parties which are affected.

In the wake of this dynamic backdrop reflecting the burgeoning socio-economic environment, Medical Practice Division is poised to play a key role in the development of the health sector. This Division comprises of 4 discrete entities each having it's own specific role and responsibilities namely : the Medical Legislation, the Licensing, Medico-Legal and the regulatory Boards and Councils of while there are 3 Boards (Nursing, Midwifery, and Medical Assistants) and 2 Councils (Medical and Optic).

With the exception of one entity, The Optic Council, established in 1991 during the Sixth Malaysia Plan, the other entities have been in existence and functioning before the Fourth Malaysia Plan one of which was established pre-independence (The Nursing Board, established in 1950). However, all these entities have not been grouped together in the form of an Activity. Some of the core business of this Activity namely formulating and enforcement of laws regulating the private healthcare sector were included under the Seventh Malaysia Plan under the "Community-based Medical Care Activity", the scope of which does not include delivery of community-based medical care by the public sector. The "Community-based Medical Care Activity" failed to take shape because of weak system support. During the review of the Seventh Malaysia Plan it was proposed that the "Community-based Medical Care Activity" be renamed "Medical Legislation And Regulation activity" the scope of which is broadened to encompass the regulatory Boards and Councils and the Medico-Legal.

Activities - Progress and Performance

The main functions/core business of this Activity include the formulation and review of Acts and regulations relating to healthcare and health-related facilities, services, practices and professionals and the implementation, monitoring and enforcement of such laws. However, this Activity does not cover laws relating to public health, international health, registration and regulation of dental practitioners and pharmacists.

The Medical Legislation Unit together with the Councils and Boards review and formulate policies and standards to be incorporated into laws and codes of professional conduct regulating healthcare facilities, services, practices and professionals. Implementation and enforcement of these laws and codes are carried out by the respective Councils, Boards and the Licensing and Enforcement Unit. The Medico-Legal Unit (or Public Relations Bureau) serves as the Medical Programme's arm to conduct investigation over grievances from the public against public and private healthcare sectors and to make appropriate recommendations to overcome any problems identified so as to improve the healthcare provided. This unit has been surrendered and presently comes under the portfolio of Medical Development Division.

Malaysia has maintained a mixed system of health care in which both the public and the private sector play significant roles. The nation's expenditure on health is not of the Government's alone - the private sector's expenditure (15 years ago) is estimated about $4000 million which was equivalent to 2.7 % of GNP at that fiscal year. This scenario has paved the way for the advent for the mushrooming of MCOs. It was feared that self-interest, rather than national interest, may have determined the positions adopted by the different groups of doctors. Consumer groups have, therefore, to become acquainted with the issues and take the lead in representing the consumer interest.

Achievements, Issues and Challenges

Commercialization of healthcare and the extent of the transformation in healthcare delivery that this has spawned is momentous. Commercialization of medical care which began as a trickle in the years after independence has become a flood with the growth of private sector employment and increased socio-economic standards of the population. The private health care business is now dominated by investor-owned health-care business. These new businesses now own and/or operate chains of hospitals, clinics, nursing homes, diagnostic laboratories and many other kinds of health facilities. Concern for profits rather than altruistic concerns inevitably dominate; it is no surprise therefore that healthcare costs have spiraled.

The emergence of MCOs offer another alternative for cost containment and they operate as third party interveners in the patient-doctor relationship. Malaysia's MCOs are in their infancy and the future development of MCOs is uncertain Guidelines for MCOs, enrollees of MCOs and doctors have since been issued by Ministry of Health. The administrative nature of these guidelines lack legislative punitive measures against errant MCOs and there is a compelling need to formulate a comprehensive MCO Bill. In the interim period, the power making regulations of the Minister under PHF&S Act will be tested in the framing of subsidiary laws controlling the operations of MCOs.

"Health legislation evolves over a period of time in a piece-meal fashion in response to changing medical, healthcare and technological developments." In the context of "Health For AH" there is a need for a holistic approach to health legislation and to focus on issues relating to quality, equitable distribution, and reasonable cost of healthcare. The right to healthcare has not been specifically enshrined in the federal constitution. In consonance with the dynamic changing socioeconomic landscape, existing health and health related legislation need to be revised and amended and new legislation will have to be enacted to address :

- weakness or lacuna in present laws and regulations.
- new developments in health care, health care delivery systems, health care financing system and new modalities of treatment.
- controversial issues such as Human Organ Transplant and cloning.

The present focus is to review and amend existing legislations and to enact new statutes to focus on quality, equitable distribution and reasonable cost of health care. Further, the absence of a comprehensive health act hinders the ability of Ministry of Health to undertake its regulatory role as the protector of the health of the community.

Problems and Shortfalls

Some of the deficiencies and shortcomings of the health legislation and law system of Malaysia are summarised as follows :

- delay in the publication of revised editions.
- Revised versions of law delayed; there is a need for existing laws to be regularly updated to keep pace with changes in medical technology.
- Limited enforcement provisions; the Medical Act 1971, Dental Act 1971, Nurses Act 1950 and Private Hospital Act 1971 do not provide specific or adequate provisions to enforce the laws.
- Private Healthcare Services and Facilities Bill 1998 and the Mental Health Act 2001 have been passed by Parliament; the final draft of the relevant regulations have been submitted to Attorney General's Office.
- Pathology Laboratory Bill is currently being studied by the Attorney General's Office and the final draft of the Allied Health Profession Bill has been completed. Traditional and Complementary Medicine Bill is being formulated in conjunction with Family Health Development Division under the ambit of Deputy Director General of Health (Research and Technical Support).
- Regulation of medical devices under the Medical Devices Bill is framed under the responsibility of the Pharmaceutical Division; With the advancement of technology, there is a need to regulate medical devices and address issues on quality, safety, efficacy and their rational use in the private and government sectors.

- There is a compelling need for greater intersectoral cooperation and community participation and calls for the assistance of Police, Customs and Immigration Officers to assist any authorised officer in exercising his powers of the various professional statutes in view of the lack of adequate enforcement provisions in the existing legislations.

Scope of Activities

The formulation of the "Private Healthcare Facilities And Services Act 1998" (PHFS Act) and its regulations will address many of the concerns identified especially the issue of enforcement in the professional legislations. The PHFS Act will ensure a more equitable distribution of private healthcare facilities and services. Development of new private healthcare facilities/services will take into consideration the availability of public, private and NGO facilities/services, the current as well as future needs for such facilities and services in any one specified area. Similarly, this law will regulate and control fees that may be charged by private healthcare sector to ensure such fees are justified, reasonable but appropriate thereby making them affordable to more people.

On the issue of quality, the policies and laws under this Division emphasize that quality healthcare be provided by all healthcare facilities and services. Among other things the law will require these healthcare facilities and services have adequate qualified healthcare personnel, provide healthcare standards for technical competence, efficiency and effectiveness and inculcate compassion and regard for human dignity in dealing with patient and staff alike by enshrining patient's rights into the law and the enforcement of codes of ethics of all healthcare professions.

On the issue of shortages and misdistribution of human resource, the laws and policies under the Division are framed to ensure that all private healthcare facilities and services have adequate staffing according to the norms set. Such private entities will be required to ensure that they have proper and acceptable means of meeting their staffing requirements covering all categories of staff. They are encouraged to train their own staff and avoid staff pinching from other private/public/university facilities. The law also encourages optimal utilization of all available healthcare personnel through the regulation of sophisticated technologies/specialist services in any particular specified area (zone) and by encouraging all healthcare entities buy/share available resources from other private or public sectors.

On the issue of changing pattern of diseases, the policies and laws under this Division requires the submission of information relating to diagnoses according to ICD classification, healthcare facility utilization, and all other relevant health information from the private sector which may be useful for national healthcare planning and development. Such measures will provide a more accurate picture of healthcare utilization pattern, disease pattern and health status of the population. The statute also facilitates the gathering of information by the Health Information System.

This Division assists to resolve the issue of environmental health by monitoring and controlling the usage, transport, storage and disposal of bio-hazardous agents, radioactive substances and chemicals in the healthcare facilities.

On the issue of research, this Division facilitates health research through the gathering of health information from the private sector.

On the issue of new health technologies, this Division complements and supports the Health Technologies Assessment and Research Activity under the Medical Programme through the regulation of health technologies which will be allowed to be used in the private sector.

On privatisation and role of the private sector, one of the issues highlighted is the lack of understanding of the private healthcare sector because of insufficient data. The Division is able to provide not only for standard setting and monitoring of the private healthcare sector but also obtain information from these private entities relating to their human resource status, equipment, technology, analytical method or procedures carried out, the condition, treatment or diagnosis of patients and information relating to the private entity, organisation or management.

Globalization is creating new coalitions and alliances to address its impact on health. It is changing the context of cooperation in international health. It is increasing interdependence, making the change more complex and challenging, with national control over health policy. Fundamental impact of globalization includes the need for international and inter sectoral approach to management of emerging infections and new diseases, movement of medical practitioners, movement of patients traveling to different countries for better or more expensive medical treatment and increased foreign investments in the health sector.

The Malaysian health care system needs to take cognizance of these issues and respond by initiating remedial measures to mitigate the negative effects of globalization.

Future Development Plans

The laws and policies under this Division are formulated in collaboration and consultation between public, private, NGOs and the community to ensure coverage of the needs and future developments both private and public sectors and to optimise the use of all available health resources.

The onslaught of globalisation and liberalization have impacted the health sector and this Division take cognizance and will focus formulation and amendment of policies or laws where and if necessary to address some of the challenges posed by globalisation in the 4 modes of supply :

- namely cross border supply (telehealth application); amendment TeleMedicine Act.
- consumption abroad (health tourism); enactment of MCO bill commercial presence; PHS&F Act 1998.
- movement of natural persons; Medical Act and other Allied Professional Acts.

Conclusion

Implementation of Medical Legislation and Regulations

There is a need to ensure that adequate and properly trained personnel are available to carry out the increased roles and functions of the Activity so that a positive impact may be felt through these health laws. The structure, organisation and personnel to implement the Medical Legislation and Regulation Activity must be strengthened, linkages and networking developed between the regulatory bodies and with the HIS in Ministry Of Health, and the private sector. At the same time, an effective, efficient and transparent system of monitoring and control to prevent abuse of power must be developed along with ensuring proficiency of all personnel conducting inspections, investigations and prosecutions. Quality will be institutionalised and internalised in regulatory bodies and the country's health care system. Regulatory support for the development of more accessible, comprehensive and quality medical care services will be sustained.

Establishment and development of healthcare facilities and services will be based on needs in accordance with relevant laws. Regulatory support will be sustained to ensure increased health professional education and adequacy of all healthcare professionals necessary for services provided. Effective healthcare referral system to ensure continuity of care will be emphasized in relevant laws, directives and guidelines.

Development of criteria for needs and the setting of norms for healthcare facilities, services and technologies for specified areas or zones ensure relevant standard for health professional education and healthcare manpower for healthcare facilities and services. These standards assist the implementation and enforcement of the provisions of relevant laws regulating health professional education and healthcare manpower requirements for healthcare facilities and services. The relevant laws and guidelines enhances the promotion of an effective inter and intra-sectoral healthcare referral system in the country and fosters the implementation of an effective inter and intra-sectoral healthcare referral system in the country through laws, directives and guidelines under this Division.

Development of smart partnerships and win-win situations among government agencies, the private sector and the community in matters relating to healthcare will be promoted and enhanced when formulation and implementing laws.

Relevant legislation will facilitate the development of human resource planning by the private healthcare sector to meet their needs. Relevant regulatory bodies will enhance the development of medical professionals and allied health personnel with knowledge, skill and attitude appropriate for their duties and function. Relevant legislation to enable the creation and establishment of new categories of healthcare personnel to meet with the changing need of the healthcare delivery system will be formulated. The career development of healthcare professionals under this Division will be enhanced through compulsory continuing professional education with plans for amendments of the existing Professional Legislations. Where relevant, transfer of MOH basic training to other appropriate public or private institution will be facilitated legislatively, while monitoring of standards by MOH will be continued.

Caring culture will be inculcated and institutionalised within the regulatory bodies and the private healthcare sector. Legislation will provide for appropriate user-friendly facilities and services to meet the needs of patients, staff and in particular the needs of the disadvantaged groups. Where relevant, regulatory bodies will incorporate aspects of caring qualities, attitudes and culture through their respective training curricula.

The development of a linkage between this division and Health Technology And Research Activity in the formulation of policies/laws related to the regulation of health technologies in the healthcare sector ensures quality and safety of health technology used in the private sector.

Collaborative efforts between disease control agencies with the regulatory bodies and the private healthcare providers on matters related to the prevention and control of infection and diseases in the formulation of laws regulating healthcare facilities and services enables implementation and enforcement of standards relating to infection control in all healthcare premises.

The establishment of networking and coordination of health information sharing between regulatory bodies and the disease control agencies assist in the prevention, identification and control of infections in private health premises.

Regulatory support for dissemination of health information to the public, private and public sectors will be provided. Health promotion activities through the participation of individuals, the community, NGO's and the private sector will be enhanced through guidelines issued under this Division.

Laws regulating primary healthcare facilities and services will ensure that the provision of primary healthcare services is adequate, appropriate and accessibility to the population.

Primary healthcare providers have to deliver adequate and appropriate healthcare services in accordance with standards set under the PHF&S regulations.

Laws regulating healthcare facilities and services will complement and support environmental measures designed to enhance the health status and quality of life of the population.

Malaysia, being signatory to WTO and AFAS, need to prepare for the effects of opening the market to international competition. Medical and Health services are covered under GATS, one of the multilateral accords under WTO. A special workgroup on health has been formed to draw up commitments to impose limitations on trade in health services with the purpose of protecting the domestic market. The framing of commitments set the stage for gradual and controlled liberalization of the health services.

These Activities and plans for future development of this Division have been formulated in the light of the dynamic globalizing health landscape and meet the chameleonic challenges. These activities would lead to a positive development and quality improvement over the next five years in precursory anticipation to the restructuring and the changing role of Ministry of Health.

Development of Activities

Private Healthcare Facilities and Services Regulations

In the year 2002 the Regulations were rearranged during the first half year. Three meetings were held. On 7 August 2002 the Regulations were officially handed over to the Licensing Unit under directive.

Mental Health Regulations

The Mental Health Act was gazetted on 27 September 2001. A series of meetings were held to prepare the Regulations. Mental Health Regulations Preparation Committee Meeting (1/2002) (14-17 January 2002) held at Equatorial Hotel, Bangi and the purpose of the meeting was to discuss the general concept and licensing of psychiatric facilities. The committee agreed to have another meting to discuss the draft of Mental Health Regulations. This meeting was followed with a Public consultation meeting with regards to Mental Health Regulations (28 March 2002). In this meeting issues regarding the establishment of Mental Health facilities were raised. On the second day a Joint Meeting with Psychiatrists/ Psychologists with regards to Mental Health Regulations (29 March 2002) The purpose of the meeting was to define the role of counsellor, clinical psychologist and psychiatrist. And followed by Joint Meeting with Welfare Department with regards to Mental Health Regulations (29 March 2002). The main issue raised was regarding section 7(g) of the Care Centre Act which relates to the opening of a care centre but the issue was not resolved because it required further deliberation. This was followed by Mental Health Regulations Preparation Committee Meeting (2/2002) (29 April -3 May

2002) held at Hyatt Hotel, Johor Bahru The objective of the meeting was to discuss the concept of care of psychiatric patient. The concept papers for the draft of the Regulations were finalized and the forms prepared would be sent to concerned hospitals. At the same time the Psychiatric Facilities in Singapore and Hospital Bahagia were visited.

Pathology Laboratory Bill

The Pathology Lab Bill version 10/6/2002 was finalised by the Committee during meeting at the Allson Klana Resort, Seremban from 10th to 14th June 2002. On 26 June 2002 there was a briefing to the Director General of Health for approval followed by a briefing to the Secretary General of Ministry of Health on the same day. With regards to this the Bill was forwarded to the Legal Advisor on 11 July 2002 for approval. On 24 July 2002 the Parliamentary Secretary was briefed on this Bill. The Bill was waiting for approval from the Minister before it goes for first reading in the Parliament.

Amendment to Medical Assistant Act

On 3rd September 2002 a meeting was held between Director Medical Practice Division and the Legal Advisor to Ministry of Health. The earlier draft dated 4/11/1999 was amended and the minutes were sent to Legal Advisor for further action. Preparations were made in the month of December 2002 for briefing to the Director General of Health in early January 2003.

Amendment to Nurses and Midwives Act

Nurses and Midwives Bill Amendment Meeting (1/2002) (24 October 2002) was held at Main Meeting Room, 20th Floor, PERKIM Building. The Draft dated 25 October 1999 was amended and followed by a second meeting on 13 to 14 November 2002 to complete the amendments. The amended draft was discussed with the Legal Advisor on the 19 December 2002 and preparations were made for briefing to the Director General in early January 2003.

Allied Health Professional Bill

The first meeting was by the Preparation Committee For Allied Health Professional Bill was held on 4 to 6 September 2002 at New Pacific Hotel, Kota Bahru. A discussion was held based on the Allied Health Professional Bill 1997. The Association for Allied Health Professional was briefed on the Bill on 19 September 2002 at the PERKIM Building for their feedback. The Director General of Health was briefed on 4 September 2002 and he approved the main contents of the Draft with a few amendments.

This was followed up with a meeting at Citybayview Hotel, Langkawi from 30 October 2002 to 2 November 2002. The amendments as directed by the Director General were made and the Bill was finalised. The final draft was than forwarded to the Legal Advisor for fine tuning and further action.

Traditional and Complimentary Medicine Bill

This Bill is being formulated by providing inputs to the Family Health Development Division which is preparing the Bill.

Plans For The Year Ahead

1. ***Mental Health Regulations***

   The preparation of Regulations based on the concept paper agreed during the Meeting 2/2002 Hotel Hyatt, Johor Bahru. Following this to get approval from the Director General, Minister of Health and Attorney General's Chamber for the purpose of gazettement.

2. ***Pathology Lab Bill***

   Reading of the Bill in Parliament and preparation of Regulations is planned.

3. ***Amendment to the Medical Assistants Act***

   The amendments are being fine tuned taking into account the concept and latest policy decision of Ministry of Health.

4. ***Amendments to Nurses and Midwives Act***

   The amendments are being fine tuned taking into account the concept and latest policy decision of Ministry of Health.

5. ***Allied Health Professional Bill***

   Awaiting feedback from the Legal Advisor and preparation of Regulations.

Conclusion

During the year 2002 all efforts were directed to rearrange formulations and amending all existing longstanding overdue Bills. Efforts were also taken to fine tune the daily affairs of the Unit with regards to amendments, meetings, documents and training for staff. It is vital to have permanent staff for the smooth functioning of the Unit.

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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 of 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.

Planning and Development Division has three core businesses namely:

- To formulate, review and evaluate the 5-year health plan in line with the national development policy.
- To plan, implement, monitor and evaluate health services and facilities for the Ministry of Health.
- 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 :

- To ensure priority consideration of equity of access to health services in terms of geographical costs, comprehensiveness and continuity of care.
- To ensure attainment of quality care through availability of trained personnel, appropriate technology, optimal resources and acceptable standards of practice.

- To motivate people to value their health and be committed to actions to maintain and improve their health status.
- To strengthened the Primary Health Care approach in delivery of health care through health promotion, prevention curative and rehabilitative services.
- 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.
- To strengthened inter-agency and intra-agency coordination, cooperation and sharing of resources, including information, etc.

ACTIVITIES AND ACHIEVEMENTS IN 2002

National Health Care Financing Mechanism

Currently, the Ministry of Health 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 one 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 the Vision 2020.

In 2002, the Ministry of Health (MOH) with the participation of relevant agencies, organized many discussions and meetings, to plan for an appropriate and acceptable national health care financing mechanism for the country. A National Health Care Financing Conference was organized by MOH in June 2002. The MOH has also been invited and has actively participated in many seminars and forums organized by the both public and private sectors and the Non Governmental Organizations (NGO), 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 obtain further input and feedback. To intensify this effort the MOH has published two articles related to national health care financing two Journals, in 2002.

The analysis of the 'case mix study' 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 2002. The Committee had organized a National Seminar on the Malaysian Casemix

Project on 29.11.2002. The study findings will be used as input to plan for a national health financing system for Malaysia. In 2002, the Hospital Universiti Kebangsaan Malaysia (HUKM) implemented the casemix based on Diagnosis Related Group (DRG), and this moved had made the HUKM as the first hospital implementing DRG in the country. Planning and Development Division is one of the members the Casemix Team of HUKM.

The Economic Planning Unit has already agreed with the terms of reference for the study to develop the Malaysian National Health Accounts. The study has been implemented and the result is expected to be ready by 2004.

Following the World Health Report 2000, the Planning and Development Division of MOH in collaboration with the World Health Organization 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 result was 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 perfect equality. The official report is planned to be circulated in 2003.

The Planning and Development Division is also involved in providing technical inputs to other MOH Divisions in relation to matters related to Private Fees Schedule and Managed Care Organization (MCO).

External Loans and Financing

Islamic Development Bank Loan No. 0070-MA

Short term financing for equipment amounting to USD 25 m 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 due to unavoidable circumstances the loan has been granted an extension period up till June 2003.

Up until the end of 2002 about RM68,835,152.74 (USD 18,006,192.05) had been spent under this external financing. Among the main hospitals involved in the procurement of equipment were Hospital Kuala Lumpur, Hospital Kangar and Hospital Umum Sarawak.

New Loans

An application for a second tranche of financing amounting to USD 28 m was submitted to the Economic Planning Unit for consideration. The application, later known as IDB Loan 2-MA-0088 is now at the final stages of approval and the agreement is expected to be signed early 2003.

Masterplanning and Upgrading of Existing Hospitals for 5 Hospitals

These 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 5 hospitals for the year 2002 amounted to RM37.6 million. Approximately RM37,540,187.95 that is 99.84% of the total initial allocation was successfully spent in the year 2002.

Improvement of Health Information System

The current HMIS reporting system allows for the production of reports as specified by the program heads. It does not capture the whole health sector performance. It does not facilitate measurement of outcome monitoring for the operational and tactical management level. The 7MP evaluation done with the help of the WHO consultant identified the need for specific data requirements in order to do an objective evaluation. In the 8MP MOH submitted a proposal for the establishment of Health Information System Center. The functions of the center includes :

- Planning, development and management of the health information system
- Integration of health information and data analysis
- Maintenance of a standardized National Minimum Data Set
- Publications and reports
- Consultation
- Training
- Networking of information
- Technical expertise

This proposal has been approved by EPU for implementation. Planning and development Division had identified the area of workplace in Putrajaya Government Complex and will be shifted once it is ready. The allocation for this was also approved in the Eighth Malaysia Plan. The specification in the upgrading and improvement in HMIS infrastructure was assisted by Information Technology Center Division (PTM).

Since the ICD-10 coding was implemented in all government hospital and health clinics for the diagnosis, refresher training for coders in the hospitals were carried out from time to time.

The collection of private hospital data were also carried out by Information and documentation system (IDS) Unit.

Development of Health Facilities

In 2002, MOH received RM1,513,611,553.1 under the development budget as in Table 1. There were several major hospitals under construction in 2002 such as Kepala Batas Hospital, Slim River Hospital and others as in Table 2.

CONCLUSION

As we look forward to the year 2003 and the middle of the 8MP, health care should be integrated with the active participation of all sectors in healthcare. There should be efficient use of limited resources that MOH acquired. The different levels of services which are primary, secondary and tertiary care, should be assessable to all. With telehealth and IT a seamless and borderless healthcare will be created. As for the Health Financing Scheme, there will be no perfect mechanism of financing. The government has to be careful and selective. Willingness for reforms and the contribution from technology advancement will make 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	266,538	4.85
002	Public Health	1,066	987,018	17.95
003	Upgrading of Hospital Facilities	286	1,733,822	31.52
004	Hospitals	37	2,330,283	42.37
005	Consultancy & Feasibility Studies	2	20,000	0.36
006	Upgrading and Maintenance	1	113,622	2.07

Source : Planning and Development Division

TABLE 2
Progress of Hospital Projects Up Till 2002

A.	Planning Stage	State
1.	Shah Alam Hospital	Selangor
B.	**Tender Stage**	
1.	Psychiatric Hospital	Kedah
2.	Rehabilitation Hospital	Federal Territory
3.	Psychiatric Hospital	Johore
4.	Kluang Hospital	Johore
5.	Lawas (New) Hospital	Sarawak
6.	Sri Aman (New) Hospital	Sarawak
7.	Belaga Hospital	Sarawak
8.	Nabawan Hospital	Sabah
9.	Sabah Medical Centre (SMC)	Sabah
C.	**Construction Stage**	
1.	Sg. Petani (New) Hospital	Kedah
2.	Alor Setar Hospital	Kedah
3.	Ampang Hospital	Selangor
4.	Serdang Hospital	Selangor
5.	Sg. Buloh (New) Hospital	Selangor
6.	Jempol Hospital	Negeri Sembilan
7.	Jasin Hospital	Malacca
8.	Pandan Hospital	Johore
9.	Cameron Highlands Hospital	Pahang
10.	Temerloh Hospital	Pahang
11.	Pekan (New) Hospital	Pahang
12.	Setiu Hospital	Terengganu
13.	Jeli Hospital	Kelantan
14.	Dalat Hospital	Sarawak
15.	Sarikei (New) Hospital	Sarawak
16.	Pitas Hospital	Sabah
17.	Kunak Hospital	Sabah
18.	Kuala Penyu Hospital	Sabah
D.	**Completion Stage**	
1.	Kepala Batas Hospital	Penang
2.	Slim River Hospital	Perak
3.	Selayang Hospital	Selangor
4.	Muadzam Shah Hospital	Pahang
5.	Lahad Datu Hospital	Sabah
6.	Keningau 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**

Source : Planning and Development Division

TABLE 4
Allocations and Projects in the Year 2002

Project Detail	Facility	No. of Projects	Initial Allocation (RM)	%	Final Allocation (RM)	%
001	Training	38	55,701,000	3.93	100,825,000	5.92
00201	Public Health Rural	463	262,486,000	18.55	158,179,000	9.29
00202	Health BAKAS	13	17,850,000	1.26	17,850,000	1.04
00203	Urban Health	102	107,510,000	7.59	118,510,000	6.96
00301	Hospital Facilities	146	279,397,000	19.74	357,504,000	21.01
00302	Major Upgrading	10	94,600,000	6.68	131,369,000	7.72
004	Hospital (new/replacement)	35	547,586,990	38.69	770,086,990	45.27
005	Consultancy & Feasibility Study	2	6,500,000	0.45	3,000,000	0.17
006	Upgrading & Maintenance	1	43,622,000	3.08	43,622,000	2.56
	Total	**657**	**1,415,252,990**	**100**	**1,700,945,990**	**100**

Source : Planning and Development Division

TABLE 5
Allocations and Projects in the Year 2002

Project Detail	Facility	No. of Projects	Initial Allocation (RM)	%	Final Allocation (RM)	%	Addition (+ or -) (RM)
001	Training	38	55,701,000	3.93	100,825,000	5.92	45,124,000
002	Public Health Rural	578	387,846,000	27.40	294,539,000	17.31	-93,307,000
00301 00302	Hospital Facilities Major Upgrading	146 10	279,397,000 94,600,000	19.74 6.68	357,504,000 131,369,000	21.01 7.72	78,107,000 36,769,000
004	Hospital (new/replacement)	35	547,586,990	38.69	770,086,990	45.27	222,500,000
005	Consultancy & Feasibility Study	2	6,500,000	0.45	3,000,000	0.17	-3,500,000
006	Upgrading & Maintenance	1	43,622,000	3.08	43,622,000	2.56	0
	Total	**657**	**1,415,252,990**	**100**	**1,700,945,990**	**100**	

Source : Planning and Development Division

TABLE 6
Achievements of Rural Health Services Projects Up Till 2002

Type of Facility	Total Projects (8MP)	Total Projects (2002)	Achievement Up Till 2002			
			Tender	Construction	Completion	Others
Health Clinic/ Community Polyclinics	106	45	1	8	19	5
Community Clinic	304	184	5	11	108	3
MCQ (Upgrading) to Community clinics	165	24	13	2	7	2
Health Clinic (Add. Quarters/ X-ray and others)	91	62	4	18	36	4
Alternative Birthing Center (ABC)	0	0	0	0	0	0
Community Clinic (Add. G. Quarters/Clinic)	40	15	46	7	10	9
Dental	85	60	0	52	4	4
Total	**791**	**378**	**69**	**98**	**184**	**27**

Source : Planning and Development Division

TABLE 7
Achievements of Urban Health Services Projects Up Till 2002

Type of Facility	Total Projects (8MP)	Total Projects (2002)	Achievement Up Till 2002			
			Tender	Construction	Completion	Others
Health Clinic/ Community Polyclinics	128	51	2	15	21	13
Wards	57	18	3	7	8	0
Special Care	4	3	0	0	1	2
Diagnostic and Treatment	83	25	0	4	10	1
Medical Support Services	33	7	1	2	3	1
Non-Medical Support Services	5	3	0	4	5	4
Hospital Quarters	63	36	2	15	13	6
Ambulatory Care	8	5	0	4	1	0
Low Risk Birthing Centre	1	1	0	0	0	1
*Others	58	43	7	10	23	3
Total	**440**	**192**	**15**	**61**	**85**	**31**

Source : Planning and Development Division

TABLE 8
Achievements of Dental Services Projects Up Till 2002

Type of Facility	Total Projects (8MP)	Total Projects (2002)	Achievement Up Till 2002			
			Tender	Construction	Completion	Others
Dental Clinic	108	88		78	5	5
Total	**108**	**88**		**78**	**5**	**5**

Source : Planning and Development Division

TABLE 9
Achievements of Manpower Training Projects Up Till 2002

Type of Facility	Total Projects (8MP)	Total Projects (2002)	Achievement Up Till 2002			
			Tender	Construction	Completion	Others
Nurses Training College	13	7	0	1	4	2
Community Nurse's Training School	8	5	1	1	0	15
On-call Complex	5	4	0	1	2	1
Allied Health Professional College	9	3	0	3	0	0
Medical Assistant's Training College	2	2	0	0	1	1
Others	10	5	6	2	4	3
Total	**47**	**26**	**7**	**8**	**12**	**9**

Source : Planning and Development Division

Pharmaceutical Services

INTRODUCTION

Vision for Pharmaceutical Services

To provide the best pharmacy service for the health and well being of the nation.

Mission

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.

Organisation

The Pharmaceutical Services Division is a division under the Research and Technical Support Program of the Ministry of Health Malaysia. This division has 3 main activities :

i) Quality Assurance of Pharmaceutical Products
ii) Licensing and Enforcement
iii) Pharmaceutical Care Management

This division is headed by the Director of Pharmaceutical Services and assisted by two Deputy Director and 40 other supporting staffs. The Director of Pharmaceutical Services directly supervises the National Pharmaceutical Control Bureau (NPCB) which is responsible for the quality assurance of pharmaceutical products including traditional medicines and cosmetics. In addition to the above, the Director of Pharmaceutical Services also supervising

the pharmaceutical services in the 13 states and the Kuala Lumpur Hospital via the State Deputy Directors of Health (Pharmacy) and Hospital Chief Pharmacist respectively.

The Pharmaceutical Services Division ensures that the Malaysian public has access to quality, safe, efficacious pharmaceuticals and healthcare products and good pharmaceutical services.

In this context, the division plays the following 3 major roles :

i) Contributing directly toward public health through quality assurance whereby the Pharmaceutical Services Division, through the National Pharmaceutical Control Bureau, is responsible for regulating the industry of pharmaceuticals and other medicines. This is to ensure that these products 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 till they are delivered to the end users.

ii) Enforcement of related acts and regulations.

iii) Ensuring a patient-oriented service through the concept of Pharmaceutical Care. The ultimate aim is to ensure optimum drug therapy, both by contributing to the preparation, supply and control of medicines and associated products, and providing information and advice to those who prescribe or use pharmaceutical products.

PROGRAMME OBJECTIVES

i) To ensure that pharmaceutical products which are permitted to be marketed locally are safe, efficacious and of quality as well as to ensure that cosmetics that are permitted to be marketed are safe.

ii) 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.

iii) To ensure that the patients undergoing treatment in the healthcare facilities of the Ministry of Health receive "Total Pharmaceutical Care".

iv) To ensure that public education in the quality use of medicine is continually improved.

PROGRAMME STRATEGIES

i) Ensuring the safety, efficacy and quality of medicines, including traditional medicines 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 market surveillance programme.

ii) Improving 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 at Customs entry points.

iii) Ensuring continuous and adequate supply of quality pharmaceuticals by :

- Improving storage facilities in institutions to meet the increasing demand.
- Modernising the inventory management system and communication through progressive utilisation of information technology.
- Purchasing products of proven quality.

iv) Developing an efficient and effective pharmacy service in Ministry of Health hospitals and health clinics by :

- Expanding and improving existing facilities in pharmacy units.
- Promoting quality use of medicine.
- Encouraging clinical pharmacy activities through provision of services such as parenteral nutrition, therapeutic drug monitoring and cytotoxic drug reconstitution.

v) Upgrading facilities for the preparation of extemporaneous products and re-packing of medications for dispensing by :

- Establishing standard formulary and procedures for use in all hospitals.
- Conducting regular maintenance of equipment to prevent breakdowns.

vi) Ensuring adequate supply of qualified and trained personnel to manage and operate the expanding services by :

- Identifying levels and categories of personnel required.
- Planning for post-graduate courses to upgrade professionalism of pharmacists.
- Providing in-service training.
- Organising workshops and seminars for personnel professional development.

PROGRAMME RESOURCES

Manpower

In the year 2002, the Pharmacy programme had a total of 3,568 posts for Pharmacists and Pharmacy Assistants of which 2,873 posts (80.5%) were filled. The details for the above categories of staff are shown in Table 1.

Finance

A total of RM32,085,910 was allocated for the various activities under the Pharmaceutical Services in 2002. However, RM33,106,055.50 was spent (Table 2).

TABLE 1
Manpower for Pharmaceutical Services, 2002

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	97	96	1	98
U41	849	401	448	47
Pharmacy Assistants				
U36	41	30	11	73
U32	245	146	99	59
U29	2,319	2,183	136	94
Total	**3,568**	**2,873**	**695**	**80.52**

TABLE 2
Financial Allocation for 2002

Activity	Original Allocation (RM)	Revised Allocation (RM)	Expenditure (RM)
1. 040100 - Technical/Professional Support Services Management HQ/State	4,052,110	5,381,080	5,370,978.10
2. 040200 - Pharmacy	28,033,800	31,101,707	27,735,077.40
Total	**32,085,910**	**36,482,787**	**33,106,055.50**

ACTIVITIES AND ACHIEVEMENTS

REGULATORY CONTROL OF PHARMACEUTICALS

This activity is responsible for ensuring safety, efficacy and quality of drug including traditional medicines and cosmetics marketed locally. Laboratory tests are conducted by the National Pharmaceutical Control Bureau (NPCB) on samples of medicines obtained from the market, as well as samples for registration and enforcement purposes. NPCB conducted a total of 48,676 tests in 2002 (Table 3).

By the end of 2002, 28,959 products have been registered and 231 premises were licensed (Table 4 and Table 5). A total of about RM3.3 million in revenue was collected by NPCB in 2002 (Table 6).

TABLE 3
Quality Control Testing at National Pharmaceutical Control Bureau, 2002

Unit	Sample	Test
1. Pharmaceutical Chemistry Laboratory	820	3,444
2. Pharmaceutical Technology Laboratory	870	2,704
3. Pharmacology/ Toxicology Laboratory	465	2,278
4. Pharmaceutical Microbiology Laboratory	3,210	27,341
5. Traditional Medicines Laboratory	3,222	12,909
Total	**8,587**	**48,676**

TABLE 4
Status of Registration of Drugs and Cosmetics until 31.12.2002

Registration Status	Class of Product				
	Scheduled Poison	OTC	Traditional	Cosmetics	Total
Total Applications Received for Registration	14,917	10,710	22,493	2,063	50,183
Registered	9,335	6,931	10,758	1,935	28,959
Rejected	4,255	3,213	9,127	125	16,720
Cancelled/Withdrawn	2,335	1,334	3,513	66	7,248

TABLE 5
Licensed Premises (Manufacturers, Importers and Wholesalers), 2002

Premises	Manufacturers			Importers	Wholesalers
	Pharmaceuticals	Cosmetics	Traditional Medicines		
Total	81	4	146	326	890
	231				

TABLE 6
Revenue (RM) Collection, 2002

Year	Revenue Collection (RM)							
	Registration	Licences	Laboratory	GMP Inspection	Printed Materials	Certificate of Free Sale	Others	Total
2002	1,883,825	454,800	801,508	24,700	28,875	115,585	2,960	3,312,253

The National Drug Information Centre located in NPCB continues to disseminate drug information through its publications such as Drug Monographs and Drug Newsletters. Publications for 2002 are listed in Table 7. Besides, the centre also answers enquiries pertaining to drug information and regulatory control of drugs and cosmetics. Enquiries on regulatory matters have increased, due to the public awareness of the public and the registration of cosmetics, which started in the year 2002 and also to obtain sufficient and reliable information concerning the safe use of medicines and other health products.

TABLE 7
Publications of the National Drug Information Centre, 2002

Title	No. of Issues
Drug Newsletter	3
Drug Monograph	12
Drug Circulars	12
Q Bulletin	1

NPCB carries out continuous surveillance to monitor the quality of products in the market. A total of 1,201 samples were collected for testing and 1,269 labels and package inserts were screened in 2002. As a result of this effort, 154 products were recalled and 391 were given written warning due to product quality defects (Table 8).

NPCB also monitors the occurrence of Adverse Drug Reactions (ADR). A total of 1,000 Adverse Drug Reaction (ADR) reports were received and 1,048 reports were evaluated by the National ADR Advisory Committee (Table 8). Some of these reports (1,258 ADR reports received) were also submitted to the WHO Collaborating Centre for Drug Safety Program in Uppsala, Sweden as Malaysia is a member of the WHO Drug Safety Program.

TABLE 8
Pharmacovigilance and Surveillance Statistics, 2002

	Activity	No.
1.	**Surveillance**	
	Number of samples collected	1,201
	Monitoring of labels and package inserts	1,269
	Product recalls	154
	Warning/explanation	391
	Voluntary recalls	44
2.	**Complaints**	
	Number of complaints	181
3.	**Adverse Drug Reaction (ADR) Monitoring**	
	Number of ADR reports	1,000
	Number of reports evaluated by MADRAC	1,048
	Number of reports forwarded to WHO	1,258
	Recommendation working papers for DCA	4
	Number of MADRAC meetings	6

"Pharmaceutical Inspection Co-operation Scheme (PIC/S)"

As of 1st January 2002, Malaysia became a member of the Pharmaceutical Inspection Co-operation Scheme (PIC/S). This scheme provides an active and constructive co-operation in the field of Good Manufacturing Practice (GMP). This successful accession into the PIC/S has indeed earned Malaysia recognition in the international arena with regards to implementation of GMP and licensing. With this new benchmark, we can now participate in joint PIC/S inspections.

In February 2002, three officials from the Japanese Pharmaceutical Manufacturers Association (JPMA) visited the NPCB and had discussions with officers from the Reference Standard Unit in NPCB on methods pertaining to the production of reference and working standards as well as the test protocols used.

Registration of Cosmetics

Guidelines on the cosmetic registration can be obtained from NPCB's website at www.bpfk.gov.my with the implementation of the cosmetic on-line registration. This guideline explains clearly all the requirements needed to ensure the smooth running of the registration process as well as to assist the industry in complying with the registration procedures. The products to be registered are divided into Type I and II. Companies are given 2 years to register their products before the implementation of licensing which will be effective on 1st January 2004. The on-line system has been tested by cosmetic industries and found to be successful. However, the Technical Working Group (TWG) and Task Force have been developed to monitor and ensure the efficiency of the registration process.

Evaluation on Activities of NPCB

On July 2002, Dr. Budiono Santoso, Regional Advisor in Pharmaceuticals, WHO Regional Office for the Western Pacific, Manila, visited the Institution. The terms of reference for his visit were to learn on the various programme activities undertaken by the NPCB as the WHO Collaborating Centre, to review collaborative activities with WHO and to explore areas of collaboration. Dr. Budiono noted that NPCB has attained remarkable achievements and there were many areas that other countries may learn from NPCB to strengthen their drug regulatory control.

A joint assessment of Malaysia's National Drug Regulatory System was carried out on 21-25 October 2002. It was conducted by a delegation comprising of Dr. Valerio Reggi from Essential Drugs and Medicines Policy/Quality Assurance and Safety of Medicine (EDM/QSM), WHO Headquarters and regulatory officials from

Indonesia, Singapore, Thailand and Vietnam. The review focused on NPCB's regulatory functions in its capacity as a national regulatory authority with emphasis on licensing, post-market activities, laboratory testing, GMP inspections and clinical trials. Following this review, the NPCB prepared an action plan to enhance and expand the current system.

Plan for Corporatisation Of NPCB

In October 2002, a feasibility study on the corporatisation plan of NPCB was undertaken by Ernst & Young. The aim of the study was to recommend the best method to manage NPCB on a commercial basis by looking at various well-established self-financing regulatory agency modalities, by reviewing the overall structure of the pharmacy services, as well as to outline the impact of corporatisation on the career development of NPCB personnel. The study will cover a period of 5 months until February 2003.

LICENSING AND ENFORCEMENT

This activity enforces various Pharmacy Acts and Regulations to ensure manufacture, import, export, sale, distribution, management and use of pharmaceuticals, cosmetics and healthcare products are in accordance with the legislations. This activity also controls medical advertisements. Several chemicals like saccharin, beta-agonists, precursor and essential chemicals which can be misused have been listed in the Customs Order (Prohibition on Import) and Customs Order (Prohibition on Export) so that each consignment can be monitored. The number of licences and permits issued by all states and Pharmaceutical Services Division, Ministry of Health is shown in Table 9. Table 10 shows the statistics on raids and Table 11 shows the inspection done on licensed or registered premises.

Action on Adulterated Traditional Product

In the year 2002, enforcement action was more focused towards inspection on traditional products where many traditional products were found to be adulterated with poisons such as *fenfluramine* and *sildenafil*. As a result of rigorous enforcement, seizure of unregistered products has increased as compared to previous years. Adulterated traditional products are considered unregistered products because these products differ from the products sent for registration. Table 12 shows the seizure of unregistered products valued at RM2,947,778.

TABLE 9
Licenses and Permits Issued in 2002

Type of License	No. Issued	Fee Collected (RM)
1. Poisons License Type A	2,503	Free
2. Poisons License Type B	1,277	127,700
3. Poisons License Type D	9	180
4. Poisons License Type E	25	2,500
5. Permit to store and use Sodium Hydroxide	1,630	32,600
6. Import Authorisation for Psychotropic Substances	275	27,500
7. Export Authorisation for Psychotropic Substances	25	2,500
8. Import Authorisation for Dangerous Drugs	194	19,400
9. Export Authorisation for Dangerous Drugs	13	1,300
Approvals under Customs Order		
10. Import Approval	144	Free
11. Export Approval	589	Free
Total	**6,684**	**213,680.00**

TABLE 10
Raids Conducted in 2002

Activity	2002
Number of raids	655
Number of items seized	6,418
Value of items seized (RM)	4,040,476.00

TABLE 11
Inspections of Licenced/Registered Premises, 2002

Type of Premises	No. Inspected
1. Pharmacies and Pharmaceutical Firms	1,878
2. Private Hospitals	17
3. Dental Clinics	130
4. Veterinary Clinics	5
5. Medical Clinics	669
Total	**2,699**

TABLE 12
Statistics for Seizure of Unregistered Product

Number of items seized	3,726
Value	RM2,947,778

Control of Precursor and Essential Chemicals under the 'UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988'

The Pharmaceutical Services Division, as the competent authority in Malaysia for the implementation of article 12 has monitored the import and export of precursors and essential chemicals listed in the *'UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988'* using the mechanism of Pre-Export Notification (PEN). This mechanism and the control of all precursors and essential chemicals in the table I and table II of the Convention under the Customs Order (Prohibition on Export) and listing of all table I substances in the Customs Order (Prohibition on Import) have improved the control of import and export of precursor and essential chemicals that can be diverted for illicit production of narcotics and psychotropic substances. Table 13 shows the number of PEN issued and received for year 2002.

TABLE 13
Statistics for *Pre-Export Notification* (PEN) Received and Issued, 2002

P.E.N. Issued	628
P.E.N. Received	2,402

Amendment to Acts and Regulations

i) ***Amendment of First Schedule Dangerous Drug Act 1952***

Part III has been amended to control the following as dangerous drugs :

- delta-8-tetrahydrocannabinol
- delta-9-tetrahydrocannabinol
- 11-hydroxy-delta-8-tetrahydrocannabinol
- 11-hydroxy-delta-9-tetrahydrocannabinol
- 11-nor-delta-9-tetrahydrocannabinol-9-carboxylic acid
- 8-beta-11-dihydroxy-delta-9-tetrahydroxycannabinol
- 8-beta-hydroxy-delta-9-tetrahydrocannabinol
- 4-bromo-2,5-dimethoxyphenylethylamine (2C-B)
- Butorphanol

- Flunitrazepam
- Gamma hydroxybutyric acid (GHB)
- 4-methylthioamphetamine (4-MTA)

The Dangerous Drugs (Amendment) Act 2002 was enforced on 1st November 2002. With this amendment :

- hard core addicts will undergo a longer imprisonment term and whipping.
- it is an offence for individual who uses dangerous drugs by any means.
- a person will be presumed to have consumed or administered the drug if the dangerous drug is found in the urine.
- possession of 50 grammes or more of combination of any amphetamine type stimulants will be presumed to be trafficking the dangerous drug and for combination in a specificied amount will be subjected to a higher penalty provided under the Dangerous Drugs Act 1952.

ii) ***Amendment to the Control of Drugs and Cosmetics Regulations 1984***

The amendment states that 1st February 2002 as the appointment date for the registration of cosmetics. The amendment also provides the new definition of cosmetics and introduces definitions for flavour, fragrance and colour. The Regulations have been amended to impose higher processing fees for licenses and registration of products.

PHARMACEUTICAL CARE

Procurement and Distribution

The value of drugs purchased from Remedi Pharmaceuticals (M) Pt. Ltd totalled RM413 million compared to RM364 million in 2001 (Table 14).

Purchases from Remedi Pharmaceuticals represented 78.5% (compared to 75% for the year 2001) of the whole drug budget of the Ministry of Health (Table 15).

In 2002, the Ministry of Health signed contracts for 43 drugs valued at RM140.83 million. The Specifications Committee that sets up the specifications of products for tender met 4 times and drew up specifications for 87 items. The Technical Evaluations Committee for tender met 4 times to evaluate 69 drugs for contract purposes.

TABLE 14
Purchases from Remedi Pharmaceuticals (M) Pt. Ltd.

Year	Value (RM)
1995	192.4 m
1996	218.6 m
1997	243.9 m
1998	262.9 m
1999	291.0 m
2000	331.0 m
2001	364.39 m
2002	413.75 m

TABLE 15
Allocations for Drug Purchases

Year	Allocation (RM)
1995	205.9 m
1996	224.7 m
1997	261.9 m
1998	303.8 m
1999	326.2 m
2000	346.3 m
2001	485.0 m
2002	526.5 m

PSD has been directly involved in efforts to obtain cheap antiretroviral drugs (ARV) for the treatment of HIV/AIDS. As a result, several suppliers reduced their prices from between 10% to 68%. The Pharmaceutical Services Division has also obtained Cabinet approval in November 2002, to import generic versions of patented ARV from India under Government Rights.

This Division has co-operated with the Ministry of Domestic Trade and Consumer Affairs as well as the Ministry of International Trade and Industry to formulate Malaysia's stand on the TRIPS (Trade Related Aspects of Intellectual Property Rights) Agreement.

Hospital Pharmacy

Hospital pharmacists 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 2002,

- A total of 50,484 cases had received individualized drug therapy through the clinical pharmacokinetic service provided by 61 hospitals through out the country.
- Cytotoxic drug reconstitutions service saw a rise of 37% in number of cases in the year 2002 (9,409 cases) as compared to 6,884 cases in 2001. 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.
- Medication counselling through individual and group sessions is carried out by hospital pharmacists to help patients achieve intended health outcomes through good compliance as well as handling any adverse drug events that may arise when using them. A total of almost 63,000 patients were given medication counselling in 2002.
- With the upgrading of the Hospital Drug Information Services, a total of 96 hospitals now provide the service as compared to 88 in 2001. A total of more than 20,000 enquiries were received by these centres.
- To minimize dispensing error, the 'island dispensing system' where different pharmacy staff counter-check the filled medication before dispensing to patients is carried out. Quality assurance indicators related to medication dispensing are continuously monitored to ensure accuracy in dispensing.
- Hospital pharmacies in the country have adopted individualized drug delivery system for in-patients by implementing the Unit-of-Use/Unit Dose System. By 2002, almost 98% hospitals have adopted this system. This system of medication delivery have the advantage of providing personalised service to patients, constant fresh supply of medication, better compliance and reduced wastage as compared to the traditional system where the wards order drugs in large quantities and have led to overstocking and wastage.

The progress of hospital pharmacy services is as shown in Table 16.

Centre of Clinical Pharmacy Excellence

A survey to determine the level of implementation and extent of adherence to the standard clinical pharmacy practice as stipulated in the 'Guidelines Towards Excellence In Clinical Pharmacy Practice' which was developed in 2001 was conducted. 19 hospitals were involved in the survey which focused on four clinical pharmacy activities namely Clinical Pharmacokinetic, Ward Pharmacy, Oncology

TABLE 16
Hospital Pharmacy Services

Services	2002
1. **Clinical pharmacokinetic service**	
i. No. of hospitals	61
ii. No. of cases	50,484
iii. No. of drugs	14
2. **Parenteral nutrition service**	
i. No. of hospitals	15
ii. No. of bags (adults)	4,644
iii. No. of bags (children)	17,956
3. **Intravenous admixture service**	
i. No. of hospitals	10
ii. No. of cases	50,715
4. **Cytotoxic drug reconstitution service**	
i. No. of hospitals	9
ii. No. of cases	9,409
5. **Drug and poison information service**	
i. No. of hospitals	96
ii. No. of enquiries	20,126
6. **Patient medication counselling service**	
i. No. of out-patients	28,706
ii. No. of in-patients	31,894
iii. Group counselling patients	2,288
iv. Total	62,888
7. **Drug dispensing service**	
i. No. of prescriptions dispensed	15,223,480
ii. No. (%) prescriptions screened	11,460,385 (75%)
8. **'Unit of use/unit dose' drug supply service**	
i. % (No.) hospitals	96.7% (118/122)

Pharmacy and Parenteral Nutrition services with an aim to select centres of excellence in the various activities. 12 hospitals which adhered most to the set criteria were short listed. These selected centres will be audited in cooperation with the School of Pharmaceutical Sciences, University of Science Malaysia before rendering them as centres of excellence.

Ministry of Health Drug List

The Ministry of Health Drug List was first introduced in 1983. 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). Members of the Panel are senior consultants or specialists and pharmacists serving in the Ministry of Health. Assisting the Panel are 15 working committees on various categories of drugs.

For 2002, the Ministry of Health Drug List contains of 609 chemical entities and 1,255 preparations, 27 new drugs were added to the list and 3 existing drugs deleted. Procurement and use of drugs outside the Ministry of Health List require approval of the Director-General of Health. In 2002, approvals for 929 requests valued at RM8,036,549 were given.

SECRETARIAT TO STATUTORY BOARDS

Pharmacy Board

The Pharmacy Board of Malaysia (PBM) is responsible for the registration of pharmacists, pharmacy body corporate and pupil pharmacists in the country. Table 17 shows the registration statistics.

Besides the registration of pharmacists, PBM is also actively involved in the accreditation of pharmacy degree programmes in public and private institutions. The Board has also started early preparatory work to recognize the pharmacy courses offered by a few universities in Russia, China, India and Republic of Czech. This will further provide opportunities for Malaysian students to study pharmacy abroad.

TABLE 17
Pharmacy Board – Registration Statistics

	Activities	2002
1.	No. of New Pharmacists Registered	310
2.	No. of Pupil Pharmacists Registered	299
3.	No. of New Body Corporate Registered	39
4.	No. of Renewals of Annual Practising Certificate	2,924
5.	No. of Renewal of Annual Certificate for Body Corporates	85
6.	Total number of pharmacists in the Register	3,758
7.	No. of New Premises recognized for Pupillage Training	4
8.	No. of Pharmacy Degree Qualifications Evaluated and Recognised	2

PBM also evaluate all reports and qualifications of pupil pharmacists undergoing training, towards ensuring that those who are competent and have gained sufficient skills and knowledge during pupilage can be registered as a pharmacists. PBM also conducts Pharmacy Forensic Examination for pharmacy graduates.

Medicine Advertisements Board

The Medicine Advertisement Board (MAB) is responsible for regulating the advertisements of medicines, appliances, remedies and skills and services that relate to medical claims in media of all types.

Table 18 shows the applications received and approved by the Medicine Advertisement Board for year 2002. This approval process regulates and controls advertisements with the objective of eliminating misleading information being passed on to the public.

TABLE 18
Advertisements Processed by the Medicines Advertisements Board

Activity	2002
No. of Applications	1,029
No. of Approvals	900
Fee Collected (RM)	102,900

In the year 2002, 1,029 advertisement applications were received by the Secretariat of the Medicine Advertisement Board. Out of this, 921 were applications for medicines, appliances and remedies, while the rest were applications for skills and services. A total 900 applications were approved by the Board which 796 were for medicines, appliances and remedies and 104 for skills and services.

At the same time, 30 applications for medicines, appliances and remedies and 3 applications for skills and services were rejected by the Board due to contraventions of the provisions of the Medicine (Advertisement and Sales) Act 1956 and the Guidelines for Advertisement by the MAB.

The MAB has issued 2 guidelines to complement the Medicine (Advertisement and Sales) Act 1956. These guidelines basically tell the 'do's and don'ts' of medicine advertising as well as skills and services advertisement. There are 2 committees responsible for up-dating the Advertisement Guidelines regularly. The guideline for advertisement of skills and services i.e. Guideline for Public Information by Private Hospitals, Clinics, Radiological Clinic and Medical Laboratory, October 1998 was revised in July 2002. The changes made are as in Table 19.

TABLE 19
Guideline for Public Information by Private Hospitals, Clinics, Radiological Clinic and Medical Laboratory

Section	October 1998	July 2002
4.2	There should be no mention of names and personal references of doctors associated with the hospital, clinic, radiological clinic or medical laboratory. Testimonials from patients shall not be published or printed.	In references to publication of brochures or pamphlets, there should be no over-emphasis on personal references of doctors associated with the hospital, clinic, radiological clinic or medical laboratory by way of touting customers. Testimonials from patients shall not be published or printed.
5.1.3 (f)	*Distribution :* Phamplet/brochures approved by the Board could be allowed within the premises of practice/hospital, hotels and travel agencies offices only but should not be distributed to the public at large.	*Distribution :* Phamphlet/brochures approved by the Board could be allowed within the premises of practice/hospital, hotels and travel agencies offices, trade fairs and exhibitions and also distributed to associated business partners, eg. Insurance companies, corporate clients, etc and general practitioners.

Poison Board

The Poisons Board acts as an advisory board and is responsible for advising 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.

Classification of medicine/chemical substance is made in accordance to the provision of the Poisons Act 1952.

The Board met for its 56th and 57th meeting on 7th of June and 21st of November, 2002. Activities of The Board are as follows :

i) ***Classification of Poisons***

As an advisory body responsible for advising the Minister of Health on the classification of new chemical entities as Poisons, the Board has agreed with the classification of eighteen (18) chemicals as in Table 20.

TABLE 20
Classification as Scheduled Poisons, 2002

Name of Drugs/Chemical Substances	Therapeutic Classification	Group
1. Calcitriol	Antipsoriatic	C
2. Deferiprone	Iron overload treatment	B
3. Levosimendan	Cardiotonic Agent	B
4. Tiotropium Bromide	Anticholinergics	C
5. Vardenafil	Erectile dysfunction treatment	B
6. Apomorphine HCl	Erectile dysfunction treatment	B
7. Desirudin 15mg per vial	Anticoagulant	B
8. Quinupristin and dalfopristin	Antibiotic	B
9. Valdecoxib	COX-2 Specific Inhibitor Pain-killer	B
10. Cetrorelix	Sex-hormone related drug	B
11. Dolasetron mesylate	Antiemetic	B
12. Dutasteride	Benign Prostatic Hyperplasia (BPH) treatment	B
13. Imatinib	Chronic myeloid leukamia (CML) treatment	B
14. Kava-kavapiper methysticum	Antidepressant	B
15. Nateglinide	Antidiabetic	C
16. Olopatadine	Antihistamine + mast cell stabilizer	C
17. Tegaserod	Abdominal pain and constipation treatment	C
18. Travoprost	Prostaglandin agonist	B

ii) ***Amending the classification of a Poison***

- All preparations containing Minoxidil with concentration of 5% and less have been reclassified as Group C poisons.
- All cosmetic preparations containing Adenosine with concentration of 0.3% and less was reclassified as non-poison.

Drug Control Authority

The Drug Control Authority (DCA), a statutory authority established under the Control of Drugs and Cosmetics Regulations 1984 is responsible for drug registration and licensing. The National Pharmaceutical Control Bureau is the secretariat and executive arm of DCA. The DCA met 11 times in 2002. Table 21 shows the status of applications for registration of pharmaceutical products (including applications

for re-registration, change of registration holder, additional indications and clinical trial import license) tabled at DCA meetings in 2002 while Table 22 is on the licensed manufacturing premises in year 2002.

TABLE 21
Registration Status of Pharmaceutical Products and Cosmetics by Drug Control Authority in year 2002

Registration Status	Class of Product				
	Scheduled Poisons	OTC	Traditional	Cosmetics	Total
Number of applications received	367	260	1,048	184	1,859
Registered	342	235	864	159	1,600
Rejected	7	25	23	25	80
Cancelled/Withdrawn	18	-	161	-	179

TABLE 22
Statistics of Manufacturers Licensed by Drug Control Authority in year 2002

State	Pharmaceutical	Traditional	Cosmetic	Total
Perlis	0	2	0	2
Kedah	4	18	0	22
Penang	14	14	1	29
Perak	6	12	0	18
Selangor	34	44	0	78
Kuala Lumpur	6	9	2	17
Negeri Sembilan	1	2	0	3
Malacca	5	9	0	14
Johore	9	22	1	32
Pahang	0	0	0	0
Terengganu	0	2	0	2
Kelantan	1	9	0	10
Sabah	0	0	0	0
Sarawak	1	3	0	4
Total	**81**	**146**	**4**	**231**

TRAINING

The Pharmaceutical Services Division provides training for its various categories of staff. This includes providing pharmacists opportunities to undergo postgraduate training and attachment courses in related fields locally as well as overseas. Pharmacy assistants and storekeepers were also provided in-service training. Statistics on training are shown in Table 23.

TABLE 23
Statistics on Training Activities

	Activities	2002
1.	No. of Pharmacy Assistants Graduated	102
2.	No. of Pupil Pharmacists Completed Training	261
3.	No. of attachment training/courses/workshops/seminars/conferences in Malaysia for Pharmacists	12
4.	No. of attachment training/courses/workshops/seminars/conferences in Malaysia for Pharmacist Assistants and other category	2
5.	No. of Pharmacists who acquired postgraduate qualifications	3
6.	No. of Pharmacists offered for postgraduate study (Master)	12
7.	No. of Pharmacists offered for postgraduate study (Ph.D)	3

CONCLUSION

Impact of Pharmaceutical Services on Health Problems and the Pharmaceutical Sector

The successful implementation of the various pharmacy service activities have contributed towards quality, safe and efficacious medicines and pharmaceutical products in the country.

The continuing registration exercise of medicines and cosmetics under the Pharmaceutical Regulatory Control Activity has ensured that only safe, quality and effective medicine are allowed to be marketed. The future accession of Malaysia as the 26th member of the International Pharmaceutical Inspection Cooperation Scheme is a step forward to ensure Malaysian pharmaceuticals are of international standard and acceptable for the worldwide market. The imposition of requirements on bioequivalence studies for certain generic products will ensure that local generic products meet the quality standards.

This role is further complemented 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. There was intensification of effort in the fight against drug abuse especially the narcotics and amphetamine-type stimulants to protect public health as well as in carrying out the country's obligation under the United Nation Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988.

Through the implementation and expansion of clinical pharmacy services in hospitals and active involvement of pharmacists as members of the healthcare team, it is hoped that monitoring of drugs use through rational prescribing and use can be ensured.

The Ministry of Health Drug List has ensured quality health care services and the promotion of rational drug use and contain escalating drug cost in the public health sector.

Expectations and Future Directions

The Pharmaceutical Services Division will continue to intensify its various activities in the coming years despite manpower constraints to keep in 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 reports. Furthermore, public education and public health promotion will be emphasized.

Activities in monitoring of drugs, precursors, essential chemicals with potential abuse or 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.

Geared towards improving and upgrading the quality of pharmaceutical care service, 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. 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 consist of four main sections :

- Environmental Health Engineering
- Hospital Engineering
- Radiation Health and Safety
- Regulatory Unit

OBJECTIVES

Objectives of the Engineering Services Division are :

- Establish and Implement suitable programmes to protect public health.
- Ensure that the National Drinking Water Quality Surveillance Programme is implemented effectively following the guidelines so as safe-guard the health of the consumer.
- 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.
- Provide quality technical services for the implementation of development projects and procurement of engineering and medical equipment.

- Coordinate and monitor the maintenance & minor works programme for MOH's buildings & facilities and provide technical advice where appropriate.
- 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.
- 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.

ENVIRONMENTAL HEALTH ENGINEERING

The Environmental Health Engineering activities have four core programmes which are the include Water Supply and Environmental Sanitation Programme, the National Drinking Water Quality Monitoring and Surveillance Program (NDWQMSP), Clinical Waste Management Programme and the Environmental Health Protection. These programmes are formulated and planned to meet the following goals :

- To plan, implement, monitor and coordinate preventive health programmes through the application of environmental health engineering principles and methods.
- To improve the environmental sanitation of the rural areas and reduce waterborne diseases.
- To ensure all public water supply is safe.
- To ensure that environmental health is protected through proper management of solid, clinical and toxic waste.
- To protect public health through proper planning, design, implementation, operation and maintenance of wastewater management systems.
- 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 program is to provide adequate safe water supply to rural community. The program incorporate 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 program was planned according to 5 year Malaysia development plan. A total of 21,113 of various types of systems were installed up to 2002. These systems provided service to 25,558 houses with a population of 138,607. The overall status of rural water supply coverage is about 94.77% that represent 1,657,848 rural houses with a population of 8,003,752 (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 Malaysia 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 then the cheaper pit latrines.

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 2002 has constructed a total of 1,657,848 of pour flush latrines. The coverage of sanitary latrines at the end of 2002 was 98.66 % that represent 8,411,019 of rural population (Table 2).

iii) ***Sullage and Solid Waste Disposal***

In the early stage of the BAKAS program, the installation of sullage and solid waste disposal was given lower priority due to 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 2002 a total of 945,708 sullage disposal systems and 1,108,734 solid waste disposal systems were constructed and this represent a total household coverage that represent the total coverage of 56.28% and 65.98% respectively (Table 3).

TABLE 1
Construction of Rural Water Supply Project by Ministry of Health in 2002

State	Sanitary Well				Sanitary Well With House Connection				Gravity Feed System				Rainwater Collection System				JKR/KKM Connection				Others				Grand Total	
			Total of Supply				Total of Supply				Total of Supply				Total of Supply				Total of Supply				Total of Supply			
	Target	No. of Built	House	Population	Target	No. of Built	House	Population	Target	No. of Built	House	Population	Target	No. of Built	House	Population	Target	No. of Built	House	Population	Target	No. of Built	House	Population	House	Population
Perlis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	138	216	216	-	-	-	-	-	216	-
Kedah	39	18	48	133	-	2	3	12	1	-	15	67	-	-	-	-	2,000	2,348	2,348	11,597	-	-	-	-	2,414	11,809
Penang	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	170	123	123	581	-	-	-	-	123	581
Perak	9	9	9	70	-	-	-	-	5	5	201	1,164	4	4	4	15	555	477	477	2,050	-	14	14	68	705	3,367
Selangor	-	-	-	-	-	-	-	-	1	1	10	67	-	-	-	-	-	-	-	-	-	-	-	-	10	67
N. Sembilan	-	6	7	28	-	-	-	-	-	-	7	17	-	-	-	-	300	316	316	1,189	-	-	-	-	330	1,234
Malacca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	50	50	250	-	-	-	-	50	250
Johore	6	6	6	24	-	-	-	-	14	8	517	2,068	113	58	58	301	25	83	83	332	-	-	-	-	664	2,725
Pahang	39	35	87	445	3	3	14	71	19	16	341	2,221	37	37	37	145	611	658	658	3,509	-	20	20	68	1,157	6,459
Terengganu	14	-	-	-	79	41	89	461	-	-	-	-	-	-	-	-	1,608	1,487	1,487	7,667	-	184	184	1,024	1,760	9,152
Kelantan	-	4	5	21	1,012	1,477	1,321	10,808	25	18	282	1,436	-	-	-	-	645	497	497	2,703	-	1,479	1,479	5,784	3,584	20,752
Sarawak	-	2	2	11	-	1	1	5	-	43	1,645	10,441	5,504	4,310	4,310	24,421	-	29	713	3,955	-	2	51	302	6,722	39,135
Sabah	-	6	65	471	-	-	-	-	23	25	763	4,348	7,052	6,995	6,995	38,257	-	-	-	-	-	-	-	-	7,823	43,076
Malaysia	**107**	**86**	**229**	**1,203**	**1,094**	**1,524**	**1,428**	**11,357**	**88**	**116**	**3,781**	**21,829**	**12,710**	**11,404**	**11,404**	**63,139**	**6,096**	**6,284**	**6,968**	**33,833**	**-**	**1,699**	**1,748**	**7,246**	**25,558**	**138,607**

TABLE 2
Construction of Sanitary Latrines by Ministry of Health/Other Agencies in 2002

State	Target	Construction of Sanitary Latrines			% Achievement	Total House (Cummulative)
		MOH	Other Agencies	Total		
Perlis	100	213	8	221	213.00%	34,456
Kedah	1,800	949	522	1,471	52.72%	171,774
Penang	146	185	60	245	126.71%	90,762
Perak	1,061	1,166	181	1,347	109.90%	149,793
Selangor	347	347	23	370	100.00%	91,249
Negeri Sembilan	250	261	65	326	104.40%	68,686
Malacca	80	88	12	100	110.00%	67,545
Johore	1,000	973	280	1,253	97.30%	143,830
Pahang	835	839	10	849	100.48%	112,626
Terengganu	1,640	1,195	402	1,597	72.87%	120,706
Kelantan	2,400	1,924	1,043	2,967	80.17%	236,868
Sarawak	4,600	6,044	305	6,349	131.39%	185,345
Sabah	9,000	8,327	144	8,471	92.52%	184,208
Malaysia	**23,259**	**22,511**	**3,055**	**25,566**	**96.78%**	**1,657,848**

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 is deteriorating. This will enable them to take preventive or remedial measures before any major outbreak of disease or poisoning can occur.

TABLE 3
Rural House with Sullage/Solid Waste Disposal System Coverage in 2002

State	No. of Rural House	Sullage		Solid Waste	
		Coverage (House)	%	Coverage (House)	%
Perlis	34,728	1,179	3.39%	2,456	7.07%
Kedah	172,112	29,836	17.34%	66,490	38.63%
Penang	90,964	72,452	79.65%	83,578	91.88%
Perak	151,326	81,065	53.57%	102,570	67.78%
Selangor	92,749	75,703	81.62%	77,329	83.37%
Negeri Sembilan	68,752	50,879	74.00%	53,667	78.06%
Malacca	67,545	47,237	69.93%	59,226	87.68%
Johore	144,489	125,314	86.73%	126,672	87.67%
Pahang	113,160	78,661	69.51%	81,722	72.22%
Terengganu	121,473	63,738	52.47%	73,604	60.59%
Kelantan	245,886	74,079	30.13%	129,365	52.61%
Sabah	191,315	134,849	70.49%	146,691	76.68%
Sarawak	185,933	110,716	59.55%	105,364	56.67%
Malaysia	**1,680,432**	**945,708**	**56.28%**	**1,108,734**	**65.98%**

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 is 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 2002, the number of water treatment plants and watercourses monitored were 438 and 452 respectively for the whole Malaysia. 205 sanitary surveys were implemented for the whole Malaysia in 2002, with 16 water treatment plants need follow-up action. The water sampling performance for 2002 is shown in Table 4, while Table 5 indicates the performance of QAP in 2002.

TABLE 4
Summary of Sampling Performance for 2002, Malaysia

State	Group 1			Group 2			Group 3		
	A	B	C	A	B	C	A	B	C
Perlis	1,045	943	90.2	240	188	78.3	90	54	60.0
Kedah	9,749	9,482	97.3	2,114	1,970	93.2	632	571	90.3
Penang	4,593	3,740	81.4	890	599	67.3	304	179	58.9
Perak	12,391	11,069	89.3	2,623	2,207	84.1	885	729	82.4
Selangor	10,966	9,977	91.0	2,583	2,220	85.9	781	653	83.6
F.T. K.Lumpur	1,721	876	50.9	352	186	52.8	150	85	56.7
N. Sembilan	5,913	5,388	91.1	1,316	1,193	90.7	440	394	89.5
Malacca	3,321	3,048	91.8	719	673	93.6	719	673	93.6
Johore	14,428	13,629	94.5	3,618	3,086	85.3	863	609	70.6
Pahang	14,100	12,628	89.6	4,201	3,336	79.4	1,248	1,023	82.0
Terengganu	6,561	6,416	97.8	1,445	1,389	96.1	387	378	97.7
Kelantan	6,227	5,974	95.9	1,477	1,242	84.1	501	410	81.8
Pen. Malaysia	**91,015**	**83,170**	**91.4**	**21,578**	**18,289**	**84.8**	**7,000**	**5,758**	**82.3**
Sabah	9,077	6,560	72.3	2,027	1,141	56.3	659	466	70.7
Sarawak	20,041	16,409	81.9	4,295	2,397	55.8	1,256	712	56.7
Malaysia	**120,133**	**106,139**	**88.4**	**27,900**	**21,827**	**78.2**	**8,915**	**6,936**	**77.8**

Note : A = Number of samples scheduled (ideal schedule)
B = Number of samples taken
C = Percentage of samples taken (%)

Clinical Waste Management

The Clinical Waste Management consists of the following components :

- Development of policy and guidelines
- Training and advisory services
- Programme monitoring
- Programme evaluation

In 1992, a policy and guidelines on clinical waste management that meet 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.

TABLE 5
Performance of QAP Programme for KMAM in 2002

Indicator / State	Residue Chlorine (QAP < 2.8%)			Faecal Coliform (QAP < 0.9%)			Residue Chlorine and Faecal Coliform (QAP < 0.3%)			Turbidity (QAP < 4.1%)		
	A	B	C	A	B	C	A	B	C	A	B	C
Perlis	763	38	5.0	763	0	0.0	763	0	0.0	747	0	0.0
Kedah	8,100	156	1.9	8,049	28	0.3	8,047	8	0.1	8,092	157	1.9
Penang	3,443	30	0.9	3,445	6	0.2	3,443	0	0.0	3,444	5	0.1
Perak	8,759	146	1.7	8,741	24	0.3	8,739	22	0.3	8,184	29	0.4
Selangor	8,651	416	4.8	8,655	29	0.3	8,649	6	0.1	8,632	129	1.5
F.T. K.Lumpur	797	16	2.0	797	1	0.1	797	0	0.0	797	8	1.0
Negeri Sembilan	4,412	87	2.0	4,388	21	0.5	4,388	52	1.2	4,412	139	3.2
Malacca	2,900	143	4.9	2,900	36	1.2	2,900	3	0.1	2,874	49	1.7
Johore	11,774	233	2.0	11,814	119	1.0	11,774	7	0.1	11,766	99	0.8
Pahang	9,783	578	5.9	9,784	62	0.6	9,783	190	1.9	9,757	774	7.9
Terengganu	5,633	64	1.1	5,508	7	0.1	5,508	1	0.0	5,633	100	1.8
Kelantan	4,817	457	9.5	4,814	8	0.2	4,813	14	0.3	4,796	717	14.9
Pen. Malaysia	**69,832**	**2,364**	**3.4**	**69,658**	**341**	**0.5**	**69,604**	**303**	**0.4**	**69,134**	**2,206**	**3.2**
Sabah	5,397	628	11.6	4,443	15	0.3	4,434	118	2.7	4,918	440	8.9
Sarawak	12,266	58	0.5	12,409	66	0.5	12,126	0	0.0	5,722	52	0.9
Malaysia	**87,495**	**3,050**	**3.5**	**86,510**	**422**	**0.5**	**86,164**	**421**	**0.5**	**79,774**	**2,698**	**3.4**

Note : A = Number of samples analyzed
B = Number of samples violated
C = Percentage of samples violated (%)

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
Tongkah-Medivest Sdn. Bhd.	-	Southern zone

During 2002, total of 4,637 tonnes of clinical waste were sent to the three concession companies at a total cost of RM25.34 million.

With the implementation of this program, it is envisage 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, 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 early 2002, a final Environmental Health Impact Assessment (EHIA) Guidelines was adopted by Department of Environment (DOE) but not be considered as a separate document during the process of EIA. The scope of EHIA will be focus on the incinerator project and dam construction.

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 co-ordinate 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***

This programme was allocated with RM90 million for the purpose of carrying upgrading and renovation of Government Clinics and Hospitals under development budget for maintenance and minor building work in health facilities sector. The percentage of expenditure is 98%.

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	0 (the award to the contractor was late, payment to be made in 2003)
2) Replacement of split/window air conditioning 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	2
Projects for Upgrading of Engineering Facilities	23
New Hospital Projects	3
Total	**28**

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	20 tenders
Commissioning	16 units
Total	**42**

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 very promising.

RADIATION SAFETY

The Radiation Safety Unit is responsible for ensuring the safe, effective and efficacious use of ionising 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. While via radiation protection (quality assurance) service and medical physics for the government hospitals and Health clinics under the Ministry of Health (MOH).

Objectives

The main objectives of the Radiation Safety Unit are to ensure :

i) The safe, optimum and efficacious use of radiation equipment and associated facilities in medicine.
ii) That the hazards associated with application of radiation 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.

Resources

The Radiation Health Branch consists of a Deputy Director (Physicist Grade Jusa C) who heads the Branch, 1 Principal Assistant Directors (Physicist Grade C1) posts, 6 Principal Assistant Directors (Physicist Grade C2), 15 Assistant Directors (Physicist Grade C3) posts and 2 Senior Radiographers Grade U5 and 3 Radiographers Grade U6 posts. One Principal Assistant Director (Physicist Grade C1) post, 3 Assistant Director (Physicist Grade C3) post and one Senior Radiographer (Grade U5) are still vacant.

At present, the Radiation Safety Section has 2 sets of test equipment for general radiography purposes, one set for mammography and 1 set for TV fluoroscopy.

Activities and Achievements

i) ***Licensing***

All applications for the use of ionising radiation for medical purposes in hospitals and clinics in the private sector are licensed and regulated under Act 304. In this activity, licenses are issued and inspection and testing of premises and equipment are carried out to ensure compliance to all requirements made under the Act 304.

A total of 1,345 evaluations for licence applications were made in 2002 and 295 licenses were issued. By the end of 2002, 1,794 private hospitals/clinics were licensed to use ionising radiation for medical purposes. The licensed hospitals/clinics can be classified into different categories as shown below.

Class License	Number and Type of Premises						Total
	Dental	GP's Clinic	Hospital/ Radiological Clinic	University & Lab	Veterinary	Consultant	
Class A	-	-	7	3	-	-	10
Class C	917	694	127	16	21	-	1,775
Class A & C	-	-	9	3	-	-	12
Class H	-	-	-	-	-	6	6
Total	**917**	**694**	**143**	**22**	**21**	**6**	**1,803**

ii) ***Monitoring and Enforcement***

All enforcement activities including inspection, investigation, raid and prosecution are carried out on all private sector premises to ensure all licensing requirements were adhered. Enforcement action were be taken for cases of serious violation.

In the year 2002, 162 premises were inspected to ensure they comply with all licensing requirements. 38 of the premises inspected was not comply with the licensing requirement, 2 clinics has ceased operation and 30 clinics comply with licensing requirement.

iii) ***Radiation Protection (Quality Assurance) Service & Medical Physics***

This service is designed for all MOH's hospitals 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 these requirements.

In this activity, the radiology services of 132 MOH's hospitals/health clinics were monitored. A total of 19 plans were inspected, evaluated and successful implemented involving new projects and also upgrading of hospitals.

A QAP workshop in mammography was conducted in the year 2002 for Radiologists and Radiographers to increase and improve quality on radiation protection in medical diagnostic imaging for government hospitals and health clinics.

iv) ***Code & Standard Development***

Various management and administration steps have been taken to improve the quality of the service provided. In 1998, the development of radiation protection regulations (medical, dental, Verterinar)20_ for the safe use of ionising radiation in medicine was initiated with technical assistance from International Atomic Energy Agency (IAEA). At the end of 1999, a technical committee was established to review, comment and provide recommendations to ensure that the draft regulations suits the local situation. The draft was then forwarded to the Atomic Energy Licensing Board for gazettement.

To enforce the implementation of the use ionizing radiation in medical usage, Radiation Protection regulations (Basic Safety Standard) 1988, Radiation Protection Regulations (Licensing) 1986 has been reviewing in line with current international regulations.

Conclusion

The usage of ionising radiation in medicine is expected to be continually growing in the future. This application should be properly controlled to ensure that patients, workers and the public are properly protected from the radiation hazards. In line with the growth in the usage of ionising radiation in medicine and the advancement of its technology, an organisational structure with suitable manpower, sufficient funds and proper training for the manpower need to be planned to ensure

the success of the programme. It is envisaged that the organization restructuring in early 2002 and gradual filling up of new post will help smoothen the implementation of the planned activities.

MONITORING UNIT

The privatized Hospital Support Services has entered the sixth year, during which a lot of new facilities were added to the contract hospitals. This had affected the workload especially for the 3 services, Facility Engineering Management Services, Biomedical Engineering Management Services and Cleansing Services whereby the concession companies had to adjust their capability in terms of resources, both manpower and finance.

The supplementary agreement to the concession agreement was finalized incorporating amendments to certain clauses, including provision to enable variation to the fee for added facilities. Prior to this the concession companies were providing services to the added facilities without additional fee. In view of the supplementary agreement interim payments in lieu of the added facilities were processed which involved compilation of inventory and negotiation on the appropriate fee.

Quality Assurance Programme, which is a requirement in the Concession Agreement, was established. This formed a tool in the management of the services by concession companies as well as for the monitoring by SIHAT and MOH. As an enhancement QAP was incorporated in the CMIS, which enabled viewing through the CMIS. The next phase of development would be to incorporate capability for doing analysis in the CMIS.

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 423 (70%) posts have been filled. There are 100 persons in the Managerial and Professional Group, comprising research scientists, medical doctors, veterinary doctors, librarians, systems analysts and administrative officers. Another 323 persons in the Technical and Support Group make up the remainder. The total budget available to the Institute for the year was about RM38.1 million, an increase of 17.5% when compared to RM31.4 million for 2001.

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

During the year, a total of 81 research projects were conducted. There was a total of 48 such scientific publications comprising 37 published papers, another 7 accepted for publication, 3 others in proceedings of scientific meetings and a book. A total of 49 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 192 scientific presentations were made in the year.

Research Projects

Allergy and Immunology Research Centre

The Allergy and Immunology Research Centre continued to focus on allergy research. The study on fish and honey allergy is in the final stages of completion. The centre continues to produce new standardized extracts of use in the diagnosis of allergy. The Centre won a Silver Medal for Innovation for 'Allergens for Skin Testing' at the EXPO S&T, November 2002. The two projects on leukemias i.e. detection of TEL-AML 1 rearrangement and AF4-MLL translocation among local patients were completed. The other completed project is an evaluation of Reference Strand Mediated Conformation Analysis (RSCA) for the high resolution identification of HLA-C alleles. Work continued on the evaluation of a low cost in-house serum lipoprotein (a) ELISA test kit for the rapid assessment of coronary heart disease.

Cancer Research Centre

The Cancer Research Centre which comprises of three units namely, Haematology Unit, Molecular Pathology Unit and Stomatology Unit, conducted research on cancers that are especially of local importance. The *Haematology Unit* was involved in studies using various techniques to study colorectal carcinoma. In one study, comparative genomic hybridization was used to detect chromosomal imbalances in colon cancer while in another study, efforts were made to apply a presymtomatic test for the diagnosis of familial adematous polyposis coli, a form of hereditary colon cancer. The Unit was also involved in establishing a new method of diagnosis for leukemias using real-time PCR. In preparation to strive towards ISO/IEC 17025 accreditation for cytogenetic testing, the Genetics Laboratory in the Haematology Unit has initiated and conducted a training course 'Advanced Cytogenetics and Laboratory Accreditation' under the guidance and advice of a certified cytogeneticist who is currently serving as a NATA (National Association of Testing Authorities) assessor. The training course has enhanced the knowledge and skill of personnel involved in the specialized field of cytogenetics and provided better understanding on the requirements for the laboratory accreditation. The *Molecular Pathology Unit*

undertook a prioritized research project which involved the use of various molecular tools to identify new diagnostic and prognostic markers for colorectal cancer, in collaboration with other universities. The various molecular techniques involved included mutation analyses by PCR, DNA sequencing, conformation sensitive gel electrophoresis (CSGE), realtime PCR and microarray studies. In addition, the Unit is also involved in developing and establishing new molecular diagnostic tests for selected paediatric cancers and other diseases. The *Stomatology Unit* continues to be the only Oral Pathology diagnostic laboratory in the Ministry of Health and has the largest collection of biopsy specimens for oral cancer and precancer in the country. The Unit continues to carry out clinico-pathological studies of these cancers in Malaysia.

Cardiovascular Diseases, Diabetes and Nutrition Research Centre (CDNRC)

The Cardiovascular Diseases, Diabetes and Nutrition Research Centre (CDNRC) comprises of three units namely, Cardiovascular Disease Research Unit (CVD), Diabetes and Metabolic Disorders Unit (DMD) and Nutrition Unit. The *CVD Unit* continues to provide specialized diagnostic services for serum concentrations of lipids and lipoproteins, vitamin A, vitamin C, vitamin E and carotenoids. In the area of research, much emphasis is focused on methodology development (especially for thiamine, niacin and dietary fibre), and the nutritional aspects of cardiovascular disease such as the fatty acid profile of local diets, and the development of a sugar database to facilitate the determination of daily total sugar intake. In order to reinforce its role as a training/reference centre for food analysis and in collaborative research in the compilation of the Malaysian food composition database, the Unit continues with its participation in the Asia Pacific Laboratory Accreditation Cooperation (APLAC) proficiency testing programme, which was initiated in early 2002 and facilitated by ASEAN Foods and organized by the National Association of Testing Authorities, Australia. In the area of assessment of cardiovascular risk, the CVD Unit is continuing its collaboration with the Immunology Unit of the Institute to produce and evaluate a rapid in-house serum lipoprotein (a) kit. The project concerned which is funded by the IRPA mechanism under the Ministry of Science, Technology and Environment Malaysia, is progressing well.

Environmental Health Research Centre (EHRC)

The Environmental Health Research Centre (EHRC) has completed its 5 Years Strategic Plan (1997-2002) and concluded its Tenth Cycle review. EHRC will continue with its Strategic Plan, beginning with a New Cycle on the continuing journey under the reorganization of the IMR to become a centre of excellence in environmental health research in the Asia Pacific region. Research activities for the year, in collaboration with other agencies included health assessment of transboundary haze from the Southeast Asian forest fires in Malaysia, in collaboration with CDC Atlanta and harmonizing environment and health policy and practice, a collaborative project with

the Municipal Council of Petaling Jaya which is implementing the Local Agenda 21 framework. Two other research studies continued to be conducted by the PhD candidates enrolled with the University of Western Sydney Hawkesbury, Australia via long distance learning, while another officer is conducting her PhD research studies locally on the assessment of exposure to selected contaminants in vegetable diet among the population in Selangor.

Recognizing that Environmental Management Systems (EMS) are emerging in Malaysia in the year 2000, EHRC took a brave step and planned to obtain the ISO 14001 certification. 27 September 2002 marked an important date where EHRC was awarded the Certificate of Registration to ISO 14001: 1996 by the Governing Board of Certification International (UK) Limited for the scope of technical testing and analysis relating to environmental health research. With the award of Certification to ISO 14001, EHRC has emerged as the FIRST government research center to qualify for the ISO 14001. With the certification, EHRC would now be responsible for maintaining its environmental systems; to comply with the Conditions of Certificate and would be subjected to regular surveillances.

The Centre has been working together with the WHO to publish the Environmental Health Focus journal twice yearly. This journal serves as an Environmental Health Research Centre Information Clearing House. It aims to promote environmental health research and translate the outcomes to environmental health policy makers, practitioners and community leaders. It is projected that the first issue would be published in 2003. EHRC's annual forum was organized and incorporated into one of the symposia of the Fifth Scientific Meeting of the National Institutes of Health. The title of the symposium was Environmental Health Research with the theme Current Issues: Research to Practice in Environmental Health.

***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 was involved in several panel initiated projects which involved 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 on toxicology as well as developing new anti-malarial and anti-cancer drugs. In October, the HMRC published the 'Compendium of Medicinal Plants Used in Malaysia'. The 2-volume compendium was launched by the Most Honorable Dato' Sri Abdullah Ahmad Badawi, Deputy Prime Minister of Malaysia during the "The 4th International Traditional/ Complementary Medicine Conference and Exhibition (INTRACOM 2002). In addition, HMRC is the Secretariat for the Global Information Hub on Integrated Medicine project.

Infectious Diseases Research Centre (IDRC)

For the Infectious Diseases Research Centre (IDRC), attempts were made to streamline research activities in the centre. A strategic planning process helped to focus research in areas where the centre was perceived to have an edge and bearing in mind the health needs of Malaysia. The centre became the lead institution in a multi-institutional IRPA research programme on antibiotic resistance in Malaysia. The Centre was also awarded several research grants from the Ministry of Health to conduct research in areas of need as identified during the Ministry's Research Dialogue session. The establishment of a BSL3 facility and the commissioning of a new electron microscope have widened the scope of activities of the centre.

The *Acarology Unit* continued to redirect its research from house dust mite allergies to tick borne health problems. House dust mite allergy projects that continued from the previous year shall be completed latest by the end of next year. Following that research will be centered on ticks and tick borne health problems (TBHP). Research on TBHP had started this year with studies on tick species distribution in various ecological habitats. The study on human otoacariasis will be expanded to include epidemiological investigations and seeking ways to manage the problem; collaboration is being sought to study the toxicology of human otoacariasis. Production of allergens from 6 local species of cockroaches (*Blatella germanica, Nauphoeta spp., Neostylophaga rhombifolia, Periplaneta americana, Periplaneta australiense, Periplaneta brunnea*) and 1 species of dust mite (*Austroglycyphagus malaysiensis*) was completed. Standardization of these allergens by skin prick-testing of patients is on-going.

A study on the distribution of ectoparasites in stored rice was started with the objective of identifying potential producers of allergens. Ectoparasites found include weevils (*Sitophilus oryzae, Tribolium granarius*) and mites (*Dermatophagoides pteronyssinus, Cheyletus spp.,* mesostigmatids*)*. Research on human otoacariasis was initiated. To-date, 102 ticks were recovered from 101 patients. These included 2 and 4 *Dermacentor astrosignatus*, 84 nymphal and 12 larval stage of *Dermacentor* spp. Studies on the distribution of ticks were conducted in Kemidak-Selai, Taman Negara Endau-Rompin, and in Pasoh, Negeri Sembilan. Small mammals, bats and birds were trapped and their ectoparasites recovered for identification. Some of the ticks collected as well as biological materials of the hosts, were sent to Bacteriology Unit for microbiological examination.

Bacteriology Unit

The *Bacteriology Unit*, in line with the policy of the centre, conducted more focused research. The Unit, in collaboration with other Institutions, obtained an IRPA research grant for a programme entitled 'Antibiotic Resistance in Malaysia'. The primary objective of the programme is to obtain more complete data to be utilized by policy makers to formulate health programmes in the country.

A comparative study on the activity of various antimicrobial agents against *Streptococcus pneumoniae* isolated in Malaysia from 1997-2000 was carried out. Susceptibility testing against penicillin, amoxicillin/clavulanate, ceftriaxone, cefuroxime, cefaclor and azithromycin was conducted. All drugs showed an increase in MIC_{90} value from 1997 to 2000, but based on the new NCCLS breakpoints, amoxicillin/clavulanate showed the best overall susceptibility rates of 97.8% and 100% in 1997 and 2000 respectively

A study on the activity of linezolid against gram-positive cocci was carried out on 420 clinical isolates taken from 6 hospitals. All isolates of penumococci were susceptible to vancomycin and linezolid. All of the 336 isolates of *Staphylococcus aureus* were susceptible to linezolid, vancomycin, and teicoplanin while another study was conducted on molecular subtyping of *Shigella dysenteriae* and *Shigella boydii* isolated in Malaysia. Antibiotic susceptibility testing, plasmid profile analysis and pulse-field-gel-electrophoresis (PFGE) were performed. Plasmid profile analysis of *Shigella dysenteriae* and *Shigella boydii* showed 5 and 8 distinct profiles, respectively. *Not*1 and *Xba*I restriction of *Shigella dysenteriae* generated 3 and 6 PFGE profiles, respectively while 7 PFGE profiles of *Shigella boydii* were defined with both enzymes.

The main thrust of research of the *Medical Entomology Unit* focused on studies on various aspects of vectors and their control. Research on microbial control agents concentrated on the testing of various formulations of *Bacillus thuringiensis* H-14 (Bti) and *B. sphaericus*. A study on the field bioefficacy of *B sphaericus* for the control of the Japanese encephalitis vectors was initiated in a pilot study in Serian District, Sarawak. Formulations of *B. thuringiensis* H-14 were also tested against container-breeding *Aedes* and chironomid larvae in oxidation ponds. Sublethal Bti dosages were found to be insufficient to suppress development of dengue virus in adults emerging from affected larvae. A study of Malaysian isolates of Bti focused on the effects of toxins against cancer cells. Attempts were initiated to clone and identify the toxin genes of the first novel anaerobic microbial control agent, *Clostridium bifermentans* serovar *malaysia*.

In the area of chemical insecticides, the toxicity, morphogenetic and histological effects of insect growth regulators on the housefly were studied. A new surfactant, monomolecular film (MMF) was tested against *Aedes aegypti* in the lab and field and found to be effective under certain conditions. Screening of new pyrethroid formulations for mosquito control was conducted whereby 3 new products were tested. Laboratory evaluation of a mixture of natural plant product and Deet was found to exhibit prolonged protection times against mosquito bites. The effects of insecticide resistance on the biology of mosquitoes and development of dengue virus were studied. A longitudinal survey to determine malaria epidemiology and vector distribution was conducted successfully in Lao, while the bioefficacy of insecticide-impregnated nets on vector and malaria parasite rate of a population was conducted in Sabah. In dengue vector studies, a field evaluation of a formulation of pyrethroid was conducted in an urban area. Proteins synthesized by dengue vectors in response to dengue infection

were studied with a view of early detection. In other studies, research on coastal leptoconine sandfly in resort islands in Johore had yielded control measures which are being used successfully. The effects of various aerosol formulations of pyrethroids and carbamate on local leeches were evaluated. In another study, sterile maggots of *Lucilia cuprina* to be used in maggot therapy were successfully reared.

The *Parasitology Unit* undertook two malaria related research projects in 2002. One project, the seroepidemiology of malaria in Sungai Gapoi, Bentong, Pahang was a follow up of a 1994 study. The overall prevalence of measurable malaria titer showed a significant decline from 81.8% in 1994 to 47.3 % in 2002. The second study was on the characterization of antigen profile recognized by immune sera from acute and chronic malaria. The study found that there were no significant differences in recognition patterns between *P. falciparum* and *P. vivax* and between acute and chronic malaria.

The seroprevalence of leismaniasis and lymphatic filariasis among migrant workers in Malaysia was also carried out. Of the 174 sera, only one serum sample (0.6%) was found to be positive for *bancroftian filariasis*. Another 25 sera (14.4%) were seropositive for anti-leishmaniasis antibodies.

The *Virology Unit* focused 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. 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 the 1990s, is aimed at determining epidemiology of paediatric HIV and evaluation of available diagnostic tests to facilitate early diagnosis of paediatric HIV infection. The Polymerase Chain Reaction (PCR) technique since 1995 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; 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 diseases for Ministry of Health. The dominant circulating dengue serotype for 2002 was Dengue 3 and Influenza B/Hong Kong/330/2001-like strain was found to be the causative agent of the acute respiratory disease outbreak in Perak. This virus was first isolated in Hong Kong at the end of 2001 and was detected for the first time in Malaysia during this outbreak, which occurred in March 2002.

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 main focus of research in *Epidemiology & Biostatistics Unit* for this year was on the "Burden of Disease" and the "Epidemiology of Antibiotics Resistance in Malaysia". 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 measure the total impact of mortality and non-fatal health outcomes of disease and illness in a comprehensive manner.

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 systematic 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. Two other studies conducted in 2002 included a KAP study on Healthy Environment, which was carried out in collaboration with the Health Education and Communication Centre of the Ministry of Health and another study on the prevalence of *Neisseria meningitidis* in the throat swabs of Malaysian Haj 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 *Biotechnology Unit* continued to carry out research on the selected infectious agents namely *Legionella pneumophila* and *Giardia duodenalis*. *Legionella pneumophila* serogroup 1 is the most important serotype that causes infection in man. A study was carried out to analyze the protein profile of this pathogen and to determine the immunogenic fraction of the bacterial antigen using the SDS-PAGE and immunoblotting technique.

In another study, monoclonal antibodies have been produced against *L.pneumophila* serogroup 1. The monoclonal antibodies react specifically with *L.pneumophila* serogroup 1 antigen by both indirect ELISA and monoclonal-based ELISA(sandwich ELISA). A further study was conducted to determine the antigen recognition site of the monoclonal antibodies and their cross reactivity with other

bacteria by SDS-PAGE and immunoblotting technique. Results of the study showed that the monoclonal antibodies reacted with homologous antigens and did not cross react with other bacterial antigens. In addition, one of the monoclonal antibodies could potentially be used for serotyping of various isolates of *L. pneumophila*.

A study of DNA polymorphism in *Giardia duodenalis* was carried out on six local isolates of *Giardia duodenalis* (110, 7304, 6304, M007, 2002 and 6307), a reference WB isolate (a known pathogenic strain from human) and *G. muris* which was originally isolated from a wild mouse. Results of the study showed that local isolates 110 and 2002 are similar to the pathogenic strain WB. In an effort to identify new genes in *G. duodenalis*, a trophozoite cDNA library of the local isolate 2002 was used for the generation of expressed sequence tags (ESTs). The data obtained indicated the potential use of the EST strategy for providing genetic information of this parasite.

The Unit also continued to conduct research on Systemic lupus erythematosus (SLE), a chronic autoimmune disease, characterized by diverse clinical manifestations as well as a plethora of autoantibodies in the sera of patients with the disease. We found a significantly increased level of serum IL10 among the SLE patients as compared to the controls and the levels of IL10 was also significantly different in the active compared to the inactive group but no significant difference was seen between the inactive versus the normal controls. Serum levels of IL10 correlated well with disease activity as we found a significant correlation of levels of IL10 with fatigue, rash and joint affection, neurologic, renal and hematologic involvements ($p<0.05$). There was also a significant positive correlation with levels of antids DNA antibodies, and negative correlation with complement C3 and C4. From this data we suggest that aside from the usual laboratory parameters in the monitoring of patients with SLE, the concentration of IL10 may serve as a new useful serologic indicator of disease activity.

Specialized Diagnostics Centre

Two units namely the Biochemistry Unit and the Molecular Diagnostic and Protein Unit form the Specialized Diagnostics Centre. The main research activity in the *Biochemistry Unit* is the development of new methods for screening and confirmation of Inborn Errors of Metabolic Diseases (IEMD) such as lysosomal and peroxisomal diseases. A new screening method for MPS, which is more sensitive, has been successfully developed to replace the old turbidity test. A quantitative test to measure galactose in neonatal blood spot has been newly introduced to the service to screen the neonates for galactosemia.

The Unit continued to maintain the frequency and regularity of the national external quality assessment scheme (Malaysia EQAS Clin Chem) which monitors for analytical proficiency of core biochemical tests. A quality indicator under the national indicator approach (NIA) effort of the Ministry of Health's Laboratory

Quality Assurance (QA) Programme, it continued to attract participation an increasing number of the Ministry of Health pathology laboratories, and has now a total of 70 participants.

The Molecular Diagnostic & Protein Unit has been the referral centre for specific protein chemistries namely paraproteinemias and cryoglobulinemias since the early 1980's under the then Biochemistry Division. With the reorganization of the IMR, the Unit has an added task of establishing itself in molecular diagnostics especially for the inborn errors of metabolic and genetic diseases.

The main research activities of the Unit were in the development of new molecular diagnostic markers for inborn errors of metabolic diseases such as the urea cycle defect namely the Ornithine transcarbamylase (OTC) gene, and the phenotypes of transferrin and subsequently its genotype for the confirmatory diagnosis of Carbohydrate-deficient glycoprotein (CDG) syndrome. The Unit continued to conduct research on selected molecular markers for colorectal cancer.

DIAGNOSTIC SERVICES

During the year, a total of 197,945 diagnostic tests were performed compared to 157,302 in 2001, an increase of 25.8 %.

CONSULTATIVE SERVICES

An important activity of the Institute is to provide advisory and consultative services to the Ministry of Health, other government departments, agencies and institutions in the country, 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, other government departments and the private sector. Several laboratories served as National Reference Centres in various specialized fields. During the year, 5 staff members served as short-term consultants at the national level while 4 others at the international level.

SCIENTIFIC AND TECHNICAL TRAINING PROGRAMMES

Scientific and technical training continues to be an important component of the Institute's functions. Training activities carried out by the Institute include several regular programmes offered annually, as well as ad hoc training programmes and attachment. The three-year Diploma Course in Medical Laboratory Technology is a regular programme of the Institute.

Two other regular training programmes are being carried out by the Institute. These are the SEAMEO-TROPMED Courses leading to the Diploma in Applied Parasitology and Entomology (DAP&E) and the Diploma in Medical Microbiology (DMM). In 2002, a total of 15 candidates from 10 countries concluded the 33rd DAP&E course while another 12 candidates from 8 countries concluded the 24th DMM course.

The ad hoc programmes of the Institute provided training opportunities for 135 scientists, medical doctors and allied personnel from other departments and institutes in the country and abroad. A total of 206 undergraduates from various local institutions of higher learning were also attached to the Institute for practical training in various disciplines. The Institute also conducted 13 training courses in various disciplines.

CONFERENCES AND STAFF DEVELOPMENT

Staff members of the Institute participated actively in various local and international conferences and seminars. In addition, several staff members had the opportunity to attend various training courses to further improve their knowledge and skills. A total of 138 staff members attended various seminars, workshops and training courses at the national level while another 40 attended regional/international seminars and courses. Two staff members obtained their PhD.

INTERNATIONAL/NATIONAL AWARDS AND HONOURS

This year has been a very successful year for the IMR as several of its researchers received numerous awards/medals for their research products/inventions.

COMMERCIALIZATION ACTIVITIES

The IMR has been successful in commercializing some of its research products since 1999. In 2002, the IMR has drafted several MOU's with various companies to commercialize the following :

i) Comprehensive Test Kit for Insectide Resistance Detection
ii) *Bacillus sphaericus*, a new biolarvicide for *Culex* and *Anopheles* control
iii) Indirect immunoperoxidase test for rickettsial diseases
iv) PAINTICIDE (Insecticide paint)

The IMR has also filed 5 patents on its research findings/products :

i) Comprehensive Test Kit for Resistance Detection (2 kits)
ii) PAINTICIDE
iii) Saliva-Based test kit for the rapid detection of acetylcholinesterase
iv) MOSPHERIX

CERTIFICATION OF QUALITY

The IMR was awarded the ISO 9001 certification for research management in March 2002. The Environmental Health Research Centre, IMR was awarded the ISO 14001 certification in September 2002.

INTERNATIONAL COLLABORATION AND REGIONAL CENTRES

INTER-ISLAMIC NETWORK FOR TROPICAL MEDICINE (INTROM)

The Inter-Islamic Network for Tropical Medicine (INTROM) was set up in 1987 with member countries include Algeria, Egypt, Iraq, Malaysia, Niger, Pakistan, Senegal and Turkey. The inaugural meeting of the INTROM was held in Kuala Lumpur in the same year, which was attended by staff members from the Ministry of Science, Technology and Environment Malaysia, Institute for Medical Research (IMR) Kuala Lumpur and the Secretariat of The Islamic Foundation for Science, Technology and Development (IFSTAD). Several priority areas were identified, of which health is one and hence the setting up of the INTROM. Several activities and network programmes have been planned and carried out both at the national and international levels. However, this needs to be increased and can only materialize with more commitment, cooperation and collaboration by member countries. It is hoped that all the member countries of INTROM and if possible that all members of the Organization of Islamic Conference (OIC) Standing Committee on Scientific and Technological Cooperation (COMSTECH) and IFSTAD would participate and be more actively involved in the activities that INTROM would be able to offer.

Research

Herbal Medicine and Products

Research on herbal medicine and its related products continue to become the priority in the research agenda not only for the IMR but also for the Ministry of Health Malaysia.

Among the on-going projects are :

i) The Malaysia-MIT Biotechnology Partnership Programme on Natural Product (2 plants were involved: *Eurycoma longifolia* and *Centella asciatica*)
ii) WHO-TDR–MOH project in discovering new anti-malarial drug. (This will include all chemical constituents from herbal extract as well as pure compound not only from Malaysia and but also other countries).
iii) National initiated projects under the Natural Product Discovery. (Researchers from research institutes and universities are involved. The plants include *Andrographis paniculata* and *Labisia spp*)
iv) Setting-up of information hubs for Traditional and Complementary Medicine (TCM) together with Commonwealth Working Group on TCM.

Future Plan

The INTROM is planning to organize a workshop on "Phytochemical Analysis and Determination of Markers in Medicinal Plants" for participants from member countries in year 2003. Medicinal plants and herbal medicine is now an important area towards producing new chemical entity and pharmaceutical products. In developing countries crude extracts were still used even though fractions and isolated compounds were now available to add value to the end products. In order to verify claims of the presence of bioactive components, markers should be determined using chromatographic techniques such as High Performance Liquid Chromatography (HPLC), Gas Chromatography and Thin Layer Chromatography and spectrospic techniques. In recent years determination of plant markers using "chromatographic fingerprinting" a technique currently being used to determine the authenticity of herbal products has become a very important aspect in the herbal industry worldwide.

BILATERAL COOPERATIONS OF HERBAL MEDICINE RESEARCH CENTRE [HMRC]

Malaysia-China Science And Technology Cooperation Programme

The Malaysia-China Science and Technology Cooperation Programme in the area of herbal medicine and medicinal plants were initiated after the exploratory visit (organised by Academy of Science, Malaysia] by various research institution and universities to China in October 1999. One of the five areas of interest is herbal medicine and medicinal plants in which IMR was represented.

At the 3rd Malaysia-China Science and Technology Cooperation Programme meeting organised by MOSTE from the 24th to the 26th July, IMR's proposal for the cooperation in the area of information technology with China was accepted. It was agreed that China and Malaysia [represented by IMR], set up the cooperation

in China's Asia Pacific Network of Traditional Medicine and Malaysia's Global Information Hub for Integrated Medicine. IMR was also appointed as the focal point for Asia Pacific Network of Traditional Medicine in Malaysia. In this regard, HMRC hosted 5 scientists from Hubei Province, China from 5 to 11 October financed by MOSTE. IMR was also invited to participate in the Expert Group Meeting of the APTM Network in China in 2003.

Through the WHO Fellowship Programme, another cooperation was established with the China Academy of Traditional Medicine in the area of Materia Medica and Information Technology. After a two month WHO Fellowship Programme in Spectroscopic Analysis by one of HMRC researcher at the Institute Materia Medica, Beijing in 2001, HMRC hosted a visit by 3 WHO Fellows from the Institute from 22 – 25 October. The China Academy of Traditional Medicine also accepted one of our medical officers to the 'International Training Workshop on Treatment of Diabetes With Traditional Chinese Medicine for Developing Countries', 10 - 30 September, Beijing, China.

Bilateral Cooperation With Myanmar

The success of Myanmar government in integrating traditional medicine into their modern health care delivery had impressed the Right Honourable Prime Minister of Malaysia and this had led to a follow-up visit by the Honourable Minister of Health on 11 to 14 November. The delegation which included representatives from relevant government as well as non-government organizations, explored the system of traditional medicine practice, training, research and product registration used in Myanmar through meetings, discussions and visits to the Ministry of Health, the Department of Traditional Medicine of Myanmar and the Hospital of Traditional Medicine. The delegates also visited one of the traditional medicine company owned by the government. From the outcome of this visit, a Cabinet Paper was presented and the proposal by the Ministry of Health to establish a Division of Traditional Medicine and Complimentary that aimed to plan and coordinate various activities toward the integration of proven safe and effective T/CM into Malaysian health care delivery was recommended and approved.

Bilateral Corporation With Cuba

Traditional medicine had been identified as one of the possible areas in the heath sector for future collaborations during the bilateral meeting in September between Malaysia and Cuba in Havana, Cuba. The Malaysian delegation led by the Honourable Foreign Minister, has successfully signed the first agreement for bilateral corporation between the two countries. Besides traditional medicine and the management of public health programme, the possibility of research collaboration and partnership in the global information hub project was also been discussed and will be followed up.

WHO COLLABORATING CENTRES IN MALAYSIA

The Ministry of Health hosted the 8th Annual Meeting of the Head of the WHO Collaborating Centre in Malaysia on 7 November 2002. The meeting was chaired by Dato' Dr Ismail Merican, Deputy Director General of Health, Malaysia. Dr Stephen Tamplin, WHO Representative for Brunei, Malaysia and Singapore was also in the meeting. Also present were the Director of IMR and Director, Infectious Diseases Research Centre, IMR. Five Heads of the WHO Collaborating Centres (WCC) and representatives of the CIS-International Occupational Safety and Health Information System presented the activities of their centres for the year 2001-2002. The centres were :

i) WCC for Taxonomy, Immunology and Chemotherapy of Brugian Filariasis.
ii) WCC for Taxonomy, Ecology, and Control of Vectors of Malaria, Filariasis and Dengue.
iii) WCC for Health System Research and Quality Improvement.
iv) WCC for Regulatory Control of Pharmaceuticals.
v) WCC for Drug Information.
vi) CIS-International Occupational Safety and Health Information System.

Research

Four centres reported a total of 40 research projects conducted during the period of 2001-2002. The research projects were in relation to the Term of Reference of the centres. Most of the projects were funded by internal sources. The projects that were supported by WHO were :

i) Development and field-testing of information exchange system for drug information.
ii) Epidemiology of Malaria in relation to entomological parameters in Sekong Province, Lao PDR.
iii) The structure of Sustainable Delivery of Essential Public Health Elements.

Services

The WCC for Brugian Filariasis and the Vectors of Malaria, Dengue and Filariasis received a total of 128 and 48, 362 specimens respectively for diagnostic services during the period of 2001-2002. The WCC for Regulatory Control of Pharmaceuticals received a total of 48,286 product applications for registration in 2001 and 51,098 applications in 2002, an increase of 5.8%. Some types of applications received in 2002 were scheduled poison (509), non-scheduled poisons (448), cosmetics (214) and traditional products (1,603). The centres also reported various consultative services provided to national and international agencies.

Training

The centres conducted a total of 41 workshops and short training activities during the period. Another 174 students mainly from the local universities underwent attachment training in these centres. The centres also received 79 visitors, including WHO sponsored fellows.

Reports, Publications, Proceedings and Presentations

A total of 107 reports and proceedings, and 23 scientific papers were published in the year 2001-2002 by the collaborating centres. Officers in the centres presented a total of 123 papers in various local and international seminars and conferences.

WHO COLLABORATING CENTRE FOR TAXONOMY, IMMUNOLOGY AND CHEMOTHERAPY OF BRUGIAN FILARIASIS

Research activities

The Centre continues to collaborate with Universiti Sains Malaysia (USM) in evaluating the Brugia-Rapid® for the diagnosis of brugian filariasis under field conditions.

Diagnostic services

The centre continues to provide diagnostic tests for filariasis (IFAT, ICT and Brugia Rapid Test) for the government and private hospitals and private laboratories. In the year 2002, 62 serum samples were received IFAT testing.

Training activities

The Centre, in collaboration with WHO Geneva, organised the SEARO/ WPRO Training Workshop for Programme Managers of Lymphatic Filariasis Elimination Programme, the first such training for programme managers under the Global Elimination Programme. A total of 33 participants, observers, facilitators and country officers attended the workshop, which was officially opened by the Hon. Deputy Minister of Health, Malaysia. The participants came from 13 countries in the WPRO and SEARO WHO Regions.

In 2002, the Centre also collaborated with the Vector-Borne Disease Control Section, Ministry of Health in organising and conducting a training workshop for the National Lymphatic Filariasis Elimination Programme. A re-fresher training workshop was carried out for 24 microscopists from 11-13 June at the National Public Health Laboratory.

Publications and Presentations

The Centre published 4 scientific publications in local and international journals, made 12 presentations and produced 2 technical reports for the 2001-2002 period.

WHO COLLABORATING CENTRE FOR TAXONOMY, ECOLOGY AND CONTROL OF VECTORS OF MALARIA, FILARIASIS AND DENGUE

Research activities

The main thrust of research of the Centre focused on studies on various aspects of vectors and their control. Research on microbial control agents concentrated on the testing of various formulations of *Bacillus thuringiensis* H-14 (Bti) and *B. sphaericus*. Study on the field bioefficacy of *B sphaericus* for the control of the Japanese encephalitis vectors was initiated in a pilot study in Serian District, Sarawak. Formulations of *B. thuringiensis* H-14 were also tested against container-breeding *Aedes* and chironomid larvae in oxidation ponds. Sublethal Bti dosages were found to be insufficient to suppress development of dengue virus in adults emerging from affected larvae. Study on Malaysian isolates of Bti emphasised on the effects of toxins against cancer cells. Attempts were initiated to clone and identify the toxin genes of the first novel anaerobic microbial control agent, *Clostridium bifermentans* serovar *malaysia*. In the area of chemical insecticides, the toxicity, morphogenetic and histological effects of insect growth regulators on the housefly were studied. A new surfactant, monomolecular film (MMF) was tested against *Aedes aegypti* in both the laboratory and field, and it was found to be effective under certain conditions. Screening of new pyrethroid formulations for mosquito control was conducted whereby 3 new products were tested. Lab evaluation of a mixture of natural plant product and Deet was found to exhibit prolonged protection times against mosquito bites. The effects of insecticide resistance on the biology of mosquitoes and development of dengue virus were studied. A longitudinal survey to determine malaria epidemiology and vector distribution was conducted successfully in Lao, PDR while the bioefficacy of insecticide-impregnated nets on vector and malaria parasite rate of a population was conducted in Sabah. In dengue vector studies, a field evaluation of a formulation of pyrethroid was conducted in an urban area. Protein synthesised by dengue vectors in response to dengue infection was studied with a view of early detection. In other studies, research on coastal leptoconine sand fly in resort islands in Johore had yielded control measures which are used successfully. The effects of various aerosol formulations of pyrethroids and carbamate on local leech were evaluated. Sterile maggots of *Lucilia cuprina* to be used in maggot therapy were successfully reared.

Diagnostic services

The Centre continued to identify all the adult mosquitoes collected from 27 sentinel surveillance traps operated by the Kuala Lumpur City Hall Health Department. As in the past, *Culex* mosquitoes, mainly *Cx quinquefasciatus* account for the majority of the mosquitoes collected in urban areas (81.2%). Anophelines were collected infrequently from traps situated near forested areas. The total number of mosquitoes collected increased by about 19.7% compared with the year 2001 (33,650 in 2002 compared with 28,105 in 2001).

Training activities

The Centre was again heavily loaded with the training of post-graduate candidates in the DAP&E course. A total of 8 students elected to conduct their research projects leading to their thesis in the Centre. All senior staff of the Centre conducted many lectures and practical sessions in the DAP & E Course.

The Centre also provided attachment training to 4 undergraduates and 3 post-graduate students (MSc & PhD) from local universities.

Publications and Presentations

The Centre had 2 scientific paper published in international and local journals, 5 papers were accepted for publication and 11 reports were prepared. The staff presented 34 papers in various scientific meetings locally and abroad.

Health Systems Research

OBJECTIVES

THE concept to formalise the Institute for Health Systems Research (IHSR) as one of the components of the National Institutes of Health was accepted by the policy makers in the Ministry of Health in the second half of 2002. Under the National Institutes of Health, the IHSR will serve as the national coordinating body for the development of Health Systems Research (HSR) and Quality Improvement (QI) programme in the Ministry of Health. Its objectives are to carry out relevant research, based on national priorities; to propose and participate in multinational collaborating studies; to provide training in HSR and QI; to support the integration of HSR and QI into the managerial process; to provide technical support for institutionalising HSR and QI; to facilitate and provide access to bibliographical resources; to transfer the above mentioned experiences and expertise at an inter-country/regional level and to contribute to methodological development and synthesis in this area through participation in organisation of meetings, panels of experts and advisory groups.

STRATEGIES

In order to achieve the above objectives, the following are our strategies: institutionalisation of HSR and QI as a management tool; development of human and physical resources; establishment of linkages; dissemination of information and enhancement of utilisation of HSR and QI as a management tool.

Apart from being the lead agency for the development and implementation of the HSR Programme, the IHSR is also the focal point for research and training in Quality Assurance (QA) for the Ministry of Health. With its designation as the WHO Collaborating Centre for Health Systems Research and Quality Improvement for the term 2001-2004, the National Secretariat for Quality Assurance Programme in the Ministry of Health was transferred to the Institute in December 2001. The secretariat actively began its tasks to collate and formalise the terms of reference for the committees on QA at various levels, conduct regular meetings for the national and technical QA committees, plan for training and resources. Collaborative efforts with other agencies, within and outside the Health Ministry in research projects, training and consultancies are the other strategy to enable the Institute to optimally utilise its scope and potential on HSR and QI.

HUMAN RESOURCE

A public health physician is the Director of the Institute. The Director is supported by 7 medical officers, 6 of whom are public health specialists, 3 research officers, 1 statistician, 1 nursing tutor, 1 matron, 1 health inspector, 2 clerks and 1 office attendant. With the formalisation of IHSR under the National Institutes of Health, a new policy application has been forwarded for the year 2004, requesting for the expansion of human resource for the various categories to support the expanded scope of the Institute.

ACTIVITIES AND ACHIEVEMENTS IN YEAR 2002

Research Projects

The year 2002 saw the Institute being actively involved in several international and national mega research projects. These studies enabled the Institute to actively collaborate with international organisations such as the WHO, as well as national organisations such as the local universities and the Ministry of Health programmes and State Health Offices. These studies included :

- The World Health Survey (WHS) 2002 - a nation wide community survey, commissioned by the Ministry of Health, in collaboration with the WHO. The survey aimed to assess the level of health and health distribution; level of responsiveness and its distribution; and fairness of health financing within the country. The same study was also being conducted in more than 70 other countries world wide.

- Health Research System Analysis (HRSA) is another research project, which is being commissioned by the Ministry of Health, in collaboration with the Department of Research Policy and Cooperation, WHO Geneva. Its aim is to assess the various components of a national health research system that include stewardship, financing, creating and sustaining resources for research and production, and use of research results in the country.

- Situational analysis of implementation of MSC-MOH teleconsultation services was undertaken to evaluate the extent of implementation of the teleconsultation services (TC) implemented in pilot areas. It was a collaborative project comprising of researchers from various departments in MOH.

- Other research projects include Second-Hand Smoke (SHS) exposure at home and respiratory symptoms in three selected states in Malaysia and the project on demand analysis of tobacco consumption in Malaysia. They were a collaborative project with members from the Ministry of Health, the Consumer Association Penang and Universities in Malaysia.

Special Projects

Besides the extensive investment of time and resources on the preparation and implementation of the nation wide community survey for the World Health Survey 2002, the Institute was also involved in 5 other main special projects. These were the Formation of Institute for Health Systems Research, Development of QA Training Modules, Technical Working Group on Expanding Indicators to Measure Health in the Review of the Eighth Malaysia Plan and Preparation of the Ninth Malaysia Plan, Formulation of Policy for Quality in Health for the National Health Policy and Development of Database for Quality Assurance Hospital Specific Approach/District Specific Approach projects.

Consultancy Services

Consultancy services were provided as well as received by the Institute throughout the year. Members of the Institute served this role at international and national levels. They included the services provided as Consultants and Temporary Advisers to the World Health Organisation and other International Agencies; Board/council members of international and national organizations; national and international editorial committee members of bulletins and medical journals as well as article reviewers; committee/task group members in various national and international health committees; advisors for research projects and QA Programme for the Ministry of Health and others. The Institute also received a consultancy service in the area of QA from a professor of the University of Oklahoma.

Training

There were a total of 17 courses conducted by the Institute in 2002, training a total of 546 participants. The training activities were also extended to other long-term and short-term courses conducted throughout the Health Ministry as well as by the local Universities. Among the specific areas of expertise provided were on HSR Methodology, QA, outcome research, use of various statistical software, policy analysis and health economics.

Presentations and Publications

Staff of the Institute at various national and international forums delivered a total of 42 presentations. In 2002, the Institute produced 10 publications and 15 reports.

Staff Development

To ensure that members of the Institute are constantly abreast with the latest development in their respective areas of expertise, as well as to encourage the establishment of network, the Institute encourages participation of its staff in various courses, workshops, seminars and conferences.

In the year 2002, 2 staff member continued their post doctorate studies, 2 commenced a master course, 1 staff attended a diploma studies and 1 staff continued on a degree course. Within the year 2002, each member of the Institute had participated in at least five self development sessions in the form of courses, workshops, seminars and conferences, both locally and internationally.

International Collaboration

The year 2002 also saw the Institute and its members actively collaborating and communicating with international organisations through research, meetings and as technical advisors.

The Institute coordinated the following forum :

- The Inter-regional Consultation on Health Research System Analysis (in collaboration with World Health Organisation) held in Kuala Lumpur, and attended by representatives from Kazakhstan, Brazil, Lao PDR, Senegal, Thailand, Indonesia, Iran, Pakistan, Tanzania, Cameroon, Malaysia, WHO Representatives from Regional Offices.

- The Human Reproductive Regional Advisory Panel on Health Research for Asia and the Pacific (in collaboration with World Health Organisation) held in Kuala Lumpur and attended by representatives from Singapore, China, Bangladesh, Myanmar, Sri Lanka, Australia, India, Thailand and Malaysia.

In the field of health research and organisational management, the director of the Institute was also nominated as a member of the Board of Trustees for the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B), also known as "Centre for Health and Population Research". She is also a Council member to the Federation for International Cooperation of Health Services and Systems Research Centres (FICOSSER). Advisory Committee member for the Western Pacific Region for Health Research; the Alliance for Health Policy and Systems Research Council on Health Research for Development INCLEN Trust Health. Other international alliances included the membership in International Society for Quality Assurance in Health Care, Asian Pacific Forum on Quality Improvement in Health Care; the international research network on health expectancy "REVES" and others.

CONCLUSION

The year 2002 charted another milestone in the development of HSR programme in the country whereby a separate national entity - the Institute for Health Systems Research, was formlised under the National Institutes of Health. The year 2002 had provided opportunities for the Institute to again prove its credibility in managing mega projects for the Ministry of Health and strengthened its international status as the WHO Collaborating Centre for Health Systems Research and Quality Improvement. The successes achieved in 2002 will provide the impetus for the Institute to be more productive and competitive in the coming years.

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PUBLIC HEALTH LEGISLATION

Public Health Legislation

IN 2002, there was one Act and several existing subsidiary legislation were amended and those amendments are as listed below.

DANGEROUS DRUGS ACT 1952 (ACT 234)

This Act was amended by the Dangerous Drugs (Amendment) Act 2002 (Act A1167). Amongst the amendments made were to allow a police officer not lower than the rank of sergeant or a customs' officer to obtain a person's urine samples for examination from arrested persons if a medical officer cannot do so within a reasonable period of time and a presumption that should any dangerous drugs found in the urine sample of that person, the person shall be presumed to have taken or used those drugs or allowed others to cause him to use drugs until the contrary is proven. Stiffer penalties against persons who are found guilty under paragraph 10(2)(b), paragraph 15(1)(a) or section 31A Act 234 if the person has been admitted to the Rehabilitation Centres and have a previous conviction that is related to drugs. This is to curb the problems raised by hard-core addicts, repeat offenders and to protect the public from crimes related to drugs. The amendment came into operation on 1 November 2002.

FOOD ACT 1983 (ACT 281)

There were three amendments towards the Food regulations 1985 amongst which is the amendment relating to special dietary foods with low natrium content including salt replacement and baby formula contents.

MEDICAL ACT 1971 (ACT 50)

There were two amendments gazetted under the Medical Orders (Amended Second Schedule) 2002.

OTHERS

Several notifications on appointment and revocation of the members of the Boards or Council under the Ministry of Health such as the Medicine Advertisements Board, Drug Control Authority and Midwives Board were made and gazetted under the respective Act or Regulations. There were also declarations gazetted such as the Declaration of Non-Smoking Area under the Control of Tobacco Product Regulations 1993.

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INTERNATIONAL COLLABORATION IN HEALTH

International Collaboration In Health

THROUGHOUT 2002, the Ministry Of Health continued efforts to forge bi-lateral relationship with international organizations and other foreign countries in the field of health. In this regard, Malaysia provided assistance to some developing countries, especially in the Asia Pacific region, in upgrading and uplifting the health status of the people in these countries.

Through cooperation in health with the World Health Organization (WHO), Malaysia reaped many benefit through activities carried out by the organization to uplift the standard of health care in the country. Specifically these are :

i) Short/long term consultancy and advice in specific fields health;
ii) Training of Ministry official in health related areas through awards of fellowships/scholarships;
iii) Exchange of information and reports on specific diseases; and
iv) Attendance in seminars, conferences, workshop and short courses held both inside and outside the country.

CONSULTANCIES AND FELLOWSHIP

Throughout 2002, 20 consultants funded by WHO provided advise in various field of health in Malaysia. Among these were :

i) HIV/AIDS programmed
ii) Family health development
iii) Pharmaceutical services
iv) Food quality control
v) Cancer control programmed
vi) Vector borne diseases research

In the year 2002, WHO sponsored a total of 160 officials from developing countries like Laos, Vietnam, Mongolia, Sri Lanka, Philippine, Indonesia and also Papua New Guinea to visit Malaysia and learn about its health care system.

As part of its capacity building initiative, the Ministry continued to send officials overseas to attend conferences, meeting, workshop, short courses and to serve as temporary advisors when requested by international organizations like the WHO. In 2002, 45 Ministry 's officials were involved in this initiative. Out of the 1,115, 420 were fully sponsored by Ministry of Health and 695 more were funded by international organizations like SEAMEO-TROPMED, JICA, WHO, SEAMIC, JICWELS and UNDP.

SIGNIFICANT MEETINGS AND EVENTS

WHO organized 2 high level meetings that involved ministers/officials involved in policy making in their respective countries :

i) The World Health Assembly held in Geneva from the 13th – 18th May 2002. The Malaysia delegation was headed by the Honorable Mr. S. Sothinathan, Parliamentary Secretary, Ministry of Health and;
ii) The Regional Committee Meeting held in Kyoto, Japan from the 16th – 20th September, 2002. The Malaysia delegation was headed by the Honorable Dato' Chua Jui Meng, Minister of Health.

OFFICIAL VISIT

To make bi-lateral relationship with other foreign countries in the field of health, several visit has been made, among these were :

i) The visit to Republic of Rusia on 11th – 18th March 2002 by the Honorable Prime Minister of Malaysia, followed by the Honorable Dato' Chua Jui Meng and 6 senior officials;

ii) The visit to Phuket, Thailand headed by the Honorable Dato' Chua Jui Meng and 16 senior officials on 12th – 14th June 2002;
iii) The visit to Republic Czech and Austria on 28th Oct – 2nd Nov 2002 headed by the Honorable Dato' Chua Jui Meng and 3 senior officials and;
iv) The visit to Myanmar on 11th – 17th November 2002 by the Honorable Dato' Chua Jui Meng and 13 senior officials.

GUESTS OF HONOUR

The year 2002 also saw the visit of several head of government and foreign dignitaries as follows :

i) The visit by Permanent Secretary, Ministry of Health, Brunei and 6 senior officials from 17th – 24th July 2002.

To further forge bilateral relationships in the field of health, the Ministry of Health is looking towards cooperating with other international agencies as well as NGO's in the future.

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IMPORTANT EVENTS IN 2002

Important Events In 2002

6 January

- NSR with Love Charity Show in Aid of Sau Seng Lum Dialysis & Stroke Rehabilitation Centre, Arena of Star Genting Highlands.

24 January

- Festival Charity Programme 2002, STC Equestrian & Sports Centre.

25 January

- 3rd Malaysian Congress of Allergy & Immunology, Nikko Hotel, Kuala Lumpur.

3 February

- N.Y Launch for Sr. Citizens, Silver Jublee Home Sungai Dua, Pulau Pinang.

9 February

- Ground Breaking Ceremony of Cameron Highlands Hospital, Pahang.

19 February

- Launch of Weight Management International Centre (WMIC), J.W. Marriot Hotel, Kuala Lumpur.

26 February

- Officiating the ISO 9000 Integration Scheme/HACCP, Hyatt Regency Subang, Selangor.

28 February

- Healthy Lifestyle Campaign 2002 with theme Promotion of Healthy Environment, PWTC, Kuala Lumpur.

4 March

- Officiating of the Kuala Nerang Hospital, by HRH Sultan of Kedah in Kuala Nerang, Kedah.

5 March

- Official Award Presentation Ceremony of Baby Friendly Hospital Initiative (BFHI) Status to Pantai Medical Centre, Dewan Pantai, Blok C, Pantai Medical Centre.

11 - 15 March

- 6th ASEAN Health Ministers Meeting, Vientienne, Laos.

16 March

- Launching of the Healthy Nutrition Month.

21 March

- Launching of the Safety Nutrition Day, PWTC, Kuala Lumpur.

24 March

- Opening of KOMTAR Health Shop Penang.

26 March

- Launching of World Tuberculosis Day 2002, National Level in Johor, Sofitel Hotel, Johor Bahru.

30 March

- CMH Blood Donation Campaign, Main Lobby CMH Medical College, Kuala Lumpur.

2 April

- National Conference on Risk Management in Health Care Service, Summit Hotel Subang Jaya, Selangor.

7 April

- World Health Day 2002, Taman Tasik Titiwangsa, Kuala Lumpur.

23 April

- Scientific Conference on Food Anti Oxidants, Nutrition Health & Consumer Perspectives, Equatorial Hotel, Bangi, Selangor.

24 April

- Officiating of International Governmental Consultative Group of Anti Doping in Sports Meeting, Renaissance Hotel, Kuala Lumpur.

27 April

- Visit by HRH Raja Permaisuri Agong to Kuala Lumpur Hospital in conjunction with coronation on 27.4.2002.

29 April

- 4th Health Science Symposium, UKM, J.W. Marriot Hotel, Kuala Lumpur.
- Officiating of the Kelana Jaya Health Clinic by HRH Sultan of Selangor.

2 May

- 1st National Life Services Conference 2002, MINES.

5 May

- Launching of Stroke Week : Walk For Health, KLCC Park, Kuala Lumpur.

16 May

- Officiating of the Slim River Hospital by HRH Sultan of Perak.

17 May

- Officiating of the Hepar Transplant Service Centre in Selayang Hospital.

23 May

- Official the Launch of the Endovascular & International Neuroradiology Symposium 2002 and to declare open SJMC's New Vasculatuin and Interventional Radiology Centre, Sharaton Subang Hotel, Subang Jaya, Selangor.

28 May

- Officiating of the Tongkang Pechah Health Clinic, Johore.

31 May

- 59th AGM of the Malaysian Dental Association & Scientific Congress, Bayview Beach Resort Batu Feringgi Beach, Penang.

7 June

- Launching of 'No Tobacco World Day', National Level, Dewan Bandaraya Ipoh.

11 June

- Opening of Hospital Pantai Mutiara's Radiotheraphy & Onceology Unit, Penang.

18 June

- Launch of Duopharma Biotech Bhd., Hilton, Petaling Jaya, Selangor.

22 June

- Officiating the 9th Malaysian Medicine Conference, Sunway Lagoon Resort Hotel, Selangor.

6 July

- Officiating of the Hope Wouldaide Kuala Lumpur Free Clinic, Jalan Sentul Pasar, Kuala Lumpur.

12 July

- Officiating of 3rd KL Mental Health Conference & 1st ASEAN Community Mental Health Network Meeting by the Deputy Prime Minister of Malaysia, J.W. Marriot Hotel, Kuala Lumpur.

18 July

- 14th ASEAN Congress of Cardiology : Opening of Trade Exhibition, Shangri-La Hotel, Kuala Lumpur.

19 July

- Pantai Premier Pathology Sdn. Bhd. MS ISO 9001 : 2000 Certificate Presentation Ceremony, Pantai Medical Centre, Kuala Lumpur.

22 July

- International Clinical Pharmacy Symposium, Legend Hotel, Kuala Lumpur.

26 July

- Robin Good, Amcorp Mall Petaling Jaya, Selangor.

27 July

- Rotary Club of Muar - Installation of Board of Directors and Presidents for Rotary Year 2002 - 2003, Classic Hotel, Muar, Johore.

28 July

- AGM World Federation of Taiway Alumni Association 11th Convention of Taiwan Association In Asia & Mandarin Nite 2002 Annual Dinner, Grand Ballroom Putrajaya Marriot Hotel, Putrajaya.

1 August

- Launching of The World Breastfeeding Week 2002, Pantai Medical Centre, Kuala Lumpur.

9 August

- Healthy Lifestyle 2002, Midvalley Exhibition Centre, Level 3, Megamall Kuala Lumpur.

15 August

- 6th ASEAN Congress of Urology, HKL Urology Dept. Audio Visual Centre and MUA's 25th Anniversary, Mandarin Oriental Hotel, Kuala Lumpur.

19 August

- 3rd Asian Congress of Dretitics, Shangri-La Hotel, Kuala Lumpur.

22 - 24 August

- Majlis Dialog 2002, Pan Pacific, Kuala Lumpur.

27 August

- 5th Malaysia Family Medicine Scientific Meeting, Hilton Hotel, Seremban.

5 September

- 5th NIA Scientific Meeting with theme : Research and Clinical Practice Towards Better Health 2002, Renaissance Hotel, Kuala Lumpur.

8 September

- Officiating of 6th National Prostar Convention, Johor Bahru.

17 September

- Avon's Kiss Goodbye to Breast Cancer - Fund Raising & Awareness Campaign 2002, Lobby Central Station Kuala Lumpur.

19 September

- Visit by HRH the Yang Dipertuan Agong to Ministry of Health on 19.9.2002.

4 October

- International Nursing Conference : Advances in Nursing Practice, Legend Hotel, Kuala Lumpur.

1 November

- 10th International Healthcare Show 2002, Sunway Pyramid Convention Centre, Kuala Lumpur.

14 November

- Launching of "International Health Fair 2002" exhibition, PWTC, Kuala Lumpur.