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ANNUAL REPORT

MINISTRY OF HEALTH MALAYSIA

2015

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CONTENT

EDITORIAL BOARD	iv
ORGANISATION CHART OF THE MINISTRY OF HEALTH	v
VISION AND MISSION	vi
CHAPTER 1 - HEALTH STATUS	1
CHAPTER 2 - MANAGEMENT	11
CHAPTER 3 - FINANCE	43
CHAPTER 4 - PUBLIC HEALTH	51
CHAPTER 5 - MEDICAL	173
CHAPTER 6 - RESEARCH AND TECHNICAL SUPPORT	269
CHAPTER 7 - DENTAL	333
CHAPTER 8 - PHARMACY	365
CHAPTER 9 - FOOD	393
CHAPTER 10 - POLICY AND INTERNATIONAL RELATIONS	409
CHAPTER 11 - INTERNAL AUDIT AND INTEGRITY	419
CHAPTER 12 - DEVELOPMENT	421

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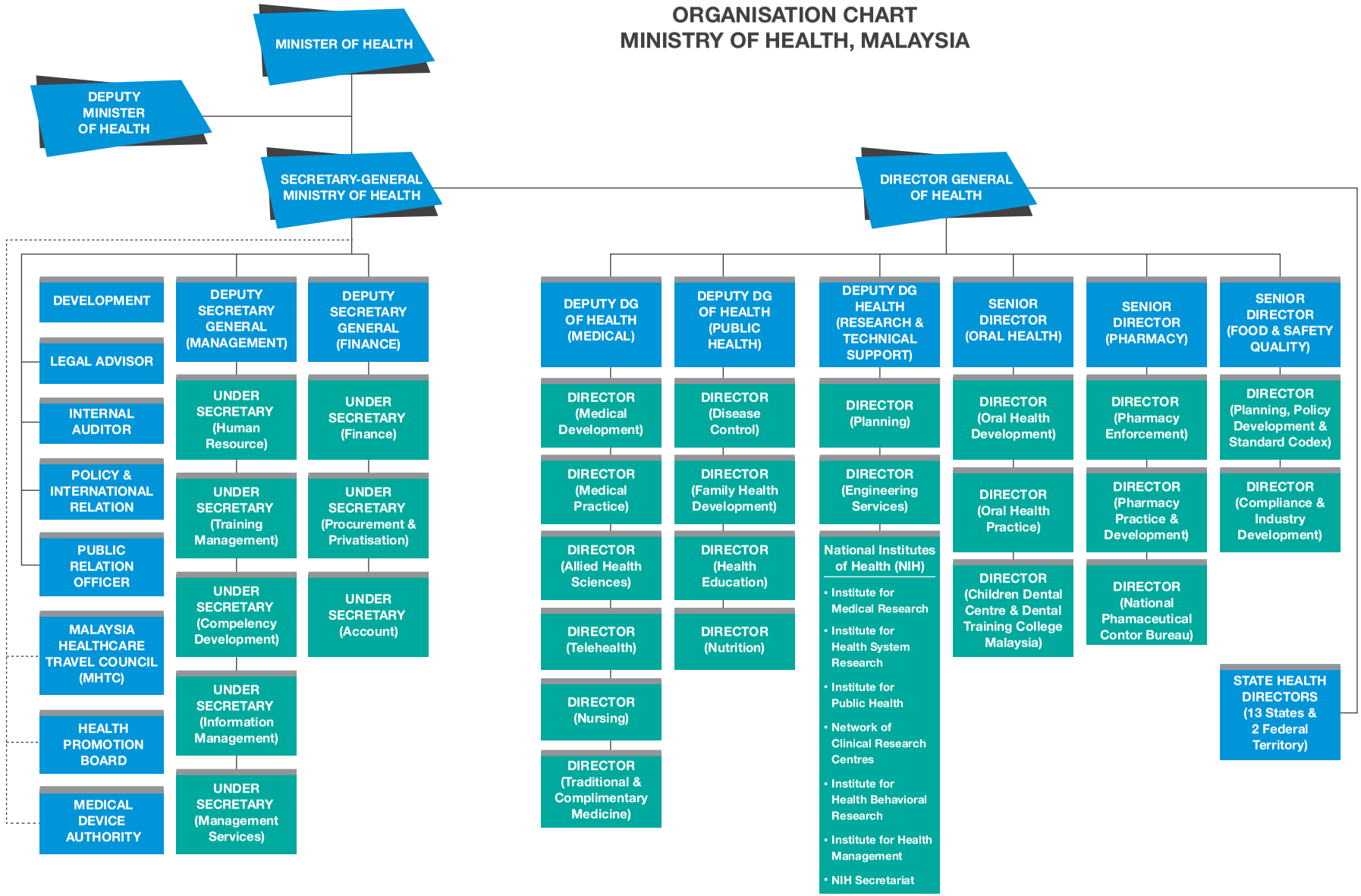


VISION

A nation working together for better health.

MISSION

The mission of the Ministry of Health is to lead and work in partnership:

- to facilitate and support the people to:
  - fully attain their potential in health
  - appreciate health as a valuable asset
  - take individual responsibility and positive action for their health

- to ensure a high quality health system that is:
  - customer centre
  - equitable
  - affordable
  - efficient
  - technologically appropriate
  - environmentally adaptable
  - innovative

- with emphasis on:
  - professionalism, caring and teamwork value
  - respect for human dignity
  - community participation

CHAPTER 1

HEALTH STATUS

INTRODUCTION

Malaysia is a vibrant and dynamic country enjoying continued economic growth and political stability since its independence 58 years ago. Malaysians today are generally healthier, live longer, and are better disposed to be more productive. The overall level of health attained is one of the key measures of the success of our country. Good health enables Malaysians to lead productive and fulfilling lives. In addition, a high level of health contributes to increased prosperity and overall social stability.

Population Structure

Based on the adjusted Population and Housing Census of Malaysia 2010, the population of Malaysia in 2015 was 31.19 million with an annual population growth rate 2014-2015 of 1.56%. The total population in 2015 increased by 0.48 million as compared to 30.71 million recorded in 2014. The geographical distribution of population showed that Selangor had the highest population of 6.18 million, while Federal Territory of Putrajaya recorded the lowest population of 0.08 million (Table 1). However, Federal Territory of Putrajaya recorded the highest annual population growth rate of 2.60%, while Perak recorded the lowest annual growth rate of 0.33%.

TABLE 1
POPULATION AND ANNUAL POPULATION GROWTH RATE BY STATE, MALAYSIA, 2014-2015

State	Population ('000)		Annual Population Growth Rate 2014/2015 (%)
	2014[p]	2015[p]	
Perlis	245.1	248.5	1.39
Kedah	2,062.7	2,096.5	1.64
Pulau Pinang	1,678.1	1,698.1	1.19
Perak	2,458.8	2,466.9	0.33
Selangor	6,051.3	6,178.0	2.09
FT Kuala Lumpur	1,737.4	1,780.4	2.47
FT Putrajaya	80.9	83.0	2.60
Negeri Sembilan	1,079.6	1,088.8	0.85
Melaka	871.7	889.0	1.98
Johor	3,559.8	3,610.3	1.42

State	Population ('000)		Annual Population Growth Rate 2014/2015 (%)
	2014[p]	2015[p]	
Pahang	1,591.7	1,607.9	1.02
Terengganu	1,140.4	1,161.0	1.81
Kelantan	1,723.4	1,760.6	2.16
Sabah	3,669.9	3,720.5	1.38
FT Labuan	93.8	95.1	1.39
Sarawak	2,664.0	2,701.5	1.41
MALAYSIA	**30,708.5**	**31,186.1**	**1.56**

Notes:

1. *Current population estimates 2014 and 2015.*
2. *The added total may differ due to rounding.*
3. *FT = Federal Territory*
4. *p: State data are preliminary figures*

Source: Department of Statistics, Malaysia (www.statistics.gov.my/Population Quick Info)

Overall, Malaysia is predominantly urban, with 74.3% of the total population living in urban areas, and 25.7% of the population living in the rural areas (Table 2). In 2015, the economically-productive population which consists of population aged 15 to 64 years was 21.6 million or 69.2% of the total population, while the economically dependent (age below 15 years and 65 years and above) was 9.6 million or 30.8% of the total population.

TABLE 2

STATISTICS RELATED TO POPULATION, 2015

Population	Number ('000)	% of Total Population
Male	16,112.1	51.7
Female	15,074.0	48.3
Urban	23,173.7	74.3
Rural	8,012.4	25.7
Economically-productive (age 15-64 years)	21,588.9	69.2
Economically-dependent:		
□ age below 15, and	7,775.8	24.9
□ above 64 years	1,821.4	5.8

Notes:

1. *Current population estimates 2015.*
2. *The added total may differ due to rounding.*

Source: Department of Statistics, Malaysia, 2015

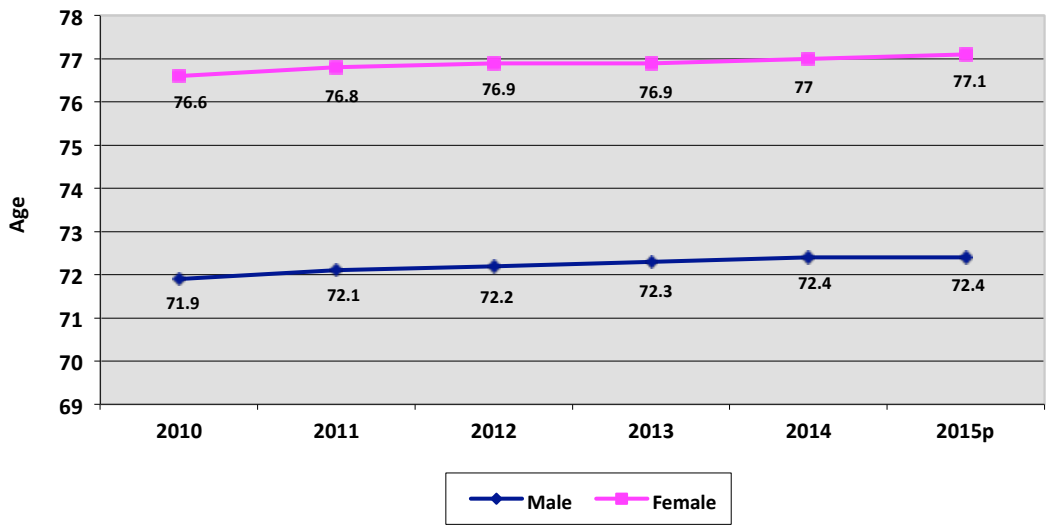
Health Status

Health status can be gauged by the use of health status indicators. Indicators such as life expectancy at birth, mortality and morbidity status of the country were among the indicators that can be measured, and serve as an indication of the state of health of individuals, and thus the health of the overall population.

- **Life Expectancy at Birth**

Life expectancy is a measure of the number of years, on an average, that a person can expect to live. With the improvement in the nutritional and socio-economic status of the population, Malaysians can expect to live much longer than in the past. The estimated life expectancy at birth based on the 2015 data has increased to 72.4 years for male and 77.1 years for female respectively, as compared to 71.9 years for male and 76.6 years for female recorded in 2010 (Figure 1).

FIGURE 1
LIFE EXPECTANCY AT BIRTH (IN YEARS) BY SEX, MALAYSIA, 2010-2015



Source: Department of Statistics, Malaysia, 2015

- **Mortality**

Mortality data provides a useful endpoint for measuring health. These data provide a comprehensive picture of the health of the community, since it covers every individual. Many different types of measures are used to provide views of health from differing perspectives.

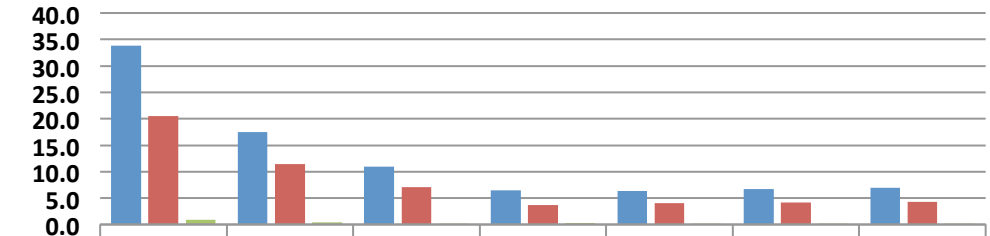
For the past 41 years (1974-2015), the mortality rates in Malaysia had been decreasing. The trend of maternal mortality rate (MMR), infant mortality rate (IMR) and neonatal mortality rate (NMR) in Malaysia are shown in Figure 2.

The MMR, which refers to the ratio of deaths occurring in women during pregnancy, childbirth or within 42 days after childbirth, due to causes directly or indirectly related to the pregnancy or childbirth, showed an apparent decreasing trend from 0.9 per 1,000 live births in 1974 to 0.2 in 2015. Even though there was a slight increase in the MMR in 2004, the rate has stabilized for the past 20 years, i.e. from 1994 to 2013. This may be due to the improved reporting system introduced in 1990, with the establishment of the Confidential Enquiry into Maternal Deaths (CEMD) by the MoH.

IMR per 1,000 live births had improved from 33.8 in 1974 to 6.9 in 2015. Besides that, the trending of neonatal mortality rate per 1,000 live births for the same period shows an overall decreasing trend when compared to 20.5 in 1974.

FIGURE 2

IMR, NMR AND MMR, MALAYSIA, 1974-2015



	1974	1984	1994	2004	2013	2014	2015
IMR	33.8	17.5	10.9	6.5	6.3	6.7	6.9
NMR	20.5	11.4	7.1	3.7	4.0	4.2	4.3
MMR	0.9	0.4	0.2	0.3	0.2	0.2	0.2

Source: Vital Statistics, Malaysia, Department of Statistics, Malaysia, 2015

The trend for the other mortality rates remains relatively the same from 2010 to 2015 (Table 3). Intensive immunization efforts and other related programmed were carried out by both the public and private sectors could improve this rates. These data can also be attributed to the nutritional status improvement of the children, improvement of immunity, and improving environmental conditions.

TABLE 3

MORTALITY RATES IN MALAYSIA, 2010-2015

Indicator	2010	2011	2012	2013	2014	2015
Crude Death Rate (per 1,000 population)	4.6	4.7	4.7	4.7	4.9	5.0
Maternal Mortality Ratio (per 100,000 live births)	26.1	26.2	23.2	21.4	22.3	23.8
Infant Mortality Rate (per 1,000 live births)	6.7	6.5	6.2	6.3	6.7	6.9
Neonatal Mortality Rate (per 1,000 live births)	4.3	4.2	4.0	4.0	4.2	4.3
Under Five Mortality Rate (per 1,000 live births)	8.4	8.0	7.6	7.9	8.3	8.4
Toddler Mortality Rate (per 1,000 population aged 1-4 years)	0.4	0.4	0.4	0.4	0.4	0.4
Stillbirth Rate (per 1,000 births)	4.5	4.5	4.3	4.3	4.3	4.4
Perinatal Mortality Rate (per 1,000 births)	7.7	7.6	7.3	7.3	7.4	7.7

Source: Vital Statistics, Department of Statistics, Malaysia, 2015

- **Morbidity**

The health status of a community is usually measured in terms of morbidity, which focuses on the incidence or prevalence of disease, and mortality, which describes the proportion of death in a population.

Hospitalization indicates the severity of disease that needs further treatment, stabilisation of patients or the need of isolation in order to prevent the spreading of the diseases to others. For the period of 2001-2015, the number of

admissions in MoH Hospitals increased 46.5% to 2,335809 in 2015 from that of 1,594,175 in 2001. The 10 principal causes of hospitalization in the MoH Hospitals for 2015 are shown in Table 4. The diseases were regrouped to groupings based on the International Statistical Classification of Disease 10th Revision (ICD10). In 2015 "Pregnancy, childbirth and the puerperium" (23.85%) was the top cause of admissions in MoH hospitals followed by "Diseases of the respiratory system" (12.34%).

TABLE 4

10 PRINCIPAL CAUSES OF HOSPITALIZATION IN MoH HOSPITALS, 2015

Principal Causes	Percentage to total admissions
1. Pregnancy, childbirth and the puerperium	23.85
2. Diseases of the respiratory system	12.34
3. Certain infectious and parasitic diseases	9.28
4. Certain conditions originating in the perinatal period	8.38
5. Injury, poisoning and certain other consequences of external causes	7.64
6. Diseases of the circulatory system	7.29
7. Diseases of the digestive system	4.52
8. Diseases of the genitourinary system	4.21
9. Neoplasms	4.09
10. Factors influencing health status and contact with health services	3.55

Note: Based on ICD10 3-digit code grouping

Source: SMRP Inpatient Database, Health Informatics Centre, MoH

Similarly, the number of deaths (for all causes) in MoH Hospitals for the period of 2001-2015 increased 57.9% from 32,751 in 2001 to 51,700 in 2015. Starting in 2014, tabulations for causes of death in MoH Hospitals are based on the underlying cause of death, as per recommended by the World Health Organization (WHO). "Diseases of the circulatory system" was the top cause of death in MoH hospitals recorded in 2015 (22.77%), followed by "Diseases of the

respiratory system" (18.54%) and "Neoplasms" (13.56%). The 10 principal causes of deaths in the MoH Hospitals for 2015 are as shown in Table 5.

TABLE 5
10 PRINCIPAL CAUSES OF DEATH* IN MoH HOSPITALS, 2015

Principal Causes	Percentage to total deaths
1. Diseases of the circulatory system	22.77
2. Diseases of the respiratory system	18.54
3. Neoplasms	13.56
4. Certain infectious and parasitic diseases	13.20
5. External causes of morbidity and mortality	9.74
6. Diseases of the digestive system	4.82
7. Diseases of the genitourinary system	4.32
8. Certain conditions originating in the perinatal period	3.16
9. Endocrine, nutritional & metabolic diseases	2.08
10. Diseases of the nervous system	1.51

*Note:*based on underlying causes of death & Based on ICD10 3-digit code grouping*
Source: SMRP Inpatient Database, Health Informatics Centre, MoH

Health Facilities and Facility Utilization

In 2015, there were 958 Health Clinics, 1,808 Community Clinics and 103 Maternal and Child Health Clinics. In 2010, 1Malaysia Clinic was launched in selected urban areas, to provide basic medical services for illnesses and injuries such as fever, cough, colds, wounds and cuts, diabetes, and hypertension. As of 31 December 2015, there were 334 1Malaysia Clinics that provide immediate healthcare to population.

As for hospitals, there were 134 government MoH hospitals and 9 Special Medical Institutions with bed complementary of 36,447 and 4,942 beds respectively. Overall Bed Occupancy Rate (BOR) for MoH hospitals and Institutions in 2015 was 71.06% (Table 6).

TABLE 6
HEALTH FACILITIES BY TYPE, TOTAL BED COMPLEMENTS AND BOR, 2011-2015

Facility	2011	2012	2013	2014	2015
Number of MoH Hospital	132	132	132	133	134
Number of Special Medical Institution	6	8	9	9	9
Total Beds Complement[1]	36,148	38,978	39,728	40,260	41,389
Bed Occupancy Rate (%)[1]	68.63	72.13	71.02	71.79	71.06
Number of Health Clinics	879	919	934	956	958
Number of Community Clinics	1,864	1,831	1,821	1,810	1,808
Number of Maternal and Child Health Clinics	106	106	105	105	103
Number of 1Malaysia Clinics	109	178	254	307	334

Note: [1] refers to beds complement and BOR in MoH Hospitals and Special Medical Institutions
Source: Health Informatics Centre, MoH

CHAPTER 2

MANAGEMENT

INTRODUCTION

The Management Program consists of eight (8) divisions/units answerable direct to the Secretary General, five (5) divisions under Deputy Secretary General (Management) and three (3) divisions under Deputy Secretary General (Finance). The main objectives of this program is to facilitate and support the achievement of the MoH policy and objectives by supporting the other program through an efficient and effective service system, human resource management, information technology management, competency and training development and financial management.

The divisions under the Deputy Secretary General (Management) are as listed below:

i. Human Resource Division (HRD);
ii. Training Management Division (TMD);
iii. Competency Development Division (CDD);
iv. Management Services Division (MSD); and
v. Information Management Division (IMD).

ACTIVITIES AND ACHIEVEMENTS

HUMAN RESOURCE DIVISION

Human Resources Division (HRD) is responsible for managing matters related to human resources and organizational structure of the MoH. It involves personnel matters, schemes, remuneration and employee relations, establishment, promotion and Human Resource Management Information System (HRMIS). Effective human resource management enables employees to contribute productively to the overall Ministry direction and accomplishment of the Ministry's mission and vision.

Post and Personnel

As of 31 December 2015, 248,669 (92.5%) of 268,758 posts in MoH had been filled of which 53,438 (92.6%) were from Management & Professional group, 129,506 (93%) from Paramedic & Auxiliary group and the remaining 65,725 (92%) from the Common User & Support group. Details on status of posts in MoH as of 31 December 2015 are shown in Table 1.

TABLE 1
STATUS OF POSTS IN MoH AS OF 31 DECEMBER 2015

Service Group	Post	Filled	Filled Percentage (%)	Vacant	Vacant Percentage (%)
Management & Professional	57,714	53,438	92.6	4,276	7.4
Paramedic & Auxiliary	139,531	129,506	93.0	10,025	7.0
Common User & Support	71,513	65,725	92.0	5,788	8.0
TOTAL	**268,758**	**248,669**	**92.5**	**20,089**	**7.5**

Source: Human Resources Division, MoH

Generally, there were 33,295 registered doctors working with the MoH and the total numbers for all the other health cadres as tabulated in Table 2.

TABLE 2
STATUS OF FIVE MAIN SCHEMES IN MoH, 2015

HEALTH CADRES	TOTAL
Doctors	33,295
Dentist	3,617
Pharmacist	7,785
Nurses	63,279
AMO	12,676

Source: Human Resources Division, MoH

Organization Development and Establishment

Becoming a developed nation requires MoH to ensure a commensurate health system of higher quality and safety that efficiently utilizes all available health resources corresponding with the needs of Malaysians. Thus, the Ministry has recognized the strengthened workforce organization and human resource as one of the support pillars. In concurrent with the policy and responsibility, a number of critical positions comprising of 355 positions for medical specialist, 291 positions for medical officer and 102 positions for medical assistants were created.

Scheme, Remuneration & Employee Relations

In order to attract and retain best talent to serve with MoH, HRD had persistently continued to upgrade existing benefits and allowances for healthcare personnel. Apart from that, various meetings were held with the respective associations to discuss on

issues concerning the management of human resources namely allowances and benefits, service of schemes, establishment and emplacement as well as service matters.

Management of Promotion

In 2015, a number of 15,369 officers were promoted as part of the recognition for outstanding officers. It is hoped that this initiative will encourage officers to provide better health services to the nation. Government also recognized staff contributions through better career pathway and benefits. The number of officers involved in promotion exercises as tabulated in Table 3.

TABLE 3

NUMBER OF OFFICERS IN PROMOTION EXERCISES

EXERCISES	SUPERSCALE GRADE/SPECIAL GRADE	MANAGEMENT & PROFESSIONAL GROUP	PARAMEDIC AND AUXILIARY & CURRENT USER AND SUPPORT
PROMOTION	51	7,427	7,891

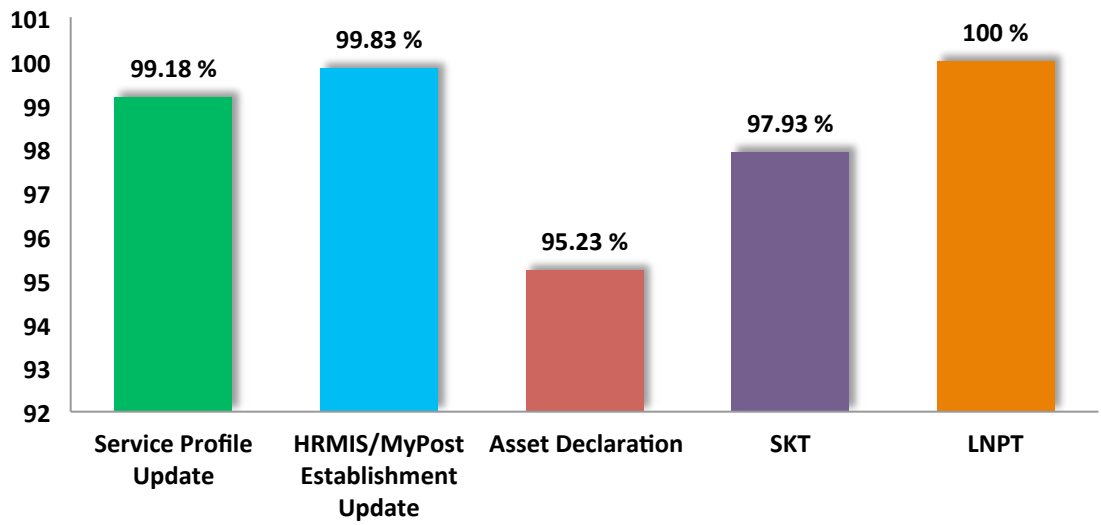
Source: Human Resources Division, MoH

Human Resource Management Information System (HRMIS)

HRMIS plays a vital role to ensure the integrity and accuracy of human resource data. This system consists of the management of personnel data, service profile, personal records and Annual Performance Evaluation Report (LNPT). In 2015, five criterias were made as HRMIS's Key Performance Indicator (KPI) for Secretary General of MoH, Malaysia. The deployment of this KPI caused a significant update of information in HRMIS. Following this initiative, MoH had successfully achieved 98.92% which is rated as Significantly Exceed Target for Secretary General's KPI. Details achievements based of specified criteria were as follows in Figure 1.

FIGURE 1

MoH SECRETARY GENERAL'S HRMIS KPI ACHIEVEMENT, 2015



Notes: Annual Performance Evaluation Report (LNPT), Annual Work target (SKT)
Source: Human Resources Division, MoH

Issues and Challenges

Among issues and challenges faced by HRD throughout 2015 were misdistributions of healthcare personnel; to attract and retain talent expertise such as medical officers and specialists in rural areas of Sabah and Sarawak; data integrity and system automation. However, HRD had successfully achieved its target as planned for the year 2015.

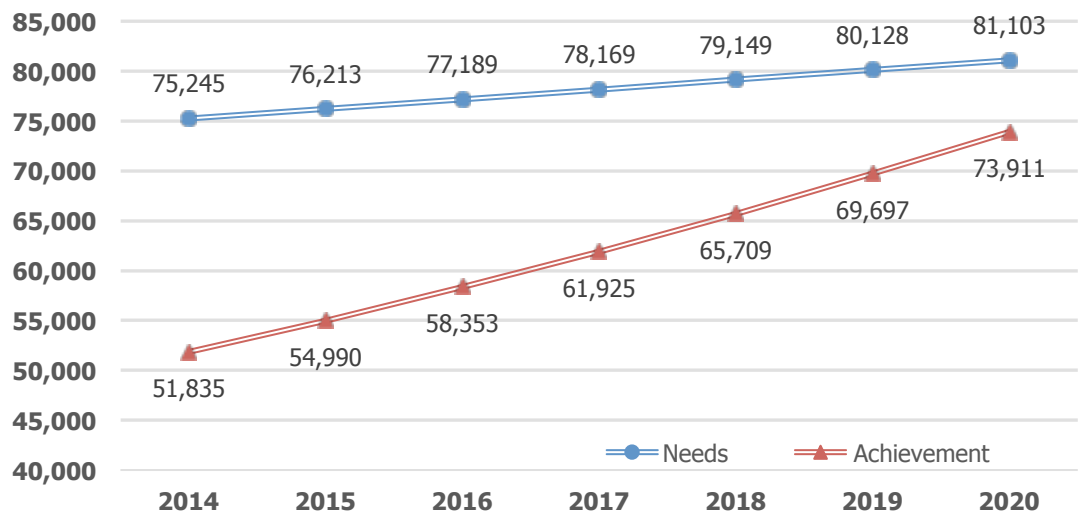
TRAINING MANAGEMENT DIVISION

The mission of Training Management Division (TMD) is to develop the human capital for MoH in producing an effective and efficient healthcare delivery system. With taking into account of the public expectation on the first class healthcare services, many activities was implemented through training program, to produce number of knowledgeable, competent, disciplines and supported by strong work ethics, value and commitment staffs. In fact, TMD's focus on raise the training opportunities and quality education towards the goal of strengthening the human resources base.

Manpower Planning

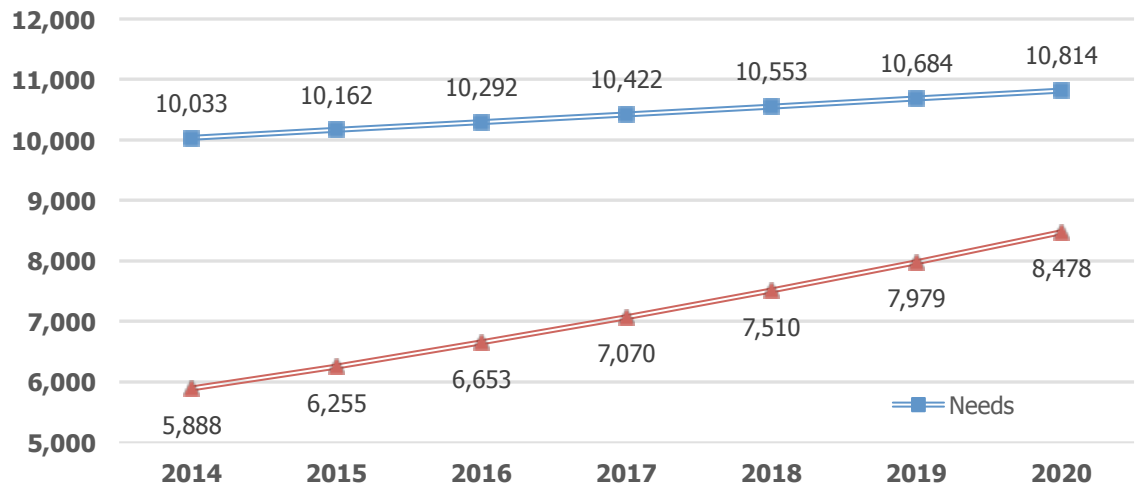
In accordance to demand and supply of Medical Officers, Dentists and Pharmacists, for any increased numbers of Medical Officers, Dentists and Pharmacists in the reference year, there still a shortage to fulfil for country's needs (norms). However, the gap of demand and supply of these professions became smaller when Public University and Private Higher Education Institution enlarge their training capacity. Figure 2, 3 and 4 show the current needs and the projection of Medical Officers, Dentist and Pharmacist.

FIGURE 2
CURRENT NEEDS AND SUPPLY OF MEDICAL OFFICER WITH PROJECTION USING RATIO OF 1:400 TO POPULATIONS



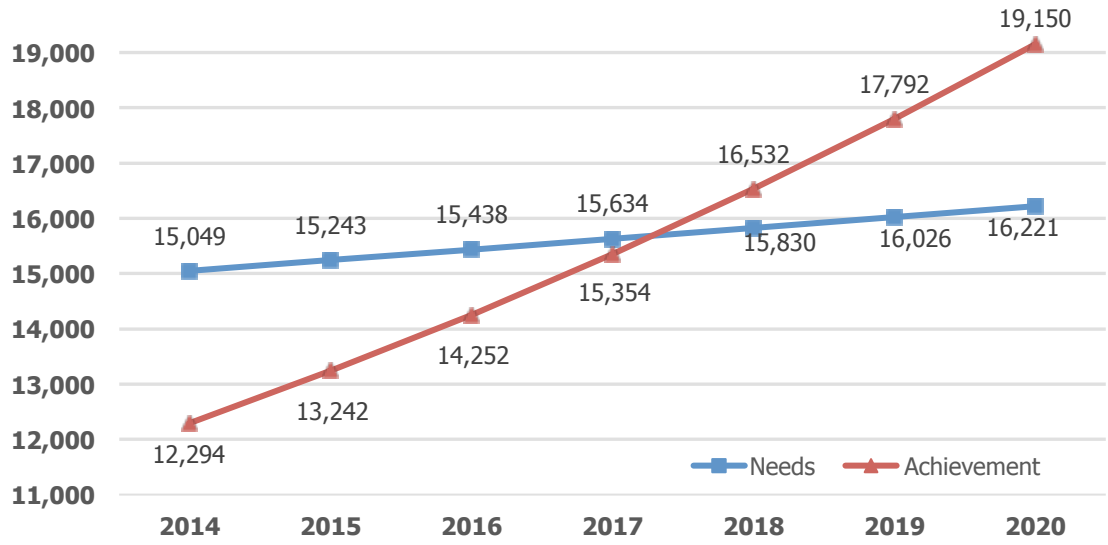
Source: Human Resources Division, MoH

FIGURE 3
CURRENT NEEDS AND SUPPLY OF DENTIST WITH PROJECTION USING RATIO OF 1:3,000 TO POPULATIONS



Source: Human Resources Division, MoH

FIGURE 4
CURRENT NEEDS AND SUPPLY OF PHARMACIST WITH PROJECTION USING RATIO OF 1:2,000 TO POPULATIONS



Source: Human Resources Division, MoH

Training Program

Training is a part of investment in producing a skilled and efficient manpower in healthcare. In ensuring the Human resource of MoH fulfilled with skilled and knowledgeable staff as needed, TMD's offer various type of training throughout a year which covered up to Pre-Service Training, Advanced Diploma and Post Basic Training, Master program for Medical Officers and other Programs, Sub Specialty for Medical Officers, Philosophy Doctors and Short Period Courses in service training. There are decreased numbers of intake for year 2015 in various categories of training/courses except the Pre Service Training and Training for Advanced Diploma (Post Basic Training) compared to 2014. Intakes by category are as shown in Table 4.

TABLE 4
INTAKE BY TYPE OF TRAINING

No.	Type of Training	2014	2015
1.	Pre Service Training in MoH Training Institution	5,233	6,718
2.	Pre Service Training in Outsourcing Program	16	-
3.	Advanced Diploma and Post Basic Training	4,024	4,499
4.	Master program for Medical Officer	809	772
5.	Sub Specialty for Medical Officer	145	153
6.	Master Program (Other Discipline)/ Philosophy Doctors	15	12
7.	Short Period Courses in service training	264	200

Source: Human Resources Division, MoH

Pre-Service Training

In 2015, 6,718 trainee have registered to undergo a pre service training in the MoH's Training Institutions (ILKKM) while there were 15 trainees has been sent for Outsourcing program in the private training institution. The number of trainees in ILKKM in 2015 rose by 29.0% compared with 5,233 trainees in 2014 (16 trainees for Outsourcing Program). A breakdown of trainees number who have registered for the Training services by discipline, conducted in ILKKM for the year 2015 are as in table 5.

TABLE 5
THE INTAKE OF PRE-SERVICE TRAINING, 2014-2015

No	Discipline	2014	2015
1.	Diploma in Nursing	2,502	3,247
2.	Diploma in Medical Assistant	1,172	1,630
3.	Diploma in Pharmacy Assistant	163	213
4.	Diploma in Environmental Health	275	326
5.	Diploma in Medical Laboratory Technology	180	228
6.	Diploma in Radiography & Radiotherapy	56	69
7.	Diploma in Dental Nursing	135	61
8.	Diploma in Dental Technology	60	88
9.	Diploma in Occupational Therapy	92	98
10.	Diploma in Physiotherapy	86	90
11.	Certificate in Community Health Nurses	0	86
12.	Certificate in Dental Surgery Assistant	254	354
13.	Certificates in Public Health Assistant	274	228
TOTAL		**5,249**	**6,718**

Note: 16 trainee of pre-service training sent for Outsourcing program
Source: Training Management Division, MoH

Advanced Diploma and Training Specialization (Post-Basic)

In 2015, 3,830 members of Allied Health Sciences from MoH and 669 health personnel from private health Institutions attended the Advanced Diploma Program and Specialization Course (Post-Basic) in 38 different areas in ILKKM all over the country, as in Table 6. Numbers of Allied Health Sciences undergo the Advanced Diploma program and Specialization Course in the year 2015 with 4,449 participants has shown an increase of 11.8% compared to the previous year at 4,024 participants. The most popular program with the highest demand is Advanced Diploma in Midwifery with 1,149 participants (at the rate of 25.54%), followed by Emergency Care Specialization Courses with 534 participants (at a rate of 11.87%).

TABLE 6
INTAKE OF ADVANCED DIPLOMA AND SPECIALIZATION COURSES (POST BASIC), 2014-2015

No.	Discipline	2014	2015
1.	Advanced Diploma In Midwifery	1,069	1,149
2.	Advanced Diploma In Intensive Care	173	130
3.	Advanced Diploma In Nursing Perioperative	149	138
4.	Advanced Diploma In Health Cardiovascular	120	111
5.	Advanced Diploma In Nursing Oncology	65	0
6.	Advanced Diploma In Gerontology Care	17	11
7.	Advanced Diploma In Cytology	24	14
8.	Advanced Diploma In Medical Imaging (Breast)	0	16
9.	Advanced Diploma In Haematology	27	23
10.	Advanced Diploma In Palliative	19	20
11.	Advanced Diploma In Emergency Care	410	534
12.	Renal Care	230	382
13.	Public Health Nursing	270	321
14.	Paediatric Care	211	246
15.	Health Personnel Management	42	35
16.	Orthopaedic Care	200	247
17.	Neonate Care	141	186
18.	Diabetic Management	131	147
19.	Psychiatric Nursing	73	67
20.	Infection Control	149	143
21.	Ophthalmic Care	54	61
22.	Primary Health Care	78	57
23.	Nursing of Paraesthesia	97	150
24.	Nursing of Neurosciences	29	48
25.	Nursing of Otorhinolaryngology	43	40
26.	Sports Medicine	27	25

No.	Discipline	2014	2015
27.	Gastrointestinal Endoscopy	45	51
28.	Investigation and Prosecution Law	10	16
29.	Rehabilitation Treatment	27	39
30.	Orthodontic Treatment	0	26
31.	Anaesthesia (Sabah & Sarawak Only.)	0	6
32.	HIV/AIDS Counselling	43	14
33.	Paediatric Dental Care	0	0
34.	Preparation Of Sterile Pharmaceuticals	22	18
35.	Prosthesis Maxillofacial	16	0
36.	Clinical Neurophysiology	0	12
37.	Forensic	13	16
TOTAL		**4,024**	**4,499**

Source: Training Management Division, MoH

Master Program for Medical Officer and Sub Specialization

In 2009, Public Service Department (JPA) had delegated the authority to the MoH for approval of 'paid study leave', a long-term course for Masters and Doctorate. In return, MoH had shortened the processing time and increased the efficiency in managing the study leave grants of the staff. A number of 772 medical officers granted a scholarship by the Federal Government for undergoing a Masters of medicine in various fields for the year 2015, as shown in Table 7 below. The number of Medical Officers granted with scholarship decreased by 4.57% in 2015 compared to 2014 with 809 Medical Officers.

TABLE 7
INTAKE OF MEDICAL OFFICERS FOR MASTER PROGRAM, 2014-2015

No	Discipline	2014	2015
1.	Anaesthesiology	86	100
2.	Public Health/Community	50	67
3.	Clinical Oncology	5	11

No	Discipline	2014	2015
4.	Neurosurgery	10	11
5.	Obstetrics & Gynaecology	29	41
6.	Ophthalmology	45	32
7.	Orthopaedics	62	56
8.	Otorhinolaryngology	31	0
9.	Pathology	70	83
10.	Paediatrics	43	20
11.	Internal Medicine	68	68
12.	Emergency Medicine	48	67
13.	Family Medicine	57	53
14.	Nuclear Medicine	5	6
15.	Rehabilitation	7	0
16.	Sports Medicine	8	8
17.	Transfusion Medicine	6	0
18.	Plastic Surgery	8	5
19.	Psychiatry	46	38
20.	Radiology	53	50
21.	General Surgery	59	44
22.	Paediatric Surgery	8	7
23.	Forensic	5	5
TOTAL		**809**	**772**

Source: Training Management Division, MoH

In 2015, 153 Medical Specialists were granted Federal Government Scholarship in a Sub-Specialty training in various fields of medicine, as shown in Table 8.

TABLE 8
INTAKE OF SUB SPECIALTY TRAINING FOR MEDICAL SPECIALISTS, 2014-2015

No	Discipline	2014	2015
1.	Medical	49	57
2.	Surgery	13	15
3.	Paediatric	14	15
4.	Obstetrics & Gynaecology	12	11
5.	Psychiatry	7	3
6.	Anaesthesiology	8	5
7.	Orthopaedic	8	15
8.	Otorhinolaryngology	5	9
9.	Ophthalmology	13	8
10.	Radiology	5	8
11.	Forensic	2	n. a
12.	Pathology	3	3
13.	Emergency Medicine	3	1
14.	Rehabilitation Medicine	1	3
15.	Nuclear Medicine	0	n. a
16.	Family Medicine	1	n. a
17.	Public Health	1	n. a
TOTAL		**145**	**153**

Source: Training Management Division, MoH

Master's and Doctorate

In 2015, 153 MoH's officers from various health service schemes were offered scholarships to further their studies at the Master's level while the others 14 officers in Ph.D. level in areas related to the health sector. The number of scholarships offered in 2015 recorded an increase of 2.8% compared to 2014. Most of the undergraduate scholarships were offered to Dental Officers (36 officers) and Pharmacy (63 officers).

Short-term (in Services) Courses

MoH's staffs are encouraged to apply and attend short-term (in Services) courses, funded by developments provisions in the Tenth Malaysia Plan (10MP). In 2015, 200 MoH's staff attended short-term (in service) courses abroad compared to 264 in the year 2014.

Examination Management

In 2015, Training Management Division had strengthen the examination management in all Diploma and Certificate program under the MoH's Training Institution. New examination questions has developed and revised throughout the year to strengthen the questions compilation in the Q-Bank for all programs.

Curriculum Development

TMD strived to ensure that the curriculum for training programs include the Diploma for Pre-Service, Advanced Diploma and Specialization Course (Post Basic) meet the needs and requirements of all health services. In 2015, three Post Basic programs revised and upgraded to Advanced Diploma. The program is Diploma in Mental Health Care, Emergency Care, Advanced Diploma and Advanced Diploma in Healthcare Management. In addition, four (4) programs reviewed for improvement, which include Paediatric Care Program, Tomography, Nephrology Nursing and Neurosciences Care.

Tutor Development

In order to provide quality trainings, tutors must be well trained and equipped with current medical knowledge. In 2015, various programs such as internal attachment were organized for tutors in MoH's Training Institution. The program aims is to give an exposure for tutors with the various health facilities within or outside the country with the objective of improving the knowledge and skills need in various health discipline. In December 2015, the number of Tutors in MoH's Training Institution was over 1,148, covered up to 10 Basic and Post Basic Program in 33 MoH's Training Institution including the TMD. In order to ensure that the Division is producing graduates with high performance and quality, the Tutors have been equipped with knowledge and skills update through relevant courses and workshops throughout the year 2016. In addition, the teaching and learning methodology is continuously updated from time to time. In accordance to the reference year, 22 research papers presented in Scientific

Conference covering the three clusters consists of education management, trainee management and tutor management. This is one of the efforts to promote the research knowledge among Tutors as profession's image enhancement and academia.

MANAGEMENT SERVICES DIVISION

The main objective of the Management Services Division (MSD) is to provide efficient and effective support and advisory services in management to ensure all activities within the MoH Headquarters (HQ) are implemented professionally towards enhancing the health service delivery system. The MSD is also responsible to ensure that the required services and facilities are provided to enable each and every Division within the Headquarter to excel in their functions. MSD comprises three main branches that consist of several units.

A. General Management Branch

i. Human Resource Management Unit;
ii. Innovation Unit;
iii. Protocol Unit;
iv. Psychology Counselling Services Unit;
v. Administration Unit; and
vi. Record Management Unit.

B. Finance and Asset Management Branch

i. Finance Unit
   - Overseas Travel Application Sub-Unit;
ii. Asset Management Unit; and
iii. Security Unit.

C. Information Resource Branch

i. Library and Information Services;
ii. System Management and Digitisation Services; and
iii. Development and Advisory Services.

Human Resource Management Unit

The Human Resource Management Unit is responsible in managing all service related matters for 5,827 personnel within the Ministry's HQ which consists of various categories of positions as summarized in Table 9

TABLE 9
NUMBER OF PERSONNEL IN VARIOUS CATEGORIES OF POSITIONS, 2015

No	Category of Position	No. of Personnel
1.	Administration	3
2.	Top Management	73
3.	Professional & Management	1,704
4.	Support Group	2,093
5.	Contract of/for Service	26
6.	Part Time	262
7.	Training Pool	1,594
8.	Pool	39
9.	Temporary	33
TOTAL		**5,827**

Source: Management Services Division, MoH

The core function of this unit is to provide effective and efficient human resources management services. Amongst the services provided are the appointment of officer and staff confirmations, preparation of Kew-8 documentations, processing pension applications, record keeping for personnel's Service Books and others as shown in Table 10.

TABLE 10
HUMAN RESOURCES MANAGEMENT ACTIVITIES

No	Activity	Performance
1.	To prepare and record change reports	11,380 reports
2.	To record service related matters in personnel's Government Service Books	24,436 records
3.	To process the following: - Appointment confirmation	322 personnel

No	Activity	Performance
	- Service confirmation - Conferment of pension status	
4.	To process compulsory / optional / derivative retirement applications	83 retirements
5.	To process applications for computer / housing / vehicle loans	86 - Computer Loans 45 - Housing Loans 5 - Vehicle Loans
6.	To process applications for winter clothing / ceremonial attire allowance	34 - Winter Clothing Allowance 106 - Ceremonial Attire Allowance
7.	To process promotions	537 promotions
8.	To process disciplinary issues	16 cases
9.	To conduct service related courses	32 courses

Source: Management Services Division, MoH

Within the scope of human resources management, MSD has been appointed as the secretariat for various committees related to employees' service matters. One of the committees is the Human Resource Development Panel which convenes periodically to discuss various matters such as the annual salary increments, conferment of the Excellent Service Awards and Excellent Service Medals. The summarised activities of the said panel for the year 2015 are as in Table 11.

TABLE 11
SUMMARY OF ACTIVITIES FOR HUMAN RESOURCES DEVELOPMENT PANEL

No	Activity	Performance
1.	Approve and confer annual salary increment for employees who have submitted their Annual Performance Appraisal Forms.	5,901 conferment of annual salary increment. The meeting was convened on 18 February 2015.
2.	Select and confer the Excellent Service Awards to top performing personnel.	543 personnel have been selected The meeting was convened on 18 February 2015.
3.	Select and confer the Excellent Service Medals to excellent performing personnel.	Mr. Mohd Khairul bin Ishak, Administrative Assistant (Grade N17) was conferred the Excellent Service Medal.

Source: Management Services Division, MoH

In line with the Government's vision to modernise its administration and to create a paperless working environment, the Public Service Department has introduced the Human Resources Management Information System (HRMIS). The system offers a variety of information related to human resource management and MoH was selected as one of the pioneer agencies to use this system. Thus, MSD has been appointed as a facilitator to ensure that HRMIS is implemented effectively in the Ministry's HQ. The achievements of KPIs in HRMIS have been summarised as in Table 12.

TABLE 12
KEY PERFORMANCE INDICATORS AND PERFORMANCE OF HRMIS

No	HRMIS Key Performance Indicator	Performance as of 31 December 2015 (%)
1.	Post Data	100.00
2.	Service Profile	99.98
3.	Personal Data	99.98
4.	Annual Performance Target	96.18
5.	Annual Performance Appraisal	99.87
6.	Asset Declaration	90.93

Source: Management Services Division, MoH

Innovation Unit

The Innovation Unit serves as the Ministry's focal point regarding innovation and Star Rating System (SSR) evaluation. A summary of innovation management's activities and achievements are listed in Table 13.

TABLE 13
SUMMARY OF INNOVATION MANAGEMENT ACTIVITIES AND ACHIEVEMENTS

No.	Activity	Achievement
1.	Meetings: - Innovation Steering Committee Meeting - Service Delivery Improvement Committee Meeting - Innovation Assessment Committee Meeting - Star Rating Steering Committee Meeting	 Convened two meetings Convened two meetings Convened two meetings Convened one meeting
2.	Awards Submission: - Prime Minister Innovation Award - National Innovation Award - National Intellectual Property Award	 2 submissions 5 submissions (Winner of Service Category) 1 submission (consolation prize)

No.	Activity	Achievement
3.	Exhibitions / Talks: - KL Converge! - Malaysia International Healthcare Innovation Conference and Exhibition (MIHICE)	 1 project participation 2 projects participation
4.	Creative Inspired Innovation Workshop	Convened one workshop
5.	Innovation Event	Awarded 24 winners of Innovation Awards, KIK Conventions and QA Conventions
6.	Public Sector Innovation Hub (HISA) report	4 reports
7.	Innovation Sharing Session	6 projects
8.	Star Rating Evaluation (SSR)	Evaluation conducted for the year 2015

Source: Management Services Division, MoH

IMAGE 1
INNOVATION SHARING SESSION

Source: Management Services Division, MoH

IMAGE 2
NATIONAL INNOVATION AWARD

Source: Management Services Division, MoH

Protocol Unit

The Protocol Unit's function is to coordinate major events held in the Ministry such as MoH's Annual Dinner and to provide consultations related to protocol matters to Divisions, State Departments of Health and Institutions under MoH. The summary for protocol management achievements is as listed in Table 13.

TABLE 13
SUMMARY OF PROTOCOL MANAGEMENT ACTIVITIES AND ACHIEVEMENTS

No	Activity	Achievements
1.	Selection of Medical Representatives for the Hajj Season	250 Medical Representatives were selected
2.	Event Management	Consulted on/Coordinated 54 events such as: Launching of KOSPEN RT *Komuniti Sihat Perkasa* Negara, Minister of Health's Working Visit To Cheras Rehabilitation Hospital, Handing-Over Ceremony of Malaysia's Contribution to Victims of Earthquake in Nepal and Launching of National *Generasiku Sayang* Program

Source: Management Services Division, MOH

IMAGE 3
MoH PROTOCAL EVENTS 2015

Reminiscing Night Ceremony

National Day Celebration

Minister of Health Gathering with Staff Ceremony

Night Ceremony

Source: Management Services Division, MoH

Psychology Counselling Services Unit

The Psychology Counselling Services Unit plans, provides direction, develops and coordinates counselling activities for the Ministry's HQ. Counselling cases were managed in collaboration with the Human Resource Division. A summary of counselling cases conducted is as listed in Table 14 and 15.

TABLE 14
SUMMARY OF CASES CONDUCTED

Discipline	Interpersonal	Career	Psychology	Others
13	6	10	5	13

Source: Management Services Division, MoH

TABLE 15
TYPES OF REFERRAL CASES

Volunteer	Referral
19	28

Source: Management Services Division, MoH

Administration Management Unit

The Administration Management Unit is in charge of administrative matters in the Ministry's Headquarters (HQ). These include general administration, vehicles management, consolidated HQ's punch card reports, Monthly Assembly, National Day Celebration coordination, Nurseries as well as Block E7 Cafeteria Management. The activities and achievements pertaining to this unit for the year 2015 are as in Table 16.

TABLE 16
SUMMARY OF ADMINISTRATIVE MANAGEMENT ACTIVITIES AND ACHIEVEMENTS

No	Activity	Achievement
1.	Consolidated HQ's Punch Card Reports	12 Reports compiled yearly
2.	SPANCO car rentals	251 official cars for JUSA/Special Grade; and 291 replacements of leased official vehicles, which lease had expired
3.	Conduct Monthly Assembly	12 Assemblies were held
4.	Officiate and Coordinate National Day Celebration	9 activities/events were held
5.	Nurseries Management	2 meetings were held 267 applications were processed
6.	E7 Cafeteria Management	4 meetings were held 12 cleanliness inspections were done

Source: Management Services Division, MoH

IMAGE 4
MoH ADMINISTRATIVE EVENTS 2015

National Day Parade

Cooking

The Most Attractive Building Competition

Colouring Contest

Source: Management Services Division, MoH

Record Management Unit

The Record Management Unit is responsible in managing records at the MoH including consultation on managing records, disposal of records, managing the correspondences registry, managing files and training on record management. The achievements of this Unit are as in Table 17.

TABLE 17
SUMMARY OF RECORDS MANAGEMENT UNIT ACTIVITIES AND ACHIEVEMENTS, 2015

No	Activity	Achievement
1.	**Consultancy Services** Provides expert consultation services with regards to integrated record management that comprises two components:- - Correspondences management; and - Classification of files	Providing consultations to 33 departments in the Ministry of Health on managing and correspondence records. Preparation of 33 departments files classification towards Digital Document Management System (DDMS).
2.	**Managing Files** - Managing personnel files for Human Resources Division - Managing open files for Management Services Division	- 15,722 files - 19,099 files
3.	**Records Management Training** Provides training in records management that includes matters such as principals, concepts and regulations in the management of	Four courses were held on: - Records Management for Departmental Records Officer (PRJ);

No	Activity	Achievement
	government records and practice at all levels of creation, use, maintenance and disposal of records	- Records Management for Departmental Records Administrative Assistant (PTRJ); - Records Preservation; and - Files Classification
4.	**Records Disposal** Responsible for the monitoring, planning and implementation of record disposal programs in the Ministry	**Records Disposed:** - 31 applications **Records transferred to National Archives of Malaysia:** - 1.48 meters
5.	**Managing Correspondence Registry** Managing correspondence registry which includes: - Receive, sort and distribute mail; - domestic mail; - registered mail; - air mail; - express mail; and parcel	 - 153,771 mails; - 117,010 mails; - 11,069 mails; - 286 mails; - 67,222 mails; and 1,984 parcels
6.	**Managing Collection of Annual Reports and Publishing** - Manage the collection and publication of the Ministry's annual reports	 - 28 publications

Source: Management Services Division, MoH

IMAGE 5
RECORDS RECOVERY SESSIONS

Source: Management Services Division, MoH

Finance Management Unit

The Finance Management Unit manages all finance related matters for employees in the HQ including payment of salaries, allowances, rewards and bonuses; processing of

bills and claims payment in less than 14 days as well as official and personal applications for overseas travel. This Unit is also responsible for the HQ's Management Program whereby a total of RM1.4 billion has been allocated under operating budget. The performance-based expenditures for the financial year ending 31 December 2015 (including Accounts Payable Period) are 109.89% (Table 18).

TABLE 18
TOTAL ALLOCATIONS AND EXPENDITURES BY ACTIVITY UNDER MANAGEMENT PROGRAM, 2015

Activity	Allocation (RM)	Expenditure (RM)
HQ Management	263,221,267.71	392,434,790.01
Human Resources	13,050,000.00	12,847,323.66
Finance	459,778,479.00	459,304,373.21
Training	628,188,113.17	642,300,371.03
Information Technology	29,498,179.00	25,665,416.17
Competency Development	6,140,940.00	5,818,092.52
TOTAL	**1,399,876,978.88**	**1,538,370,366.60**

Source: Management Services Division, MoH

As a Responsibility Centre which is better known as PTJ1, MSD has the role in receiving and distributing the allocation warrants for all other PTJs under its jurisdiction. In the year 2015, a total of 298 warrants were received and 664 sub warrants were distributed.

The MSD is the secretariat to the PTJ1's Finance and Accounts Management Committee (JPKA). The Committee had convened four quarterly-meeting as per schedule to monitor the financial and accounts performances of 15 PTJ2 and 30 PTJ3 under its jurisdiction. In addition, MSD's responsibility also includes collecting and accounting the revenues for the HQ. In the year 2015, a total of RM40.49 million of revenue and non-revenue receipts were collected and accounted. Besides that, MSD had conducted periodical courses for finance staffs to equip them with the necessary skills and knowledge in order for them to carry out their daily tasks efficiently and effectively with adherence to the rules and regulations.

TABLE 19
SUMMARY OF OFFICIAL AND PERSONAL APPLICATIONS FOR OVERSEAS TRAVEL, 2015

No	Activity	Achievement
1.	Official Overseas Travel Applications	1,295 approvals
2.	Personal Overseas Travel Applications	2,058 approvals

Source: Management Services Division, MoH

Asset Management Unit

The Asset Management Unit is responsible for managing matters related to assets, rental of premises, maintenance and procurement. The performance for each activity for the year 2015 is as in Table 20.

TABLE 20
SUMMARY OF ASSET MANAGEMENT ACTIVITIES AND ACHIEVEMENTS

No	Activity	Achievement
1.	a. Building Maintenance of Putrajaya Office Complex b. Cenderasari Office Building -Cleaning Services; and -Security Services	12 Maintenance Meetings were held 3,187 Complaints and defects were fixed Maintenance Company appointed; and Security Company appointed
2.	Premises and Space Rental	110 office space rental applications were processed; and 11 residential rental applications were processed
3.	Registration of Asset at MSD	Inventory : 237 units; and Asset : 45 units
4.	Government Moveable Assets Management Committee (JKPAK)	Convened 4 meetings

Source: Management Services Division, MoH

Security Unit

The Security Unit is responsible for planning, designing, managing, coordinating and implementing the Security Protection System in the MoH in a holistic manner. The Security Unit gives advice, monitors and enforces laws, regulations and directives pertaining to safety protection to agencies and departments under the jurisdiction of the MoH. This unit also functions as a reference point under the Official Secrets Act 1972 on classified documents and technical advice. The performance for some main activities for 2015 is as in Table 21.

TABLE 21
SUMMARY OF SECURITY UNIT ACTIVITIES AND ACHIEVEMENTS, 2015

No.	Activity	Achievement
1.	Ministry of Health Security Committee Meeting	Convened one meeting
2.	Internal Inspectorate Of Security Protection	13 Departments were inspected
3.	Auxiliary Police Basic Course	One course was held
4.	Fire Safety Basic Course	2 series of courses were held
5.	Security Protection Course	One course was held
6.	Building Evacuation Drills	4 series of drills were held
7.	The appointment of Classifier Officers under Section 2B, Official Secrets Act 1972	A total of 128 officers have been appointed
8.	Security Access Pass	841 passes were issued

Source: Management Services Division, MoH

Information Resources Management Branch

The Information Resources Management Branch provides book loan and reference services to staff in MoH's HQ, Virtual Library services to all MoH staff, planning and coordinating development and services of all libraries under MoH. The summary of achievements for the branch is as listed in Table 22.

TABLE 22
SUMMARY OF INFORMATION RESOURCES BRANCH ACTIVITIES AND ACHIEVEMENTS

No	Activity	Achievement
1.	Library And Information Services	Reference and referral services – 354 requests Collection borrowed – 3,557 collections Borrowers – 1,271 persons 11 Reading Promotional Activities: - Exhibitions - BOOKS2U - TAKE A BREAK – READ!!! - Talks - Working Trips - Collection posters - Book Sharing - Merdeka Quiz - Children Activities - Most Active Reader of The Month/Year - Bulk Book Loan from National Library

No	Activity	Achievement
2.	System Management And Digitisation Services	Virtual Library : - Database subscription – 6 databases (Law net, Emerald Management, OVID, Access Medicine, Clinical Access and Mateo Journals) Users – 33,290 users Promotions – 7 promotions (visits/demonstrations) throughout the country
3.	Development And Advisory Services	Coordinated 104 libraries under MoH: - 14 institutional/laboratory libraries; - 58 hospital libraries; - 27 medical college libraries; and - 5 Allied Health Science Colleges libraries. Provided 3 training courses for 146 staff from 104 libraries under MoH. Provided advisory services to 6 libraries. Convened An Annual MoH Medical Libraries Meeting. 678 books and thesis were documented for library collection. 12 reading promotion posters were prepared (6 "Nothing To Read" and 6 "Book Review") to promote the usage of library.

Source: Management Services Division, MoH

CONCLUSION

As a Division that provides support services, it is MSD's aspiration to shorten and simplify all work processes and deliver excellent services to all the various Divisions within the Ministry's HQ. The MSD strives to carry out its responsibilities and tasks effectively and efficiently so that customers' satisfaction is maximised and all the other Divisions can carry out their respective policies and responsibilities efficiently and effectively to achieve the Ministry's objectives.

INFORMATION MANAGEMENT DIVISION

MoH's ICT directions are towards Strengthening ICT through Integration and Information Sharing and striving to become a Catalyst in Transforming Health Care Services. Among the important activities initiated by Information Management Division (IMD) throughout 2015 were as follows:

Enhance and Strengthen ICT Infrastructure

- **ISO 9001:2008 Certification**

MoH managed to retain ISO 9001:2008 Certification for the second year in a row through a Surveillance Audit by SIRIM on 30 July 2015.

- **Provision of ICT Network System**

In line with current needs, it is the mission and vision of MoH to ensure that the Internet penetration rate is at the maximum level. Accordingly, until the end of 2015, a total of 2919 health facilities from 3989 facilities were linked to online 1Gov*Net network. With this connectivity, it has helped MoH to provide effective and efficient services to the users.

Enhancing Systems, Applications and Databases

- **HIS@MoH Expansion**

The SPP expansion (Version 3.1) at three hospitals (Hospital Bentong, Hospital Tuanku Jaafar and Hospital Raja Perempuan Zainab II) was successfully implemented as planned. Hospital Taiping started to use SPP (basic) since 9 November 2015. The response was positive and good commitment received from users at the hospitals.

- **Teleprimary Care and Oral Health Clinical Information System (TPC – OHCIS)**

The approved scope of TPC - OHCIS development between MIMOS Berhad and MoH was successfully concluded on 20 April 2015. It was an innovation of work that MIMOS performed in order to adapt the needs of primary health care. A total of 12 health facilities, consisting of 8 health facilities that have both health clinic and dental clinic, 2 separate clinics (stand-alone), 1 health clinic and 1 dental clinic in District, were identified as TPC - OHCIS pilot clinics. Allocation of RM641, 380.00 was distributed to the clinics to ensure that the clinics' infrastructure were ready to be installed with TPC - OHCIS system.

- **Pharmacy Information System (PhIS) and Clinic Pharmacy System (CPS)**

In 2015, the Provisional Acceptance Test (PAT) Sign - Off was held at Hospital Pakar Sultanah Fatimah (HPSF) Muar, Klinik Kesihatan (KK) Greentown Ipoh, KK Maharani and KK Bakri, Muar. PAT was also carried out at pilot locations such as Hospital Seri Manjung Perak, Hospital Tanah Merah Kelantan, Hospital Miri , Hospital Kulim and several health clinics in PKD Kinta. The expansion of PhIS and CPS also began in June 2015. A total of 319 MoH facilities consisting of 38 hospitals, 40 PKDs, 234 health

clinics, two institutions, 5 Laboratory Medicine & Store State and parts (Stores / USN / USB) were started using PhIS and CPS .

Development of Internal Applications for MoH

In 2015, the development of seven in-house applications as requested was completed. The applications are Health Integrated Data Application (HiData), eHousemen, Public Health Enforcement Information System (PHEIS), Mobile DocDx, *Sistem Informasi Maklumat Makmal Kesihatan Awam* (SIMKA), Survey Health Insurance (SHI) and eMinda.

Furthermore, seven existing system were successfully enhanced for new upgrades. The systems were eNaikPangkat, Medical Practice Control System (MedPC), Child Maltreatment Surveillance System (CHIMSS), Dental Practitioners Information Management System (DPIMS), ePatuh, *Sistem Perjalanan Ke Luar Negeri* (SPPKN) and Optometry Practitioners Information Management System (OPTims).

Implementing Change Management and ICT Cultivation among MoH Employees

Office Automation (OA) Training

In 2015, 8 Office Automation (OA) training sessions were planned. 30 Office Automation (OA) training sessions for 429 MoH staffs were held in collaboration with Syarikat Prestariang Systems Sdn Bhd, using Development Training Fund (DTF) under Master Licensing Agreement (MLA) of Ministry of Finance.

- **BPM Bulletin**

The BPM Bulletin content is focused on news and ICT information to provide knowledge for all MoH staffs. In 2015, BPM published 1 bulletin which focused on ICT Transformation Era – *'Silo to Consolidated'*

IMAGE 6
BPM BULLETIN, 2015

Source: Informatics Management Division, MoH

- **Upgrading Management Quality and Governance of MoH ICT**

In 2015, the ICT Steering Comittee (JPICT) Secretariate received 23 ICT project proposals for evaluation and consideration. The MoH JPICT Meetings were co-chaired by the Secretary General and the Director General of Health. It was conducted five times in 2015; 12 February 2015, 11 May 2015, 10 August 2015, 6 November 2015 and 3 December 2015.

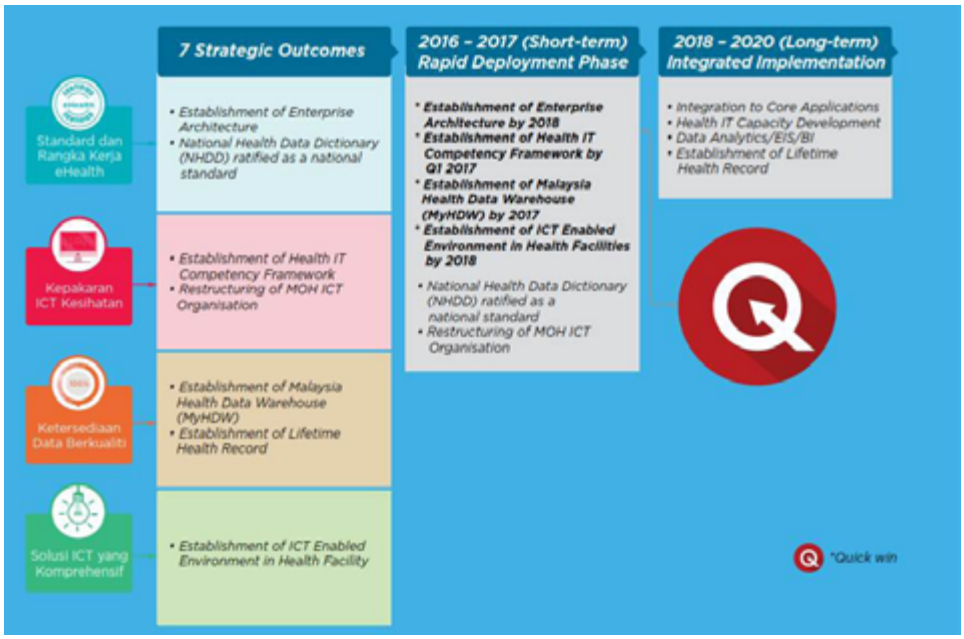
- **MoH ICT Officers Meeting**

The ICT Officers Meeting Serie-1 was held on 27 May 2015 and was attended by ICT officers from MoH Headquarters. The ICT Officers Meeting Serie-2 was held on 1-2 October 2015. 180 participants comprising of officers with the grade of F48 and above from IMD and technical ICT representatives from 27 Divisions in MoH head, 15 State Health Departments (JKN), 15 State Hospitals, 13 institutions, clinics and district health offices throughout Malaysia attended the session.

- **MoH ICT Strategic Plan 2016-2020**

MoH ICT Strategic Plan 2016-2020 was developed to formulate the strategic direction of the MoH for the 11th Plan period. To realize the strategic direction, four (4) strategic thrusts and seven strategic steps have been designed to be implemented.

IMAGE 7
MoH ICT STRATEGIC PLAN, 2016-2020 : FOUR STRATEGIC THRUSTS AND SEVEN STRATEGIC OUTCOMES



Source: Informatics Management Division, MoH

CONCLUSION

In summary, the Information Management Division have been accelerating along with technology and management changes as we progress to serves the nation to gain good health and continually live healthy with enhanced information and technology (IT) progress that being provided.

CHAPTER 3

FINANCE

INTRODUCTION

The Finance Department is headed by the Deputy Secretary General (Finance) and comprises of three Divisions namely Finance Division, Accounts Division, and Procurement and Privatisation Division. This sector is responsible for managing all matters related to finance such as budget and expenditure, accounts management, payments, procurement of assets and services, and privatisation in the MoH.

Three main functions of the Finance Division are to formulate financial policies, budget management and revenue collections for the Ministry. The main activities of this Division are to ensure disbursement of allocation, monitoring of expenditure, general finance, revenue management, distribution of financial aid and expenditure system studies.

The role of the Accounts Division is to provide an efficient and quality accounting service in processing, checking and approving payments including emolument for all Responsibility Centres (RC) within the Klang Valley. It is also responsible for processing revenue collection. In addition to preparing the financial and management report, it also inspects the electronic payment system (e-SPKB) and cash auditing at all RC. Accounts Division is divided into two branches namely management and operation. With the latest restructuring, Accounts Division extends its role in advisory and as financial solution information provider for managerial decisions' support besides carrying out routine processing of financial transactions.

Meanwhile, all matters pertaining to procurement is managed by the Procurement and Privatisation Division. This Division is the main agency for procurement, privatisation, asset, and store management for the Ministry. It is responsible in ensuring that all MoH's procurement is the best, effective, transparent, fair and most cost-effective. It also ensures all privatization program are implemented in line with the national privatization policy and monitored effectively so as to improve the standard, efficiency and quality of services provided to the public. The Division also safeguards the managing of stores, inventories and assets of MoH so that the related rules and regulations are in place.

BUDGET MANAGEMENT

In 2015, MoH was allocated RM23.06 billion which consists of RM21.71 billion for the Operating Budget (B42) and RM1.35 billion for the Development Budget (P42). Operating Budget according to program is shown in Table 1.

TABLE 1
ALLOCATION AND EXPENDITURE OF OPERATING BUDGET BY PROGRAM, 2015

PROGRAM	ALLOCATION (RM)	EXPENDITURE (RM)
Management	1,565,280,503	1,565,280,496
Public Health	4,420,452,398	4,420,452,392
Medical	13,407,867,440	13,407,867,410
Research & Technical Support	354,774,975	354,774,969
Oral Health	806,691,163	806,691,160
Pharmaceutical Service	180,986,821	180,986,814
Food Safety & Quality	94,801,847	94,801,841
Malaysian Health Promotion Board	9,000,000	9,000,000
Medical Device Authority	7,900,000	7,900,000
Specific Program	92,965,110	92,965,108
New Policy	741,600,024	741,600,017
One-Off	31,889,719	31,889,714
TOTAL	**21,714,210,000**	**21,714,209,921**

Source: Finance Division, MoH

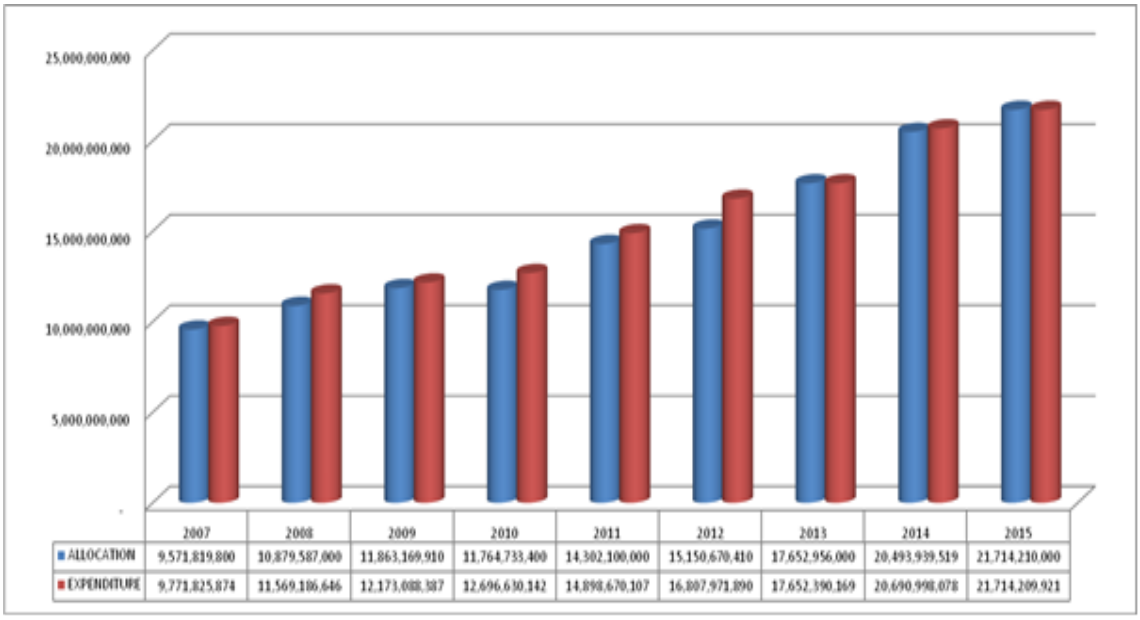
Performance of Operating Expenditure for 2015

The Operating Budget allocation for 2015 was RM21.71 billion which represents an increase of RM1.22 billion as compared to RM 20.49 billion allocated for 2014. The total expenditure for 2015 was RM21.71 billion, which was 100% of the sum allocated.

Overall Performance of Operating Budget from 2007-2015

For the past nine years (2007-2015), the Operating Budget allocation for MoH has increased from RM9.77 billion in 2007 to RM21.71 billion in 2015. Meanwhile, the expenditure for operating budget recorded an increase from RM9.57 billion in 2007 to RM21.71 billion for 2015. Figure 1 shows the overall performance of Operating Budget from 2007-2015.

FIGURE 1
OVERALL PERFORMANCE OF OPERATING BUDGET FROM 2007-2015



	2007	2008	2009	2010	2011	2012	2013	2014	2015
ALLOCATION	9,571,819,800	10,879,587,000	11,863,169,910	11,764,733,400	14,302,100,000	15,150,670,410	17,652,956,000	20,493,939,519	21,714,210,000
EXPENDITURE	9,771,825,874	11,569,186,646	12,173,088,387	12,696,630,142	14,898,670,107	16,807,971,890	17,652,390,169	20,690,998,078	21,714,209,921

Source: Finance Division, MoH

Performance of Development Expenditure for 2015

The total expenditure of the Development Budget was RM1.34 billion or 99.30 % of the total budgeted allocation of RM1.35 billion. Development Budget according to project details is shown in Table 2.

TABLE 2
DEVELOPMENT ALLOCATION AND EXPENDITURE BY PROJECT DETAILS, 2015

Project Detail	Title	Allocation (RM)	Expenditure (RM)	%
00100	**Training**	**84,597,091**	**83,766,601**	**99.02**
00101	Construction of New Colleges	25,270,700	25,195,471	99.70
00102	Upgrading of Training Projects	-	-	-
00104	Outsourcing	697,700	686,300	98.37
00105	In-Service Training	58,628,691	57,884,830	98.73
00200	**Public Health**	**146,894,435**	**145,681,790**	**99.17**
00201	Rural Health Services	57,946,282	57,946,282	100.00

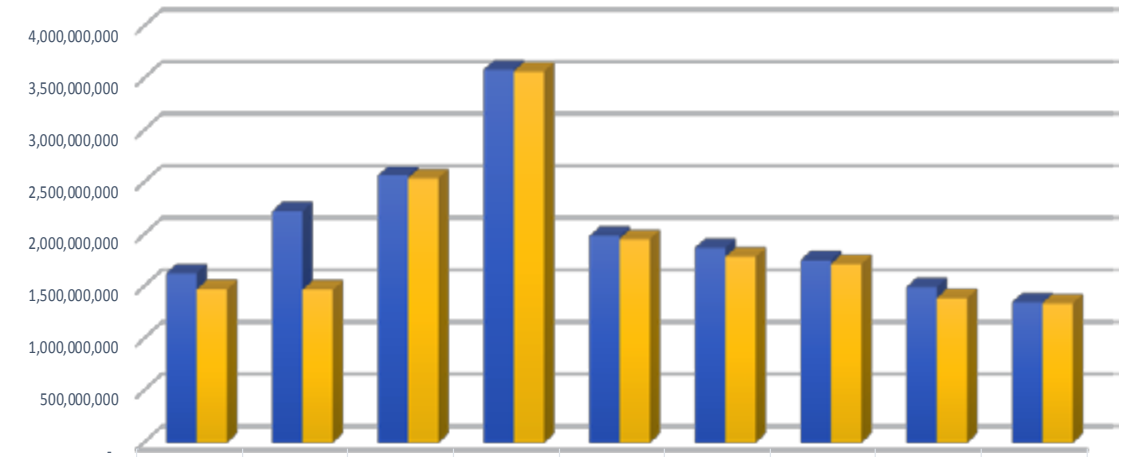
Project Detail	Title	Allocation (RM)	Expenditure (RM)	%
00202	BAKAS	13,068,396	12,862,882	98.43
00203	Urban Health Services	70,779,757	69,776,502	98.58
00204	Mobile Clinic	5,100,000	5,096,124	99.92
00300	**Hospital Facilities**	**259,381,536**	**259,391,136**	**100.00**
00400	**New Hospitals**	**187,536,911**	**183,896,278**	**98.06**
00500	**Research & Development**	**35,657,201**	**35,232,379**	**98.81**
00600	**Restructure, Upgrade & Repair**	**149,801,493**	**150,275,286**	**100.32**
00700	**Land Procurement & Maintenance**	**31,191,423**	**30,662,307**	**98.30**
00800	**ICT Facilities**	**36,714,872**	**36,714,871**	**100.00**
09000	**Quarters Maintenance**	**130,169,901**	**129,703,408**	**99.64**
00900	**Staff Facilities**	**16,147,875**	**16,196,738**	**100.30**
00901	Rural Quarters Facilities	98,410	150,317	152.75
00902	Urban Quarters Facilities	10,942,000	10,938,971	99.97
00904	Health Offices	5,107,465	5,107,450	100.00
01000	**Health Promotion**	**2,000,000**	**2,000,000**	**100.00**
01100	**Equipment & Vehicles**	**249,909,762**	**247,057,305**	**98.86**
94000	**National Key Economic Area**	**20,000,000**	**20,000,000**	**98.86**
TOTAL		**1,350,002,500**	**1,340,578,099**	**99.30**

Source: Finance Division, MoH

Overall Performance of Development Budget from 2007-2015

In general, the development expenditures for MoH for the past nine years were less than the allocation provided. Figure 2 shows the overall performance of the Development Budget allocation and expenditure from 2007 until 2015.

FIGURE 2
OVERALL PERFORMANCE OF DEVELOPMENT BUDGET, 2007- 2015



	2007	2008	2009	2010	2011	2012	2013	2014	2015
Allocation (RM)	1,628,737,800	2,222,278,000	2,566,596,130	3,584,264,010	1,984,455,810	1,872,647,200	1,756,493,520	1,495,320,310	1,350,002,500
Expenditure (RM)	1,471,014,862	1,467,063,407	2,539,746,540	3,569,269,205	1,957,762,465	1,785,009,672	1,717,742,147	1,389,079,701	1,340,578,099

Source: Finance Division, MoH

REVENUE MANAGEMENT

Revenue

The ministry revenues totalled RM 560.2 million in 2015, an increase of RM118.3 million or 26.8% over 2014. Health services contributed RM 381.3 million, translating to a 68.06% share of total revenues for the year. The breakdown of revenue classifications for 2015 as compared to 2014 is shown in Table 3.

TABLE 3
TOTAL MoH REVENUE COLLECTION, 2014-2015

Code	Revenue Classification	Amount (RM)	
		2014	2015
71000	Licences, Registration Fees & Permits	11,846,049.04	12,886,497.43
72000	Services and Service Charges	293,831,010.84	381,280,094.25
73000	Receipts from Sales of Goods	2,419,230.10	2,800,714.68
74000	Rentals	11,287,930.22	17,180,019.78
75000	Interest and Returns of Investment	86,307.21	79,261.15
76000	Fines and Penalties	28,233,718.72	36,887,366.22
80000	Non-revenue Receipts	94,140,649.97	109,039,425.02
90000	Revenues from Federal Territory	28,754.00	28,425.75
Total		**441,873,650.10**	**560,181,804.28**

Source: Account Division, MoH

Outstanding Revenues

Outstanding revenues in 2015 increased by RM17.5 million or 48.7% to RM53.7 million compared to that of 2014. Medical fees represented 81.6% of the outstanding revenues, amounting to RM43.8 million. Other outstanding revenues were contributed by unpaid loan, fine and penalties, canteen rents, etc.

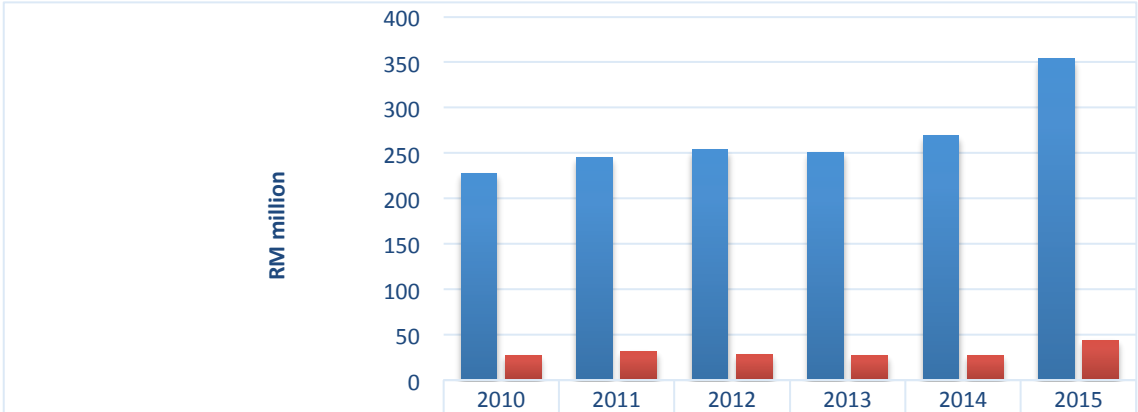
Revenue and Outstanding Revenue for Health Services under Fees Act 1951

The Government has been phasing out subsidised healthcare to non-citizens by imposing medical charges increment to non-citizen with the enforcement of Fees (Medical) (Cost of Services) Order 2014 on 1 January 2015. On top of the new Order, health services provided to the public via MoH hospitals and clinics were charged accordingly to Fees (Medical) Order 1982 and Fees (Medical) (Full Paying Patient) Order 2007.

The increase of charges via implementation of the new Order for non-citizens saw the revenue under Fees Act 1951 considerably increased. Citizen patients accounted for RM180.2 million or 50.9% of the total RM353.8 million, whilst RM173.6 million was contributed by non-citizens. Health services revenue escalated by RM84.5 million or 31.4% with non-citizen revenues up by 65.7% over prior year.

Simultaneously, charges increase also resulted in a significant increase of outstanding revenue of medical charges to RM43.8 million from RM27.3 million last year. RM33 million or 75.3% of the total outstanding health services revenue this year involved that of non-citizen unpaid bills.

FIGURE 3
REVENUE AND OUTSTANDING REVENUE UNDER FEES ACT 1951, 2010-2015



	2010	2011	2012	2013	2014	2015
Revenue (RM million)	227.61	245.62	253.56	250.81	269.33	353.80
Outstanding Revenue (RM million)	27.22	31.39	28.58	27.11	27.31	43.80

Source: Finance Division, MoH

MoH is very committed in reducing hospital outstanding revenue by taking concerted efforts such as the following:

- Implementation of circulars such as Fees (Medical) (Cost of Service) Order 2014 Implementation Guidelines and Revenue Management for Non-Citizen without Deposit Guidelines to aid revenue collection;
- Strictly allowing only patients from private companies registered with the Ministry to use *Guarantee Letter* (GL) to receive treatment;
- Reinforcing Foreign Worker Insurance – Foreign Workers Medical Insurance Protection Scheme;
- Providing training to ground level staffs for better understanding and implementation of Fees Act; and
- Expanding payment method via credit/debit card and online banking.

FINANCIAL AID AND SUBSIDY TO NON-GOVERMENTAL ORGANIZATIONS (NGO)

There are two types of financial assistance offered by MoH to NGOs, which are:

Assistance for Health- Related Activities

In 2015, a sum of RM3, 662,045 was allocated by MoH to NGOs in the form of financial aid to support health-related programs and activities such as home visits for palliative patients, awareness campaigns and other related activities to patients. This allocation was given to Malaysia Mental Health Association-MMHA, Malaysia Lysosomal Disease Association- MLDA, Woman Development Foundation and others.

Hemodialysis Subsidy

This subsidy is to help poor patients who are undergoing dialysis due to chronic kidney failure in NGO Haemodialysis Centres, with a subsidy of RM50.00 for each treatment and RM18.50 subsidy for erythropoietin injection. Each patient will be given an average of RM890.50 of subsidy per month. In 2015, MoH allocated a sum of RM24.45 million to NGOs as subsidy payments for haemodialysis treatment.

WAY FORWARD

In essence, in the midst of a challenging and constantly changing social and economic environment, organizational effectiveness is vital to ensure the Finance Department's ability to fulfil its responsibilities with distinction at the highest level. Strong and performance-dedicated workforce are among the Department's important milestone. We will continue to strive to achieve the highest level of excellence in fulfilling our responsibilities and to deliver the trust that has been entrusted to us.

CHAPTER 4

PUBLIC HEALTH

INTRODUCTION

The Public Health Program is responsible to help individuals and community to achieve and maintain an optimum level of health by providing basic health care. To achieve that mission, the Program provided services such as disease prevention and control, curative and rehabilitative care through integration in all levels of health service and to promote health so that it becomes a practice among all individuals and the people.

Basic health services' strategy and activity mentioned is performed by the Office of Deputy Director General of Health (Public Health), Disease Control Division, Family Health Development Division, Health Education Division and Nutrition Division.

OFFICE OF DEPUTY DIRECTOR GENERAL OF HEALTH (PUBLIC HEALTH)

Policy and Development of the Public Health Service

One of the core activities of the Office of the Deputy Director General of Health (Public Health) is to provide direction and policy requirements related to the formulation of policy development activities of the Public Health Service to ensure that it is compatible with the current situation and in line with the direction and goals of the Department of the Ministry of Health (MoH) in general.

The current platform utilized for the purpose is via the Public Health Program Exco and Policy Committee Meeting chaired by the Deputy Director General (Public Health). However, there is no denying that Public Health policy formation will sometimes decided in a top down manner by the stakeholders amongst the Department's top management as well as by the political masters especially on national interests which gave direct impact to the citizens.

In 2015, four Public Health Program Exco and Policy Committee Meeting were successfully held in which 13 Policy and Notification papers were presented (Table 1). Eight Policy Papers were presented in which Committee approval for 1 Policy Paper was postponed. Policy Papers which involve other Programs and have financial and resource implications will be brought up to the Director General of Health Malaysia's Special Meeting and the MoH Policy and Planning Committee (JDPKK) for approval.

TABLE 1
NUMBER OF POLICY PAPER AND NOTIFICATION PAPERS PRESENTED, 2015

No	Division	No. of Policy Paper	No. of Notification Paper	Total
1.	Division of Disease Control	5	4	9
2.	Division of Family Health Development	0	0	0
3.	Division of Nutrition	1	0	1
4.	Division of Health Education	1	0	1
5.	Office of the Deputy Director General of Health (Public Health)	1	1	2
Total		**8***	**5**	**13**

** Note: Approval for 1 Policy Paper was postponed*
Source: Office of Deputy Director General of Health (Public Health), MoH

TABLE 2
PUBLIC HEALTH POLICY PAPERS APPROVED, 2015

No	Title	Division	Date of Approval
1.	**Policy Paper 1/2015:** ***Program Ibu Pejabat KKM Bebas Asap Rokok:*** • ***Program Perkhidmatan Berhenti Merokok di Kalangan Kakitangan Kumpulan Sokongan II di Ibu Pejabat KKM*** • ***Pengukuhan Penguatkuasaan PPHKT 2004 di Kompleks E*** *By: Dr. Nor Aryana Hassan*	Disease Control	Bil.1/2015@ 24 February 2015
2.	**Policy Paper 2/2015: Salt Reduction Strategy for Malaysia 2015-2020** *By: Dr. Feisul Idzwan*	Disease Control	Bil 2/2015@ 11 May 2015
3.	**Policy Paper 3/2015:** ***Penguatkuasaan Seksyen 11, Akta Pemusnahan Serangga Pembawa Penyakit 1975*** *By: Encik Ideris Mohamed*	Deputy DG of Public (Public Health) Office	Bil 3/2015@ 4 August 2015
4.	**Policy Paper 4/2015: National Action Plan for Active Living** *By: Encik Mohamed Farouk Abdullah*	Health Education	Bil 3/2015@ 4 August 2015
5.	**Policy Paper 5/2015:** ***Jabatan Kualiti dan Kesihatan Awam di Hospital*** *By : Dr. Priya Ragunath*	Disease Control	Bil 3/2015@ 4 August 2015
6.	**Policy Paper 6/2015: HIV Community Screening in Malaysia** *By: Dr. Sha'ari Ngadiman*	Disease Control	Bil 4/2015@ 2 November 2015

No	Title	Division	Date of Approval
7.	**Policy Paper 7/2015**: ***Cadangan Meletakkan Program Kawalan Viral Hepatitis C di Bawah Sektor HIV/STI*** *By: Dr. Rohani Jahis*	Disease Control	Bil 4/2015@ 2 November 2015
8.	**Policy Paper 8/2015:** ***Cadangan Pewujudan Pejabat Kesihatan Daerah (PKD) Kuala Nerus, Terengganu*** *By: Dr. Abdullah Husam A. Shukor*	Deputy DG of Health (Public Health) Office)	Bil 4/2015@ 2 November 2015

Source: Office of Deputy Director General of Health (Public Health), MoH

Other than that, the Public Health Program Technical Meeting is an annual agenda held in two levels which are at state level with all State Health Deputy Directors (Public Health) and at district level with all District Health Officers. The objective of this meeting in general is to identify policy implementation and Public Health services running effectively and to discuss issues raised. This is to disseminate the program's way forward and to share the best practices among states and districts in providing health services. Through dialogue sessions with the Deputy Director General of Health (Public Health), various issues and problems at the state and district levels were discussed in order to obtain results and solutions. In 2015, two Public Health Program Technical Meeting with State Health Deputy Directors (Public Health) were successfully held. Papers/technical updates presented during these meetings are in Table 3.

TABLE 3

PAPERS PRESENTED DURING THE PUBLIC HEALTH PROGRAM TECHNICAL MEETINGS WITH STATE HEALTH DEPUTY DIRECTORS (PUBLIC HEALTH), 2015

Meeting	Presentations	Presenter
No. 1/2015 (12-13 March, 2015) at Melaka	1. Direction of Disease Control Activity 2015	Disease Control Division
	2. Direction of Family Health Development Activity 2015	Family Health Development Division
	3. Direction of Nutrition Activity 2015	Nutrition Division
	4. Direction of Health Education Activity 2015.	Health Education Division
No. 2/2015 (26-28 October 2015) at Bintulu, Sarawak	1. Updates on KOSPEN Program & Related Issues.	Disease Control Division
	2. Technical Updates: Occupational Health Issues & Challenges	Prof. Dr. Abu Hasan Bin Samad, President AOEM

Meeting	Presentations	Presenter
	3. Experience Sharing: Experience & Envisage Future Direction for Public Health	YBhg. Dato' Dr. Haji Ramlee bin Haji Rahmat
	4. Technical Updates: National Disaster Plan (NDP)	Disease Control Division
	5. Public Health Specialist Profiling	Public Health Program

Source: Office of Deputy Director General of Health (Public Health), MoH

As for the Public Health Program Technical Meeting with the District Health Officers 2015, only one session was carried out in Kelantan jointly organized with the Kelantan Health Department. 140 participants throughout Malaysia participated in the event. Papers presented in the session are as in Table 4.

TABLE 4
PAPERS PRESENTED DURING THE PUBLIC HEALTH PROGRAM TECHNICAL MEETING WITH DISTRICT HEALTH OFFICERS, 2015

Date	Presentations
25-27 August 2015	Preparing for the Unexpected 2014 *Bah Kuning* in Kelantan - Kelantan State Health Director
	Ebola Response in Sierra Leone's Experience-Public Health Program
	Malaria Elimination National Strategic Plan & National Filaria Elimination Program -Disease Control Division, MoH
	Lean Management- Institute for Health Systems Research
	Patient Safety in Primary Health Care- Family Health Development Divison, MoH
	Overview District Health Office Internal Audit Findings -Public Health Program

Source: Office of Deputy Director General of Health (Public Health), MoH

QUALITY

The Office of Deputy Director General of Health (Public Health) is also the coordinator for the Public Health Program's National Indicator Approach (NIA). The NIA achievements are presented at the annual National Control Committee meeting, led by the Deputy Director General of Health (Research & Technical Support). In 2015 (Table 5), NIAs recording Shortfall in Quality (SIQ) were 'dengue outbreak control index', 'dengue notification time index', 'malarial death', 'sputum conversion rate', 'HbA1c levels - the proportion of T2DM patients with HbA1c levels <6.5%', 'incidence rate of needle stick injury per 1000 health care workers within Ministry of Health', and

Percentage of anaemic pregnant mother (hemoglobin less than 11gm % at 36 weeks gestation).

Even though the 'dengue outbreak control index' and 'dengue notification time index' indicators recorded SIQ, the factor of dengue cases increase globally have to be factored in. In 2015, there were slight decreases in performance for the 'sputum conversion rate' and 'HbA1c levels <6.5% - the proportion of T2DM patients with HbA1c level <6.5%' indicators as compared to 2014. Meanwhile, NIA indicators for 'malarial death', 'HbA1c levels <6.5% - the proportion of T2DM patients with HbA1c level <6.5%' and Incidence rate of needle stick injury per 1000 health care workers within MoH also recorded SIQ but the 2015 achievement shows an increase as compared to 2014. Conversely, indicator for the 'Incidence rate of severe Neonatal jaundice (NNJ)' was recorded as better improvement as compared to the previous data in 2014.

TABLE 5
NIA PERFORMANCE, 2015

No	INDICATOR	STANDARD	ACHIEVEMENT	
Monitored Annually				
1.	Rejection Rate of X-ray Film (%)	< 2.5%	0.95%	
2.	Lab Turn Around Time (LTAT)	> 95%	99.9%	
3.	% of asthmatic patients received appropriate management of asthma at health clinics	Beating own standards	83.0%	
4.	% of clients perceived the service provided as Client Friendly	Beating own standards	94.0%	
5.	Percentage of visual defect cases detected among standard 1 school children (%)	> 5%	5.87%	
6.	Malarial Death	0 death	8 death	
7.	HbA1C level – Proportion of T2DM patients with HbA1C level <6.5%	□ 30%	20.2%	
Monitored 6-monthly			**2014**	**2015**
8.	Sputum conversion rate	90%	90.3%	89.0%
9.	Dengue outbreak control index (%)	100%	81.9%	76.5%
10.	Dengue notification time Index (%)	100%	88.5%	83.7%
11.	Incidence rate of needle stick injury per 1,000 health care workers within MoH	0	3.8	3.2

No	INDICATOR	STANDARD	ACHIEVEMENT	
Monitored 6-monthly			2014	2015
12.	Incidence rate of severe Neonatal Jaundice (NNJ)	< 50 per 10,000 estimated life birth	64.6	47.85
13.	Percentage of anaemic pregnant mother (hemoglobin less than 11gm % at 36 weeks gestation).	10%	8.2%	

Source: Office of Deputy Director General of Health (Public Health), MoH

Epidemic Intelligence Program (EIP) Malaysia

Epidemiology is the most essential component in the public health services. Since epidemiology is becoming increasingly more complex and specialised, the graduates are thus equipped with theoretical knowledge in epidemiology but with limited focus on field training and understanding of service needs. Thus, Field Epidemiology Training Programs (FETP) was developed in many countries since few decades ago. Field epidemiology or applied epidemiology is the application of epidemiology methods for action.

The positive experience with the US CDC Epidemic Intelligence Service (EIS) during the Nipah encephalitis outbreak in 1998-1999 prompted MoH to start a similar program in Malaysia. The Cabinet approved the establishment of similar program in Malaysia in 2000 and the program named as Epidemic Intelligence Program (EIP) started its first intake in 2002. The main objective of this program is for trainees to be proficient in public health surveillance, outbreak investigation, management and control. Other than training, the program also provides services related to field experience.

In 2015, an introductory course for EIP was conducted for a new cohort 8; twelve candidates were selected and enrolled in the program. Three Public Health Specialist under EIP program were deployed to Sierra Leone, West Africa in response to Ebola Virus Disease (EVD) and they were recruited under GOARN, WHO. EIP Malaysia was also involved in the following outbreak investigations:

i. Fact finding and assessment of Health System at district level during flood disaster by EIP Supervisors and Trainee in Kelantan.
ii. Investigation into surge of dengue cases in Petaling District, Selangor.
iii. Typhoid outbreak in Kuala Lumpur
iv. Investigation into death clusters in Cure and Care Rehabilitation Center (CCRC), Gambang, Kuantan.

In 2015, Mexico become as a host for The 8th Global TEPHINET Conference and EIP Malaysia manage to submit 10 abstracts in which 6 were accepted for oral or poster presentation.

Orang Asli Health Services

MoH Malaysia is committed in providing quality health and medical services to the Orang Asli (OA) community. MoH has been in the continuation of these services in a more comprehensive and systematic manner since 2012. The health services provided include all preventive programs and curative treatments, which were provided by Mobile Health Teams, Flying Doctor Services (FDS) and static clinics. In 2015, a total of 542,941 attendees among OA were reported using various health services in Peninsular Malaysia (Table 6).

TABLE 6
ORANG ASLI HEALTH SERVICES ATTENDEES, 2015

No	SERVICES	NUMBER OF ATTENDEES
1.	Outpatient	198,501
2.	Antenatal	43,979
3.	Postnatal	6,357
4.	Family Planning	81,804
5.	Child Health	120,268
6.	Home visit	92,032
Total		**542,941**

Source: Office of Deputy Director General of Health (Public Health), MoH

FDS entered its second year of providing schedule health services to people in remote area at Gua Musang, Kelantan, Kuala Kangsar, Perak and Cameron Highlands, Pahang. FDS coverage for 2015 includes 63 indigenous villages with 6,665 OA. However, there are many remote OA villages were still inaccessible by land. Due to this, emergency medical evacuation of patients with acute health problems is carried out with interagency cooperation and support. Evacuation of OA in interior areas was carried out by many agencies such as Royal Malaysia Police (PDRM), Royal Malaysian Air Force (TUDM), Fire and Rescue Department, Malaysia Maritime Enforcement Agency (MMEA) and Royal Malaysian Navy (TLDM) depending on availability of helicopters during crisis. In 2015, a total of 26 medical evacuations were carried out.

In 2015, two courses were conducted namely "Understanding Customs, Lifestyle, Beliefs and Taboos of Orang Asli" and" Survival Training: Identifying and Understanding Orang Asli's Life" to mobile team members. A total of 136 participants consisting from professionals and support groups from various states participated in the courses.

Global Health

In line with MoH's way forward in enhancing international relations and fortify the International Health Program, a Global Health unit was established in 2013 with the following objectives:

a. To develop, translate and monitor policies, resolutions and global health guidelines which were coherent with current times along with the international health policies via Malaysia's entry to global health governing bodies in the world;
b. To ensure the importance of the health sector when developing national and global policies beyond the health jurisdiction (in non-health areas) which gives an impact towards the international health system; and
c. To create and enforce the collaboration between MoH and other global health entities which are in tandem with MoH's fundamental principles which gives priority to integration within the execution of service delivery which is effective and efficient to all parties and stakeholders via the practice of international health diplomacy.

- **136th Session of the WHO Executive Board (EB) Meeting (Geneva)**

Malaysia was elected as a new Member of the WHO EB (2012-2015) at the 65th World Health Assembly held in Geneva on 23 May 2012, and joins Australia, China, Mongolia and Papua New Guinea as the five EB Members representing the WHO Western Pacific Region. Malaysia was last elected to the WHO EB 31 years ago for the 1983-1985 term and previously had also served for the 1963-1965 term. The EB is composed of 34 individuals technically qualified in the field of health, each one designated by a Member State elected to do so by the World Health Assembly. Member States are elected for three-year terms. The EB meets at least twice a year, immediately after the World Health Assembly. The EB's main functions are to give effect to the decisions and policies of the World Health Assembly, to advise it and generally to facilitate its work.

The 136th Session of the Executive Board (EB) was held on 26 January to 3 February 2015 at the WHO Headquarters in Geneva, Switzerland. The Malaysia delegation was headed by the Director General of Health Malaysia accompanied by three senior MoH officers. This meeting had a heavy agenda with 43 main agenda items, out of which 23 technical items, 3 relating to WHO reforms and 1 item on Program and Budget matter pertaining to Strategic Budget Space Allocation (SBSA), whereby Malaysia is a member

of the Working Group. Despite of the ongoing outbreak of Ebola virus disease, the Executive Board convened in special session, at WHO headquarters in Geneva, on Sunday 25 January 2015 with the following objectives:

- To review the current state of the Ebola response and make recommendations on further steps to stop the Ebola epidemic.
- To discuss strengthening WHO's capacity to prepare for and respond to future large-scale and sustained outbreaks and emergencies.

- **Implementation of WHO Program Budget (PB) 2014-2015**

The Global PB 2014–2015 was approved at the 66th World Health Assembly in May 2013. The Proposed PB 2014-2015 was presented to the 64th session of the WHO Regional Committee for the Western Pacific in October 2013. The PB 2014–2015 biennium is now a single budget figure covering both assessed contributions and voluntary contributions, which are divided across 6 categories: (i) communicable diseases, (ii) non-communicable diseases, (iii) promoting health through the life-course, (iv) health systems, (v) preparedness, surveillance and response, and (vi) enabling functions/corporate services (NA to Member States). Malaysia has 29 projects under WHO PB 2014-2015 and was successfully implemented with the close monitoring of their developments along with the WHO Country Office.

- **68th World Health Assembly (WHA) – Geneva**

The 68th World Health Assembly was held on 18-26 May 2015 in Palais de Nations, Geneva, Switzerland. The delegation from Malaysia was led by the Minister of Health Malaysia, accompanied by the Director General of Health Malaysia and five senior technical officers from the MoH. The theme for this year's meeting was "Building Resilient Health Systems". Malaysia made an intervention under this theme, and it was delivered by Minister of Health. At the end of the meeting, eleven resolutions and five decisions relating to technical and health items were adopted by the Assembly. Malaysia co-sponsored the resolution on the Global Burden of Epilepsy, introduced by China. The Minister of Health was a panelist at the Commonwealth Health Ministers' Meeting 2015, and also a presenter for a paper under the theme "Universal Health Coverage, with an emphasis on ageing and good health". At the sidelines of the 68th WHA, the Director General of Health Malaysia was also invited as a panelist Malaysia at the WHO Technical Briefing on Cancer Prevention and Control: *Which Policies And Programs Have Best Driven Progress And A Side-Event On Imaging For Saving Kids: The*

Inside Story About Patient Safety In Paediatrics Imaging. In addition to that, Malaysia co-sponsored another side-event on Autism spectrum disorders.

- **Official Attachment of MoH Officers at WHO Headquarters**

The official attachment program was a pioneer project that involved with four selected MoH's officers for two weeks attachment at the WHO Headquarters. The Global Health Unit was created history by successfully organizing this official attachment program between MoH and WHO Headquarters at Geneva.

- **Global Health Diplomacy Workshop**

The Global Health Diplomacy Workshop was held on 27 – 29 July 2015 at the National Cancer Institute, Putrajaya, with the aims to address the concerns and strengthen our position in a global health policy formulation and increase the capacity in training of health diplomats and officials. The workshop involved with 50 MoH senior officials, the training focused on both theoretical aspects of global health and practical aspects of negotiating in an international health for a through a role-playing model. The outcome of this workshop was to generate capable health officials that can participate actively and negotiate more equitably, to augment international cooperation and to ensure that global health policy will be of benefit to all.

- **66th Western Pacific Regional Committee Meeting (RCM)**

The Western Pacific Regional Committee Meeting is an annual event held in October. This meeting was held in Guam, USA. A total of 37 Member States attended this year's meeting. The delegation from Malaysia has strategized to deliver a theme-focused intervention and also raised the profile of dengue in the region which needs to be further addressed. The WHO secretariat agreed to include dengue on the next session agenda of the RCM. Malaysia was unanimously elected to be the Vice-President for the upcoming 69th World Health Assembly in 2016 scheduled to be held in Geneva, Switzerland representing the Western Pacific Region.

- **10th ASEAN Senior Officials Meeting on Health Development (SOMHD)**

The 10th ASEAN SOMHD was annually held and attended by Malaysia's delegation. This meeting had primarily discussed on the ASEAN Post-2015 Health Development Agenda whereby the proposed governance and mechanisms were discussed in detail. The four new clusters were endorsed at this meeting namely, Cluster 1 (Promoting Healthy Lifestyle), Cluster 2 (Responding to all hazards and emerging threats), Cluster 3

(Strengthening Health systems and access to care) and Cluster 4 (Ensuring Food Safety).

- **19th BIMST International Public Health Conference**

The 19th BIMST International Public Health Conference was held in Kuantan, Pahang on 10-11 September 2015. The theme for this meeting was Global Health Security. There was good participation of delegates from Brunei, Indonesia, Singapore and Thailand. The roundtable discussion by Malaysia was entitled, "Cross Border Health Issues".

- **ASEAN Post-2015 Health Development Agenda Workshop**

The ASEAN Post-2015 Health Development Agenda Workshop was held on 12-13 October 2015. The aim of this workshop was to gather all the focal points of MoH, Malaysia from the various existing subsidiary bodies, working groups and task forces within the ASEAN framework to brainstorm on the proposed regional targets and indicators for each newly formed cluster. During the workshop, the country co-ordinator and deputy co-ordinator for each cluster was elected.

LEGISLATIVE AND INSPECTORATE

Enforcement in the field of Public Health comprises of several individual legislation which authorizes officers to safeguard the public from health concerns. Enforcement activities carried out from time to time in order to make public aware and share responsibilities in disease control and as a tool to enhance healthy living. Laws related to public Health such as Destruction of Disease Bearing Insects Act 1975 (Act 154), Prevention and Control of Infectious Diseases Act 1988 (Act 342), Control of Tobacco Products Regulations 2004 and Hydrogen Cyanide (Fumigation) Act 1953 were mainly used for disease control purposes. MoH has optimized enforcement activities and data of offences against the enforced laws was collected monthly. Premise inspection under Destruction of Disease Bearing Insects Act 1975 has increased compared to previous years as in Table 7.

TABLE 7

ENFORCEMENT ACTIVITIES UNDER ACT 154, 2011-2015

Year	Premise inspected	Premise harboring Aedes	Compound issued	Premise closure	No. of cases registered in court	Penalty paid for offences (RM)
2011	3,557,153	39,179	14,515	123	2,109	281,080
2012	3,521,919	50,200	17,905	102	1,743	328,640
2013	4,491,465	66,383	15,359	117	1,809	301,460
2014	5,419,476	79,863	25,095	243	2,414	318,242
2015	6,151,233	97,811	18,187	429	1,558	936,950

Source: Office of Deputy Director General of Health (Public Health), MoH

Strict enforcement approach taken by the MoH saw the number of premises given closure order has increased in 2015. Premise closure is a severe punishment to building construction sites compared to issuance of compound since the monetary loss during this period of closure is a lot. In the meantime, case prosecution was enhanced by pleading for higher punishment in court proceedings. Highest fine collected so far was recorded in year 2015 amounting to RM936, 950.00.

Law enforcement in Infectious Diseases Control has gained a momentum with more premise inspection carried out from 2011 to 2015. Number of premises issued closure order has decreased in year 2015 (275 premises) compared to 368 premises in year 2014. Closure notices were issued to premise owners as to make them responsible for the prevention and control activities in order to stop or break the chain of transmission of infectious diseases. Highest number of premise inspection was recorded in the year 2015 amounting to 8737 compared to 715 premises in 2011 as in Table 8 which shows that prevention activities has increased.

TABLE 8

PREVENTION AND CONTROL OF INFECTIOUS DISEASES ACT 154, 2011-2015

Year	Premise inspected	Premise closure	Compound issued	Compound paid for offences (RM)
2011	715	292	10	1,800
2012	2,376	669	46	18,900
2013	2,106	318	10	3,400
2014	5,055	368	24	4,850
2015	8,737	275	5	1,400

Source: Office of Deputy Director General of Health (Public Health), MoH

Compounds issued under Act 154 are to medical practitioners who failed to notify the existence of infectious disease which in return is to lower the incidence of under reporting. There was a rise in year 2012 with 46 compounds issued compared to only 5 compounds in the year 2015.

Control of Tobacco Products Regulations 2004 is a subsidiary law under Food Act 1983. Under this regulation, cigarette smoking in prohibited areas is an offence which is monitored regularly by enforcement officers. Number of offences under this regulation has increased from 24,100 notices issued in 2011 to 34,778 in the year 2015 (Table 9). In 2015 a total of 19,198 compounds were issued and the amount of fines collected was RM2.04 million.

TABLE 9
ENFORCEMENT ACTIVITIES UNDER CONTROL OF TOBACCO PRODUCTS REGULATIONS 2004, 2011-2015

Year	Offences identified	Compound issued	Compound paid for offences (RM)
2011	24,100	13,646	1,778,865.00
2012	29,861	16,478	1,691,604.00
2013	31,255	17,263	1,729,898.00
2014	35,757	17,451	1,892,555.00
2015	34,778	19,198	2,041,698.00

Source: Office of Deputy Director General of Health (Public Health), MoH

Even though enforcement activities has been carried out now and then, the occurrence of cigarette smoking in prohibited areas still exist. Advocacy need to be strengthened in this area so that we can groom law abiding citizens in Malaysia.

DISEASE CONTROL

Malaysia has achieved considerable success in eradicating, eliminating or reducing specific infectious diseases over time. A shift in disease pattern from a preponderance of communicable to non-communicable diseases tends to occur as nation progresses from a developing to a developed status. This changing disease pattern is being seen in Malaysia. Since 1970, infectious and parasitic diseases, such as tuberculosis (TB) and malaria, has declined sharply; with smallpox and acute poliomyelitis being eradicated.

Conversely non-communicable diseases, namely cardiovascular diseases, diabetes and cancers, have markedly increased.

The Diseases Control activities in Malaysia had been initiated through specific programs for example, The National TB Control Program (1961), Malaria Eradication Program (1967) and the National Leprosy Control Program (1969).

The Epidemiology Unit was established in 1971 under the Health Services Department. This unit focused on controlling communicable diseases, based on the occurrence and epidemiological pattern of the diseases, by effective preventive and control measures. Initial restructuring phase in 1985 placed the malaria Control Program together with other Vector Borne Diseases Program under the Vector Borne Diseases Control Program. As part of the intended restructuring process, the existing Epidemiology Unit was reorganized in 1991 and expanded in line with the escalating public health condition. In order to provide comprehensive health service for a wider community reach, irrespective of age, this program had gone through several evolution processes and has expanded dramatically. This transformation established the Disease Control Division (DCD).

DCD's main objective is to reduce the occurrence of diseases and death due to communicable and non-communicable diseases as well as environment-related diseases, so that they will no longer pose a threat to public health. The other objectives are as listed below:-

i. To encourage a healthy lifestyle; a healthy, safe and hygienic work environment and workplace; suitable preventive measures; immediate detection and treatment; continuous monitoring and suitable rehabilitation services.

ii. To encourage the participation of civil society and cooperation among agencies/ sector so as to build a healthy and caring society.

Specific diseases based or related programs are carried out by the various diseases control sectors which are the HIV/STI Sector; TB and Leprosy Sector; Vector-Borne Diseases Sector; Disease Surveillance Sector, Outbreak and Disaster Management; International Health Sector; Quality, Policy and Planning Sector; Non-Communicable Cardiovascular / Cancer and Environmental Health Sector. The National Public health programs under the various sectors. All activities are implemented at the Ministry, State and District levels.

HIV and AIDS

- **Epidemic overview**

The first case of HIV infection in Malaysia was reported in late 1986. By the time the MDGs were adopted in 2000, there had been 38,340 reported HIV cases in Malaysia, of which 4,723 cases had developed into AIDS and 3,568 lives had been lost in HIV/AIDS-related deaths. Malaysia has embarked on the National Strategic Plan (NSP) for HIV/AIDS 2011-2015 focuses on five strategies. The goal of the NSP 2011 - 2015, are to prevent and reduce the risk and spread of HIV infection, to improve the quality of life of People Living with HIV (PLHIV) and to reduce the social and economic impact resulting from HIV and AIDS on the individual, family and society.

- **Total new cases and notification rate of HIV/AIDS**

Since 1986, the total number of new HIV cases reported each year increased to a peak in 2002 before gradually declining to present levels. In 2002, notification rates were at 28.45 per 100,000 population with 0.82% of those screened being HIV positive. Since 2002, Malaysia has managed to halt and reverse the spread of HIV/AIDS. In 2015, approximately 1.6 million screening tests were undertaken, with only 0.1% of those screened being HIV positive (3,300 new HIV cases). HIV notification rates have also declined to 10.9 per 100,000 population in 2015 after a slight increase in 2010. Looking more specifically at AIDS, notification rates have generally been smaller than that of HIV. The number of new AIDS cases reported each year was highest in 2006 at 1,842 cases. This translated to a notification rate of 6.91 per 100,000 population for AIDS. Post-2006, AIDS notification rates have fluctuated at 4 per 100,000 population with about 1,111 new AIDS cases reported in 2015.

- **Number of HIV/AIDS-related deaths and mortality rates**

The number of HIV/AIDS-related deaths had increased over time to reach a peak in 2007. Since then, the number of reported deaths fell by more than half from 1,374 deaths to 820 deaths in 2015. The mortality rate for HIV/AIDS in Malaysia was 0.06 per 100,000 population in 1990. This peaked at 5.06 in 2007 and has since declined to 2.69 in 2015 respectively per 100,000 population.

- **Access to treatment for HIV/AIDS**

The increase in accessibility and affordability of antiretroviral therapy (ART) treatment has been crucial in reducing HIV/AIDS-related deaths. National guidelines indicate

treatment is for all patients with AIDS regardless of CD4 count[1]. Since the start of the ART access program in early 1990s, Malaysia has provided ART to 9,962 persons living with HIV or estimated treatment coverage of 37.3 per cent in 2009[2]. In late 2009, WHO adjusted the treatment provision guidelines to initiate treatment when their CD4 cell counts fall to 350 cells per mm^3 or lower. As of 2015, treatment coverage is estimated at 28.0% from the estimated eligible patients receiving treatment. In Malaysia, 90,603 people were reported to be living with HIV as of 2015[3].

- **Other patterns in Malaysia's HIV/AIDS situation**

Distribution of HIV cases by risk factor, gender, ethnicity, and age

From 1990 to 1996, the percentage of HIV cases from people who inject drug increased from 60% to 83%, as reported in MDGR 2010. Since 1996, there has been a gradual decline in the number of HIV cases attributable to People Who Inject Drugs (PWID) from 74.7% in 2000 to 16.8% as of 2015. In fact, PWID has no longer been the main risk factor for reported HIV cases since 2010; and sexual transmission, in particular heterosexual transmission, is now the most important risk factor.

For heterosexual transmission, new HIV cases increased from 821 cases in 2009 to 1,398 cases in 2015. As for homosexual or bisexual transmission, there has been a more than seven-fold increase in new HIV cases from about 162 cases to 1,203 cases between years 2009 and 2015. With the decline in drug related cases and the increase in sexual transmission cases, the latter now accounts for 78.1% of all reported new HIV cases of which more than 50% were sexual transmissions.

In terms of ethnic group, the number of new cases reported for Malays, Chinese and Indians have generally declined since the peak in 2002. In contrast, the number of cases from 'Others' has more than doubled from 128 cases in 2002 to 204 cases in 2015. Nevertheless, Malays (69.0%) and Chinese (15.2%) still contribute the majority of cases in Malaysia as of 2015. By age group, there appear to be some increasing trends for HIV new cases amongst the 20-29 and 30-39 year olds while that of the 13-19 age group has shown a stabilizing trend in the period 2011 to 2015.

[1] Malaysia. Ministry of Health. Guidelines for the management of adult HIV infection with antiretroviral therapy, 2014.

[2] Malaysia. Ministry of Health, Disease Control Division, HIV/AIDS Sector, 2015.

[3] Malaysia, Ministry of Health, Global AIDS Response Progress Report (GARPR) 2015

Amongst the key populations, HIV prevalence was highest in 2012 amongst people who inject drugs (18.9%) followed by men who have sex with men, (7.1%), transgender persons (4.7%) and female sex workers (4.2%). The majority of people who inject drugs used sterile injection equipment (97.5%) and had been reached by intervention programs (86.5%). This was considerably wider than that of female sex workers and men who have sex with men, where only about 57% had been reached by intervention programs.

Conclusion

Malaysia has done well to halt and reverse the spread of HIV/AIDS in the nation. The number of deaths related to HIV/AIDS has also been kept low despite not achieving universal treatment coverage. In moving forward, Malaysia will need to take on the issues relating to balancing resources between preventive and curative interventions and relating to sexual transmission and the associated stigmas in order to further combat HIV/AIDS. These issues will be important for Malaysia to sustain her achievements and to build the resilience against HIV/AIDS in the future.

Vaccine Preventable Disease and Food and Waterborne Disease Control Program

- **Poliomyelitis**

On 20 September 2015, the Global Commission for Certification of Eradication of Poliomyelitis declared that wild polio virus type 2 (WPV2) has been successfully eradicated worldwide. The used of tOPV in Malaysia was stopped and excess vaccines will be disposed before end of April 2016. The Contingency Plan for Importation of Wild Poliovirus which was endorsed in 2011 by the National Committee on Certification for Polio Eradication Program was reviewed and updated in 2015. The acute flaccid paralysis (AFP) surveillance has successfully achieved the non-polio AFP rate of 1.9 per 100,000 population less than 15 years old in 2015.

- **Measles**

The increase in measles cases seen in 2014 continued in 2015. In 2015, 1,318 cases were reported with an incidence rate of 4.32 per 100,000 population, compared to 221 cases (incidence rate of 0.73/100,000) in 2014, about 30% of the cases were never vaccinated and another 30% were not eligible for vaccination yet (less than 1 year old). There were 2 measles deaths reported in 2015. Both cases have underlying co-morbid condition. Endemic measles genotypes were D8 and D9.

- **Pertussis**

Pertussis showed an increasing trend since 2010 following the use of PCR as diagnostic tool. The increase in number is also contributed by awareness among the paediatricians to notify cases. In 2015, the number of cases was doubled (939 cases) compared to number of cases in 2014 (497 cases). More than 70% of the cases were aged less than 4 months old.

Other Vaccine Preventable Diseases

The incidence rates of diphtheria and neonatal tetanus have been sustained less than 1/100,000 for the past 20 years. In 2015, 4 diphtheria cases were reported with one (1) death, compared to only 2 cases in 2014. A cluster of diphtheria was reported in Kedah among partially and non-immunized community. There was an increase of neonatal tetanus cases from 8 cases in 2014 to 16 cases in 2015. All cases were from Sabah and only one case was Malaysian. However, there was no neonatal tetanus death for the past 3 years.

- **Viral Hepatitis – B and C**

The notification rate of Hepatitis B was 12.65 per 100,000 population in 2015, slightly less compared to 12.94 in 2014. The number of cases among Malaysian born after 1989 (the year of initiation on hepatitis B vaccination for children) was 313 in 2015 compared to 287 cases in 2014. Most of the hepatitis patients (93.1%) aged 18 years old and above.

- **Food and Waterborne**

Food and Waterborne Disease (FWBD) occurrences namely typhoid, cholera, dysentery, hepatitis A and Food Poisoning are notified to the nearest District Health Office (DHO) by registered medical practioners as mandated under the Prevention and Control of Communicable Disease Act 1988. In general, the downward trends of FWBD incidences were observed from 2011 to 2014. However, beginning of 2015, the upward trends were noted for most of FWBDs.

- **Typhoid**

The increases in typhoid incidence in 2015 were mainly observed in Kelantan, Sabah and WPKL. Kelantan post-flood crisis at the end of 2014 until early 2015 was the reason for the significant increase in typhoid incidence in 2015. This was due to the delay in the provision of safe and adequate water supply to areas previously inundated by flood. Despite mass well-chlorination activities done immediately after the flood

water receded, most available wells were of un-sanitary type and prone to re-contamination. The outbreak of typhoid in Wilayah Persekutuan Kuala Lumpur and surrounding area of Selangor in 2015, were mainly due to unsanitary food hygiene practices among food handlers. Epidemiological investigation did not show specific food and its source incriminated for the typhoid outbreak. However, the results of typhoid screening of food handlers in the outbreak area revealed that food handlers as a possible source of the outbreak.

- **Cholera**

The trend of cholera incidence in Malaysia is cyclical, peaked every 4 to 5 years interval and all cases of cholera occurred mainly in Sabah. Following this trend, it is expected the incidence rate of cholera in Sabah to increase in 2015. The epidemiology of cholera is linked to climate change and fluctuations of sea temperature. As a result, cholera outbreak occurred mainly in coastal regions of Sabah. Access to unsafe water supply, poor hygiene and sanitation and consuming cholera contaminated seaweed such as "latok", were the main risk factors for cholera outbreak.

- **Dysentery**

Dysentery is a syndrome of acute infective diarrhoeal disease with the presence of blood in stools. In 2015 the incidence rate of dysentery increase to 0.34 per 100,000 population compared to 0.27 per 100,000 population the previous year. In 2015, only 26 (20.8%) out of 125 registered cases had the causative agent clearly reported. A total of 19 were *Salmonella* spp. with one (1) serotyped as S. *enteritidis*. It was noted that all the Salmonellosis cases were aged less than 5 years old. Hospital Tanjung Rambutan, (psychiatric institution hospital) in Perak also notified a cluster of 3 cases of *Entamoeba hystolytica* dysentric gastroenteritis among its inmates. Similar cluster of dysentery caused by the same pathogen occurred among its inmates in 2014.

- **Hepatitis A**

In general Hepatitis A has been on a downward trend since 2000 except in 2011 and 2012 where the incidence peaked at 1.42 and 1.58 per 100,000 population. Perak recorded a large outbreak in 2012 from the consumption of contaminated toddy made by illegal backyard industry. Orang Asli (OA) communities were frequently associated with small outbreaks as a result of unsafe water supply. However, for 2014 and 2015, there were no OA communities affected by hepatitis A.

- **Food Poisoning**

The incidence of food poisoning per 100,000 population has reduced in 2015 to 47.45 as compared to 58.65 in 2014. The incidence rate however showed slight reduction compared to 5 year median i.e. 47.79 per 100,000 population. The total episodes of food poisoning has reduced to 409 episodes as compared to 504 episodes in 2014 (a reduction of 18.8%).The total episodes of food poisoning occurring in schools in 2015 has also reduced to 153 episodes as compared to 243 episodes in 2014 (a reduction of 37.0%). School food poisoning accounted for 37.4% in 2015, as compared with 48.2% in 2014. In 2015, from a total of 409 food poisoning episodes, 113 (27.6%) episodes occurred in Ministry of Education (MOE) schools, this represents a drop of 57.4% from food poisoning episodes in MoE schools from 2011 to 2015.

Mortality Associated with Food Water Borne Disease (FWBD)

Mortality due to FWBD from 2011 to 2015 is represented in Table 10. Death due to FWBD is largely preventable. Mortality is commonly associated with delay in seeking treatment, highly toxic causative agents such as marine toxin and presence of other co-morbid medical condition.

TABLE 10
FOOD AND WATERBORNE DISEASE MORTALITY, 2011 - 2015

Year	Number of Death Associated with				Total
	Food Poisoning	Cholera	Typhoid	Paratyphoid	FWBD
2011	7	11	1	0	**19**
2012	1	1	1	0	**3**
2013	10	1	2	0	**13**
2014	3	1	1	0	**5**
2015	2	2	6	1	**11**

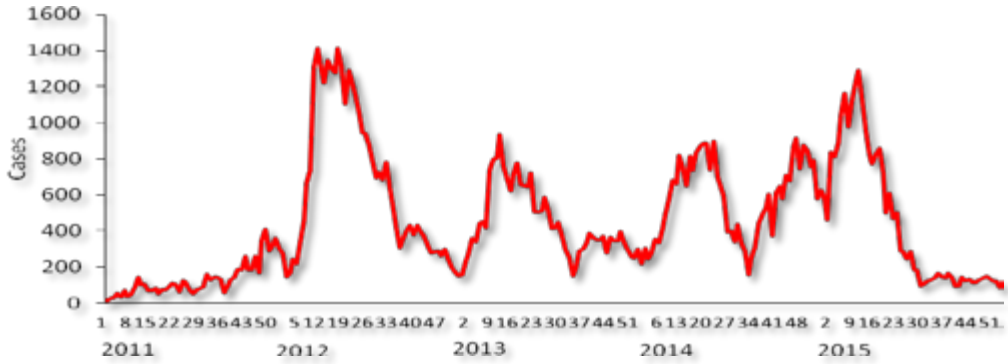
Source: Disease Control Division, MoH

Hand Foot and Mouth Disease (HFMD)

Hand, Foot and Mouth Disease (HFMD) is a common childhood disease, characterized by vesicles on the hands and feet, and ulcers in the mouth. Enterovirus A71 (EV-A71) is one of the main causative agents of HFMD apart from coxsackie viruses (CV) A6, A10, and A16. The monthly numbers of HFMD cases for each of the 13 states and 2 federal territories were available only between 2008 and 2015. The case definition for reporting HFMD is a child with mouth/tongue ulcers and/or maculopapular rash/ vesicles on the palms and soles, with or without a history of fever.

FIGURE 1

TREND OF HFMD CASES BY EPI WEEK, 2011 - 2015

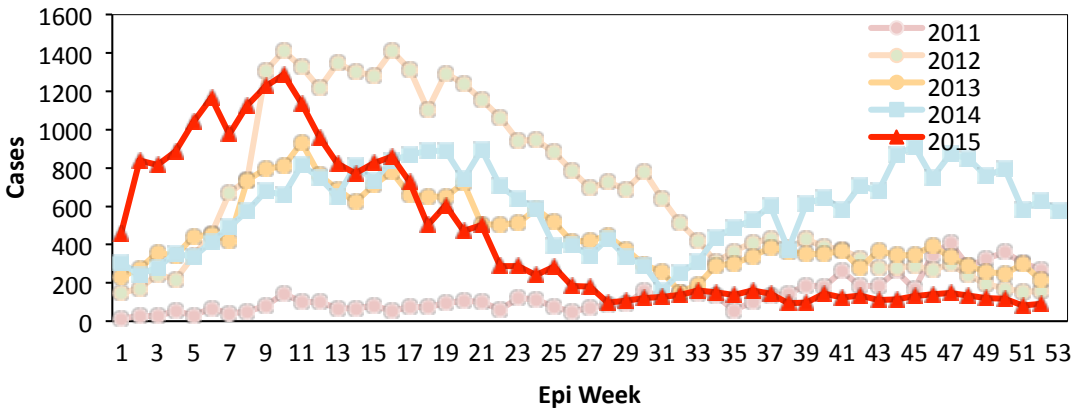


Source: Disease Control Division, MoH

In 2015, a total of 22,587 cases of HFMD were reported including one (1) death as compared to 31,322 for the same period in 2014 (27.9% decreased). The number of HFMD cases in 2015 shown an increasing trend in early of the year until Epi Week (EW) 10 (1,288 cases) and since then has decreased following seasonal pattern displayed in 2012 and 2013 (Figure 2).

FIGURE 2

HFMD CASES REPORTED BY EPI WEEK, 2011 - 2015



Source: Disease Control Division, MoH

Most of the HFMD clusters occurred at individual houses in 2011 until 2015. The highest cluster occurred in 2012 (1,342) with 3,257 cases followed by Taska (450) with 1,780 cases and primary school (55) with 242 cases.

Leptospirosis

Leptospirosis is endemic in Malaysia and was made a notifiable disease since 9th December 2010. In 2015 there were 8,291 cases as compared to 2,268 cases in 2011, an increasing trend. Most of the cases peaked in the early and the late part of the year. The mortality rate of Leptospirosis in 2015 was 0.26 per 100,000 population as compared to 0.31 in 2014. In 2015, the three states that had highest incidence rate were Kelantan (113.84), Terengganu (68.40) and WP Labuan (50.62) per 100,000 population. The flood incident at the end of 2014 and early 2015, is one of the contributing factor to these events.

Melioidosis

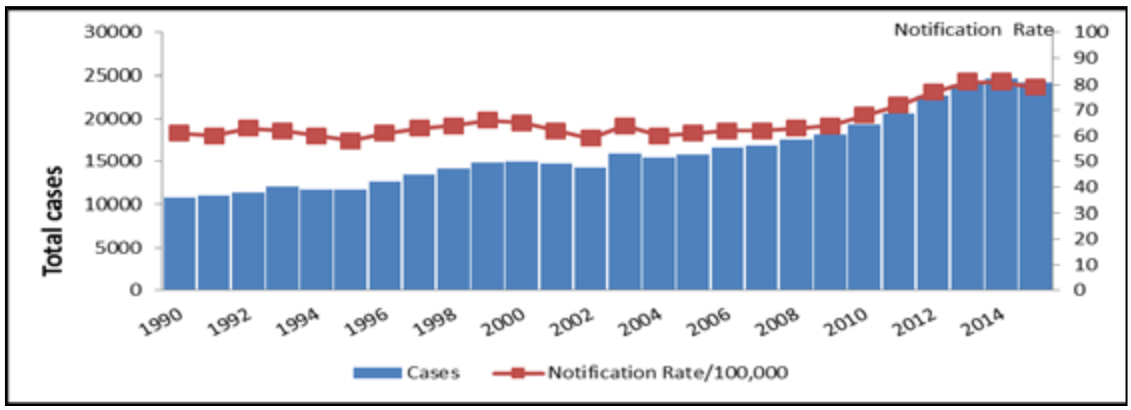
Melioidosis is caused by Burkholderia *pseudomallei* bacteria, a free-living saprophyte that is found in soil. Melioidosis was made an administrative notifiable disease on 9 January 2015 after the outbreaks involving Rescues Teams in Lubuk Yu, Maran Pahang in 2010 and flood incident in Peninsular Malaysia between ends of 2014 to early 2015. In 2015 also there were two (2) melioidosis clusters have been reported in Sarawak. The first cluster was in Bakun Hydoelectric Project, Belaga (3 cases and 2 deaths). The second cluster was from Iron Wall Logging Camp, Kapit (3 cases). In most of the cases, the predisposing factor is related to working condition which involved contact with soil. In 2015, there were 195 cases of melioidosis have been reported to Disease Control Division with 40 death.

Tuberculosis (TB) & Leprosy

Malaysia is classified as a country with an intermediate TB burden that is, Notification Rate (NR) for TB less than 100 per 100,000 population. Number of notified TB cases had increased from 20,666 cases in year 2011 (NR 72.4 per 100,000 population) to 24,220 cases in year 2015 (NR 79.4 per 100,000 population) that was 17.2% increment.

FIGURE 3

NOTIFICATION RATE (NR) OF TB FOR MALAYSIA, 1990 – 2015



Notes: In the year 2012 onward TBHIV mortality were excluded
In the year 2000-2011 TBHIV mortality were included
Source: Disease Control Division, MoH

- **Disease Surveillance**

Of the 24,220 TB cases notified in 2015, about 22,427 (92.6%) were classified as new cases and 1,793 (7.4%) were retreatment case. Of the retreatment case, 1,141 (4.71%) were relapse cases, 88 (0.36%) were treatment after failure cases, 564 (2.33%) were treatment after default cases. Of this 24,220 cases, 15,028 (62.1%) were pulmonary TB smear positive cases, 5165 (21.3%) pulmonary TB smear negative/smear not done/not known cases, 3,211 (13.3%) were extra-pulmonary TB cases and 816 (3.4%) were pulmonary TB and extra-pulmonary TB cases.

- **TB Cases by State**

In the year 2015 Sabah contributed the highest number of TB cases i.e. 4,464 cases (18.4%) followed by Selangor 4,429 cases (18.3%), Sarawak 2,575 cases (10.6%), Johor 2,409 cases (9.9%), Federal Territory of Kuala Lumpur 1,819 cases (7.5%), Perak 1,657 cases (6.8%), Penang 1,283 cases (5.3%), Kedah 1,279 cases (5.3%), Kelantan 1,233 cases (5.1%), Pahang 936 cases (3.9%), Terengganu 710 cases (2.9%), Negeri Sembilan 667 cases (2.8%), Malacca 513 cases (2.1%), Perlis 130 cases (0.5%) and Federal Territory of Labuan 116 cases (0.5%). The highest TB Notification rate per district for each states include Mersing, Johor (118.1); Pendang, Kedah (81.0); Jeli, Kelantan (94.7); Alor Gajah, Melaka (65.0); Kuala Pilah, Negeri Sembilan (86.4); Hulu Perak (94.6); Timur Laut, Penang (107.6); Semporna, Sabah (192.5); Kapit, Sarawak (207.8); Hulu Langat Selangor (93.6); Marang, Terengganu (84.1).

- **Age Group**

In 2015 proportion of TB case among age group were 277 cases (1.1%) in the age group of 0-4 years old, 471 cases (1.9%) in the age group of 5-14 years old, 3,780 cases (15.6%) in the age group 15-24 years old, 4629 cases (19.1%) in the age group of 25-34 years old, 4,082 cases (16.9%) in the age group of 35-44 years old, 4,117 cases (17.0%) in the age group of 45-54 years old, 3,669 cases (15.1%) in the age group of 55 -64 years old and 3,195 cases (13.2%) in the age group of 65 year old and above. Although proportion by percentages had not shown much different among age group 15 year old and above, age group specific rate (per 100,000 age group specific population) shown increased number of TB cases as age increased.

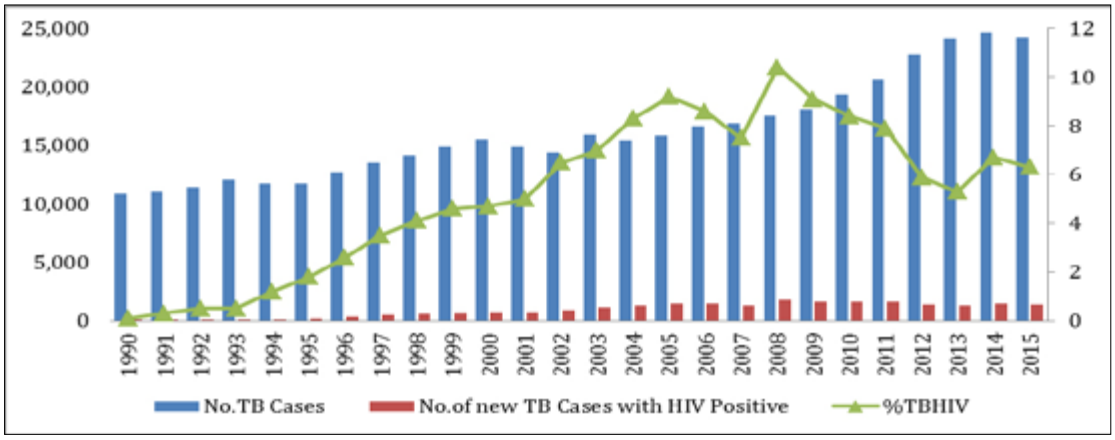
- **TB among Non-Malaysian**

In 2015, there were 2,969 cases of TB among non-Malaysian which account for 12.3% from total cases. TB cases among non-Malaysian had increased from 2,870 cases in 2011 to 2,969 cases in 2015.

- **Comorbid TB-HIV and TB-DM**

Total of 21,296 (87.9%) notified TB cases underwent HIV screening. Of these 21,296 cases, 1,346 cases (6.3%) were found to have HIV positive (1,234 pre-diagnosis and 112 post-diagnosis).

FIGURE 4
TBHIV, 1990-2015



Source: Disease Control Division, MoH

There was persistently increase in the total number of TB comorbid diabetes in the country. In 2013, about 3,945 (16.4%) of reported TB patient had comorbid diabetes, 4,192 (17%) in year 2014 and 4,404 (18.2%) for year 2015.

In the year 2015 there were 284 TB cases among MoH worker and compared to 273 cases notified in 2014. Notification Rate (NR) of TB among Health Care Worker (HCW) had increased from 98.4 per 100,000 HCW in 2011 to 121.5 per 100,000 HCW in 2015.

- **Multi Drug Resistant TB, MDR -TB**

There were 101 cases of MDR-TB notified in the year 2015. Proportion of MDRTB cases were 0.4% of all TB cases in 2015.

Treatment Outcome Analysis

- **Cure Rate**

Cure Rate for new smear positive cases reduced from 78% in 2011 to 77% in 2015. Cure rate among Malaysian was 81% and cure rate among non-Malaysian was 59% for 2015.

- **Treatment Success Rate**

Treatment success rate among Malaysian was 78% and among non-Malaysian was 57.2%.

- **TB Mortality Rate**

Number of TB deaths had increased from 1,644 deaths (Mortality Rate (MR) 5.8 per 100,000 population) in 2011 to 1,696 deaths (MR 5.5 per 100,000 population).

The National Tuberculosis Control Programme (NTBCP) Activities

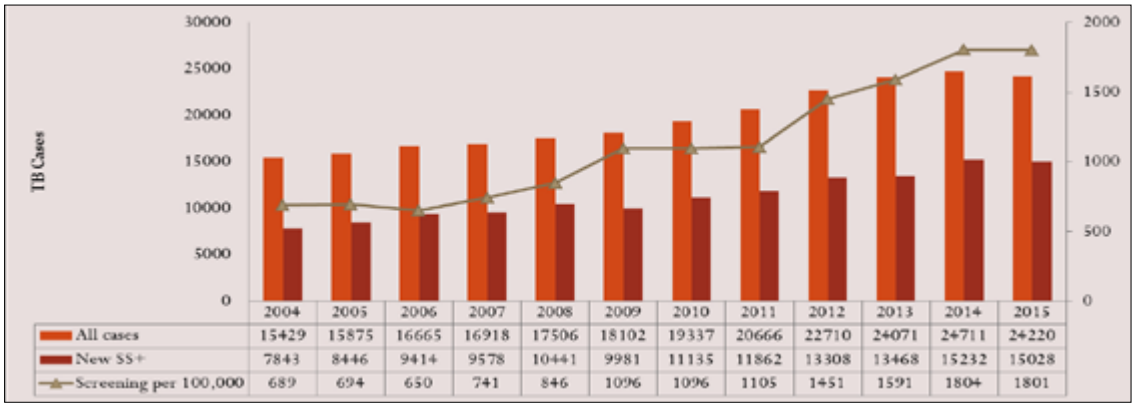
i) BCG Vaccination Program

BCG immunization as part of universal immunization for children was launched in 1961. BCG immunization aim was to prevent severe TB disease during childhood especially TB meningitis and miliary TB. BCG coverage was above 98% since year 2000 onwards with achievement of 98.5% for 2015.

ii) Screening of Symptomatic TB Patients

Screening of TB symptomatic patients is one of the activities for early case detection. All patients with TB symptoms should have their sputum examined for *Mycobacterium Tuberculosis*. In 2015, about 549,288 patients (1,801 per 100,000 population) were screened for symptoms of TB and 15,028 patients had positive Acid Fast Bacilli (AFB) direct smear examination.

FIGURE 5
TB SYMPTOMATIC SCREENING, 2004-2015



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
All cases	15429	15875	16665	16918	17506	18102	19337	20666	22710	24071	24711	24220
New SS+	7843	8446	9414	9578	10441	9981	11135	11862	13308	13468	15232	15028
Screening per 100,000	689	694	650	741	846	1096	1096	1105	1451	1591	1804	1801

Source: Disease Control Division, MoH

iii) Screening of contact

Proportion for contact to be screen was 1:10 for every one index case of TB. Total of 189,337 (78.2%) contacts were examine at first visit to healthcare facilities in 2015 (target 70%).

iv) Screening of High Risk Group

About 275,592 high risk groups were screened by chest radiograph and 573,477 screened by symptomatic screening in 2015. Of these screening, 3,039 (0.3%) were found to have TB.

v) External Quality Assessment (EQA) Program

EQA of sputum microscopy is essential component in tuberculosis program and it is a process to assess peripheral laboratory performance. A total of 113,120 AFB slides were collected from 791 microscopy centres. A total of 164 (0.14%) discrepant slide results were obtained between microscopy centres and controller. From the 164 discrepant slide, major error (high false positive (HFP) and high false negative (HFN)) were found in 52 (0.04%), of which 12 of the slides were HFP and 40 (0.04%) were HFN. Minors errors such as low false positive (LFP), low false negative (LFN) and quantification errors (QE) were 112 (0.10%). State of Johor had shown the highest for both false negative and false positive result.

Conclusion

Malaysia is committed with WHO End TB Strategy to end the global TB epidemic by 2035. Ending the TB epidemic can be translated as by 90% reduction in TB incidence compared with 2015 level, 95% reduction in TB deaths compared with 2015 level and elimination of catastrophic costs that TB-affected families face. To strengthen this battle against TB, the National Strategic Plans (NSP) to Control TB (2016 to 2020) is developed in line with the Regional Framework for Action on Implementation of the End TB Strategy in the Western Pacific (2016–2020). The NSP shall be the national guiding principles in control of TB towards achieving The End TB Strategy goals.

Leprosy Control Program Report (2011 – 2015)

Malaysia Leprosy Control Program officially was started in 1969. In the early 1990s, the World Health Organization (WHO) has set a target of eliminating leprosy as a public health problem by the year 2000. Malaysia has achieved status of leprosy elimination as stated by WHO in 1994 in which our prevalence rate of leprosy was reduced to less than 1 case per 10,000 population. Early detection of untreated cases followed by prompt/complete treatment and good surveillance system of patient and their contacts remain the important key to maintain the elimination status and to further reduce burden of leprosy in Malaysia. Table 11 showed the relevant data on leprosy for the period 2009 to 2015.

TABLE 11
THE RELEVANT DATA ON LEPROSY FOR PERIOD, 2009 – 2015

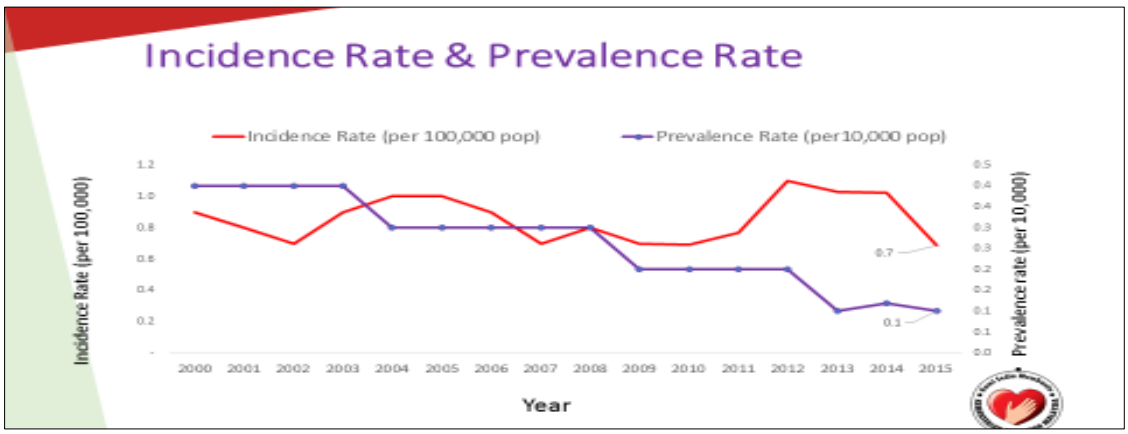
Trend of Leprosy (2009 – 2015)

Year	2009	2010	2011	2012	2013	2014	2015
Total Cases in Rx	690	566	219	496	353	342	341 (0.1 per 10,000)
New Registered Cases	187	194	216	317	306	308	210 (0.7 per 100,000)
Children (%)	12 (6.4%)	15 (7.7%)	15 (7%)	25 (7.9%)	26 (8.5%)	22 (7%)	11 (5.2%)
G2D (%)	8 (4.3%)	8 (4%)	8 (3.7%)	9 (3%)	8 (2.6%)	5 (1.6%)	8 (3.8%)

Source: Disease Control Division, MoH

Figure 6 showed the trend of incidence rate and prevalence rate since 2000 till 2015. In 2015, our prevalence rate is 0.1 case/10,000 and incidence rate 0.7/100,000 population.

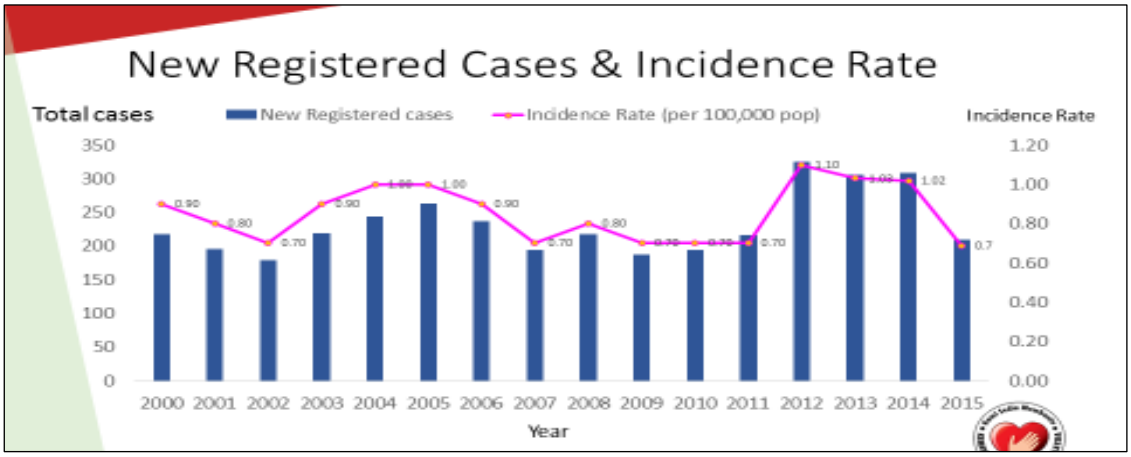
FIGURE 6
TREND OF LEPROSY PREVALENCE & ANNUAL NEW CASE DETECTION RATES



Source: Disease Control Division, MoH

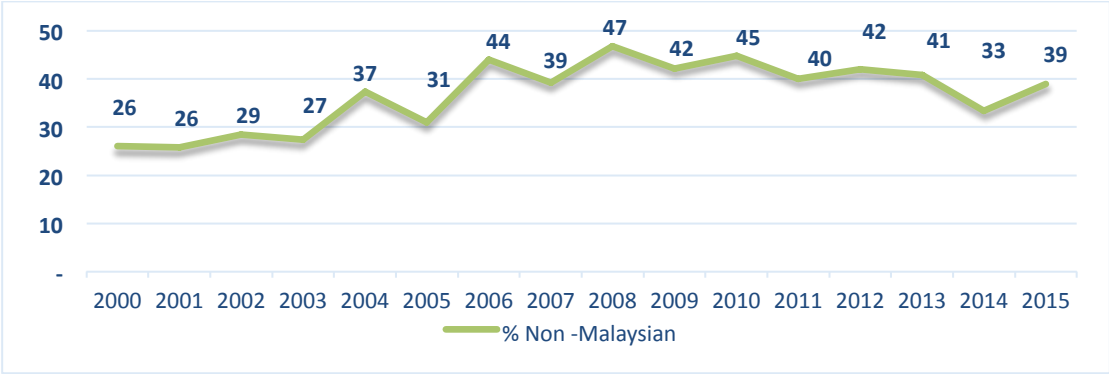
Figure 7 showed new cases of leprosy detected for past 5 years. We will continue to detect and treat all untreated leprosy with prescribed Multi Drug Therapy (MDT) in order to cures the patient and stop its transmission to others.

FIGURE 7
NEW REGISTERED LEPROSY CASES YEARLY & INCIDENCE RATE, 2000 – 2015



Source: Disease Control Division, MoH

FIGURE 8
NEW LEPROSY CASES AMONG NON-MALAYSIAN, 2000-2015



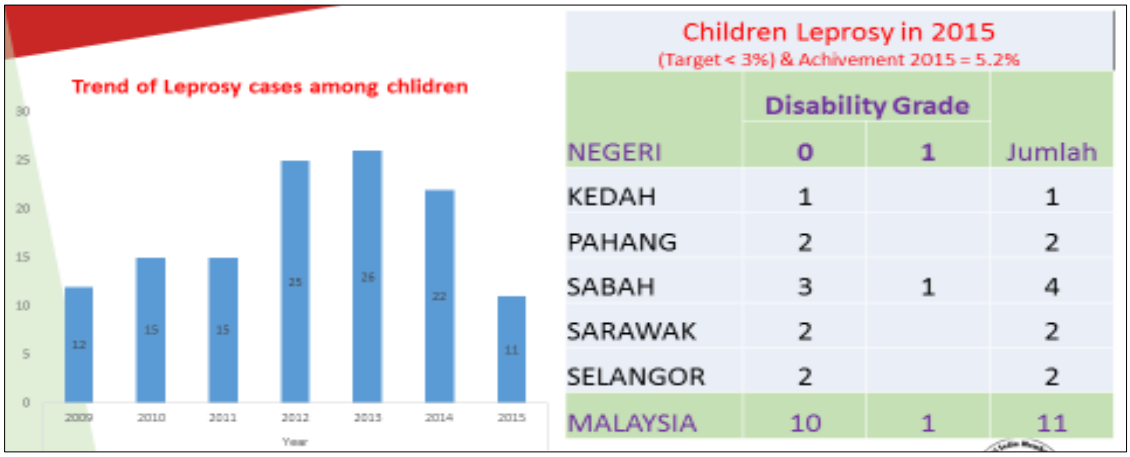
Source: Disease Control Division, MoH

Figure 8 showed that 25.8% to 46.8% of new cases reported from 2001 – 2015 are foreigners. Legal immigrants who enter to our country even though in the beginning were free from this disease as they had been screened for this disease upon entering. But as the diseases incubation periods were long, they may be free from symptoms of leprosy during screening periods and then developed the symptoms later.

Leprosy in children is one of important indicators need to be monitored in Leprosy Control Program since its correlated with community-level factors, including the recent presence of disease and active foci of transmission in the community. Figure 9 showed the trend of Leprosy reported cases among children. In 2015, 11 cases of leprosy among children registered. One of them found to have grade 1 disability.

New cases with grade 2 deformity (G2D) indicate delay in receiving treatment. In 2015, 8 new registered cases of G2D recorded reflex that 0.026 leprosy cases with G2D for every 100,000 Malaysia population. This is slightly below target set target by WHO (less than 0.02 / 10,000 population by 2015).

FIGURE 9
TREND OF LEPROSY AMONG CHILDREN, 2009-2015



Children Leprosy in 2015
(Target < 3%) & Achivement 2015 = 5.2%

	Disability Grade		
NEGERI	0	1	Jumlah
KEDAH	1		1
PAHANG	2		2
SABAH	3	1	4
SARAWAK	2		2
SELANGOR	2		2
MALAYSIA	10	1	11

Source: Disease Control Division, MoH

Vector Borne Disease

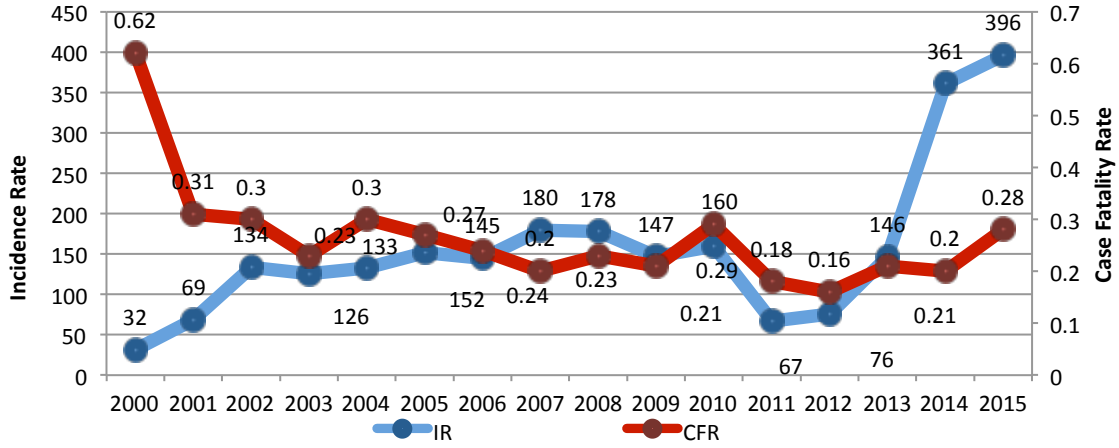
The notifiable Vector Borne Diseases under Prevention and Control of Infectious Diseases (PCID) Act 1988 include Dengue, Malaria, Chikungunya, Plague, Typhus, Yellow Fever and Japanese Encephalitis. For other vector borne diseases such as Malaria, Filariasis, Typhus, Chikungunya and Japanese Encephalitis, they are monitored through web base surveillance system (vekpro-online) and monitored weekly. There is also surveillance for Plague through monitoring of Flea Index and Yellow Fever through monitoring of Ovitrap Index done at the International Points of Entry.

- **Dengue Fever Control**

Dengue fever is one of the significant public health problems in Malaysia. The reported Dengue cases have generally been increasing in the recent years. In 2015, a total of 120,836 cases and 336 deaths were reported. This was equivalent to approximately 396 cases per 100,000 population. States showing the highest Incidence Rate (IR) of Dengue cases (per 100,000 population) were Selangor (1,076), Kedah (481), WP Kuala Lumpur & Putrajaya (471), Johor (443), Perak (382), Pulau Pinang (351), Melaka (277), Negeri Sembilan (223), Pahang (185) Kelantan (166), Terengganu (126), Perlis (105), Sabah (82), Sarawak (73) and only two (2) cases were found in Wilayah Persekutuan Labuan. The case fatality rate (CFR) in 2015 was 0.28%, more or less the same compared to the previous year which recorded 0.20%. As for the results of the premise inspection activity, it showed that the highest *Aedes* index was at the vacant land which was 15.47%, followed by construction site at 11.91% and abandoned projects

(10.67%), cemetery (10.11%), factories (7.74%), recreation areas (6.95%), worship places (6.41%) and rubbish dumping ground (6.38%).

FIGURE 10
INCIDENCE AND CASE FATALITY RATE OF ALL REPORTED DENGUE CASES IN MALAYSIA, 2000 – 2015



Source: Disease Control Division, MoH

- **Malaria Control**

Prior to 1960, Malaysia recorded approximately 300,000 cases of malaria annually. In 1967, Malaysia launched the Malaria Eradication Program and total cases were reduced to around 50,000 cases by 1980. With re-orientation of the program to National Malaria Control Program (NMCP) in 1982, total malaria cases continued to drop to 12,705 cases in 2000 and fell further to 6,650 cases in 2010. With these achievements, Malaysia has been categorized as being in the pre-elimination's phase and the nation is now moving towards eliminating malaria by 2020. The goal is to eliminate malaria in Peninsular Malaysia by 2015 and in East Malaysia by 2017 using strategies as described in the National Strategic Plan for Elimination of Malaria (2011-2020).

Since 2011, Malaysia began to differentiate between human malaria and zoonotic malaria. This is in line with WHO's requirements before recognizing a country as malaria free. Once the differentiation is in place, indigenous human malaria incidence has shown a decreased by 3,922 cases between 2011 and 2015 thus bringing down indigenous human malaria incidence rates from 14.6 to 0.8 per 100,000 population respectively. Within the same period, imported cases have, however, remained fairly constant due to the continuous influx of foreign workers, especially in primary

industries. The number of cases and the case incidence rate for zoonotic malaria has increased in the period of 2011-2015.

- **Lymphatic Filariasis (LF)**

Malaysia had initiated Lymphatic Filariasis Elimination Programme (LFEP) in 2001 with a target to achieve filariasis elimination status by 2013 following the Global Program to Eliminate Lymphatic Filariasis (GPELF) which was launched by WHO in 2000. The objectives of the program were to bring about interruptions of LF transmissions and to alleviate morbidity among those already infected with LF. Target of elimination of filariasis was initially set in 2013, however after an evaluation and revised WHO strategy in 2011, the target of elimination was revised to 2018. Malaysia is currently at 3rd step of elimination which is surveillance of disease. A total of 182 filariasis cases were reported in 2015 showing a decreasing number of cases (3.1%) compared to the previous year (188 cases). Since 2011, there was downward trend of prevalence rate of filariasis from 1.4 in 2011 to 0.6 in 2014. In 2015, out of 182 total cases, 164 cases (90%) were detected among immigrants and 18 cases (10%) were detected among locals. The predominant parasite species were Wuchereria Bancrofti which contributes to 88% and Brugia malayi (subperiodic) 12%. In 2015 total of 144,278 blood samples were taken and examined to detect microfilaremia with 182 positive slides (0.13%) compared to 188 positive slides (0.11%) from 168,669 blood samples taken in 2014.

- **Lymphatic Filariasis Elimination Program (LFEP)**

In Malaysia, there are 116 endemic Implementation Unit (IU) or Red IU with microfilaria positivity rate of 1% or greater involving 8 states i.e Kedah, Perak, Johor, Pahang, Terengganu, Kelantan, Sabah and Sarawak. This involved total population of 1,117,733 people in endemic areas after mapping done in 2002. During the WHO Expert Group Meeting in 2010, Sabah and Sarawak were required to continue 2 more cycles of MDA in 2011 and 2012 while Peninsular Malaysia proceed with Transmission Assessment Survey (TAS).

- **Japanese Encephalitis (JE) Control**

In 2015, there were 36 reported JE cases in Malaysia, a decrease of 11 cases (23.4%) as compared to 47 cases in 2014. Sarawak contributed the highest number with 20 cases (55.6%), followed by Sabah with 6 cases (16.7%); Perak 4 cases (11.1%), Johor 2 cases (5.6%) and 1 case respectively reported in Terengganu, Kedah, Pulau Pinang and Melaka. Two deaths recorded last year each case respectively reported in Perak and Terengganu. The national IR decreased from 0.16 per 100,000 population the

previous year to 0.12 in 2015. Most of the JE cases reported were among locals (94.4%) and 5.6% were among the foreigners.

- **Chikungunya Control**

There was a slight increase Chikungunya cases in 2012 with 93 cases and subsequently there was a downward trend of Chikungunya cases from 2013 until 2015. In 2012, there was two reported outbreaks occurred in Selangor (1 episode) and Perak (1 episode). Subsequently there was no outbreak of Chikungunya reported. All cases reported in 2015 were single case in Perak.

- **Typhus Control**

In 2015, a total of 3 Typhus cases were reported, an increase of 1 case (50%) compared to the previous year (2 cases). The incidence rate of Typhus was 0.03 case per 100,000 population. The 3 typhus cases were reported from Sabah, Sarawak and Negeri Sembilan (1 case each). Two cases were scrub typhus and 1 case of mixed typhus.

International Health

- **International Health Regulations (IHR) 2005 Implementation**

Malaysia has achieved the core capacities requirements based on IHR 2005 before the end of five years set by WHO started from the date it was first entered into force on 15 June 2007. Nevertheless, Malaysia continues to strengthen the core capacities requirements specified under Annex 1, IHR 2005.

- **Malaysia Strategic Workplan For Emerging Diseases (MYSED)**

As part of Malaysia's continuing commitment towards meeting the IHR (2005) core capacity requirements, the Malaysia Strategic Work plan for Emerging Diseases (2012-2015), abbreviated as "MYSED Work plan 2012-2015", was formulated to ensure regional and global health security.

- **Travel Advisory**

The International Health Sector provides technical advice to the public on Travel Health enquiries through the MyHEALTH Portal.

- **Monitoring of International Points of Entry (PoE)**

The International Health Sector monitors the public health activities that are routinely conducted at the international PoE in Malaysia. The activities include Communicable Diseases Control, Surveillance, Assessment and Response, Public Health Emergency Preparedness, Monitoring the activities related to Importation and Exportation of

Human Remains, Human Tissues, Pathogenic Organisms and Substances, Vector Control, Food Safety and Quality Control, Environmental Sanitation, Safe water supply, Enforcement of inspectorate and legislations, Non-communicable Disease Control, Health Promotion, Occupational Safety and Health, and others.

- **Screening of Travellers Arriving From Countries With Risk of Yellow Fever Transmission**

An average of 29,663 travellers was screened annually at the International Entry Points. From those screened, proportions of travellers with valid yellow fever certificates were high over the period of five years (2011-2015), which had reached more than 99%. The number of those quarantined had decreased from 175 (0.56%) in 2011 to 84 travellers (0.3%) in 2015 with a 52% reduction. Therefore, the targeted Key Performance Indicator (KPI) for percentage of visitors from yellow fever risk country being quarantined of less than 5% had been met. The number of those subjected to health surveillance had also decreased from 42 (0.1%) in 2011 to 4 (0.01%) in 2015.

The monitoring of Yellow Fever vaccination centres especially evaluation of the cold chain management of each centre has been conducted annually. In 2011, both two centres which had applied to be recognized as Yellow Fever vaccination centre had received approval (100%). Then, in the following year, in 2012, only two centres (50%) were appointed as yellow fever vaccination centre. Meanwhile in 2013, from 19 applications received, only 5 (26%) were appointed as yellow fever vaccination centre. In 2014 only 6 of 11 applications (55%) were appointed and in 2015 from 9 application only 4 (44%) were appointed as yellow fever vaccination center. Until 9 March 2016 a total of 31 yellow fever vaccination centres had been appointed as yellow fever vaccination centres throughout the country. The decreasing percentage of approval for yellow fever centre could be contributed to the more stringent inspection.

- **Importation And Exportation of Human Remains, Human Tissues, Pathogenic Organisms And Substances**

The number of human beings that were exported and imported had been increasing annually from 2011 to 2015 from 1997 in 2011 to 3,076 bodies in 2015, which was an increase of 54%. Similarly, the import and export of human tissues and any part thereof were also increased by 147% from 205 in 2011 to 506 in 2012 and then continued to increase by 72.3% to 872 in 2013. In 2014, there was a slight reduction of import and export of human tissues and any part thereof by 6.7%. The decreasing trend continued until 2015 by 8.4% to 745. The import and export of pathogenic organism and substance remained quite stable from 101 in 2011 to 155 in 2015.

The usage of BUSINESS Licensing Electronic Support System (BLESS) for the processing of the permit for the importation and exportation human remains were low for 2013 and 2014 (0%) but then the usage of BLESS raised to 8% in 2015. On the contrary, the usage of BLESS for processing the permit for the import and export of human tissues and any part of thereof was 74.5% in 2013 and a year later the usage had increased to 99.5%. However, there was a 1.1% decrease in the usage of BLESS for processing the permit for the import and export of human tissues and any part of thereof in 2015. A rather similar pattern was seen in the processing of the permit for import and export of pathogenic organism and substance and any part of thereof using the BLESS system in 2013 to 2015 which ranged from 80.5% to 98.1%.

- **Pilgrim's Health**

Throughout the five year period among hajj pilgrims from 2011 until 2015, chest diseases, cardiovascular diseases and metabolic disorders were the first, second and third most common causes of hospital admission. These may be resulted from the weather and stress accompanied by inadequate rest faced by the hajj pilgrims as they perform the activities for hajj. The percentage of chest diseases among the hajj pilgrims, however, showed a decreasing trend from 56.7% in 2013 to 40.7% in 2015 with 16% reduction of cases. Surprisingly, psychiatric disorders were one of the most common cause of hospital admission among the hajj pilgrims which showed an increasing trend from 5.4% in 2012 to 8.2% in 2015. This situation could be avoided if the hajj pilgrims were scrutinizedly closely during the medical screening. These disorders might prevent them from performing their hajj.

- **Foreign Workers' Medical Examination**

The total number of foreign workers screened ranged from 935,043 to 1,361,229 over a period of five years (2011-2015). From this screening, an average of 2.9% of foreign workers were deemed as "unsuitable" to work in Malaysia despite having pre-arrival screening in their own countries. The causes of this classification of "unsuitable" were mainly due to communicable diseases such as tuberculosis, Hepatitis B, sexually transmitted diseases, HIV, and non-communicable diseases (hypertension, diabetes, epilepsy, tumors and psychiatric disorders). Among the workers, communicable diseases were the predominant causes of this unsuitability status. Over a period of five years (2011-2015), the trend for communicable diseases was increasing before it started to decrease in 2013 onwards . This rate had decreased tremendously from 36,745 workers in 2012 with communicable diseases to 15,360 workers in 2015, which was a 58.2% decrease. On the contrary, for non-communicable diseases, there were

not much change seen in the rates except in 2015, when the rate had decreased 33.1% compared to the year 2014. There were also a number of workers who failed due to pregnancy and illegal drug use.

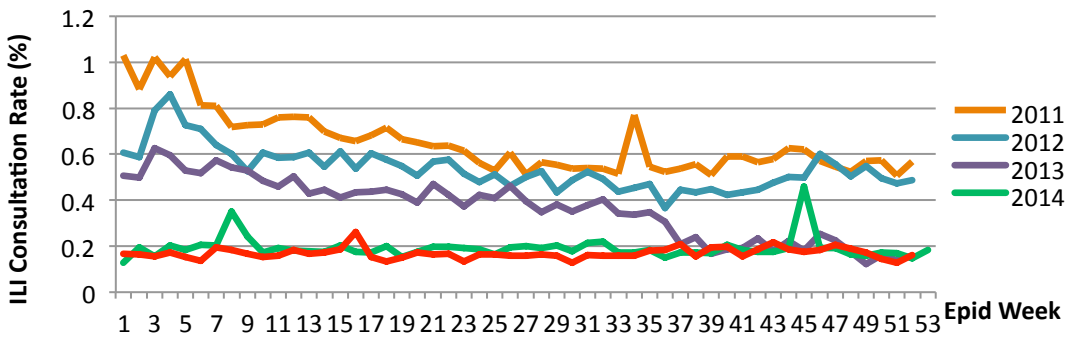
Disease Surveillance

- **Influenza Surveillance**

In the last few years, Disease Surveillance Sector has coordinated the development of the Malaysia Influenza Surveillance Protocol (MISP) document. The development of this document, following revision of the previous document (Malaysia Influenza Surveillance System 2004) was guided by the recent publication of the WHO Global Epidemiological Surveillance Standards for Influenza in 2013, which describes revised global standards for a minimal basic respiratory disease surveillance system for the monitoring of influenza. The implementation of this improvised influenza surveillance in Malaysia began on Epid Week 1/2016.

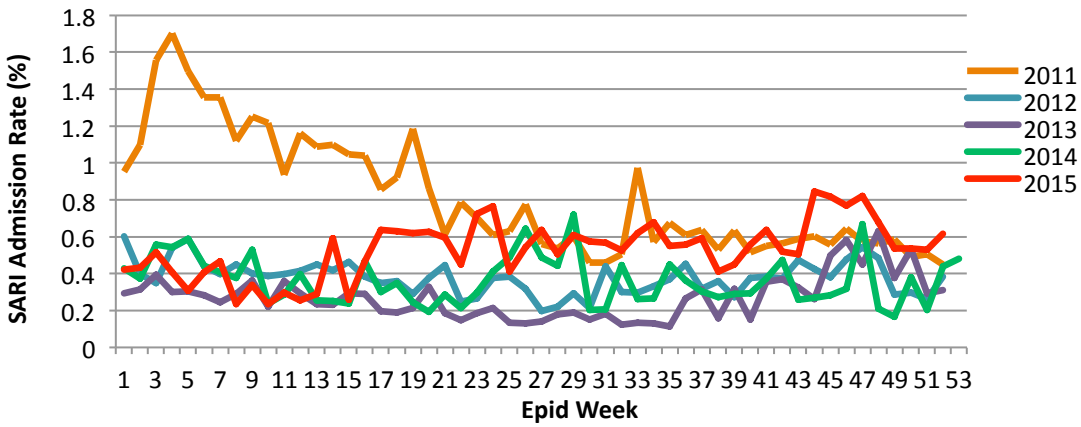
In comparison to temperate regions, Malaysia being a tropical country does not show seasonal variations in the occurrence of influenza. As such, patterns of influenza activity in Malaysia for year 2011 to 2015 are summarized in Figure 11, Figure 12 and Figure 13.

FIGURE 11
INFLUENZA- LIKE ILNESS (ILI) CONSULTATION RATE IN MALAYSIA, 2011 - 2015



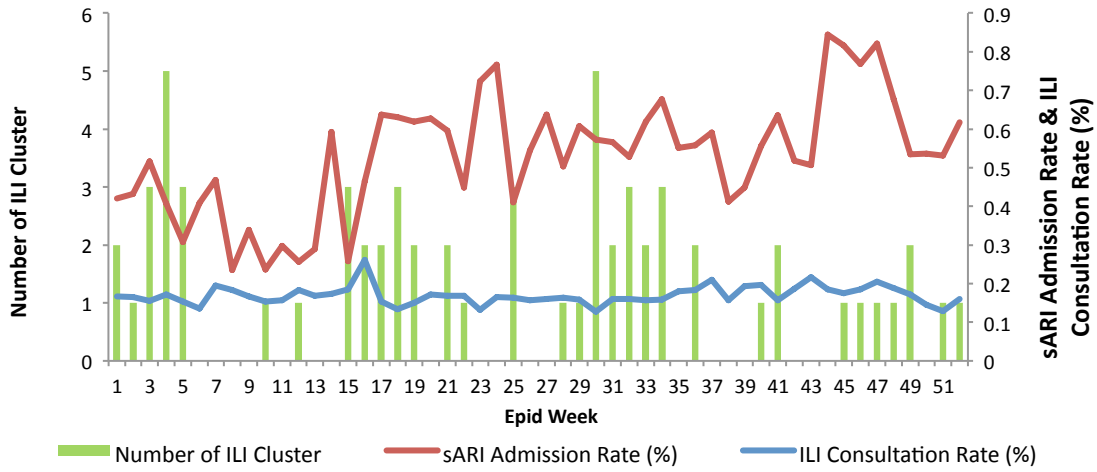
Source: Malaysia Influenza Surveillance System (MISS), Disease Control Division, MoH

FIGURE 12
SARI ADMISSION RATE IN MALAYSIA, 2011 - 2015



Source: Malaysia Influenza Surveillance System (MISS), Disease Control Division, MoH

FIGURE 13
INFLUENZA ACTIVITY IN MALAYSIA BY EPID WEEK, 2015



Source: Malaysia Influenza Surveillance System (MISS), Disease Control Division, MoH

Throughout the period of 2011 to 2015 a total of 374 respiratory associated outbreaks/ clusters were reported nationwide. Among these numbers, the highest clusters (117 clusters) were reported in 2013 and the lowest clusters (28 clusters) were reported in 2011. In 2012, 2014 and 2015, the number of influenza-like illness (ILI) clusters reported was 99, 66 and 64 clusters, respectively.

For 2015, a total of 5,261 clinical specimens from ILI cases were received by the National Public Health Laboratory (NPHL) Sungai Buloh. Cumulatively, 716 (13.6%) positive isolates were retrieved. Influenza A virus appears to be the most dominantly isolated virus with 275 (38.4%) positive isolates. Other isolated viruses were as follows; 183 (25.6%) isolates for respiratory syncytial virus (RSV), 124 (17.3%) isolates for influenza B, 85 (11.9%) isolates for adenovirus, 17(2.4%) isolates for para-influenza, 11 (1.5%) isolates for enterovirus and 21 (2.9%) isolates for others (i.e. herpes simplex and coxsackie B).

Throughout the period of 2013 to 2015, RSV appears to be the most dominantly isolated virus three years in a row (i.e. 2013 to 2015) contributing to 786 (55.6%), 1,854 (74.8%) and 1,846 (65.5%) of the total number of the positive isolates. The remaining isolates retrieved comprises of adenovirus, para-influenza, influenza A and the least influenza B.

- **Event Based Surveillance (EBS)**

Throughout the period of 2011 to 2015, only two (2) syndromic notifications were received, both the notifications were reported in 2013. The notifications received were for an Acute Respiratory Syndrome and the other on Acute Neurological Syndrome. Both notifications were reported from Melaka. No syndromic notification was received in 2011, 2012, 2014 and 2015. Rumour surveillance was systematically done since 2013. Cumulatively during the period of 2013 to 2015, 2,902 news was recorded by rumour surveillance system. Among these news, 35 (1.2%) news coded as red, 2,600 (89.6%) news coded as yellow and the remaining 267 (9.2%) news coded as green. Table 12 below shows the number of news with percentage screened according to classification.

TABLE 12
THE NUMBER OF NEWS SCREENED ACCORDING TO COLOUR CODING, 2013 – 2015

Year	Colour Coding			Total
	Red	Yellow	Green	
2013	32 (3.2%)	932 (92.0%)	49 (4.8%)	1,013
2014	1 (0.1%)	782 (85.7%)	129 (14.2%)	912
2015	2 (0.2%)	886 (90.7%)	89 (9.1%)	977
Total	**35 (1.2%)**	**2,600 (89.6%)**	**267 (9.2%)**	**2,902**

Source: Disease Control Division, MoH

During Epid Week 19 of 2015, code red news was detected. It was coded red due to the administrative nature of the news. The news reported a housewife from the town of Spring Hill, Port Dickson, Negeri Sembilan died of influenza A (H1N1) virus in Port Dickson Hospital. The news was promptly forwarded to the Zoonosis Sector for verification and confirmation.

In 2014, there were 175 conjunctivitis outbreaks notified with a total of 6,515 cases from 89,441 exposed. The average attack rate was 13.5%. The highest number of outbreak was recorded during Epid Week 33 of 2014, i.e. 18 outbreaks. The outbreaks mainly occurred at secondary schools with red eyes as the commonest symptoms reported and majority of the cases were treated as an outpatient. There were 144 positive Coxsackie A24 isolates recovered from a total of 652 samples received by the NPHL Sungai Buloh.

MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-CoV)

Notification was made compulsory for any suspected case of MERS infection to the National Crisis Preparedness and Response Centre (CPRC), MoH. Since then till the end of year 2015, National CPRC received a cumulative of 1,205 notifications of Patient Under Investigation (PUI) for MERS, with the following distribution:

- 2012: Nil
- 2013: 125 notifications;
- 2014: 354 notifications;
- 2015: 726 notifications.

On 14 April 2014, the first case of MERS was confirmed in Malaysia involving a man in his mid-fifties, who developed pneumonia with respiratory distress, after returning from a pilgrimage in the Kingdom of Saudi Arabia. The case succumbed to his illness three days after admission at a local hospital. Contact tracing was conducted and none of the contacts were found to be positive for MERS.

- **Ebola Virus Disease (EVD)**

Ebola is listed as one of the mandatory notifiable diseases in Malaysia under the Prevention and Control of Infectious Disease Act 1988 (Act 342). Since 2014 till the end of year 2015, a cumulative of fourteen (14) notifications of suspected EVD cases, better known as a person under investigation for EVD (PUI-EVD) were received nationwide, but none was confirmed to be positive and almost all of the cases were confirmed positive for malaria infection instead. During these periods, 3 facilities

nationwide are capable to perform the confirmatory tests for EVD. These facilities comprises of the Institute for Medical Research (IMR), National Public Health Laboratory (NPHL) Sungai Buloh and Public Health Laboratory (PHL) Kota Kinabalu.

Community Based Intervention Program For Non-Communicable Disease Risk Factors (KOSPEN)

KOSPEN, the acronym for *Komuniti Sihat Perkasa Negara* is a community based intervention program initiated by the MoH to curb the problem of Non Communicable Diseases (NCD) which trend is still increasing and alarming in spite of vigorous efforts that have been carried out to create awareness among the population.

The basis of KOSPEN is community and individual empowerment towards healthy lifestyles through the establishment of health volunteers that act as health agent of change, aiming at reducing the risk factors of NCD by instilling knowledge and awareness among local community, facilitating and enhancing healthy policy adoption and environmental changes that enables healthy practices, conducting risk factor screenings and referrals of risk cases to health clinics and carrying out community based specific risk factor intervention programs. Main scope of KOSPEN is healthy diet, active life style, body weight management, no smoking and screening for NCD risk factors.

KOSPEN is implemented on large scale nationwide, using the blue ocean strategy, in which MoH collaborates with agencies that have established community networks and programs at grass root level. As for now, MoH is working together with Community Development Division (KEMAS) of the Ministry of Rural and Regional Development to capture rural areas (KEMAS Villages) and the Neighbourhood Watch Program *(Rukun Tetangga*) of the Department of National Unity and Integration for the urban and sub urban areas *(Kawasan Rukun Tetangga or KRT*).

From its beginning in October 2010 with 100 KOSPEN localities involving three states namely Johor, Malacca and Negeri Sembilan, by end of 2015, KOSPEN has now expanded to 4,362 KEMAS villages and 479 KRTs. A total of 21,833 volunteers have been trained and 190,667 adults (18 years and above) have been screened for NCD risk factors. Details of achievements are as follows:

TABLE 13
NUMBER OF VOLUNTEERS TRAINED BY CATEGORY OF KOSPEN, 2015

Category	No of Volunteers Trained
KOSPEN KEMAS	20,329
KOSPEN KRT	1,504
TOTAL	**21,833**

Source: Disease Control Division, MoH

TABLE 14
ENVIRONMENTAL/SOCIAL CHANGES ACHIEVEMENTS OF KOSPEN, 2015

Targets	Percentage of 2013-14 localites achieved targets (%)	Percentage of 2015 localites achieved targets (%)
50% of official functions served sugar separate from hot drinks	60	32
50% of official functions served fruits in every menu	67	44
50% of official functions served vegetables in main menu	65	43
Each locality must have at least one (1) 10,000 walking track	87	58
Each locality must have at least one (1) weekly held physical activities	43	29
Each locality must have one self-BMI assessment corner	61	34
All no smoking gazetted areas under PPKHT 2004 has No Smoking signage	78	59

Source: Disease Control Division, MoH

Diabetes and Cardiovascular Diseases

- **Public Health Steering Committee for NCD (*JK Pemandu Kesihatan Awam Bagi Penyakit NCD,* JKPKA – NCD)**

The Public Health Steering Committee for Non-Communicable Disease was formed on January 16 2015. This is a special committee to coordinate activities related to NCDs that are cross - cutting between divisions under the Public Health Program, chaired by Deputy Director General of Health (Public Health). Scopes of NCDs that involved are: (1) Four main NCDs are cardiovascular diseases, diabetes, cancer, chronic respiratory diseases; (2) Four main NCD risk factors are unhealthy diet, physical inactivity, tobacco use and excessive use of alcohol; and (3) Two intermediate risk factors: obesity and

high blood pressure. This committee meets monthly to discuss the progress of activities and will be the decision making committee for issues related to NCD.

Activities With International Bodies

There were two major activities that NCD Section involved directly with the international bodies. These two activities have been identified can bring great benefits to the local health programs are:

i) The National Workshop on Strategic Health Communication Planning: Applying WHO's Communication for Behavioural-Impact (COMBI) Planning Methodology for Behavioural Results in Health Special Focus: Non-Communicable Diseases (NCD)

This was a collaboration program between WHO Geneva, Global Health Communication Center (GHCC) Indian University-Purdue University (IUPUI) Indianapolis and MoH, Malaysia.

ii) Bi-Regional Workshop to Guide Member States in Restricting the Marketing of Foods and Non-Alcoholic Beverages to Children

Recognizing the need to protect children from unhealthy diet, MoH and WHO regional offices for South-East Asia and the Western Pacific convened the above named bi-regional workshop. Childhood obesity has been recognized as one of the 21st century's greatest public health challenges. In order to reduce future risk from NCDs, children should maintain a healthy weight and consume foods that are low in saturated fat, trans-fatty acids, sugar and salt.

- **Salt Reduction Strategy To Prevent and Control NCD for Malaysia, 2015 -2020**

The salt reduction initiatives for Malaysia has been approved in October 2015 and now documented as the "Salt Reduction Strategy to Prevent and Control NCD for Malaysia, 2015-2020". The document will help in the monitoring and evaluation of the strategy proposed. Malaysia adopted all the strategies as recommended by WHO, classified into three main strategies namely Monitoring (M), Awareness (A) and Product (P).

- **Leadership and Advocacy Workshop for the Prevention and Control of NCDs (LeAd-NCD-MAL)**

The Workshop on Leadership and Advocacy for the Prevention and Control of Non-Communicable Diseases in Malaysia (LeAd-NCD-MAL) started in December 2014, co-organised by the Institute for Public Health and the Disease Control Division, MoH,

Malaysia. The main objectives of this workshop were: (1) Further strengthen the knowledge base of the implementation of NCD prevention and control in Malaysia; (2) Further develop potential leaders and advocators in NCD; (3) To develop innovative and [critical thinkers] in NCD; (4) To develop a network of "champions" in NCD; and (5) Exchange knowledge and experience with current and past participants and facilitators.

- **Implementation of The Healthy Cafeteria At MoH Facilities**

The specification technical document to support the implementation of the health cafeteria concept have been finalised by end of 2014. The specifications have been initially implemented as a pilot study in 10 MoH hospital cafeterias and has been implemented nationwide an administrative circular of the Chief Secretary General of MoH in 2016. By the end of December 2015, 113 MoH facilities (58%) were recognized as healthy cafeterias. The objectives of the documents specification is to make sure that the services of cafeteria in all the premises of MoH adhere to the requirement of a healthy cafeteria and to be mandatory certified as healthy within 6 months after signing the agreement with government.

- **National Diabetes Registry (NDR)**

The NDR was developed in 2010 and has collected basic socio-demographic information, clinical and outcome data of patients with diabetes managed in MoH health clinics and hospitals in Malaysia. In addition, it has allowed greater efficiency to conduct the annual clinical audit. The registry is a useful tool to better understand patterns of disease and clinical management of patients managed within the MoH in order to reduce complications and improve patient management and future outcomes. The NDR contains information on patients with diabetes managed at participating health clinics and consists of two components, i.e patient registry and clinical audit. Until the end of 2015, there were a total of 1,037,550 patients enrolled in the registry, in which 99.3% were diagnosed with T2DM, 0.63% T1DM and 0.07% other forms of DM. The largest number of patients were registered from Selangor 163,378 (15.7%), followed by Johor 152,156 (14.7%) and Perak 107,029 (10.3%). The mean age of T2DM patients registered in the NDR was 61 years (95% CI: 61.0-61.1). Men represented 42.3% of the patients registered and women representing 57.7% of patients. Distribution by ethnicity were Malay 58.4%, Chinese 20.7%, Indian 14.3%, other Malaysian 6.5% and foreigner/unknown 0.1%.

- **Quality of Care of Diabetes at Primary Health Centres, Malaysia 2011 – 2015**

Diabetes clinical audit were carried out annually at all health clinics MoH that provide diabetes management services. The main objective of the audit is to assess the adequacy of diabetes management at MoH health clinics and to determine the quality of care of diabetes patients using a standard quality assurance indicator.

Table 15 showed that the performances of the health clinics were generally satisfactory with regards to compliance with the model of good care (MOGC) diabetes except for fundus and ECG examinations, which were only 47.2% and 57.9% respectively.

TABLE 15
COVERAGE OF SCREENING EXAMINATION BASED ON THE MODEL OF GOOD CARE (MOGC), 2011-2015

Model of Good Care	Target	2011	2012	2013	2014	2015
No. of Patients Audited		**73,434**	**129,685**	**123,582**	**115,204**	**153,562**
Blood pressure examination	100.0%	93.5%	93.4%	92.6%	93.3%	90.4%
Weight examination	100.0%	91.8%	91.4%	90.8%	91.8%	88.4%
BMI calculation	100.0%	81.8%	83.3%	83.7%	87.0%	83.6%
HbA1c examination	100.0%	70.3%	76.6%	77.3%	79.4%	79.4%
Foot examination	100.0%	69.5%	72.5%	73.6%	77.0%	73.1%
Fundus examination	100.0%	37.8%	43.1%	48.4%	53.1%	47.2%
ECG examination	100.0%	49.1%	53.0%	56.5%	61.7%	57.9%
Serum creatinine examination	100.0%	72.2%	76.9%	77.9%	80.0%	77.3%
Serum cholesterol examination	100.0%	73.6%	77.7%	78.5%	80.7%	77.9%

Source: Disease Control Division, MoH

Mean HbA1c was fairly constant over 5 years, from 8.2% in 2011 to 8.1% in 2015 with most audited patients recording HbA1c between 8.0% to 10.0%. In 2015, 25.7% of patients achieved the Malaysian glycaemic target of HbA1c <6.5% compared to 22.3% in 2011. Assessed against the international treatment target of HbA1c <7.0%, 38.0% of patients in 2015 would be considered to have achieved glycaemic control.

Cancer

The National Cancer Control Program is carried out by all relevant disciplines and stakeholders. The strategies and activities are mainly based on objectives, targets and key priorities spell out in the National Cancer Control Blueprint (NCCB) 2008-2015 which was approved and endorsed by the Cabinet in 2008.

The main objective of the National Cancer Control Blueprint is to reduce the negative impact of cancer by decreasing the disease morbidity, mortality and to improve quality of life of cancer patients and their families.

For the National Cancer Control Program as a whole, the Cancer Unit works very closely with other counterparts at the Family Health Development Division for Breast and Cervical Cancer Control Program including the National HPV Immunization Program, Oral Health Division for the Oral Cancer Control Program, Health Education Division for the health promotion aspect, the Hospital Development Program, National Cancer Institute and Institute for Medical Research for the clinical sites of cancer control. The Unit also works hand in hand with all the relevant head of services related to cancer control at the MoH, namely the Head for Oncology and Radiotherapy Services, Radiology Services, Nuclear Medicine Services, Palliative Care Services, Rehabilitation and Traditional and Complementary Medicine. In 2015 the NCCB 2008-2015 were revised and the new National Strategic Plan for Cancer Control Program (NSPCCP 2016-2020) was being finalised.

- **The National Cancer Registry (NCR)**

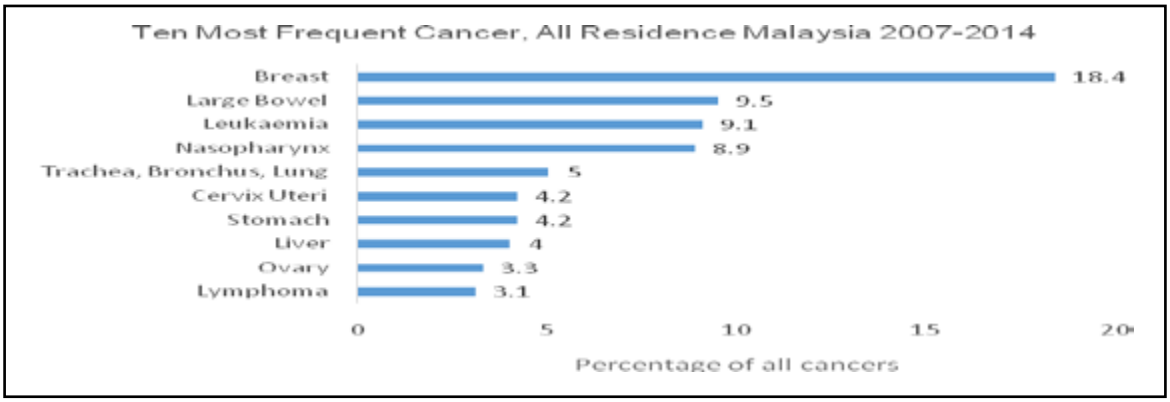
The NCR started collecting and managing cancer data from January 2007. All State Cancer Registries are required to send cancer data collected at state level to the MoH to be registered at the NCR database. In February 2011, the NCR published the 2007 cancer report. This report was the first report of cancer data for the whole country i.e not only pertaining to Peninsular Malaysia but also Sabah and Sarawak. The collection of cancer data is a continuous process, hence, there are cases which are yet to be notified and registered at the NCR at the time of analysis. The total new cases diagnosed in 2007 and recorded by the NCR were 18,219 cases. It comprises of 44.6% males and 55.4% females. In 2007, the three leading cancers among the general population in Malaysia were breast (18.1%), colorectal (12.3%) and lung (10.2%). In males, the three leading cancers were lung (18.3%) followed by colorectal (14.6%) and nasopharynx (8.4%) while in females, the three leading cancers were breast (32.1%) followed by colorectal (10.0%) and cervix (8.4%).

In December 2013, the NCR analysed all new cancer cases diagnosed from 1 January 2007 until 31 December 2011 and recorded by the NCR until December 2013. The findings from this analysis was considered as preliminary but stood correct at the time of analysis. All required steps, measures and consistency check were performed prior to the analysis. There were 100,565 new cancers diagnosed from 1 January 2007 until 31 December 2011, comprises of 45% males and 55% females. The preliminary findings noted that three leading cancer among the general population were breast (17.9%) followed by colorectal (13.3%) and lung (10.1%). The finding also reported that the three leading cancers among males were colorectal (16.5%), lung (15.7%) and nasopharynx (8.2%), while in females, the three leading cancers were breast (32.2%) followed by colorectal (10.7%) and cervix (7.7%). The three leading cancers for males in this preliminary finding of 2007-2011 differ from the 2007 report where the most common cancer among males was colorectal cancer and not lung. These preliminary findings differ slightly from the actual 2007-2011 report which will be published by the National Cancer Institute (IKN) in 2016. This is because new notifications were received by the NCR at IKN after 31 December 2013.

In 2014, the decision was made that starting in 2015, IKN will be the new secretariat for the NCR. The planning for infrastructure and human resources for NCR at the NCI had been planned since the initial stage of planning and development of the institute. It is also outlined in the National Cancer Control Blueprint 2008-2015 that the NCR will be placed at the NCI.

FIGURE 14

TEN MOST COMMON CANCERS IN THE NCR, MALAYSIA, 2007-2014



Source: Disease Control Division, MoH

- **Colorectal Cancer Screening**

Colorectal cancer has become the most common cancer among males and second among females. In Malaysia, most of colorectal cancer was detected late at diagnosis. In view of this, in 2012, a colorectal screening project were carried out in 6 states, i.e Negeri Sembilan, Pahang, Perak, Terengganu, Penang and Federal Territory of Kuala Lumpur & Putrajaya. The project carried out in the 6 states was an opportunistic screening targeted for population age 50 to 75 years without any sign and symptoms of the cancer using qualitative immunological Fecal Occult Blood Test (iFOBT). A total of 3,100 people were screened from the period of 1 January 2012 to 31 December 2012. The positive rate for the test was 4.3% and 63.9% of the positive test cases were actually underwent colonoscopy. Of those who underwent colonoscopy, 7.1% were detected to have colonic polyps, a risk for developing colorectal cancer and 4.7% were detected to have colorectal cancer.

The detection rate for colorectal cancer among all individuals who had iFOBT done were 0.13% which is comparable to the result of screening program in Japan in 2006 i.e 0.15%.

In 2015, the number of clinics providing services has increased to 409 (66% increase compared to 2014). A total of 16,743 individuals were screened, increased 45% compared to 2014. All positive iFOBT cases (1,508) were referred to for colonoscopy. However, 12.7% refused referral and only 50.4% of those who were referred actually underwent colonoscopy. Of those who underwent colonoscopy, 4.98% were detected to have colonic polyps, a risk for developing colorectal cancer and 4.07% were detected to have colorectal cancer. The detection rate for colorectal cancer among all individuals who had iFOBT done was 0.16%. This finding was comparable to the result of screening programme in Japan in 2006 i.e 0.15%.

Currently, the screening is using the existing resources of scopes at the hospitals. However, with strong collaboration and commitment from Public Health and the Medical Development Division, the colorectal cancer screening will be strengthened expanded in 2016 onwards.

FCTC Secretariat and Tobacco Control

MoH is responsible for national coordination, policy development as well as monitoring of the tobacco prevalence and control measures in Malaysia. MoH is also

the secretariat for Malaysia's involvement in the World Health Organisation Framework Convention on Tobacco Control.

- **National Strategic Plan for Tobacco Control 2015 – 2020**

Malaysia's National Strategic Plan for Tobacco Control 2015-2020 was developed in congruence with the WHO Framework Convention on Tobacco Control (FCTC), WHO Western Pacific Regional Action Plan for Tobacco Control and the WHO Global NCD Targets for 2025. In addition to this, a long term target was also set for the Endgame for Tobacco, which is to achieve national smoking prevalence below 5% by 2045.

- **Global Non Communicable Disease (NCD) targets and The End Game by 2025**

Global NCD targets by 2025 has been set to achieve nine indicators include indicators related to smoking that is decreasing of smoking about 30% by 2025 (Table 16). To achieve, MoH should formulate two main programs that is prevention activities intend to prevent non-smoking group to trap in this menace and also revival activities and enforcement to ensure at least 130,000 smokers quit annually.

TABLE 16
PROJECTION OF SMOKING CESSATION PREVALENCE OF SMOKERS IN MALAYSIA, 2011-2025

	YEAR	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Million	* TOTAL POPULATION (Age ≥ 15)	20.8	21.6	22.0	22.4	22.8	23.2	23.5	23.9	24.3	24.7	25.0	25.3	25.7	26.0	26.3
	NO. OF SMOKERS	4.70	4.86	4.83	4.78	4.74	4.69	4.61	4.55	4.49	4.42	4.33	4.23	4.15	4.05	3.94
	NO. OF QUITTERS		0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15
PREVALENCE (%)		23.1	22.5	21.9	21.4	20.8	20.2	19.6	19.0	18.5	17.9	17.3	16.7	16.1	15.6	15.0

Source: Disease Control Division, MoH

- **Enforcement and Legislation**

The "E-Info Blast Enforcement" was introduced in 2010 with the objective is to conduct nationwide enforcement operations in enforcing of Control of Tobacco Product Regulations 2004 and this enforcement can also protect the population from the dangers of smoking by increasing the number of public places as smoke-free areas. The retails price of tobacco products, the minimum price and the restrictions on online sales were also been strengthen in this regulations.

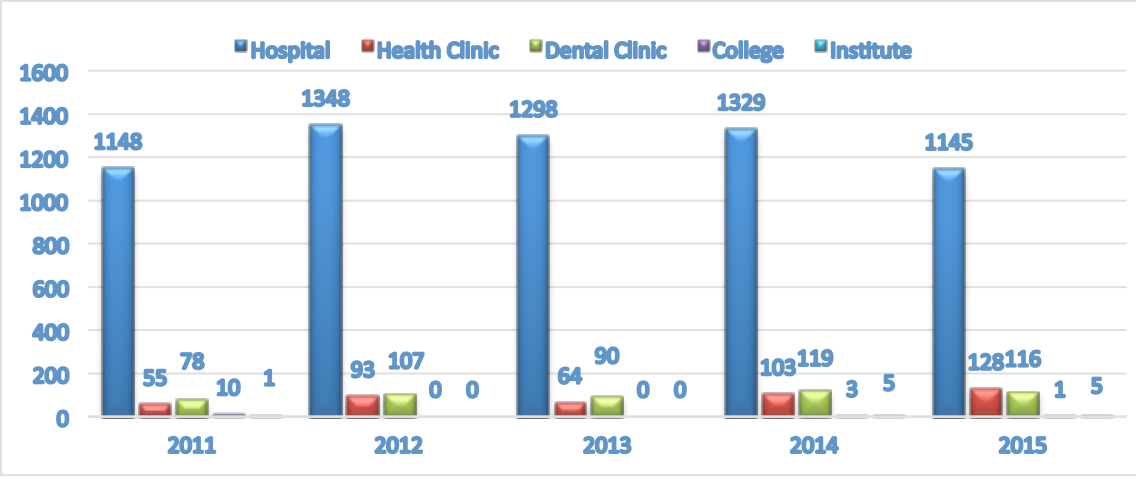
Occupational and Environmental Health Programme (OEH)

The report over the year 2011 till 2015 showed that there were increased in reported cases of accidents at workplace, occupational skin diseases, and occupational lung diseases. However, there was a decrease in pesticide and chemical poisoning cases as well as noise induced hearing loss.

- **Sharps Injury Surveillance (SIS) among MoH Healthcare Workers**

The number of sharps injury in MoH facilities had shown a down trend from 2011 to 2015 as shown in Figure 15. The reducing number of injury reported contributed mainly by the introduction of safety needle system in the year 2014 at high risk area.

FIGURE 15
SHARPS INJURY SURVEILLANCE (SIS) AMONG MoH HEALTHCARE WORKERS, 2011-2015



Source: Disease Control Division, MoH

- **Surveillance of Accident and Injuries among Healthcare Workers**

From 2011 till 2015, the total number of accidents at workplace was 3,326 cases, with a rising trend from 636 cases in 2011 to 783 cases in 2015. Motor vehicle accident is the most frequent mechanism in which injury happened, with 1,101 cases (33.1%) recorded. This is followed by splash of blood or body fluid with 477 cases (14.3%) and fall or slip on same level with 458 cases (13.8%).

- **Surveillance of Pesticide & Chemical Poisoning**

From 2007 till 2011, the number of pesticide and chemical poisoning cases are showing a downward trend. The highest pesticide poisoning cases are due to organophosphate with 218 cases (38.9%) followed by paraquat with 189 cases (33.0%). As for chemical poisoning, therapeutic drugs recorded as the most common poison

consumed with 304 cases (37.9%) and followed by household products with 243 cases (30.3%).

- **Surveillance of Occupational Lung Diseases**

The total number of occupational lung disease is showing a down trend from 2011 to 2015.The most common occupational lung disease recorded was infectious diseases like Tuberculosis with total of 883 cases (93.6%) and followed by allergic asthma with 38 cases (4.0%).

- **Surveillance of Occupational Skin Diseases**

The total number of occupational skin diseases reported from 2007 to 2011 were 377 cases. Majority of the healthcare workers were affected by occupational dermatitis, with 354 cases (93.9%) and other occupational skin diseases were only 23 cases (6.1%). The dermatitis was mostly irritant and allergic in nature with 133 cases (37.6%), followed by allergic with 120 cases (33.9%) and irritant with 65 cases (18.4%).

- **Surveillance of Occupational Noise-Induced Hearing Loss (NIHL)**

From 2011 till 2015, the total number of noise induced hearing loss notified were 250 cases, with 137 cases (54.8%) involving healthcare workers. Most of the NIHL were caused by chronic effects with 215 cases (86.0%), while acoustic trauma only recorded 35 cases (14.0%). Among the healthcare workers, only 73 cases (53.4%) was noted to wear hearing protection device at all time while 39 cases (28.5%) wear the hearing protection device partially.

Conclusion

Trends in surveillance of occupational diseases and injuries activities for 2011-2015 have shown a decrease in the number of notified cases by all State Health Department. This positive development is expected to be further lowered if all aspects of occupational safety and health are being institutionalised and practiced by all employees in Malaysia, especially in MoH. The unit will continue to improve its prevention of occupational diseases and injuries program among health care workers guided by its comprehensive surveillance program.

Environmental Health

- **Temporary Detention Depot (TDD)**

There are 14 Temporary Detention Depots throughout the country. Two were temporarily closed, Depot Belantik, Sik and Depot Kemayan, Pahang. Health activities at the depot include environmental health inspection of the depot and medical treatment. Out of the 14 TDD, only thirteen (13) units are in operation for the year 2015. From the total of thirteen TDD examined, 10 (69%) of them have a high density of occupants i.e exceeding the capacity and congested. The overall performance of inspection for a total of 13 DTS found out that only 2 depot comply with all the environmental health standards . There was no depot that fails to meet all the environmental health components.

- **Prison**

There were 29 prisons in operation for the year 2015. Out of 26 prisons inspected, five prisons (19.2%) were found to have high occupant density and congested. The overall inspection for 26 prisons found out that 12 (46.2%) prisons comply with all environmental health standards and regulations and 14 prisons (53.8%) did not comply but can operate and need improvement within 3 months.

- **Natural Disaster - Haze**

Malaysia was hit by haze in 2015 from 24 August till 31 October 2015 (week 33 to 42). Almost all (45 stations) air pollution stations have recorded Air Pollution Index (API) reading more than 100 (unhealthy) which the highest reading was 308 at Shah Alam. Schools had been closed during this episode. Operation room for haze has been activated as stated in the MoH Haze Guideline. MoH has been monitored haze related diseases such as conjunctivitis, Asthma and upper respiratory infection (URTI). Health advisory on haze has been uploaded to MOH website. 3 ply mask have been distributed to high risk patient and public.

- **Natural Disaster - Flood**

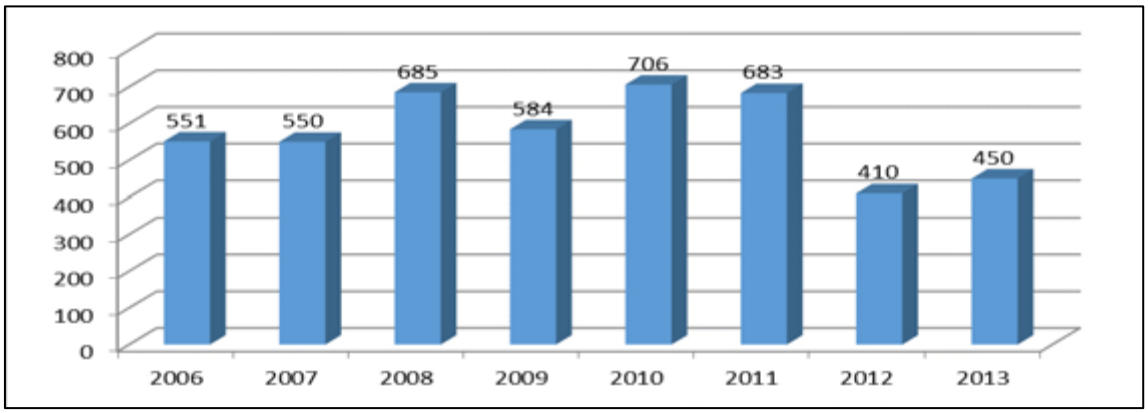
Malaysia was hit by 3 episodes of flood in 2015. A total of 5,392 flood victims in peak time were transferred to 70 evacuation centers during the flood. The MoH had mobilised 95 teams (44 medical teams and 51 health teams) for prevention and control of diseases related to the floods. The activities include vector control activities, monitoring drinking water quality, inspection for food safety and quality and health education to the flood victims in evacuation centers. None of health's facilities have been affected by floods in 2015. A total of 603 flood victims get treatment and

medication from MoH medical team. No deaths were reported due to the floods last year.

Alcohol and Substances Abuse Prevention

The Global Strategy to Reduce the Harmful Use of Alcohol, endorsed by the 63rd World Health Assembly in May 2010. It represents the commitment by the Member States of the World Health Organization to sustain action on reduction of harmful use of alcohol at all level. Likewise, MoH's Alcohol Action Plan 2013-2020 (MAAP 2013-2020) endorsed in June 2013 and subsequently was launched in October 2013.

FIGURE 16
NUMBER OF MoH'S HOSPITAL DISCHARGES DUE TO ALCOHOLIC LIVER DISEASE, 2006-2013



Source: Health Informatics Centre, MoH

Violence Injury Prevention (VIP)

VIP unit is the focal point for the MoH for issues related to violence and injury prevention and coordinates all violence and injury prevention within the MoH. The objectives of the unit are to reduce morbidity, mortality and disability due to violence and injuries through inter-sectoral collaboration.

The health sector is one of the main data sources for violence and injury for this country. Violence and Injury Prevention (VIP) unit routinely compiles and analyses data from;

- The Health Informatics Center (MoH Admission and Death Due to Injury)
- One Stop Crisis Center (Child Abuse and Domestic Violence Data)
- The Suspected Child Abuse and Neglect (SCAN) Team (Child Abuse Data)

MoH provides a dedicated service for victims of domestic violence, child maltreatment and sexual assault cases, known as One Stop Crisis Center (OSCC), which is currently available in 129 MoH Hospitals. It operates 24 hours a day and is under the administration of the Accident and Emergency Department of the hospital. OSCC data shows that female make up the majority of cases especially in the adult category.

Community Mental Health

The objectives of the mental health program are to promote healthy mind among the population through healthy lifestyle and coping skills, to reduce prevalence of mental and behavioural disorders of high risk groups through screening and early intervention programs at the primary healthcare (PHC) level, to provide care and treatment to those with mental health problem and the mentally ill at PHC level, to design policies for intervention and rehabilitation for those with mental health problems and illnesses at PHC level, to facilitate optimal psychosocial functioning of the mentally ill individuals in the community, and to monitor implementation of mental health activities via registers and data collection. The program's scope includes promotion of mental health, prevention and early detection through screening for mental health problems, treatment at PHC and psychosocial rehabilitation.

- **Healthy Mind Program in School**

This program was initiated as a pilot project in 2011 involving 6 secondary schools in Malaysia. It was expanded to 151 schools in 2012 and further expanded to 200 schools in 2013. In 2014, a total of 2,343 secondary schools were involved in conducting this program.

There was a 75.9% increase (278,226) in the participation in screening in 2015 as compared to 158,167 students in 2014. A total of 2,343 counsellors were trained using the Healthy Mind Module. In this program students are screened using the DASS (Depression, Anxiety, and Stress) questionnaire to measure the current prevalence of DASS within the students. Students found to have severe and very severe DASS will go through an intervention where a series of counselling and motivation workshops are conducted by trained counsellors. The second screening process is done again after the intervention to look for reduction in DASS. Findings in 2013-2015 revealed that there was an overall reduction in the severe and very severe category of Depression and Anxiety. Further findings are reflected as listed:

i) Depression

Results showed that for symptoms of depression the overall prevalence for mild depression showed 14.5%, 12.7% had moderate, 2.7% and 0.9% had severe and very severe levels of depression respectively. Following the intervention 2nd screening done revealed a reduction in the moderate, severe and very severe categories of depression. Mild category increase 6.0%, moderate decrease 2.1%, severe decrease 1.3% and very severe decrease 0.6%.

ii) Anxiety

Results showed that for symptoms of anxiety, 17.3% had mild anxiety, 15.7% had moderate anxiety, 4.8% and 2.9% had severe and very severe anxiety respectively. Repeat screening after intervention showed there was a reduction in the percentage of all levels of anxiety. All category decrease , mild 1.4%, moderate 4.0%, severe 2.0% and very severe 2.0%.

iii) Stress

Results for stress showed, 19.50% had mild stress, 13.90% had moderate stress, 2.60% and 0.60% had severe stress and very severe stress respectively. Following intervention, repeat screening showed there was a reduction in the percentage in all levels of stress. All categories decreased in mild 1.1%, moderate 2.8%, severe 1.4% and very severe 0.1%.

- **Mental Health Services at Primary Health Care (PHC)**

The Healthy Mind Program was implemented as a pilot project from 2008 till 2015 at 920 Health Clinics throughout Malaysia. A total of 285,647 participants were screened and 7,882 cases were detected to have mental health problems and were referred to a Family Medicine Specialist (FMS)/Medical Officers. All the 920 Health Clinics also provide follow up treatment for the patients with stable mental condition. There are currently 22,993 cases that are on a follow up treatment. There were a total of 2,082 (9.05%) discharges. Discharges include patients who no longer require treatment, patients who transfer to another healthcare facility and the ones who have passed away. There were a total 2,137 (9.35%) defaulted cases.

- **Psychosocial Rehabilitation (PSR)**

A total of 178 cases had received psychosocial rehabilitation at 17 health clinics from the onset of implementing these services. A total of 11 PSR was upgraded into Community Mental Health Center (CMHC) in accordance with the Mental Health Act 2001 and Mental Health Regulation 2010. There is an average of 4 to 20 patients

handled per PSR. Till 2015, there were 17 Health clinics providing Psychosocial Rehabilitation Services

- **Mental Health and Psychosocial Trauma in Disaster**

Following the floods in the East Coast Malaysia namely Kelantan, Terengganu and Pahang in January 2015, 42 psychosocial response teams have been mobilised to provide psychosocial support services. Overall, a total of 15,295 individuals (health workers and the public) have been given Psychological First Aid (PFA). Activities conducted were individual counselling, group counselling, relaxation therapy, DASS/ Burnout Scale assessment, psychotherapy, and case referral during and post disaster. A total of 1,297 individuals were involved in the counselling sessions, 2,571 individuals participated in group sessions whereas 184 individuals (93 public and 91 healthcare workers) have been referred to the psychiatrists. For referral cases, among the diagnosis were *'Acute Depressive Reaction' and 'Anxiety Disorders'.*

FAMILY HEALTH DEVELOPMENT

Maternal Healthcare and Family Planning Services

- **Maternal Health Care**

Malaysia has made great progress in improving maternal health care towards achieving MDG 5. Antenatal care essentially monitors the well-being of the mother and fetal during pregnancy and the care continues during intrapartum and postnatal. In 1990, the antenatal coverage for the country was at 78.1% for at least one visit. The coverage has increased to 98.7% in 2015. Between 1990 and 2015, the average antenatal visit has increased from 6.6 to 10.4 visits in 2015. This suggests that majority of mothers received more than the minimum antenatal visits recommended by WHO i.e 4 antenatal visits. The coverage for tetanus toxoid immunization among antenatal mothers has increased from 89.6% in 2013 to 92.2% in 2015. Proportion of deliveries conducted by skilled health personnel (safe deliveries) has remained high at 98% since 2010 (Table 17).

TABLE 17
MATERNAL HEALTH COVERAGE IN MALAYSIA, 1990 – 2015

	1990	2000	2010	2011	2012	2013	2014	2015[P]
Estimated No. of Pregnant Mothers	676,382	691,664	587,479	565,072	580,536	592,489	592,489	592,489

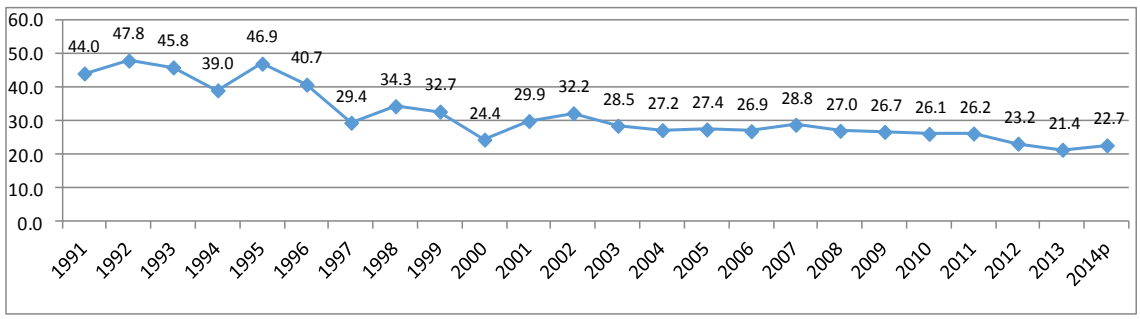
	1990	2000	2010	2011	2012	2013	2014	2015[P]
Antenatal Coverage	528,029 78.1%	517,138 74.8%	483,136 82.2%	550,104 97.3%	560,323 96.5%	580,819 98.0%	575,604 97.2%	571,647 98.7%
Average Antenatal Visits per Mother	6.6	8.5	10	9.8	10.0	9.9	10.6	10.4
Tetanus Toxoid Immunisation Coverage (2nd & Booster Dose)	414,445 81.7%	449,608 86.8%	432,581 84.6%	451,323 91.8%	466,666 92.4%	461,845 89.6%	478,206 92.8%	474,848 92.2%
Total Deliveries	476,196	507,891	439,447	448,886	455,650	453,048	461,220	451,706
Safe Deliveries	92.8%	96.6%	98.6%	98.6%	98.7%	98.8%	98.9%	99.4%
Postnatal Coverage	318,953 67.0%	417,232 82.1%	428,140 97.4%	439,927 98%	450,160 98.8%	458,532 101%	467,522 101%	466,087 103%

Note: Data for 2015 is preliminary
Source: Health Informatics Centre, MoH.

- **Maternal Mortality**

Over the last decade, Malaysia faced challenges to sustain or gain marked reduction of maternal mortality ratio (MMR) after year 2000. In 2004, MMR reached 27.2 per 100,000 live births (LB) but plateau for the next few years. The MMR began to decline from 2011 on-wards, as in 2012 the MMR was 23.2 per 100,000 LB and 21.4 per 100,000 LB in 2013 (Figure 17). The four common causes of maternal deaths in Malaysia were due to Associated Medical Conditions, Obstetric embolism, Postpartum haemorrhage and Hypertensive Disorders in pregnancy.

FIGURE 17
MATERNAL MORTALITY RATIO IN MALAYSIA, 1991-2014



Note: Data for 2014 is preliminary
Source: Department of Statistics Malaysia.

- **Family Planning**

The MoH provides a wide range of contraceptive methods to cater for the different needs and suitability of each woman. The total number of new family planning acceptors registered in MoH clinics in 2015 was 120,664 new acceptors. It has reduced compared to the total of 127,100 new acceptors in 2014. However, the number of active users has increased from 311,692 in 2014 to 331,825 in 2015. The most popular contraceptive method used in year 2015 was contraceptive pill (50.3%) followed by progestogen-only injection (36.2%), male condoms (7.2%) and intrauterine device (2.8%).

Family planning is one of specific initiatives for safe motherhood especially among high-risk women. Two indicators i.e. practice indicator and quality indicator; were introduced in 2011 to accentuate the need for high risk women in optimizing their health before embarking next pregnancy. Practice indicator reports the percentage of high risk female clients who practised effective methods of contraceptive and these practising clients were continuously monitored for next 2 years. The percentages of them who continue practising family planning after 2 years are reported in quality indicator performance. The targets are 80% and 70%, respectively. As for 2015, practice indicator was 76.7% and quality indicator for cohort 2013 was 73.3%.

- **Highlights**

MoH is committed to provide maximum access to maternal health care and family planning services and constantly put MDG5 as the high priority agenda of the country. FHDD continues to organise regular National Maternal Death Review Meetings, chaired by the Deputy Director General of Health for Public Health. The meetings has allowed for deliberation of maternal death cases and concluded tangible remedial actions and national decisions.

FHDD has released 11 publications via online or printed copy in 2015. Amongst those were CEMD Report 2009-2011, Maternal Death Case Illustrations, Maternal Death Data 2013, Manuals on Thromboembolism and Hypertensive Disorder in pregnancy, Antenatal and postnatal exercises, effective family planning for high risk women, guidelines for nurses on postnatal nursing in hospitals, continuation of heparin injection at home, administration of corticosteroid injection and MgSO4.

The online publications are accessible on FHDD website *http://fh.moh.gov.my/v3/*. A national training on family planning was conducted to health providers in end of

August 2015. As a continuation of collaboration in 2014, MoH and UNFPA conducted the regional training on safe motherhood in two regions, East Coast of Peninsular and East Malaysia. These were conducted in May 2015 in Kuala Terengganu and August 2015 in Kota Kinabalu.

In collaboration with FHDD and JKN Sarawak, OGSM organised AOCOG 2015 Community Fellowship Program in May 2015 in Kuching, Sarawak. This program targeted young OBGYNs from 12 AOFOG member nations. The delegates experienced the maternal and child health services in Sarawak which include visiting the primary healthcare of both urban and rural setting and home visits.

Although the term for MDG 5 has come to end, Malaysia will continue the efforts to reduce maternal mortality as stipulated in Sustainable Development Goal (SDG) 2016-2030. Under Goal 3 SDG, the target is to reduce the MMR by two-thirds from the 2010 baseline by 2030. Therefore, the target for Malaysia is reduction of MMR from 26.1 per 100,000 LB in 2010 to 8.7 per 100,000 LB in 2030.

Child Health Services

Child health services have evolved tremendously over the past 50 years. From the initial focus of preventing communicable disease, the service is now moving towards comprehensive and quality services. The year 2015 sees the end of MDG4, where only one of the three indicators set was achieved. The focus of child health services in the 11th Malaysia Plan, in line with the Sustainable Development Goal 3 (SDG), seeks to ensure healthy lives of children towards the promotion of the well-being for all at all ages.

- **National Immunization Program**

The National Immunization Program began in 1950s, and since then Malaysia has achieved polio-free status in 2000. Towards eliminating measles, MoH targets coverage of more than 95% for all immunization. In 2015, the coverage for MMR was reduced from 93.3% in 2014 to 93.07%. However, the immunization coverage for the others, DPT, Polio, Hib and Hepatitis B was maintained at more than 95% for the past 5 years.

TABLE 18
NATIONAL IMMUNIZATION COVERAGE, MALAYSIA, 2010 – 2015

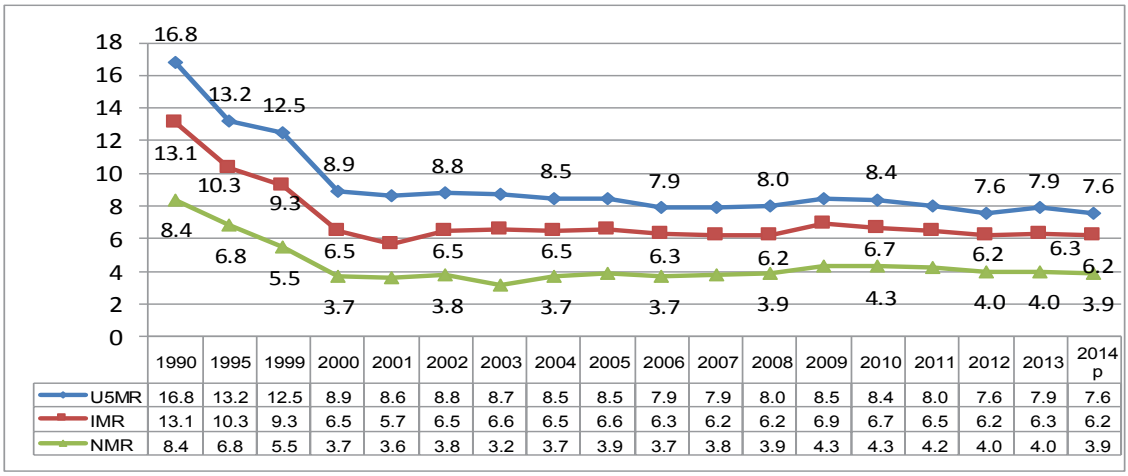
YEAR	IMMUNISATION COVERAGE									
	*DPT (3rd dose)		*Polio (3rd dose)		*Hib (3rd dose)		*Hep. B (3rd dose)		**MMR	
	No.	%	No.	%	No.	%	No.	%	No.	%
2010	481,642	94.28	480,886	94.13	479,687	93.90	421,790	82.57	471,752	96.10
2011	489,104	99.54	489,035	99.53	489,083	99.54	477,312	97.14	471,442	95.24
2012	503,351	99.71	503,354	99.71	503,148	99.67	495,048	98.71	478,862	95.47
2013	499,341	97.77	499,341	96.92	499,341	96.92	496,228	96.32	484,814	95.25
2014	498,566	96.77	498,566	96.77	498,566	96.77	496,075	96.29	475,394	93.36
2015	506,939	99.04	506,940	99.04	506,940	99.04	508,112	99.27	486,917	93.07

*Denominator – *Estimated live births, ** Estimated number of children 1-<2 years*
Source – Health Informatics Centre, MoH

- **Under-5 Mortality, Infant Mortality and Neonatal Mortality**

MDG 4 indicators on mortality, namely reducing both under five and infant mortality rates by two-thirds between the years 1990 and 2015, has not been met. Child mortality is an important measure of child wellbeing as it reflects the child's health and nutritional status as well as the quality of care received by women before, during and after pregnancy. Under five, Infant and Neonatal mortality rates have been stagnant since year of 2000, after attaining a reduction of 50% from the year 1990. Under-5 mortality rate for Malaysia reduced from 7.9 in 2013 to 7.6 per 1000 live births in 2014. Sarawak, Selangor, Melaka, Pulau Pinang and WP Kuala Lumpur achieved Under-5 Mortality rates below the national level in 2014. Similarly, perinatal mortality rates reduced from the year 1990 to 2014, from 13.9 to 7.2 per 1,000 total births and has plateaued over the last 10 years.

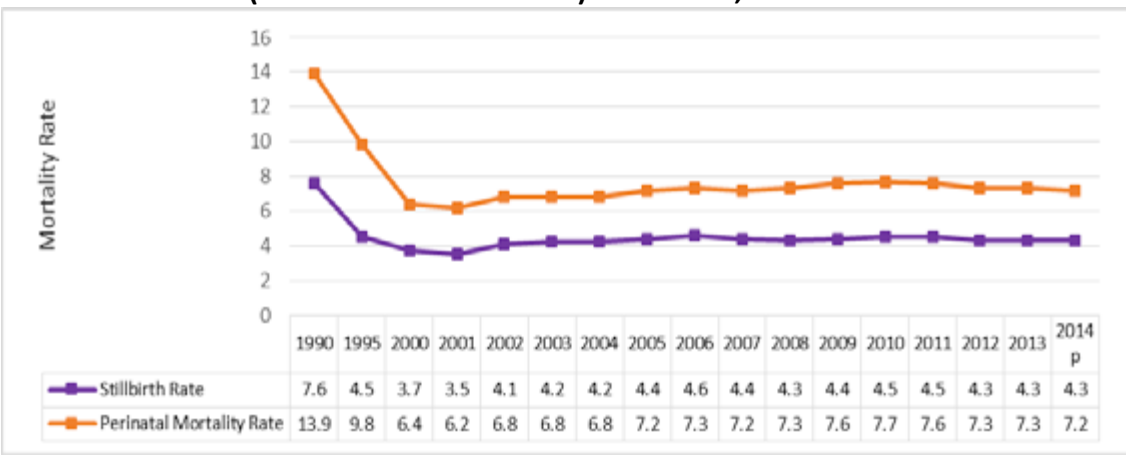
FIGURE 18
NEONATAL MORTALITY RATE, INFANT MORTALITY RATE AND UNDER-5 MORTALITY RATE (PER 1000 LIVE BIRTHS) MALAYSIA, 1990-2014



	1990	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 p
U5MR	16.8	13.2	12.5	8.9	8.6	8.8	8.7	8.5	8.5	7.9	7.9	8.0	8.5	8.4	8.0	7.6	7.9	7.6
IMR	13.1	10.3	9.3	6.5	5.7	6.5	6.6	6.5	6.6	6.3	6.2	6.2	6.9	6.7	6.5	6.2	6.3	6.2
NMR	8.4	6.8	5.5	3.7	3.6	3.8	3.2	3.7	3.9	3.7	3.8	3.9	4.3	4.3	4.2	4.0	4.0	3.9

Note: Data for 2014 is prelimary
Source: Department of Statistics Malaysia (DOS), 1990- 2014

FIGURE 19
STILLBIRTH RATE AND PERINATAL MORTALITY RATE (PER 1000 TOTAL BIRTHS) MALAYSIA, 1990-2014



	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 p
Stillbirth Rate	7.6	4.5	3.7	3.5	4.1	4.2	4.2	4.4	4.6	4.4	4.3	4.4	4.5	4.5	4.3	4.3	4.3
Perinatal Mortality Rate	13.9	9.8	6.4	6.2	6.8	6.8	6.8	7.2	7.3	7.2	7.3	7.6	7.7	7.6	7.3	7.3	7.2

Note: Data for 2014 is prelimary
Source: Department of Statistics Malaysia (DOS) 2000 – 2014

The Under-five mortality notifications and investigation formats initiated in July 2011 was revised in 2013. To facilitate the investigations at the district and state level, a guideline on classifications of under-five deaths into Preventable and Non-Preventable Deaths was developed in 2015 to be implemented in 2016.

School Health Services

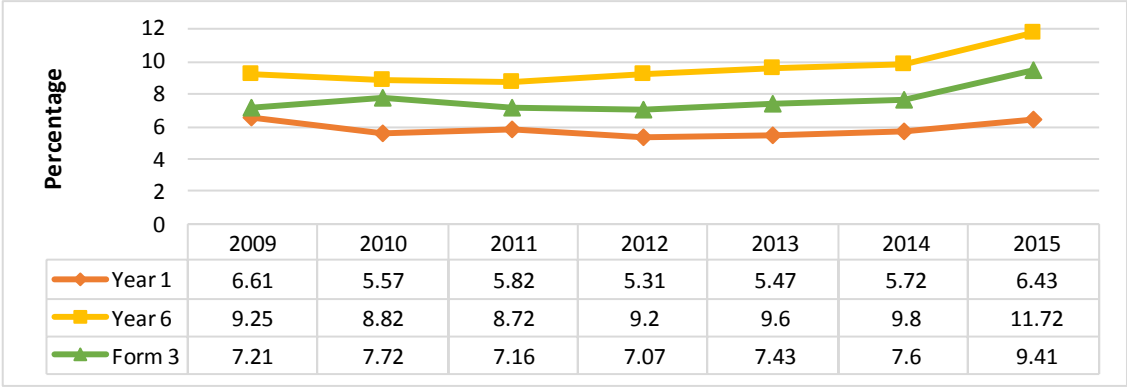
The school health program mainly focuses on health promotion, health education, health assessment appraisal, immunization, treatment of minor ailments and referral if necessary. The services were provided to 2.2 million primary and secondary school children throughout Malaysia by 478 School Health Teams.

- **Health Service coverage**

The health service coverage by School Health nurses and Assistant Medical Officer remained above 95% for 2015. The school coverage for Standard 1, Standard 6, Form 3 students were 99.8%, 99.6%, 99.7% respectively in 2015.

One very glaring findings in the health appraisal activity was the overweight and obesity trend. The trend was higher amongst Standard 6 compared to Standard 1 primary school and Form 3 secondary school children. This is likely due to the growth spurt during adolescent period. Putrajaya recorded the highest percentage of school children with overweight and obesity followed by Perlis and Labuan. Figure 20 and 21 described the trends of overweight and obesity among Standard 1, Standard 6, Form 3 students between the periods of 2009 to 2015.

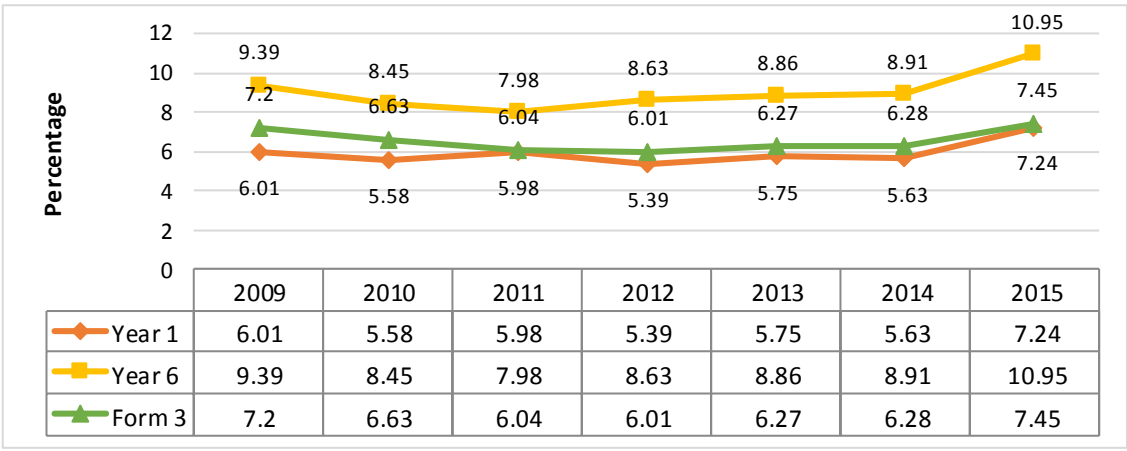
FIGURE 20
OVERWEIGHT TREND AMONG SCHOOL CHILDREN IN MALAYSIA, 2009 – 2015



	2009	2010	2011	2012	2013	2014	2015
Year 1	6.61	5.57	5.82	5.31	5.47	5.72	6.43
Year 6	9.25	8.82	8.72	9.2	9.6	9.8	11.72
Form 3	7.21	7.72	7.16	7.07	7.43	7.6	9.41

Source: Health Informatics Centre, MoH

FIGURE 21
OBESE TREND AMONG SCHOOL CHILDREN IN MALAYSIA, 2009 – 2015



	2009	2010	2011	2012	2013	2014	2015
Year 1	6.01	5.58	5.98	5.39	5.75	5.63	7.24
Year 6	9.39	8.45	7.98	8.63	8.86	8.91	10.95
Form 3	7.2	6.63	6.04	6.01	6.27	6.28	7.45

Source: Health Informatics Centre, MoH

- **School Health Immunization**

The school health vaccination coverage target was set at 95% and was achieved since 2012, and the high immunization coverage was observed for booster DT and MR vaccination for Standard 1 students in 2015. The coverage of Oral Polio vaccination was decreased from 98.9% in 2014 to 93.5% in 2015. ATT vaccination coverage for Form 3 students was maintained at 99.3%. The HPV vaccination was introduced to Form 1 female students since 2010. The immunization acceptance rate among parents increased from 95.9% in 2010 to above 98% in 2015 and the vaccination 3rd dose completion increased from 98.6% in 2010 to 99.6% in 2015

- **Learning Disability among School Children in Malaysia**

MoH continue to support Ministry of Education (MoE) in the assessment and diagnosis of Standard 3 primary students suspected with Learning Disability. A total of 2,821 Year 3 students were diagnosed to have learning disability in 2015. Of those, Intellectual Disability was the highest disability identified, followed by Specific Learning Disability, Multiple Types of Disability, Attention Deficit Hyperactive Disorder (ADHD) and Autism.

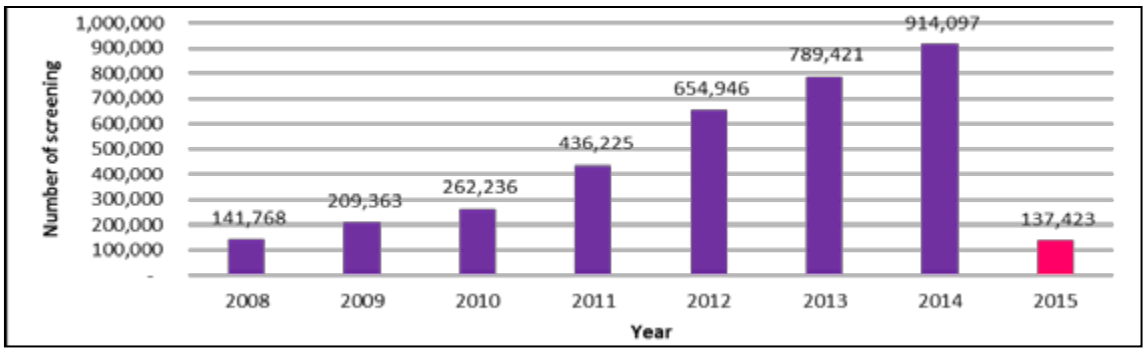
Thalassemia Population Screening

Thalassemia screening program was introduced in 2008. The program was reviewed in 2013 to further improve and strengthened the population screening. In 2015, a new Thalassemia record was introduced as means to improve on thalassemia screening

reporting system. Following the change, a marked reduction of numbers of Thalassemia screening was observed from 914,097 in 2014 to 137,423 in 2015 as in Figure 22. The reduction was observed in all states with highest reduction observed in Selangor, Johor and Sabah. Of those screened in 2015, 17,495 were confirmed as Thalassemia carriers through Hb Analysis. Beta Thalassemia Carrier and HB E were the two most common carrier types identified. The alpha Thalassemia status has yet to be confirmed through molecular diagnosis.

To realign the national population screening towards achieving reduction of new Thalassemia birth over the next 20 years, it was proposed for the Thalassemia screening to be conducted amongst the Form 4 secondary students. The proposal was presented to the MoE, National 3K Program Committee on the 5 of May 2015 and was approved for implemented in 2016.

FIGURE 22
NUMBER OF THALASSEMIA SCREENING IN MALAYSIA, 2008 - 2015



Source: Family Health Development Division, MoH

Adolescent Health Services

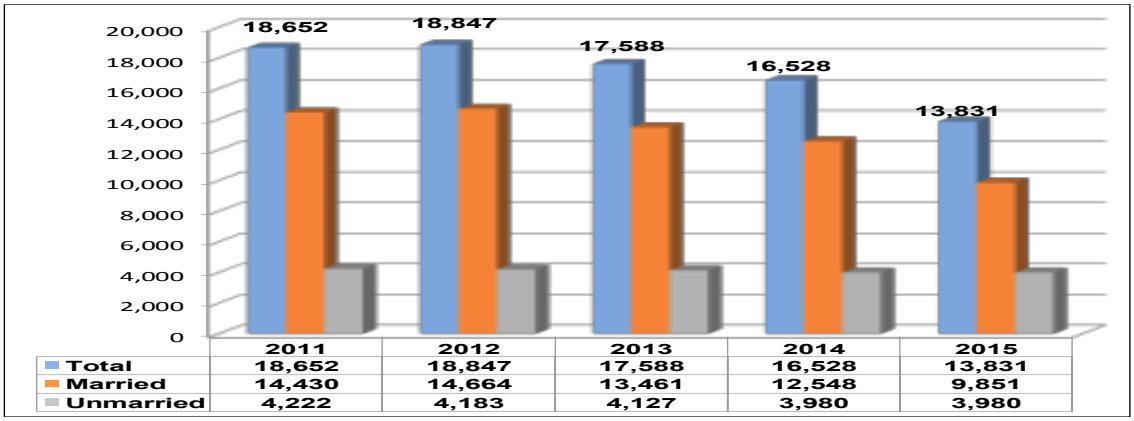
Adolescent Health Service Coverage

A total of 408,827 adolescents (10-19 years) were screened at health clinics nationwide in 2015. This accounts for 7.47% of the total adolescents population screened. Among those, 6.36% (25,981) had nutritional problems, risk behaviours 2.64% (10,776), physical 1.97% (8,058), sexual health 1.22% (4,981) and mental problems 1.16% (4,742). Among these scopes of morbidities, the risk behaviours and sexual health problems has increased in number from 10,427 (2013) to 10,776 (2015) and from 4,243 (2013) to 4,981 (2015) respectively.

- **Sexual Reproductive Health**

The Age Specific Fertility Rate (ASFR) among adolescent aged 15-19 years has declined from 28 per 1,000 population (1991) to 13 per 1,000 population (2013). Since 2010, MoH has begun collecting disaggregated data of new antenatal cases among adolescents. The number of new antenatal cases among adolescent registered at government health clinics nationwide has declined from 18,652 in 2011 to 13,831 in 2015 (Figure 23). The fact that even unmarried teenagers are accessing the government primary healthcare facilities indicates that these services are indeed accessible, adolescent friendly and there are no barriers to access.

FIGURE 23
NUMBER OF NEW ANTENATAL CASES AMONG ADOLESCENTS (10-19 YEARS) REGISTERED AT GOVERNMENT HEALTH FACILITIES, MALAYSIA, 2011-2015



	2011	2012	2013	2014	2015
Total	18,652	18,847	17,588	16,528	13,831
Married	14,430	14,664	13,461	12,548	9,851
Unmarried	4,222	4,183	4,127	3,980	3,980

Source: Family Health Development Division, MoH

Issue of teenage pregnancies and associated mortality has been presented at various platform such as the National Social Council and State Ministers / Chief Ministers Meetings chaired by Deputy Prime Minister as well as *"Mesyuarat Majlis Raja-Raja ke 240".* This is to advocate for effective and holistic interventions in tackling the issue of teenage pregnancy and its associated morbidities and mortalities through inter-agencies collaboration.

- ***Program* Generasiku *Sayang***

Program Generasiku Sayang was launched on 29 October 2015. This program was officiated by DYMM Raja Zarith Sofiah Binti Almarhum Sultan Idris Shah. The objective of the program is to create awareness and commitment among the public and relevant agencies to work together in addressing the issue of teenage pregnancy. A guideline on implementing comprehensive rehabilitation services *Garis Panduan Pusat Jagaan*

Generasiku Sayang was developed and distributed. This guideline is to provide comprehensive and integrated services to ensure the health, education, safety and well-being of adolescent mother and child.

- **Networking with other agencies and NGO's**

MoH has established a National Technical Committee on Adolescent Health chaired by Deputy Director General Public Health to monitor the implementation of the National Adolescent Health Policy and National Adolescent Health Plan of Action (NAHPOA). This committee comprise of various agencies and convene twice a year.

Human Resources and Training

In 2015, the training on "Management of Adolescent Sexual and Reproductive Health Problems at Primary Healthcare Level" was conducted at national level. This training involved with hundreds of healthcare providers from all states. Another training on "Engaging the Adolescent Using HEADSS Framework" and "Manual Managing Mental Health Problems among Adolescents for Primary Health Care Providers" were also conducted at zonal level to 325 health care providers which comprising of family medicine specialists, psychiatrists, pediatricians, medical doctors, nurses, paramedics and counselors.

- **Promotion and Publications**

In 2015, four new publications and videos were developed and disseminated to all states.

- National Adolescent Health Plan of Action 2015-2020
- Adolescent Job Aid (Bahasa Malaysia version)
- Manual Managing Mental Health Problem Among Adolescent
- Guideline *Garis Panduan Pusat Jagaan Generasiku Sayang*
- Videos on *Perkhidmatan Kesihatan Remaja Siri 1/2; Penjagaan Remaja Semasa Hamil dan Selepas Bersalin; Kisah Kita* and *Pilihan Jalan Kehidupan*.

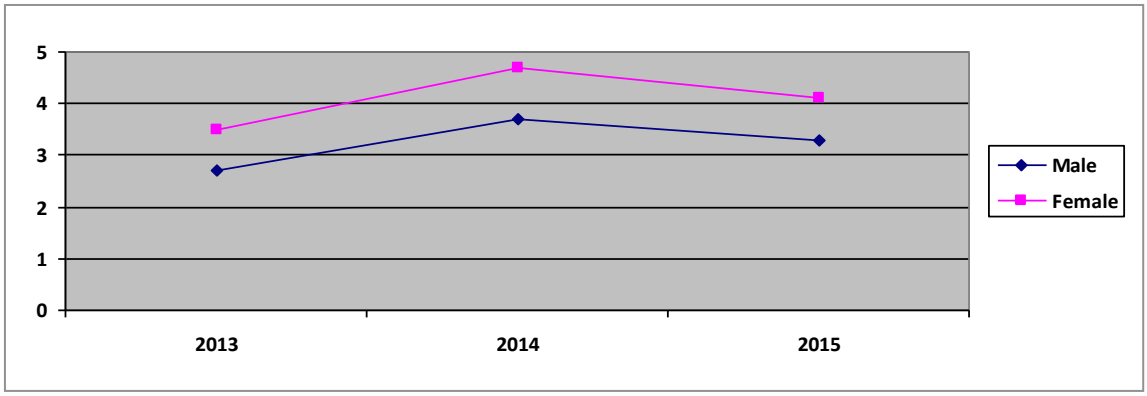
Adult Health Services

Adult populations are define as those aged between 20 to less than 60 years. The main activities in the Adult Health programs include health risk assessment, activities related to reproductive health and gender, Cervical Cancer Screening and Breast Cancer Prevention Program.

- **Health Risk Screening**

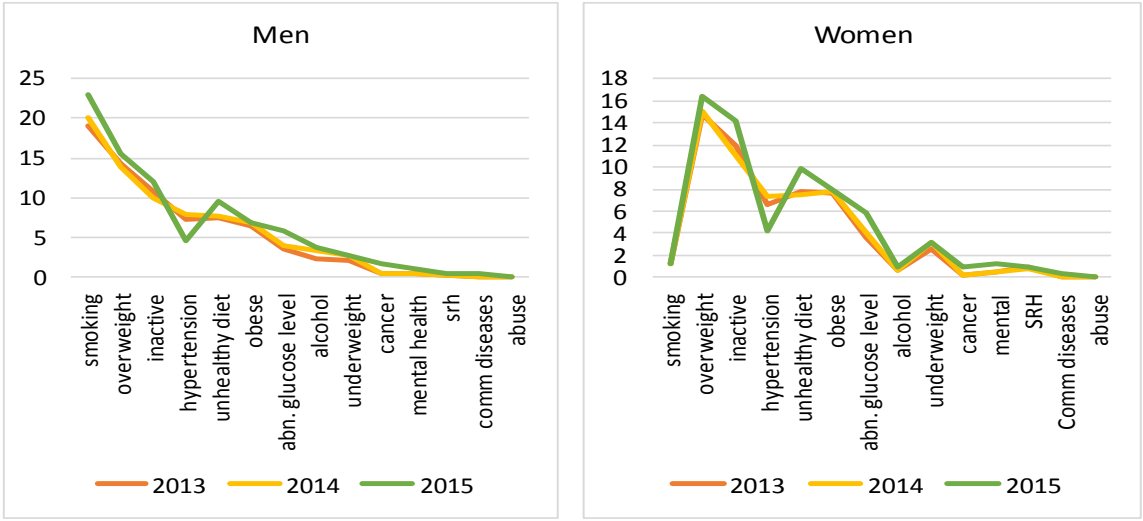
Health Screening is to detect early health risk so that intervention and management of the clients' health risks can be planned. The aim is to encourage individuals to adopt healthy lifestyle including going for regular health screening. The health screening activity was introduced in stages since year 2009 with the target set at five percent of the adult population. Figure 24 shows the trend for the health screening coverage in 3 years for both men and women. Figure 25 describes the trend of health risks identified in men and women in the period.

FIGURE 24
PERCENTAGE OF ADULT HEALTH SCREENING COVERAGE, 2013 – 2015



Source: Family Health Development Division, MoH

FIGURE 25
THE TREND OF HEALTH RISKS FOR BOTH MEN AND WOMEN, 2013-2015



Source: Family Health Development Division, MoH

From the above findings, it showed that more women came for health screening compared to men, while the health risks identified remained the same but on an increasing trend for both men and women.

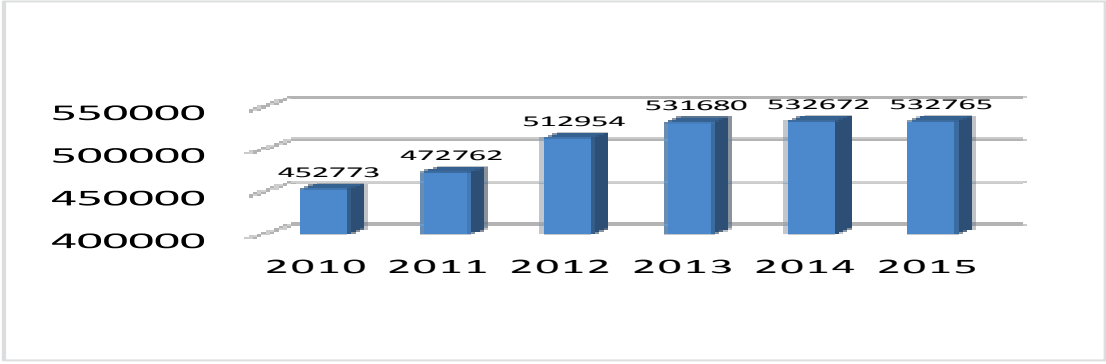
- **National Pap Smear Screening**

Cervical cancer screening services are available in almost all government health clinics. The service is offered to sexually active women between the age of 20 and 65 years. The target coverage for Pap Smear screening in 2015 was 40% of the eligible women population. The numbers of women screened by all service providers showed an increasing trend from 531,680 in 2013 to 532,672 in 2014 and 535,092 in 2015 as in Figure 26.

However, in terms of rate, there was a slight reduction in coverage in 2015 (23.1%) as compared to 2014 (23.5%) as showed in Figure 27. Nonetheless, the coverage of women aged 50 to 65 years has increased from 24.0% in 2014 to 24.6% in 2015. The percentage of unsatisfactory slides remained below target, which is 1.23% in 2015.

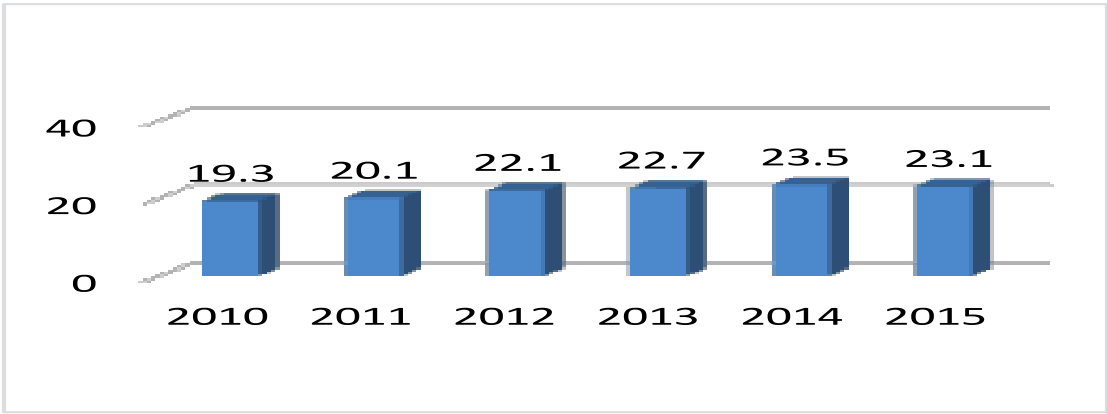
'Percentage of absent endocervical cells for Pap smear slides' was introduced in 2015 as a new Quality Indicator for Pap Smear Screening Program. The target set was less than 20% from total reported slides. The achievement for 2015 was 23.47%, which is shortfall from target.

FIGURE 26
NUMBER OF PAP SMEAR SLIDES TAKEN, 2010 – 2015



Numerator: Number of slides taken, Denominator: Number of eligible women for the age group
Source: Health Informatics Centre, MoH

FIGURE 27
PAP SMEAR COVERAGE, 2010 - 2015



Source: Health Informatics Centre, MoH, 2015

The overall positive detection rate for 2015 was 0.85%. The break-ups for each classification were as follows: LGSIL – 27.9%, ASCUS – 47.1%, HGSIL – 15.7%, AIS 2.4%, Adeno CA – 2.2% and SCC – 1.2%.

- **Breast Cancer Prevention**

Breast health awareness campaign was started since 1995 aimed to encourage women to perform Breast Self-Examination (BSE). Starting in 2009, the strategy has included Clinical Breast Examination (CBE) by medical staff as a modality for early detection of breast cancer among general women population. All health providers are to examine female clients attending the clinics, as part of other screening and health services. The percentage of CBE among clients age 20 years and above has decreased from 25.0% in 2014, to 24.6% in 2015. About 0.34% of women were detected with abnormality and referred for further investigation.

In 2012, MoH health clinics act as entry point for identifying high risk women and subsequent referral to the nearest mammography (MMG) facility. This integrated approach involving MoH, National Population and Family Planning Board (through the Mammogram Subsidy Program) and other relevant agencies is to facilitate mammogram screening among high risk women. High risk women are those women aged 40 years and above which fulfill the risk criteria. In 2015, the number of high risk women registered in MoH health clinics (new cases) was 24,199. Of those, 84.5% was referred for mammogram, and 99.4% of them underwent MMG. Ninety-four (94) women or 0.42% was confirmed to have breast cancer.

Healthcare Services for the Elderly

The health care for the older persons was first introduced by MoH in 1996 as one of the strategies under the Seventh Malaysian Plan. The National Healthcare Policy for Older Person emphasize on ensuring healthy, active and productive ageing by empowering the older persons, family and community with knowledge, skills, an enabling environment; and the provision of optimal health care services at all levels and by all sectors.

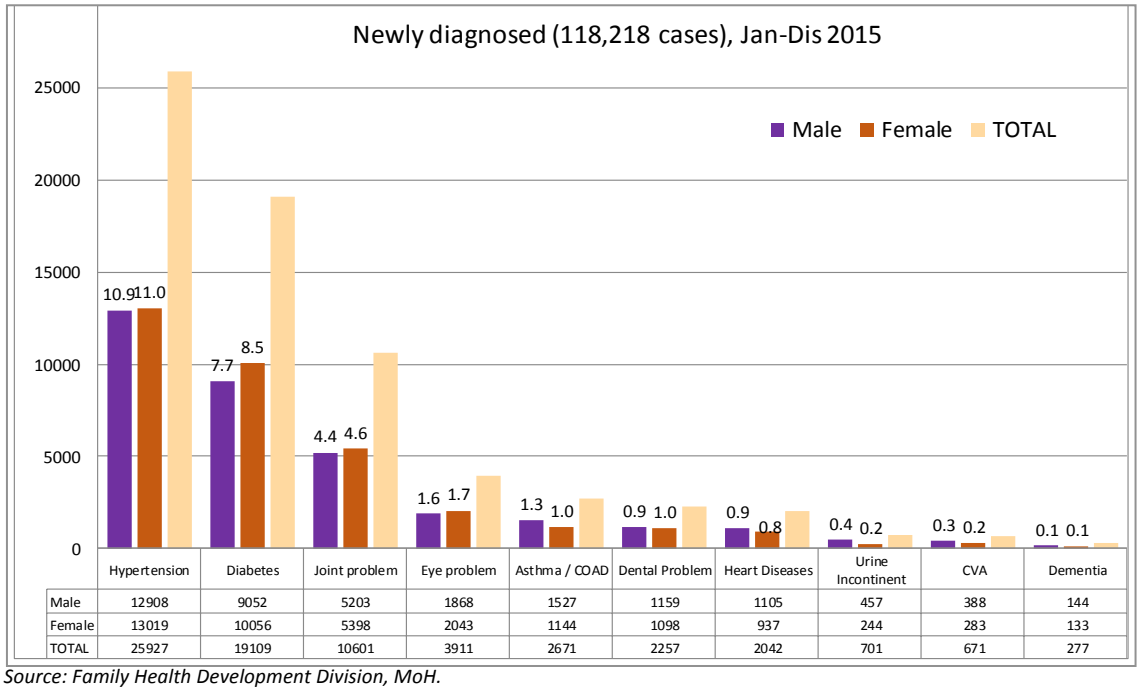
The services include health education and promotion; health screening and assessment; medical examination, consultation and referral (if needed); home visit and homecare nursing; rehabilitation (physiotherapy and occupational therapy); and social, recreation and welfare activities. To monitor the progress of the implementation, several indicators were introduced such as percentage of newly registered older persons in an operational area, percentage of older persons screened using *Borang Saringan Status Kesihatan* (*BSSK*).

- **Health Screening**

Cumulatively, until December 2015, a total number of 1,994,745 elderly was registered with our health clinics. This was 75.2% of total elderly population, exceeding the targeted registration of 75% in the year 2015. Of those newly registered elderly, 233,757 (8.0%) of the elderly had their health status screened using *Borang Saringan Status Kesihatan* (*BSSK*). The performance is far above the target set, which is 5% of total elderly population. The performance varies from state to state.

In 2015, among the elderly who attended Public health clinics, 118,218 of them had a newly identified diagnosis. Figure 28 showed the first ten morbidities (newly diagnosed) among the elderly who attended Public Health Clinics. The top most common diagnosis was Hypertension, Diabetes and Joint problems. The findings have been consistent for the past 5 years.

FIGURE 28
THE ELDERLY WHO ATTENDED PUBLIC HEALTH CLINICS, 2015



	Hypertension	Diabetes	Joint problem	Eye problem	Asthma / COAD	Dental Problem	Heart Diseases	Urine Incontinent	CVA	Dementia
Male	12908	9052	5203	1868	1527	1159	1105	457	388	144
Female	13019	10056	5398	2043	1144	1098	937	244	283	133
TOTAL	25927	19109	10601	3911	2671	2257	2042	701	671	277

Source: Family Health Development Division, MoH.

- **Capacity Building**

As an effort for capacity building, continuous training was conducted for the healthcare providers as well as for the care takers. This is to equip them with knowledge and skills to handle health issues of older person. In 2015, cumulatively about 28,400 health personnel at primary health care level had been trained on Health Care for the Elderly. About 24,900 health personnel and care givers from institutions, NGOs, voluntary bodies and other agencies had been trained on Care for the Elderly.

Health Sector for Persons with Disabilities (PWDs)

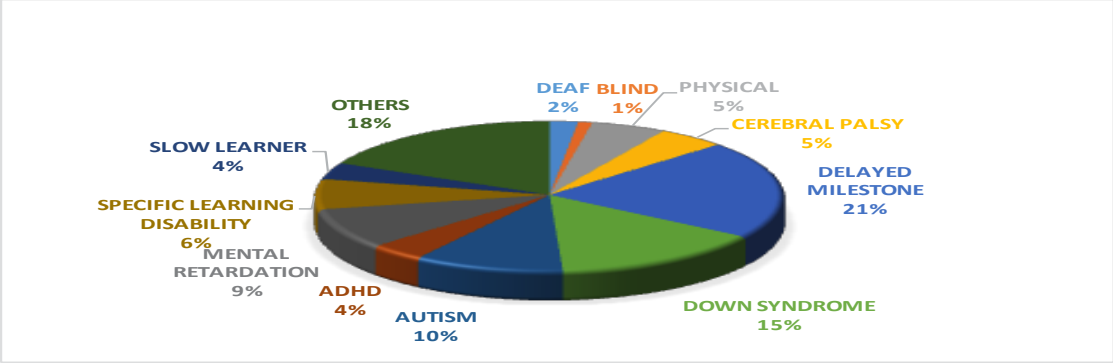
Health care program for Persons with Disabilities (PWDs) are planned in line with the health transformation in which quality health services are to be provided to and near the community, focuses on provision of holistic health care. To enhance the health services to PWDs, several focal aspects are specifically program namely prevention and early detection of disabilities, rehabilitation services as well as continuous health promotions to the community. The programs include care of children with special needs (CWSN), blindness and low vision rehabilitation program and prevention and control of deafness, as well as rehabilitation services for adult PWDs at the health clinics and community level. Services will be planned and implemented in line with The

Plan of Action for Health Care For PWDs 2011-2020, PWD Act 2008 and The Convention on The Rights of PWD 2008.

- **Prevention and Early Detection of Disability in Children**

Early detection of disabilities is important as appropriate treatment, referral and early intervention can be provided to those children identified with disabilities. The key performance indicator for this program is early detection of disabilities among children 0-1 years. The detection rate target was set at 0.12%, and in 2015 this detection rate was recorded at highest rate 0.15 % as compared to the past four years. Children who were identified with disabilities will be given appropriate treatment, referral and early intervention. The types of disabilities identified in 2015, as shown in Figure 29.

FIGURE 29
PERCENTAGE OF CHILDREN AGED 0 – 18 YEARS DETECTED ACCORDING TO TYPES OF DISABILITIES, MALAYSIA, 2015

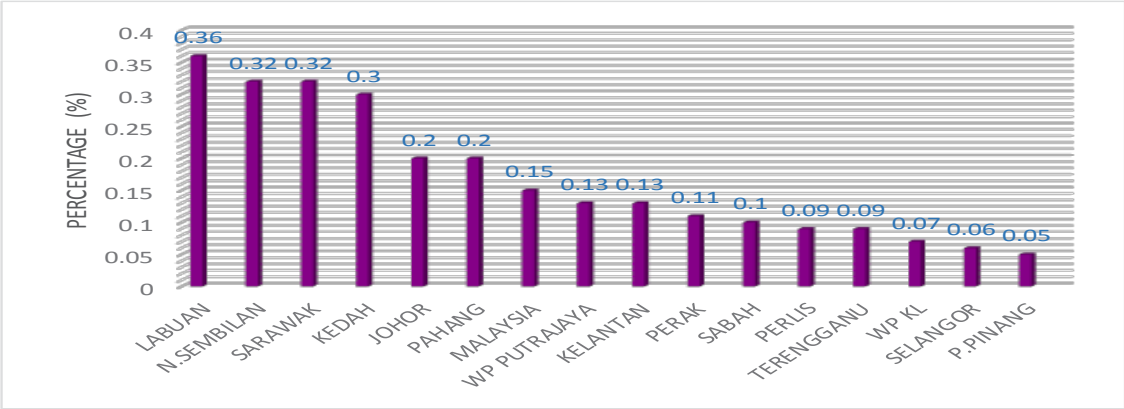


Sources: Health Informatics Centre, MoH

- **Modified Checklist for Autism in Toddlers (M-CHAT)**

The M-CHAT is a screening tool that used to screen for signs of autism among the children at age 18 months and 3 years. This screening was started in 2013, and also incorporated into the new Child Health Record Book. Children suspected with autism are provided with early intervention by the multidisciplinary team. In year 2015, this indicator, percentage of children screened at 18 months using M-CHAT with suspected autism was identified as one of the Key Performance Indicator (KPI) for the Director General of Health Malaysia. The target set was 0.16%. The overall achievements for 2015 were 0.15%, as shown in Figure 30.

FIGURE 30
PERCENTAGE OF CHILDREN SUSPECTED AUTISM, USING M-CHAT AS SCREENING TOOL AT 18 MONTHS OLD, 2015

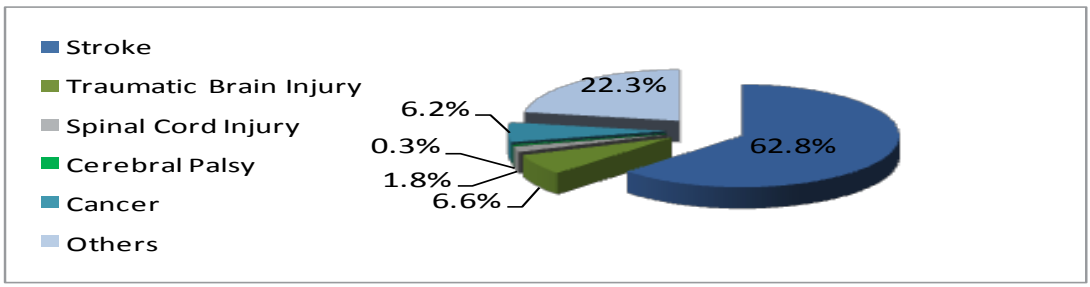


Sources: Family Health Development Division, MoH

- **Domiciliary Healthcare**

Domiciliary Healthcare (DHC) in primary health care was introduced and implemented on July 2014, in line with the health transformation health services, where services are to be provided to and near the community, focuses on provision of holistic health care. This service is provided at home to the stable bedridden patient discharged from the hospital to improve their quality of life. The involvement of family members or caregivers in the care of bedridden patient is a pre-requisite to access to this service. A total of 160 health clinics throughout Malaysia are actively carrying of this service which run by the basic team (Nurse and Medical Assistant) supported by a multidisciplinary team (MDT). Total new cases registered with DHC for year 2015 were 2,282 and 63% of them were elderly. The percentage of cases, based on diagnosis for 2015 is shown in Figure 31.

FIGURE 31
PERCENTAGE OF CASES BASED ON DIAGNOSIS SEEN BY THE MDT, 2015



Sources: Family Health Development Division, MoH

- **Research Promotion**

A study to identify the magnitude of the disability in the Malaysian population and the overall prevalence was conducted in collaboration with the Public Health Institute, MoH. Using the disability related questions (Washington Group on Disability Statistic: Short Questionnaires on Disability) in the National Health and Morbidity Survey (NHMS) 2015 will allow the findings to be comparable to other countries. The finding showed that 11.8% of overall population in Malaysia has a disability. Prevalence of disabled person diagnosed with non-communicable diseases was also studied and the findings as in Table 19.

TABLE 19
PREVALENCE OF NCD CONDITIONS AND RISK FACTORS AMONG DISABLED POPULATION COMPARED TO GENERAL POPULATION, 2015

DIAGNOSES	PREVALENCE (%)	
	Disabled population	General population
Diabetes	30.4	17.5
Hypertension	53.9	30.3
Hypercholesterolemia	56.6	47.7
Current smoker	17.0	22.8
Current drinker	5.8	8.4

Sources: Institute Public Health, MoH

National Blue Ocean Strategy 7 (NBOS 7)

The 1Malaysia Family Care is an initiative under the National Blue Ocean Strategy 7 (NBOS 7) by the government to provide a holistic support for elderly, persons with disabilities and single mothers. This initiative was in collaboration between the MoH and the Ministry of Women, Family and Community Development.

Activities for single mother focused on resilience building for single mothers which include mental health assessment, health risk screening, counseling and stress management. A total of 21,759 single mothers were screened in 2015, where 11,463 (52.7%) of them had at least one health risks, and 9,869 (86.1%) was referred for further management. The most common health risks identified were hypertension (46.3%), diabetes (33.2%) and overweight (14%).

For Person With Disabilities (PWDs), services provided under 1Malaysia Family Care were outreach services provided to PWDs attending Community-Based Rehabilitation

Centre (CBR) established under the Social Welfare Department, as per guided by the Manual *PDK Ku Sihat.* In 2015, a total number of 501 CBR was visited by the health care personnel. The main activities during the outreach services is to encourage adoption of healthy life style practices among the PWDs and carer through health promotion and screening, early treatment and referral if necessary. A total of 15,428 (96.2%) out of 16,037 PWDs attending CBR had undergone health screening, and given further treatment.

For the elderly, services provided were health screening and appropriate intervention for those in the institutions and bed-ridden at home. Training for the care givers of the bed-ridden elderly at home was also provided.

TABLE 20

ACHIEVEMENTS FOR NBOS 7-1MALAYSIA FAMILY CARE FOR THE ELDERLY, 2015

NBOS 7	% Achievement
Elderly in institutions screened	87.6
Elderly in institutions treated	121.8
Bed-ridden elderly at home screened	77.6
Bed-ridden elderly at home treated	144.1
Care givers for bed-ridden elderly at home trained	111.8

Source: Family Health Development Division, MoH.

The 1Malaysia Civil Service Retirement Support (1Pesara) is another initiative under NBOS 10, and led by Public Service Department. This initiative offered retired civil servants a holistic economic and social support for a meaningful post-retirement life. There were five main thrusts in this strategy, where the fifth thrust is Healthcare Advocacy which is under the purview of MoH. Under this Thrust, the activities were:

a. To implement The "R-Lane (Rapid Lane)"; this is a priority lane for the government's pensioners when they come to our Public's facilities.
b. To do Health screening.
c. Health education/promotion by giving health talk to the government's pensioners.

TABLE 21
THE OUTCOMES OF THE ACTIVITIES UNDER NBOS10: 1PESARA (THE THRUST OF HEALTHCARE ADVOCACY), 2015

NO.	ITEMS		ACHIEVEMENTS (%)
1.	**Implementation of R-Lane**		
	Percentage of Facilities Implemented "R-Lane"	1.1 Health Clinics	74
		1.2 Hospitals	84
		1.3 Dental Clinics	83
2.	**Five (5) main risks detected during health screening.**		
	2.1 Not active physical		13.6
	2.3 Hypertension		8.3
	2.4 Overweight		11.9
	2.5 Risk of diabetes		7.5
	2.7 Smoking/consume tobacco.		8.0
NO.	**ITEMS**		**ACHIEVEMENTS (%)**
3.	**Five (5) diagnoses detected.**		
	3.1 Hypertension		22.2
	3.2 Diabetes		17.0
	3.3 Joint problem		9.0
	3.4 Dental problem		3.1
	3.5 Asthma / COAD		3.5

Source: Family Health Development Division, MoH.

Family Doctor Concept (FDC)

The Family Doctor Concept is one of the initiatives under MoH's transformation initiative to strengthen primary healthcare services in Malaysia. It is a population-based approach in which a primary healthcare team is assigned to a designated population in the health's clinic operational area and responsible to monitor the population's health status and developing appropriate interventions based on the population's needs in a holistic and life course approach. Each team consists of Family Medicine Specialist, Medical Officer, Assistant Medical Officer, Nurses, Occupational Therapist, Physiotherapist and Dietician. The pilot was carried out in 14 health clinics, one from each State since 2014.

There were client and staff satisfaction surveys done by some of the pilot clinics and simply showed positive results such as clients like the idea of seeing the same doctor on each visit and the staffs agree that the concept makes the 'womb to tomb' easier to comprehend. Human resource capacity including skilled personnel is most crucial in ensuring sustainability of the project. The current standing of human resources is still

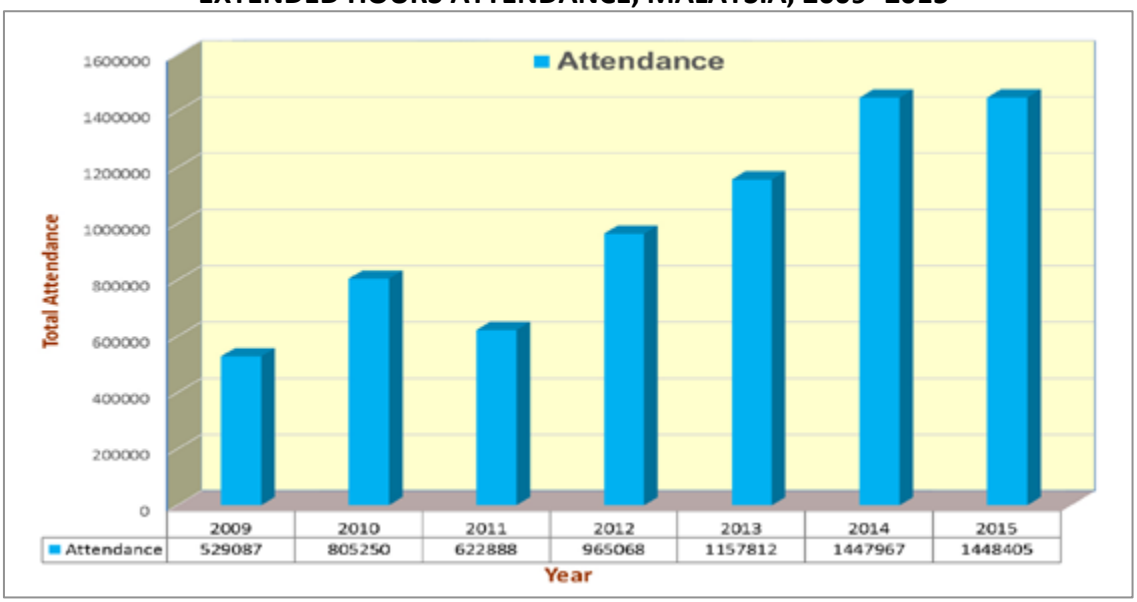
using the existing staffs in each pilot clinic. The next step will be training in phases to enhance the concept within the staffs in order to create a workforce named "Public Health Care Team". In facilitating population registration, a web based data entry was developed and a total of RM2.9 million was allocated for ICT support for FDC to all states. Additional equipment such as ultrasound machines, computers, weighing machines, daptones and glucometers were procured to facilitate FDC implementation. It is planned for 48 health clinics to implement FDC throughout the country each year in the 11th Malaysia Plan.

Extended Hours Service

A vigilance monitoring of attendance in the extended hours services was continued in 71 health clinics (Figure 32 and Figure 33). Close monitoring of attendance for fever and suspected dengue was done for clinics which had extended their operational hours for dengue outbreak and the opening hours reviewed based on the local dengue situation.

FIGURE 32

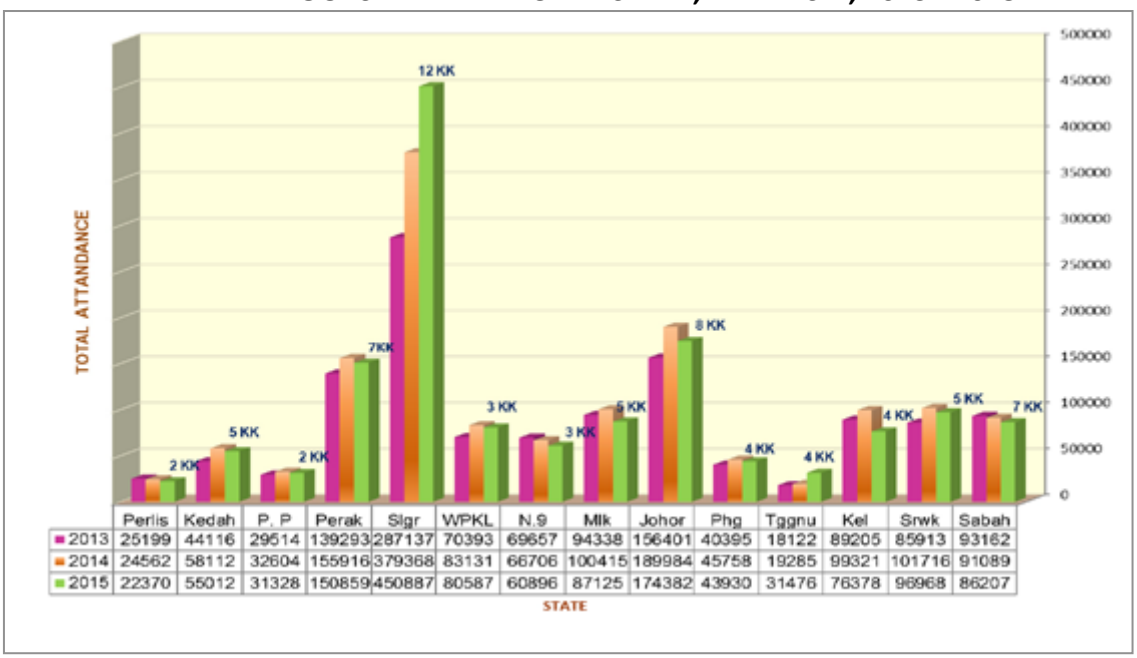
EXTENDED HOURS ATTENDANCE, MALAYSIA, 2009 -2015



Source: Family Health Development Division, MoH

FIGURE 33

EXTENDED HOURS ATTENDANCE BY STATE, MALAYSIA, 2013 - 2015



	Perlis	Kedah	P. P	Perak	Slgr	WPKL	N.9	Mlk	Johor	Phg	Tggnu	Kel	Srwk	Sabah
2013	25199	44116	29514	139293	287137	70393	69657	94338	156401	40395	18122	89205	85913	93162
2014	24562	58112	32604	155916	379368	83131	66706	100415	189984	45758	19285	99321	101716	91089
2015	22370	55012	31328	150859	450887	80587	60896	87125	174382	43930	31476	76378	96968	86207

Source: Family Health Development Division, MoH

Health Clinics Advisory Panel (HCAP)

HCAP is a community participation initiative at the primary healthcare level with members of the community working with the clinics in a bid to make individuals be responsible for their own health. A sum of RM4.1 million budgets from the Ministry were allocated for HCAP activities. Each HCAP received RM5, 000 directly into their accounts to carry out health promotion projects at the primary healthcare level.

In 2015, the biennial 7th HCAP Convention was organized in Kota Bharu Kelantan with a theme *Mengekal Prestasi Cemerlang.* About 500 participants attended from all states. The highlight of the event was the oral and posters competitions among the HCAP, and the book on Indicator Manual for Health Clinic Advisory Panels was also launched.

TABLE 22
ORAL WINNER IN HCAP CONVENTION, 2015

NO	TITLE	HCAP
1.	*Program Jelajah Warga Emas 2014*	KK Kg Gial, Perlis
2.	*Program Obesiti Sifar*	KK Taiping, Perak
3.	*Sharing Is Caring*	KK Seberang Jaya, P.Pinang

Source: Family Health Development Division, MoH

TABLE 23
POSTER WINNERS IN HCAP CONVENTION, 2015

NO	TITLE	HCAP
1.	*Saringan Awal Pengesanan Katarak Warga Emas*	KK Arau, Perlis
2.	*Sihat Di Usia Emas*	KK Merbok, Kuala Muda, Kedah
3.	*Program Intervensi Obesiti di Kalangan Remaja Sekolah*	KK Kuala Dungun, Terengganu

Source: Family Health Development Division, MoH

In addressing Non Communicable Disease (NCD) burden, HCAP has collaboration with multiple representatives of the communities with programs for NCD intervention.

TABLE 24
NUMBER OF NCD INTERVENTION ACTIVITIES BY HCAP, 2015

STATE	HCAP	HEALTH CAMPS (NCD SCREENING*)	HCAP INDICATOR (OBESITY INTERVENTION)
Perlis	9	11	2
Kedah	59	48	4
Pulau Pinang	31	28	2
Perak	78	52	14
Selangor	60	70	2
N.Sembilan	50	46	8
Melaka	27	24	4
Johor	96	108	8
Pahang	75	80	10
Terengganu	42	48	3
Kelantan	71	93	7
Sabah	113	98	0
Sarawak	110	100	5
WP Labuan	1	2	1
WP Kuala Lumpur & Putrajaya	28	28	1
TOTAL	**850**	**836**	**71**

Source: Family Health Development Division, MoH,
**NCD screening includes blood pressure, blood glucose level and BMI.*

Routine Medical Examination in Higher Learning Institutes, Schools and Lock-up

Routine Medical Examination has been conducted in health clinics and currently is being standardized as using the same format amongst higher learning institutes and schools. A special medical examination named as "PHC Custodial Medicine Team" for lock-up centers has been created in order to cater lock-up detainees. A module for this custodial medicine team is in process to be finalized before engaging the PHC staffs for training.

Monitoring of waiting time in health clinics

Waiting time is monitored nationally through the *eMASA* and TelePrimary Care (TPC) system. Through the TPC system, the proportion of patients who achieved the targeted waiting time of less than 90 minutes for consultation by the Medical Officer ranged between 76% and 85%, exceeding the targeted 70%. The proportion of patients who achieved the targeted waiting time of less than 90 minutes for consultation by the Medical Officer from the *eMASA* ranged between 98.2% and 99.6%, exceeding the targeted 70%, as shown in Figure 34 below.

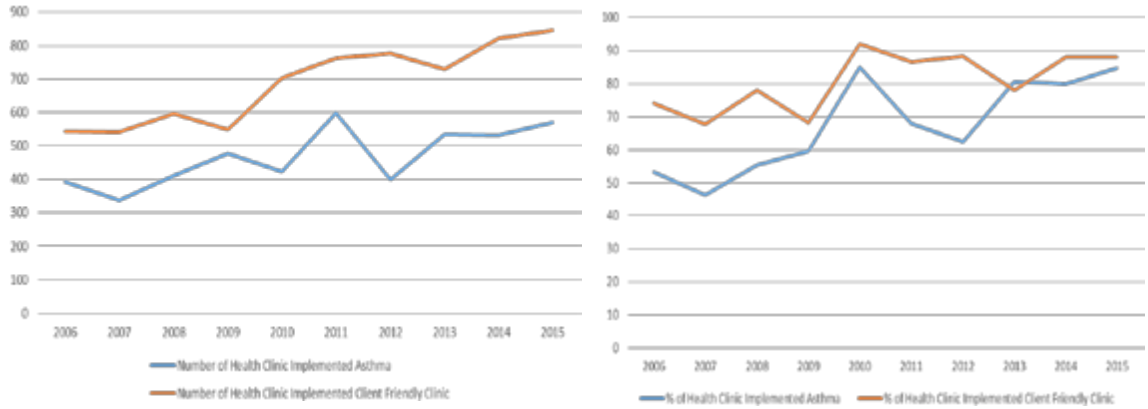
FIGURE 34
PERCENTAGE OF WAITING TIME TO CONSULTATION WITH DOCTOR ≤ 90 MINUTES, THROUGH TPC AND eMASA, 2015

Source: Family Health Development Division, MoH

Quality Assurance Program (QAP) In Primary Healthcare

In 2015, the number of clinics participated in the Appropriate Management of Asthma and Client Friendly Clinic had increased as compared to 2014 (Figure 35). However, the percentage of clinics that participated in the Appropriate Management of Asthma had reduced. This was due to increase in number of denominator been used, that is clinics with Medical Officer.

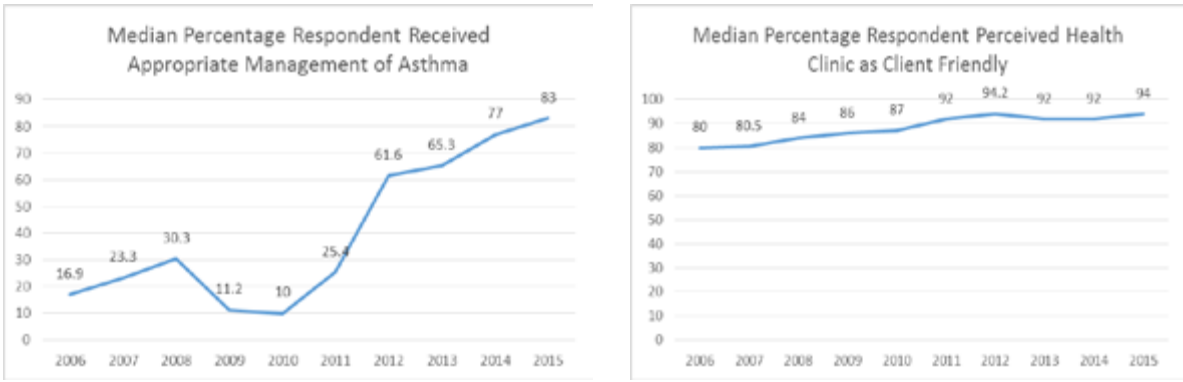
FIGURE 35
NUMBER OF CLINICS PARTICIPATED IN APPROPRIATE MANAGEMENT OF ASTHMA AND CLIENT FRIENDLY CLINIC, 2006-2015



Source: Family Health Development Division, MoH

National training for FMS and training on the Asthma Guideline, organized by the Malaysian Thoracic Society and Family Health Development Division respectively, have contributed to the increase in appropriate asthma management in 2015 (Figure 36). The perception of client-friendly clinics had also increased among the clients.

FIGURE 36
PERCENTAGE OF RESPONDENT RECEIVED APPROPRIATE MANAGEMENT OF ASTHMA AND RESPONDENT PERCEIVED HEALTH CLINIC AS CLIENT FRIENDLY, 2006-2015



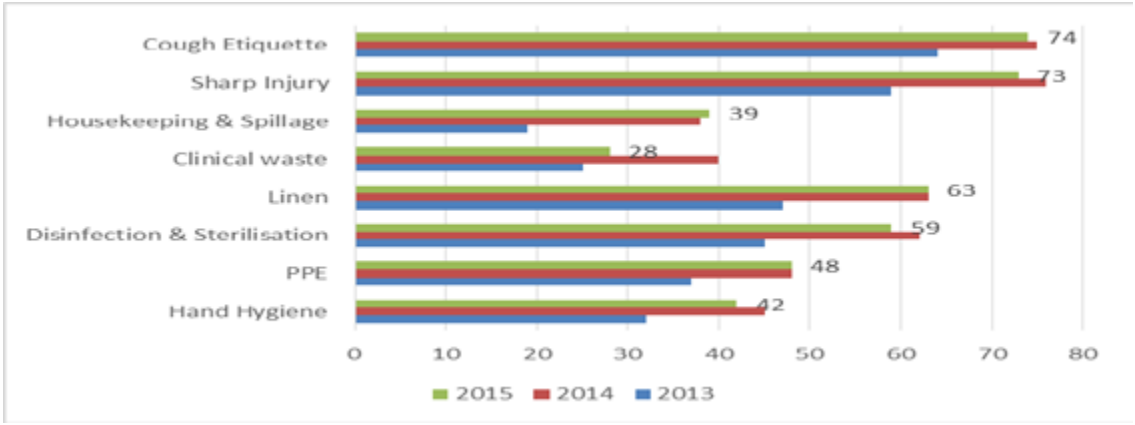
Source: Family Health Development Division, MoH

Patient Safety Program in Primary Healthcare

Two activities implemented in primary healthcare are Infection Control and Malaysian Patient Safety Goals. Cumulatively, more than 70% (2,401/3,366) of the primary healthcare facilities had been audited for implementation of standard precautions,

since it started in 2012. High compliance rate of more than 50% was showed in cough etiquette, management of sharp injuries, linen and sterilization. Clinical waste disposal showed the lowest compliance rate of 28% as shown in Figure 37.

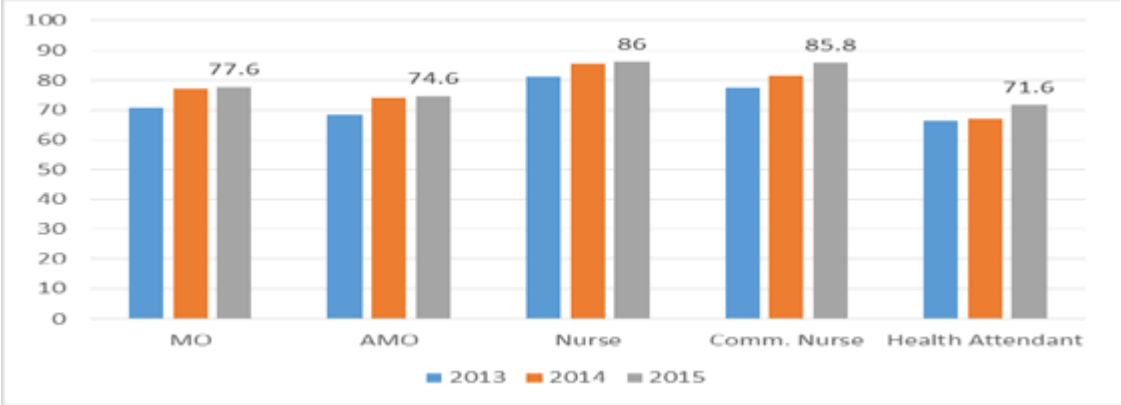
FIGURE 37
AUDIT FINDINGS OF STANDARD PRECAUTION IMPLEMENTATION IN PRIMARY HEALTHCARE, 2013-2015



Source: Family Health Development Division, MoH

Surveillance on hand hygiene compliance among the staff involved directly in patient care showed that nurses has highest compliance rate of 86% and Health Attendant has the lowest compliance rate of 86% as shown in Figure 38.

FIGURE 38
HAND HYGIENE COMPLIANCE RATE AMONG HEALTHCARE WORKER, 2013-2015



Source: Family Health Development Division, MoH

Reporting of Malaysian Patient Safety Goals by health clinics and maternal and child health clinics was started in 2014. The four goals that applicable to primary healthcare clinics are to implement clinical governance and incident reporting, ensuring

medication safety and reducing patient falls. 99.6% health clinics and maternal and child health clinics had reported in 2015 as compared to only 37.3% in 2014.

Primary Emergency Care

Provision of emergency services at primary health care facilities is supported mainly by infrastructure, manpower and equipment. In 2015, there were 841 ambulances in the health clinics and 72% were functioning and in good condition. 90 ambulances were allocated to health clinics to be distributed in 2015/2016. 45% of emergency cases were treated after office hours. The emergency alert system which is a computerized system that can objectively monitor the time taken to respond to emergency cases after office hours has been installed in 263 health clinics. 94.3% of the cases using this system were seen within 15 minutes. 328 health clinics are in the network of major hospitals with Medical Emergency Coordinating Centre (MECC). The clinics respond and dispatch ambulance to emergency calls.

A technical meeting for emergency services at primary care level was held on 8 July 2015 with the state primer officers, emergency physicians and state assistant medical officers. It was a platform to discuss on issues related to improving emergency services at primary health facilities.

In 2015, two national training in management of emergency cases were conducted for the community nurses in Sibu and another for assistant medical officers together with the staff nurses in Miri. Training for ambulance drivers were also carried out by the individual states as is required by the Director General's circular issued in 2011. The *Garis Panduan Perkhidmatan Kecemasan Dan Ambulans Di Fasiliti Kesihatan Primer* was distributed to all primary health facilities.

Mobile Health Services

Mobile health services aim to increase accessibility to comprehensive primary health care services for the population in remote areas and marginalized groups. As shown in Table 25, there were 235 mobile teams providing such health services in 2015, including 14 teams for 1Malaysia Mobile Health Clinic *(Klinik Bergerak 1Malaysia - KB1M)*, which also provide services by doctors in customized vehicles, boats or buses, functioning as on site clinics.

TABLE 25
MOBILE HEALTH TEAMS, MALAYSIA, 2015

STATE	1MALAYSIA MOBILE HEALTH CLINIC		MOBILE HEALTH CLINIC			TOTAL
	BUS	BOAT	AIR	LAND	WATER	
Kedah	-	-	-	3	1	**4**
Perak	1 Bus (2 Teams)	-	1	16	1	**20**
Selangor	1 Bus (2 Teams)	-	-	20	-	**22**
N. Sembilan	-	-	-	8	-	**8**
Johor	1 Bus (2 Teams)	-	-	19	2	**23**
Pahang	2 Buses (4 Teams)	-	-	20	-	**24**
Terengganu	-	-	-	1	-	**1**
Kelantan	-	-	-	4	-	**4**
Sabah	-	2 boats (4 teams)	2	18	4	**28**
Sarawak	-	2 boats (4 teams)	9	64	24	**101**
TOTAL	**5 Buses (10 Teams)**	**4 Boats (8 Teams)**	**12**	**173**	**32**	**235**

Source: Family Health Development Division, MoH

The basic services provided are maternal and child health including immunization, treatment of minor illnesses, control of communicable diseases, environmental health and sanitation and emergency care. The attendances for these services has been steadily increasing from 38,868 in 2011 to 58,336 in 2013 to 80,981 in 2015 in relation with the increased number of vehicles and localities covered as seen in Table 26.

TABLE 26
ATTENDANCES AT 1MALAYSIA MOBILE HEALTH CLINICS, 2011-2015

STATE	2011	2012	2013	2014	2015
Selangor	8,676	9,572	5,410	4,181	5,234
Perak	7,008	9,830	8,742	6,415	7,698
Pahang	12,409	25,567	22,662	22,217	24,654
Johor	4,762	9,907	8,779	10,386	14,270
Sarawak	6,013	6,938	9,539	11,439	15,853
Sabah	0	0	3,204	10,705	13,272
TOTAL	**38,868**	**61,814**	**58,336**	**65,343**	**80,981**

Source: Family Health Development Division, MoH

Two technical meetings on Mobile Health Services including KB1M were held in February and June 2015. The issues discussed included expansion of rural health services as a priority in 11th Malaysia Plan (11thMP) and decided the KPI for new

attendance should increase by 1% - 2% every year. The *Garis Panduan Perkhidmatan Doktor Udara di Negeri Sabah dan Sarawak* was printed and circulated to Sabah and Sarawak.

Primary Medical Care

Medical care services at health clinics are delivered in an integrated manner encompassing wellness, illness, emergency services and medical support services. Collaborations with the relevant sectors were initiated to implement and monitor the quality of services in the clinics. With the increasing prevalence of NCD in Malaysia and the fact that a significant proportion of the diabetes (9.2% from 17.5% diabetes prevalence), hypertension (17.2% from 30.3% hypertension prevalence and those with hypercholesterolaemia (38.6% from 47.7% hypercholesterolaemia prevalence) are undiagnosed, screening for early detection of NCD is an imperative in the control of NCDs.

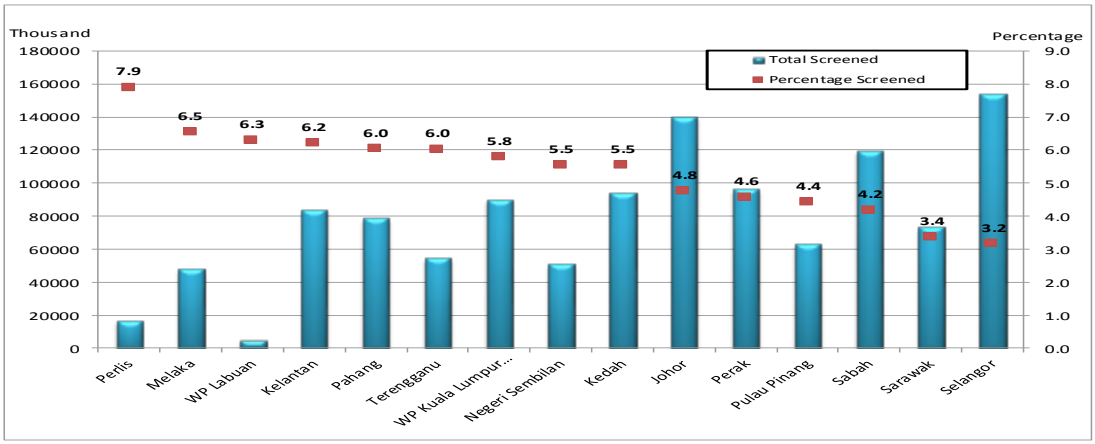
- **Integrated Health Risk Screening**

Integrated health screening is intended for holistic care of outpatients in the health clinics. Using the comprehensive and integrated screening tools, health risks are prioritized according to age groups. The strategy is to identify and manage risks early and appropriately to prevent progression to disease.

5% from each population age group had been targeted to be screened every year whereby each health clinic is responsible to screen 5% of their adolescent population, 5% of their male adults, 5% of their female adults and 5% of their elderly. This target was set to promote health screening in the community.

In 2015, a total of 1,163,622 people were screened which comprised of 4.6% of the estimated Malaysian population aged 10 years and above (i.e. 25,030,000). Nine states achieved the targeted 5% population screening as shown in Figure 39.

FIGURE 39
NUMBER AND PERCENTAGE OF POPULATION SCREENED BY STATE, 2015



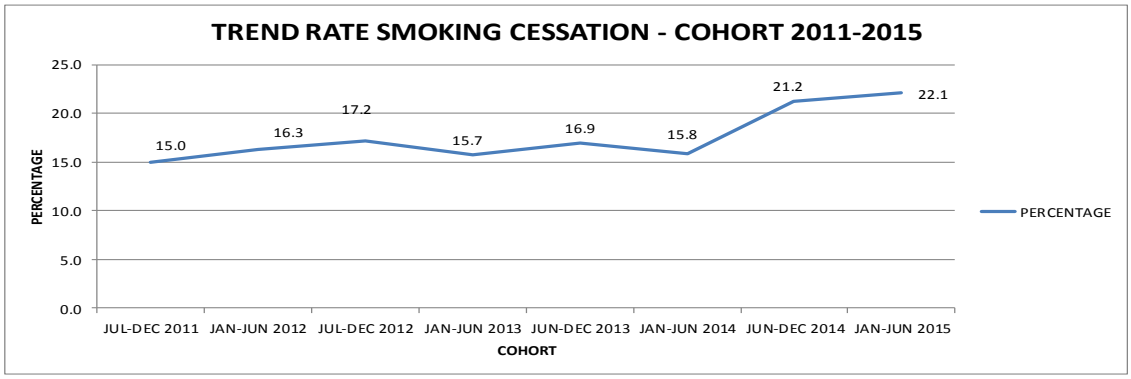
Source: BSSK Screening, Family Health Development Division, MoH

Half of those screened (488,287) were found to have at least one health risk. The most common health risks were being overweight (13%), physically inactive (11.6%) and unhealthy eating habit (8.9%). Various risk interventions were done including health promotion and health education, health advice and counseling.

- **Quit Smoking Service in Health Clinics**

Those detected to be smoking are encouraged to quit and are referred to Quit Smoking services in health clinics. They will undergo counseling sessions followed by non-pharmacotherapy and also pharmacotherapy using Nicotine Replacement Therapy and Varenicline. From the year 2000 until 2010 there were 326 clinics which provided the quit smoking services and this had expanded to 491 clinics in the year 2015, with a total of 8,058 registered clients. The smoking cessation rate had been targeted at 15%, and for the January to June cohort of 4,111 clients, 908 (22.1%) had been able to quit smoking. Meanwhile, data from cohort study from July to December 2015 will be completed in June 2016. The trend of quit rate in health clinics is shown in Figure 40.

FIGURE 40
TREND IN QUIT RATE IN HEALTH CLINICS, COHORT, 2011 – 2015



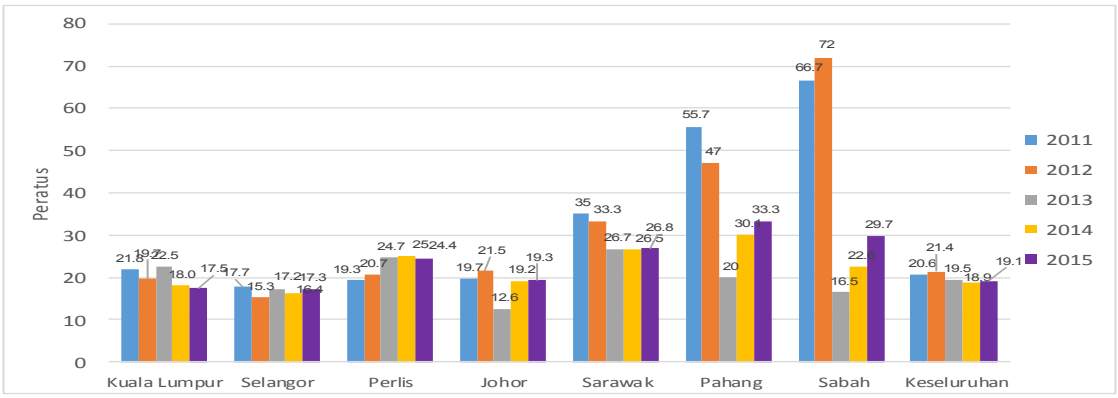
Source: Family Health Development Division, MoH

- **Non Communicable Diseases Management in Primary Healthcare**

In 2015, as part of the Malaysia's Health System Research (MHSR), the quality of care for diabetes was evaluated using data from TelePrimary Care system (TPC) and National Diabetes Registry (NDR). The target for control was found to be better as compared to other locally published cross sectional studies. Control of diabetes and hypertension were reasonably achieved, with about 50% of patients achieving good control. Hypertension control in this study, at 50%, is comparable to a few published cross sectional studies evaluating BP control in public clinics. Major metabolic indicators for diabetes, i.e. blood pressure target (<=140/80mmHg), total cholesterol target (<=5mmol/L) and HbA1c (<=7.5mmol/L) were achieved in 54.8%, 52.6% and 54% of patients respectively, which is higher than found in most cross sectional studies done locally.

Looking at diabetes and hypertension control using TPC data alone in health clinics in 2015, a total of 33,574 Diabetes patients' data have been analyzed from the 85 TPC health clinics. Figure 41 shows that the status of Diabetes control varies by state but this was strongly influenced by HbA1c data entry into the TPC system. There was a slight increase in the rate of diabetes control (HbA1c) from 18.9% (2014) to 19.1% (2015).

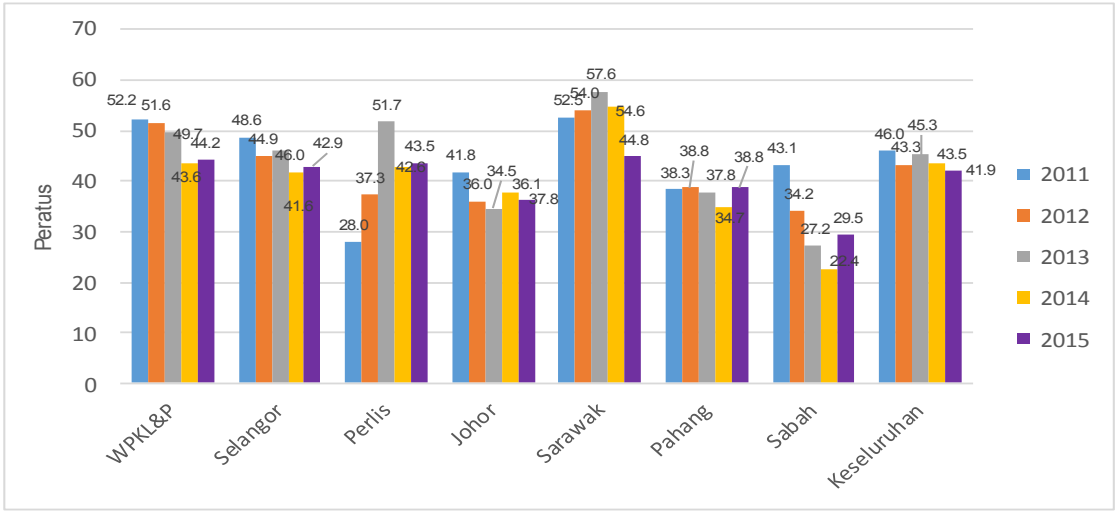
FIGURE 41
CONTROLLED DIABETES BY TPC DATA, 2011 – 2015



Source: Health Informatics Unit, Family Health Development Division, MoH

Similar with diabetes, the quality of care for hypertension is indicated by proportion of patients reaching the blood pressure target of less than 140/90 mmHg. The target is for at least 50% of the hypertensive to achieve control. In 2015, 41.9% of controlled hypertensive patient was recorded as compared to 43.5% in the year 2014. Nevertheless this analysis is limited by the completeness of data entered into the TPC system in selected states.

FIGURE 42
CONTROLLED HYPERTENSION BY TPC DATA, 2011 – 2015



Source: Health Informatics Unit, Family Health Development Division, MoH

Mental Health Services in Primary Care (Health Clinics)

Mental health is an essential component of health and mental health services had been integrated into primary health care services since the late 1990s. Services include promotion of well-being, prevention of mental disorders, mental health screening, treatment and rehabilitation of people affected by mental disorders.

In 2015, a total of 1,163,623 of outpatient attendance had been screened for risk of mental health problems using the BSSK screening format. Out of this, 14,927 (1.3%) were identified to have risk of mental health problems. The elderly had the highest proportion of those detected at risk for mental health problems.

TABLE 27
NUMBER OF PEOPLE SCREENED & PERCENTAGE OF MENTAL HEALTH RISKS BY AGE GROUP, 2015

Age Group	Number Screened	Number with Mental Health Risks	Percentage
Adolescent	327,117	3,997	1.2%
Adult (Male)	289,231	3,043	1.1%
Adult (Female)	335,960	4,237	1.3%
Elderly	211,315	3,650	1.7%
TOTAL	**1,163,623**	**14,927**	1.3%

Source: BSSK Screening, Family Health Development Division, MoH

A total of 275,789 had been screened using DASS (Depression Anxiety Stress Scales) with 41,768 (15.1%) detected with anxiety, 30,438 (11.0%) with stress and 25,455 (9.2%) with depression.

For the year 2015, a total of 25,186 cases received treatment at health clinics, as compared to 28,720 in 2014. Out of this, 8.9% (2,229) were new cases. Stable cases that were on follow-up in health clinics were given pharmacological treatment, counseling and in selected health clinics, psychosocial rehabilitation. Their compliance to treatment was monitored to prevent relapses and in 2015, the defaulter rate of 8.0% (2,021 cases) was noted, meeting the WHO target of less than 10%.

There were 17 psychosocial rehabilitation centres established in health clinics. The main objective of these centres was to assist mentally ill patients to understand and control their illness, to achieve optimal functional level and to integrate them back into

the community. A total of 229 clients attended rehabilitation at these centres. With the recent Mental Health Act 2001 and Mental Health Regulation 2010 taking effect, these psychosocial rehabilitation centres would be upgraded into community mental health centres, run by the psychiatric services under the purview of Hospital Development Division, which would provide more comprehensive services (screening, intervention, treatment and rehabilitation) for people with mental health problems.

- **Hemodialysis Service in Health Clinics**

Hemodialysis Service is a tertiary medical service. However, renal failure patients living in remote areas have no access to haemodialysis centres and therefore MoH provides dialysis service at the health clinics. Haemodialysis services in health clinics are service extensions from the parent hospital, in which nephrologist from the nearest hospital runs these services with the support of the doctors in the clinics.

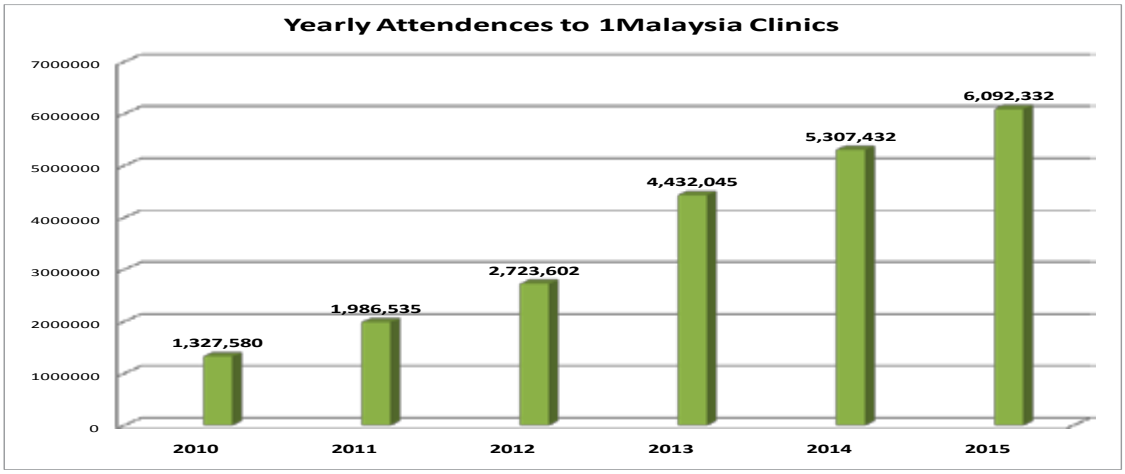
Following up on the two health clinics which provided haemodialysis in the year 2013, another three (3) clinics had started hemodialysis services in 2014, namely Klinik Kesihatan Song, Sarawak, Klinik Kesihatan Sungai Lembing, Pahang and Klinik Kesihatan Mahligai, Kelantan. In the year 2015, Klinik Kesihatan Debak, Betong, Sarawak, had started hemodialysis services and another five (5) clinics in renovation and preparation to start hemodialysis services namely Klinik Kesihatan Bestari Jaya, Selangor, Klinik Kesihatan Bandar Mas, Johor, Klinik Kesihatan Chiku 3, Kelantan, Klinik Kesihatan Batu Niah, Miri, Sarawak and Klinik Kesihatan Tatau, Bintulu, Sarawak.

- **1Malaysia Clinics (MC)**

The establishment of 1MC was aimed to improve primary health care access among lower income communities in urban areas. In 2015 was a challenging year as establishment of new 1Malaysia Clinics was done at the expense of staffs redeployment from existing facilities due to freeze on creation of new posts throughout the year. Despite these challenges, out of 30 planned new 1MC, 23 were able to commence operation in 2015.

The number of 1MC providing Maternal and Child Health has increased to 52 locations from 28 the previous year. Number of 1MC providing NCD treatment has also increased to 51 locations from 32 in 2014. 68 1MC has medical officers compared to 32 in the previous year. With the increase of services provided in 1Malaysia Clinics, attendance also increases in tandem, as shown in Figure 43.

FIGURE 43
CUMULATIVE ATTENDANCE OF 1MALAYSIA CLINIC, 2010 – 2015



Source: Family Health Development Division, MoH

Clinical Support Services

With expansion of comprehensiveness of primary health care services at the service delivery level, the provision of support services is imperative to ensure that quality of care is delivered in primary healthcare facilities nationwide.

- **Human Resource Development in Primary Healthcare**

Human resource development is critical in ensuring the delivery of a comprehensive, quality and efficient primary health care service. Thus, continuous efforts have been made to increase the overall number of posts in each category, create more promotional posts and addition of new categories of professional staff in line with service expansion in primary care. These include allied health science professionals such as Medical Social Worker, Dietitian, Physiotherapist, Occupational Therapist and Optometrist.

The percentage of posts filled by healthcare professionals' in health clinics has increased slightly compared to 2014 as shown in Table 28. However, this number is still inadequate to address the population health needs in primary care. Out of 958 health clinics in 2015, the percentage of health clinics with Medical and Health Officer was 79.1%, 64.8% for Pharmacist, 78.9% for Medical Lab Technologist and 19.6% for Radiographer.

TABLE 28
FILLING OF PRIMARY HEALTHCARE POSTS BY CATEGORY, 2014-2015

Category	2014	2015
Family Medicine Specialist	250 (107%)	281 (124%)
Medical and Health Officer	3,430 (83.5%)	3,643 (98.5%)
Pharmacist	1,644 (75.5%)	1,846 (84.8%)
Assistant Medical Officer	3,758 (81.3%)	4,294 (90.0%)
Nurse	10,007 (80.1%)	10,943 (87.4%)
Pharmacist Assistant	1,954 (95.3%)	1,950 (95.0%)
Medical Lab Technologist	1,777 (88.4)	1,856 (92.4%)
Radiographer	404 (94.2%)	410 (95.3%)
Community Health Nurse	14,315 (94.1%)	13,837 (90.8%)
Medical Social Worker*	-	20 (95.2%)
Occupational Therapist*	-	215 (81.4%)
Dietitian*	-	60 (92.0%)
Physiotherapist*	-	308 (86.8%)
Optometrist*	-	1 (100%)

**Additional category monitored under Primary Care in 2015.*
Source: Family Health Development Division, MoH

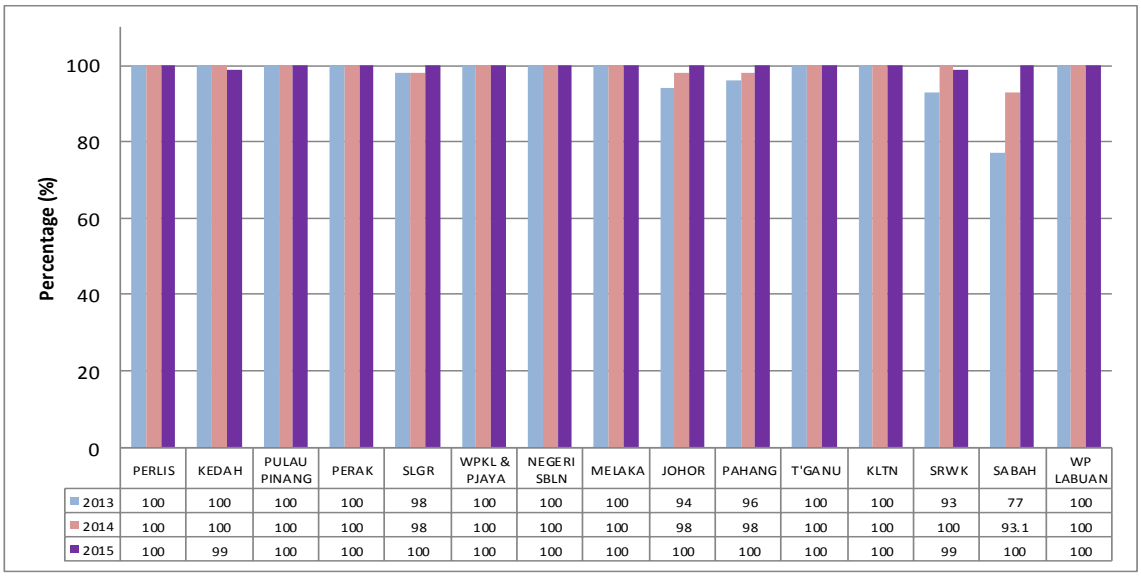
Emphasis was also given for the enhancement of Continuous Professional Development (CPD) through the introduction of a new degree program for public health nursing and formalization of a parallel pathway for Family Medicine Specialist training program. A medical and health science degree program in primary health care for Assistant Medical Officer (AMO) is also currently being developed.

- **Pathology Services in Primary Healthcare**

Continuous improvements initiatives in laboratory services have been implemented to further enhance the quality of its services. In addition to the existing Internal Quality Control and External Quality Control or Proficiency Testing (PT) activities, MS ISO 15189 accreditation initiative was introduced in 2015 for primary care laboratories. Currently, collaboration with Department of Standards Malaysia is ongoing to identify the crucial elements that these laboratories need to comply with. The Quality performance for lab turnaround time (Full blood count) had achieved nearly 100% compliance as illustrated in Figure 44. With this in view, a new indicator had been identified and implemented in 384 health clinics for serum bilirubin capillary. The number of Medical Laboratory Technologist in Primary Care Clinics had increased

slightly (3%) to 1,856, as compared to 1,801 in 2014. Similarly, there was an increase of 9.9% in the number of laboratory tests requested from 91,782,850 tests in 2014 to 100,858,417 tests in 2015 as shown in Figure 45.

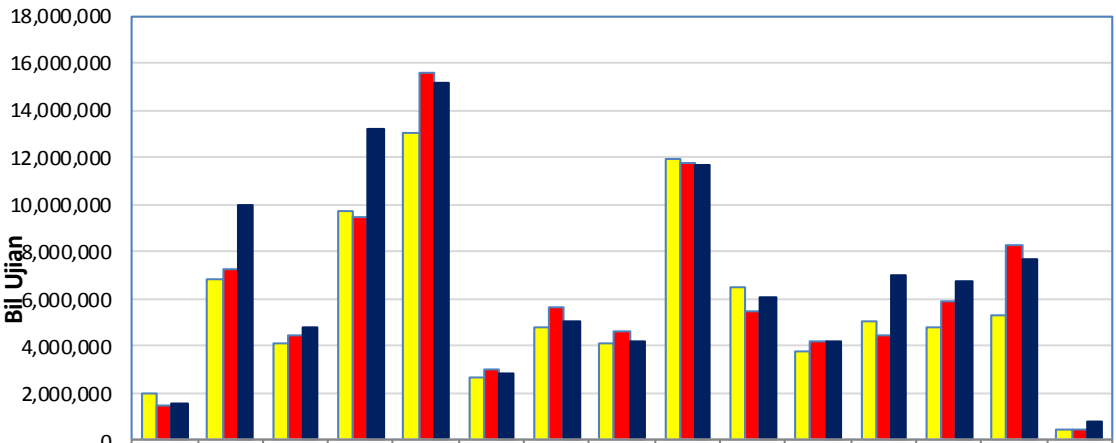
FIGURE 44
QAP OF PATHOLOGY SERVICES IN PRIMARY HEALTHCARE, 2013-2015



	PERLIS	KEDAH	PULAU PINANG	PERAK	SLGR	WPKL & PJAYA	NEGERI SBLN	MELAKA	JOHOR	PAHANG	T'GANU	KLTN	SRWK	SABAH	WP LABUAN
2013	100	100	100	100	98	100	100	100	94	96	100	100	93	77	100
2014	100	100	100	100	98	100	100	100	98	98	100	100	100	93.1	100
2015	100	99	100	100	100	100	100	100	100	100	100	100	99	100	100

Source: Family Health Development Division, MoH

FIGURE 45
WORKLOAD OF PATHOLOGY SERVICES IN PRIMARY HEALTHCARE, 2013-2015



	PERLIS	KEDAH	PULAU PINANG	PERAK	SLGR	WPKL	NEGERI SBLN	MELAKA	JOHOR	PAHANG	TERENG	KLTN	SRWK	SABAH	WP LABUAN
2013	1,937,730	6,819,062	4,084,020	9,722,451	13,010,519	2,612,600	4,813,825	4,122,542	11,933,903	6,470,976	3,780,272	5,065,493	4,807,677	5,335,677	399,550
2014	1,423,816	7,239,266	4,422,085	9,454,605	15,597,027	3,022,975	5,651,153	4,635,168	11,790,161	5,439,790	4,146,900	4,418,436	5,903,987	8,236,702	400,779
2015	1,511,413	10,022,581	4,775,070	13,195,320	15,209,045	2,794,060	5,015,918	4,208,692	11,671,154	6,063,788	4,196,625	7,006,077	6,752,561	7,688,136	747,978

Source: Family Health Development Division, MoH

- **Radiology Services in Primary Healthcare**

The national performance for quality assurance program in Radiology Services had achieved the set target of less than 2.5%. The Percentage of Film Rejection had declined from 1.11% in 2014 to 0.95% as indicated in Table 29. The film processing method is being gradually improved with the replacement of Conventional processor to Computerized Radiography (CR) system. The number of health clinics with CR system had significantly increased from 7 (2014) to 25 clinics (Table 30). In addition, another 34 units will be procured under the Medical Equipment Enhancement Tenure (MEET) project. The number of Health Clinic with Radiology Services had increased by 2.75% from 182 (2014) to 187 clinics.

Similar trend was also observed in the workload whereby the number of x-ray examination had increased by 13.8% from 707,638 (2014) to 805,122 as shown in Figure 46.

TABLE 29
QAP OF RADIOLOGY SERVICES IN PRIMARY HEALTHCARE, 2013-2015

PARAMETER	YEAR		
	2013	2014	2015
Total No. of KK participating	180/180 (100%)	182/182 (100%)	187/187
No. of KK achieve standard	161/180 (89.44%)	177/182 (97.25%)	183/187 (97.86%)
Total Percentage of Reject Film	1.21% (standard <2.5%)	1.11% (standard <2.5%)	0.95% (standard <2.5%)

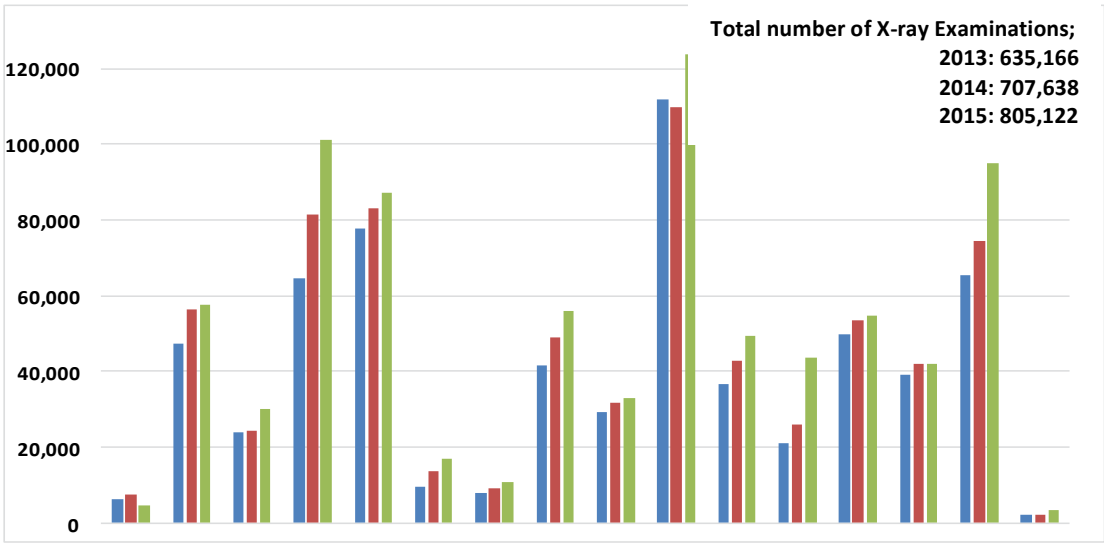
Source: Family Health Development Division, MoH

TABLE 30
NUMBER OF FACILITIES WITH CR SYSTEM, 2013-2015

EQUIPMENT / YEAR	CONVENTIONAL SYSTEM	COMPUTERIZED RADIOGRAPHY SYSTEM	TOTAL
2013	175	5	**180**
2014	175	7	**182**
2015	162	25	**187**

Source: Family Health Development Division, MoH

FIGURE 46
WORKLOAD OF RADIOLOGY SERVICES IN PRIMARY HEALTHCARE, 2013-2015



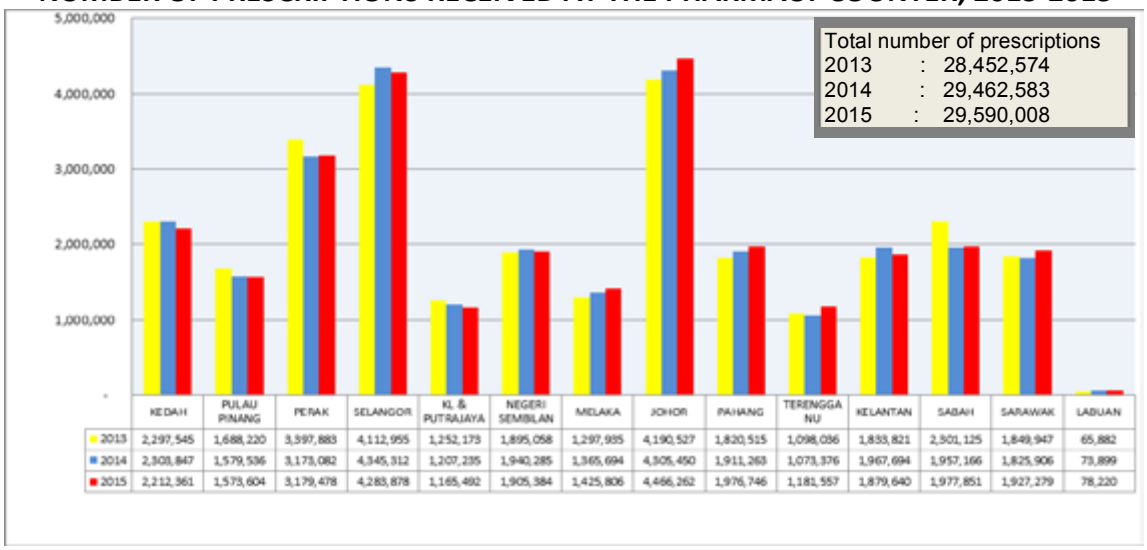
YEAR	2013	2014	2015
Perlis	6,310	7,411	4,459
Kedah	47,160	56,363	57,813
Pulau Pinang	23,950	24,421	31,274
Perak	64,509	81,636	101,348
Selangor	77,836	83,249	87,032
JKWPKL	9,706	13,805	16,826
JKWP Putrajaya	8,083	9,197	10,761
Negeri Sembilan	41,527	49,172	56,168
Melaka	29,453	31,612	33,114
Johor	112,094	109,675	123,676
Pahang	36,655	42,764	49,582
Terengganu	21,207	26,183	39,112
Kelantan	49,637	53,329	54,708
Sabah	39,059	41,952	41,853
Sarawak	65,653	74,692	95,139
JKWP Labuan	2,327	2,177	3,257
TOTAL	**635,166**	**707,638**	**805,122**

Source: Family Health Development Division, MoH

- **Pharmacy Services in Primary Healthcare**

In 2015, the emphasis was to further enhance the quality of pharmacy services in primary care especially on drug management through audit activities. A total of 81 health clinics with high workload were randomly selected from six States for this activity. There were 751 (78.3%) health clinics with pharmacy staff, an increase of 1.2% as compared to previous year. It was also noted that the number of prescription received had increased by 0.43% from 29,462,583 to 29,590,008 in 2014 and 2015 respectively (Figure 47).

FIGURE 47
NUMBER OF PRESCRIPTIONS RECEIVED AT THE PHARMACY COUNTER, 2013-2015



	KEDAH	PULAU PINANG	PERAK	SELANGOR	KL & PUTRAJAYA	NEGERI SEMBILAN	MELAKA	JOHOR	PAHANG	TERENGGANU	KELANTAN	SABAH	SARAWAK	LABUAN
2013	2,297,545	1,688,220	3,397,883	4,112,955	1,252,173	1,895,058	1,297,935	4,190,527	1,820,515	1,098,086	1,833,821	2,301,125	1,849,947	65,882
2014	2,308,847	1,579,536	3,173,082	4,345,312	1,207,235	1,940,285	1,365,694	4,305,450	1,911,263	1,073,376	1,967,694	1,957,166	1,825,906	73,899
2015	2,212,361	1,573,604	3,179,478	4,283,878	1,165,492	1,905,384	1,425,806	4,466,262	1,976,746	1,181,557	1,879,640	1,977,851	1,927,279	78,220

Source: Family Health Development Division, MoH

- **Medical Equipment Enhancement Tenure (MEET)**

The MEET project was initiated to ensure proper, timely maintenance and provision of biomedical equipment (BE). The corrective maintenance services commenced from 15 January 2015 while planned preventive maintenance from 15 June 2015. In December 2015, the Supplementary Agreement for tender and e-bidding process was concluded.

- **National Blue Ocean Strategy 6 "Health Fairs for Sabah and Sarawak"**

The initiative has been successfully implemented since July 2012 to improve access to health care for remote population in Sabah and Sarawak. The health activities that have been carried out were mainly health promotion and health screening for adults. In 2015, 30 health fairs were conducted and 2,948 participants were screened for routine medical checkup, 190 pap smears were taken, 683 persons were offered

dental screening, 149 persons received eye checkup and 683 persons received dental treatment. The initiative has received lots of support from government agencies, NGOs, private sector, volunteers and local communities.

Infrastructure

The number of primary healthcare facilities has increased in line with continuous effort to improve healthcare accessibility and equity to the population. In 2015, there were 3,203 static clinics and 239 mobile health clinics. The static clinics comprised of 958 health clinics, 103 maternal and child health clinics, 1,808 community clinics and 334 1Malaysia clinics while the mobile health clinics comprised of 203 mobile health teams (land – 177 teams, water – 32 teams and air – 12 teams) and 18 teams operating nine (9) 1Malaysia mobile clinics (five buses and four boats). There were also a total of 21 development projects for primary health care facilities under RMK-10, Rolling Plan 2015 which consisted of 20 health clinics and one quarters.

- **Clinical Support Services Facilities**

A new initiative in outsourcing the maintenance of health clinics was the Clinic Support Services, implemented from 1 July 2015, with a total of 118 (Perlis – 2, Kedah – 13, Pulau Pinang – 9, Perak – 14, Selangor – 21, Wilayah Persekutuan Kuala Lumpur and Putrajaya – 5, Negeri Sembilan – 13, Melaka – 8, Johor – 16, Terengganu – 10 and Kelantan – 7) primary health care facilities. The existing 47 projects in Pahang (10), Sabah (20) and Sarawak (17) continued to be implemented. The duration of the contracts awarded ranged from two to three years. A total of 4066 quarters were upgraded and repaired at a cost of RM131 million.

In 2015, of the 31 projects presented during the Ministry level Outcome Assessment Workshop, 16 were primary health care facilities, comprising 11 health clinics and five (5) community clinics. Of the five (5) projects chosen to be presented at the central level Outcome Assessment Committee, two (2) primary health care facility projects, namely, the Tasek Community Clinic and Quarters and the Bandar Botanik Health Clinic and Quarters, Food Quality Control Safety Laboratory and Vector and Klang District Health Office, scoring 92.5% and 89.4%, respectively.

The Medical and Design Brief prepared for RMK 9 projects was reviewed in 2015 to accommodate for the advances in the medical equipment and technologies, expansion of the scope of services and the outfit manpower by types of clinics. This Medical and

Design Brief is still in the final review and will be used as reference for new clinics that will be developed under RMK11 projects. Meanwhile the standard design for each type of clinics has also being identified. For RMK11, the standard design for Type 2 and 3 is in being finalized, however, Lenggong Health Clinics will be used as standard design for Type 4 health clinic and Kuala Balah Health Clinic for Type 5. The standard for other types are also being developed.

IMAGE 1
PRIMARY HEALTHCARE CLINICS BY TYPES AND CATEGORY

Karangan Community Clinic (Old Design)

Parit Baru Baroh Community Clinic (2G)

Kota Tinggi Maternal and Child Health Clinic

Taman Ketiau 1Malaysia Clinic

Braang Bayur Health Clinic (Type 6 by attendances/day)

Lenggong Health Clinic (Proposed Type 4 Standard Design –RMK 11)

Lenggong Health Clinic (Proposed Type Standard Design-RMK 11)

Sikamat Health Clinic (Type 3 Standard Design - RMK 10)

Cheras Health Clinic (Type 2 Standard Design -RMK 10)

Source: Family Health Development Division, MoH

TelePrimary Care (TPC)

TelePrimary Care (TPC) is a Health Information System that connects primary and secondary healthcare facilities. The backbone for this system is the TPC application developed by the MoH. The application caters to patient care from registration, consultation, order management, referral and allocation of follow-up appointment at the ambulatory care setting. Since 2005, TPC is being used in 89 primary health care facilities and specialist outpatient clinics in 6 hospitals. This accounts for only 9% of primary care facilities.

TABLE 31
TRANSACTION SUMMARY, 2010-2015

TRANSACTION TYPE	2010	2011	2012	2013	2014	2015
Total no. of new patients registered	808,785	86,0415	749,116	685,399	708,487	540,947
Total no. of visits	4,702,686	6,115,264	6,356,628	6,606,017	7,224,046	6,925,753
Total no. of medical records (Care Plan)	881,162	1,390, 212	2,043,262	2,332,243	2,474,012	3,290,237
No. of active users at year end	2,474	3,828	4,064	4,227	4,393	4,868

Note: Data source acquired as input by healthcare providers from TPC database.

- **Future Plans**

The TPC system will be upgraded to integrate the delivery of primary health care and oral health care services. The new system will optimize new technologies such as cloud computing, web services and security to improve the system functionality and is expected to be ready by end of 2016.

The new TPC-OHCIS system will be available in online and offline mode and caters not only clinic based services but will include community/outreach services and a self-monitoring portal.

- **Other Primary Care ICT initiatives**

Planning and early steps have also started for other ICT applications needed for better management and analysis of family health and primary health care programs. Several in-house applications have been developed concentrating on data gathering processes for monitoring smaller clinics and quality improvement activities.

NUTRITION

Technical Working Groups (TWGs)

Various activities were carried out by the Technical Working Groups (TWGs) under the National Coordinating Committee of Food and Nutrition (NCCFN) in 2015.

- **Technical Working Group (Nutrition Guidelines)**

TWG for Nutrition Guidelines had been carried out several workshops in 2015 to finalise a series of guidelines in 2015 as follows:

a. Dietary Guidelines for Maternal and Breastfeeding Mothers.
b. Dietary Guidelines for Elderly.
c. Dietary Guidelines for Vegetarian.
d. Malaysian Healthy Plates in partnership with the Disease Control Division.

- **Technical Working Group (Nutrition Training)**

TWG for Nutrition Training had conducted nutrition training using the *Modul Latihan Pemakanan Bayi dan Kanak-Kanak* to the KEMAS teachers and supervisors, the Association of Registered Child Care Providers Malaysia and to the Department of National Unity and Integration nationwide. A collaboration with INTAN Bukit Kiara and I-Matec Centre had been carried out to upload the *Modul Latihan Pemakanan Bayi dan Kanak-Kanak* into Public Sector E-Learning System (EPSA).

- **Technical Working Group (Nutrition Research)**

TWG for Nutrition Research had carried out two activities throughout 2015 as follows:

a. The publication of Nutrition Research in Malaysia - Selected Bibliography of Published Journal Articles Volume II.

b. The series of meeting to harmonized Nutrition Research Priorities for 11th Malaysian Plan (2016-2020)

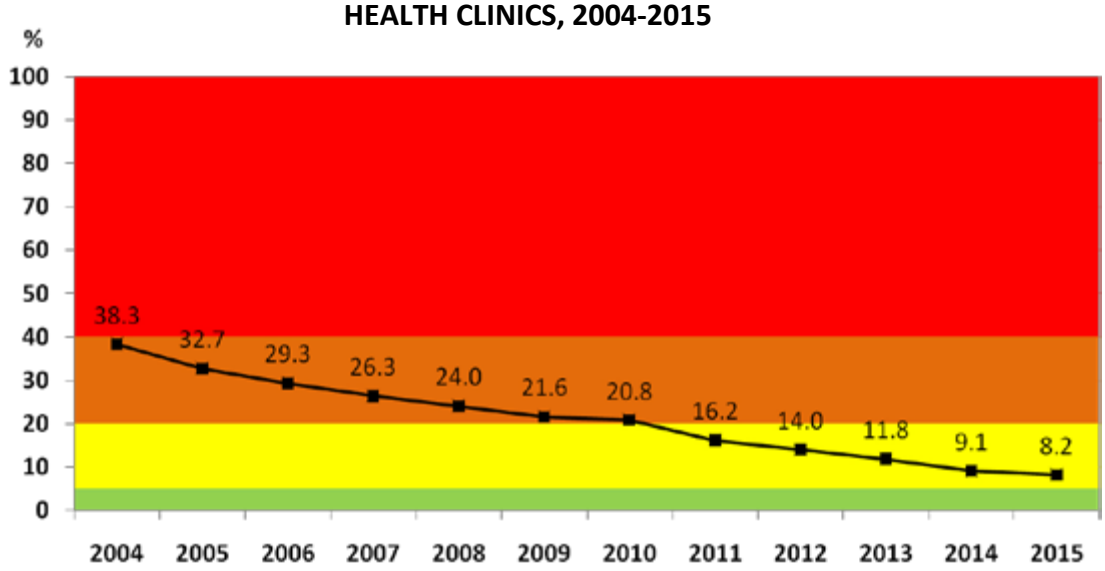
- **Technical Working Group (Nutrition Promotion)**

TWG for Nutrition Promotion had integrated and combined the efforts of government, non-government sectors and also private sectors in promoting healthy eating habits in the society. In 2015, TWG had focusing on 5 A day Campaign. A total of 26 activities were conducted by 10 agencies under this TWG. A short survey on Community's Calorie Consciousness had been carried out as well.

Anaemia Prevention Amongst Pregnant Mothers

Anaemia Status among antenatal mothers attending government health clinics are monitored based on their haemoglobin level at 36 weeks gestation period. Antenatal mothers are given haematinics with iron (ferrous fumarate), folic acid, vitamin C and B_{12} (cobalamin) for prevention of anaemia and also as a curative measure. Health education and nutrition counselling are also given to encourage the mothers to consume foods high in iron and to increase vitamin C intake in their daily diet. In 2015, prevalence of anaemia among antenatal mothers (Hb < 11gm %) declined from 38.3% (2004) to 8.2% (Figure 48).

FIGURE 48
PERCENTAGE OF ANAEMIC MOTHERS (HB < 11GM %) ATTENDING GOVERNMENT HEALTH CLINICS, 2004-2015



Source: Health Informatics Centre, MoH

Baby Friendly Hospital Initiative (BFHI)

As of Disember 2015, there were 147 hospitals in Malaysia that had attained the Baby-Friendly status (Table 32). 45 out of 50 (90%) hospitals which were re-assessed using the new WHO/UNICEF 2007 global criteria in 2015 have successfully retained their Baby friendly Hospital status.

TABLE 32
DISTRIBUTION OF BABY FRIENDLY HOSPITALS IN MALAYSIA

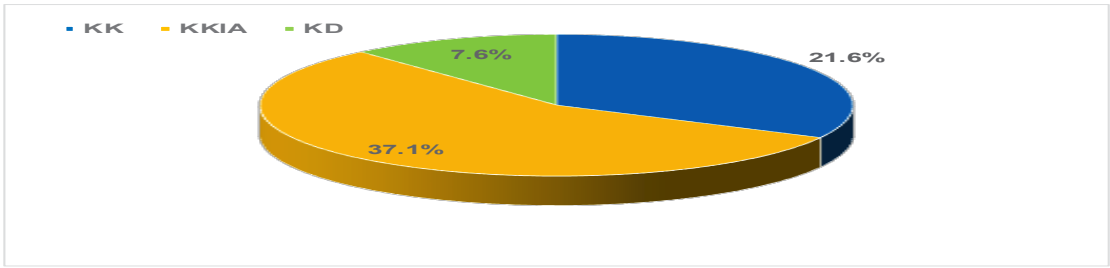
NO.	HOSPITALS	NUMBERS (HOSPITAL)
1.	Hospitals under the Ministry of Health (MoH)	127
2.	Hospitals under the Ministry of Higher Education	3
3.	Hospitals under the Ministry of Defence	2
4.	Private hospitals	15
TOTAL		**147**

Source: Nutrition Division, MoH

Baby Friendly Clinic Initiative (BFCI)

In 2015, there were 471 out of 2,867 (16.4%) health facilities (health clinic/ maternal and child health clinic/ community clinic) had attained the Baby Friendly Clinic.

FIGURE 49
PERCENTAGE OF HEALTH FACILITIES CERTIFIED AS BABY FIRENDLY CLINIC INITIATIVE, 2015

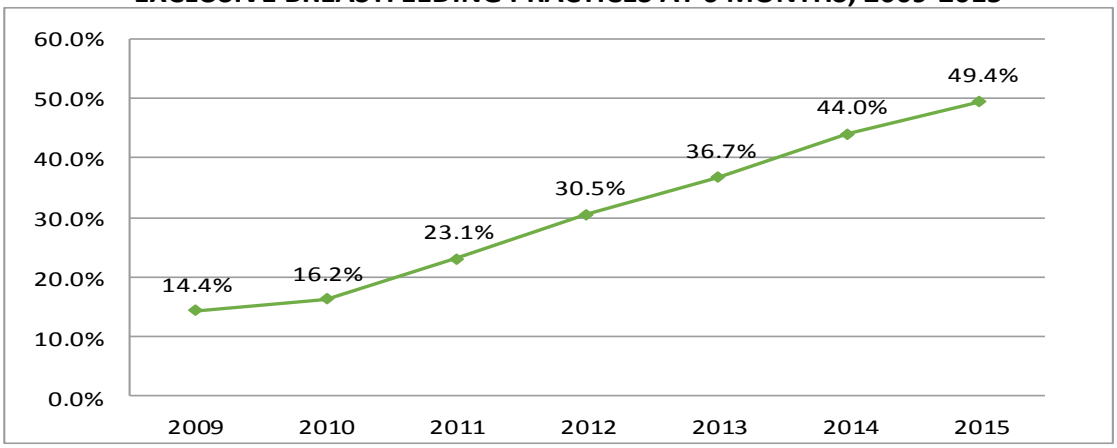


Source: Nutrition Division, MoH

Infant and Young Child Feeding

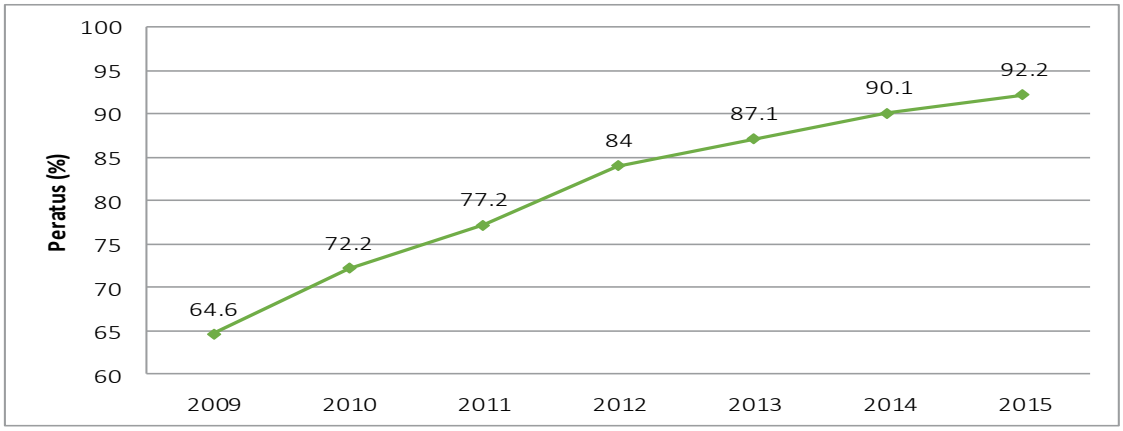
Breastfeeding rates continue to rise (Figure 50). Exclusive breastfeeding at 6 months increased from 44.0% in 2014 to 49.4% in 2015. The timely initiation of complementary feeding in Malaysia at 6 months had risen from 90.1% in 2014 to 92.2% in 2015 (Figure 51).

FIGURE 50
EXCLUSIVE BREASTFEEDING PRACTICES AT 6 MONTHS, 2009-2015



Source: Nutrition Division, MoH

FIGURE 51
TIMELY COMPLEMENTARY FEEDING PRACTICE AT 6 MONTHS, 2009-2015



Source: Nutrition Division, MoH

World Breastfeeding Week 2015

World Breastfeeding Week is celebrated throughout the world on the 1 to 7 August every year to create awareness and encourage breastfeeding among mothers. In Malaysia, this was the 23rd celebration and it was launched by the Honourable Minister of Health Malaysia on 25 August 2015 at Dewan Seri Endon, Puspanitapuri, Putrajaya with the theme "Breastfeeding and work: Let's make it work".

IMAGE 2
LAUNCHING OF WORLD BREASTFEEDING WEEK, 2015

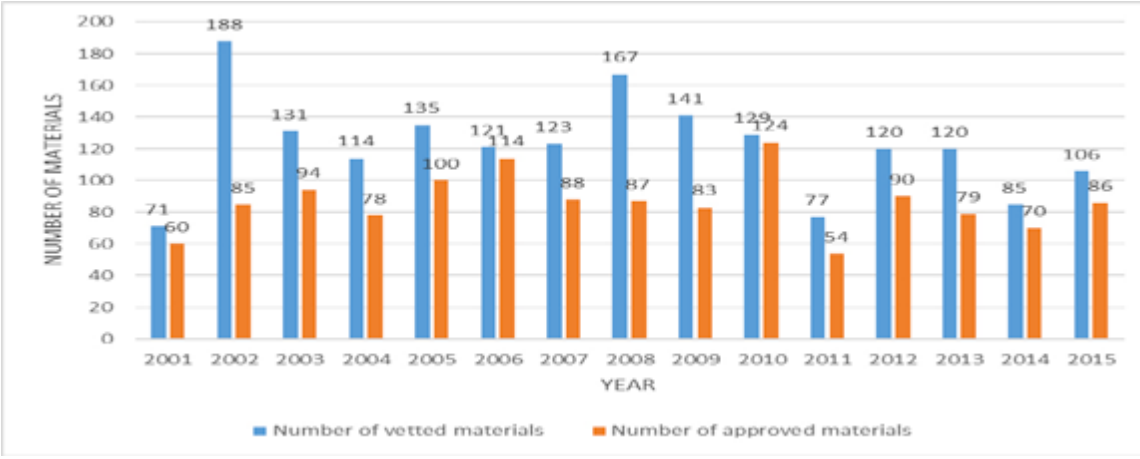
Source: Nutrition Division, MoH

Code of Ethics for the Marketing of Infant Foods and Related Products

The Vetting Committee on the Code of Ethics for the Marketing of Infant Foods and Related Products are responsible to vet information materials and product labels related to designated products and complementary foods submitted by milk industries. Approval codes are given to materials that comply with the Code of Ethics

for the Marketing of Infant Foods and Related Products. In 2015, a total of 106 materials related to infant foods and related products were vetted. Out of these, 86 (81%) materials were given approval codes (Figure 52).

FIGURE 52
VETTING TRENDS OF EDUCATIONAL MATERIALS AND PRODUCT LABELS RELATED TO BREASTMILK SUBSTITUTES AND COMPLEMENTARY FOODS, 2001-2015



Source: Nutrition Division, MoH

Nutritional Status of Children Under Five Years in Malaysia

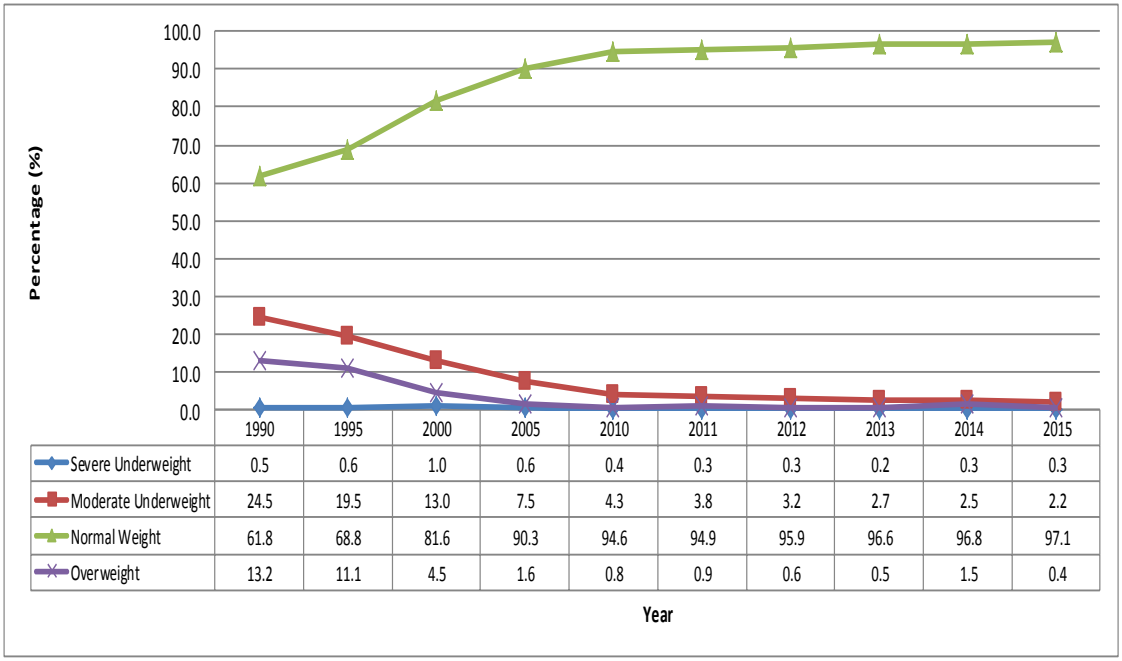
The MoH monitors the nutritional status of children under five years old through the Nutrition Surveillance System (NSS) under the Health Management Information System using the National Centre for Health Statistics (NCHS) as reference. As shown in Figure 53, the nutritional status of children below five years old continues to improve throughout the years. In 2015, the percentage of children with normal body weight increased from 96.8% (2014) to 97.1% (2015) while the percentage of moderately underweight children declined from 2.5% (2014) to 2.2% (2015) and severely underweight children stay at 0.3% (2015). However, the percentage of overweight children had declined slightly from 1.5% (2014) to 0.4% (2015). This achievement in improving nutritional status of children under five years in Malaysia has been acknowledged by UNICEF as the country with fastest rate of improvement in East Asia (2006).

Rehabilitation Programme for Malnourished Children

The Rehabilitation Programme for Malnourished Children, also known as the Food Basket Programme, is carried out to rehabilitate malnourished children from hardcore poor households. Besides that, the Ministry of Health also distributes food baskets to rehabilitate malnourished children from poor families through the 1AZAM Food Basket Programme.

A total of 11,840 malnourished children from hardcore poor and poor households received the food baskets in 2015. Out of these, 49.2% successfully increase their body weight. This percentage increase from 22.2% in 2011 to 49.2% in 2015.

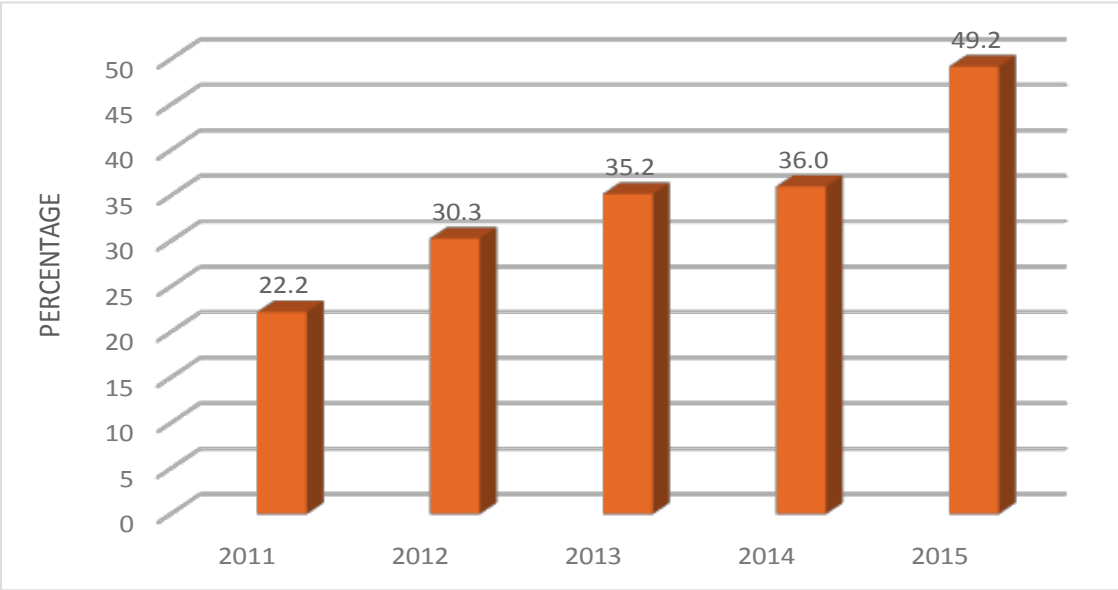
FIGURE 53
NUTRITIONAL STATUS OF CHILDREN UNDER 5 YEARS IN MALAYSIA, 1990-2015



	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015
Severe Underweight	0.5	0.6	1.0	0.6	0.4	0.3	0.3	0.2	0.3	0.3
Moderate Underweight	24.5	19.5	13.0	7.5	4.3	3.8	3.2	2.7	2.5	2.2
Normal Weight	61.8	68.8	81.6	90.3	94.6	94.9	95.9	96.6	96.8	97.1
Overweight	13.2	11.1	4.5	1.6	0.8	0.9	0.6	0.5	1.5	0.4

Source: Health Informatics Centre, MoH

FIGURE 54
PERCENTAGE OF MALNOURISHED CHILDREN WITH INCREASE BODY WEIGHT, 2011-2015



Source: Health Informatics Center, MoH

Healthy Food Preparation During Meetings

The implementation of Healthy Food Preparation During Meetings (HFPDM) is one of the efforts by the government to create a healthy working environment and to prevent non-communicable diseases. The objectives are to encourage healthy eating habits and provide healthier food options to the meeting participants. This implementation has been extended to other ministries through a letter from Director-General of Public Service Malaysia dated 3 February 2012.

To facilitate this implementation in other ministries, the Nutrition Division has taken the initiative to organise seminars for the government servants involved in managing the meals served during meetings as well as for the caterers in each ministry.

The objective of this seminar is to disseminate knowledge on the principles of serving healthy meals during meetings. Two seminars had been conducted in 2015 as follows:

- Ministry of Rural and Regional Development – 4 February 2015
- Ministry of Tourism and Culture – 9 December 2015

IMAGE 3
ACTIVITIES FOR HEALTH FOOD PREPARATION DURING MEETINGS, 2015

Food display

Practical Session.

Source: Nutrition Division, MoH

The MyNutriApps II Application

MyNutriApps II: MyNutriDiari was officially launched by Honourable Minister of Health on 18 February 2015. The development of this app is in line with minister's aspiration of "calorie conscious" society. The main objective of this app is to enhance knowledge of the public on healthy eating through latest communication medium. As of December 2015, there were 14,343 downloaders recorded.

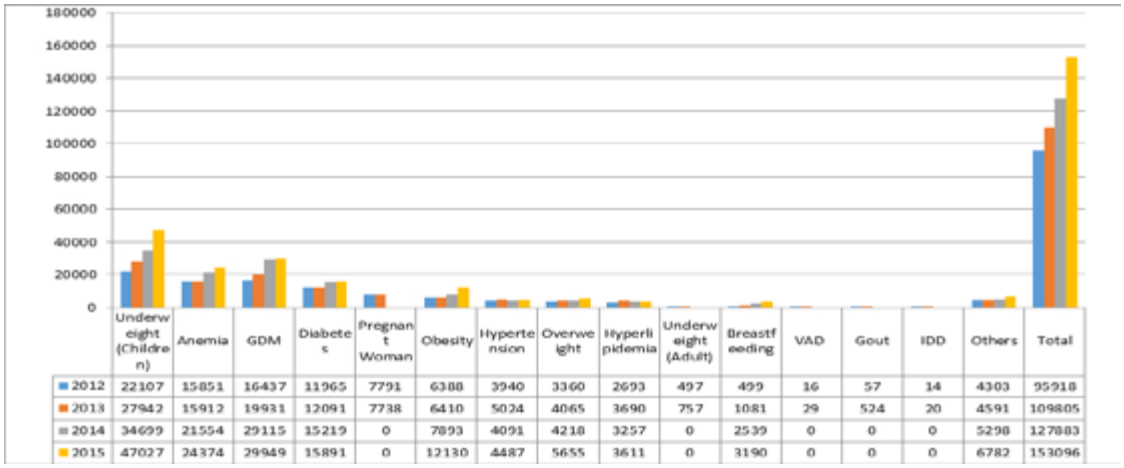
IMAGE 4
MyNutriApps LAUNCHING EVENT, 2015

Source: Nutrition Division, MoH

Nutrition Counselling Services at the Government Health Clinics

Nutrition counselling by trained nutritionists was given to patients or clients who were referred by the Family Medicine Specialists or Medical Officers in the clinics. A total of 153,096 patients nationwide were given nutrition counselling in 2015, an increase of 19.7% from 127,883 patients in 2014. Nutrition counselling was given to patients such as diabetes (10%), gestational diabetes mellitus (20%), overweight and obesity (12%) as well as for malnourished children (31%) and anaemia (16%) cases.

FIGURE 55
TYPES OF CASES AND NUMBER OF PATIENTS COUNSELLED BY NUTRITIONISTS, 2012-2015



	Underweight (Children)	Anemia	GDM	Diabetes	Pregnant Woman	Obesity	Hypertension	Overweight	Hyperlipidemia	Underweight (Adult)	Breastfeeding	VAD	Gout	IDD	Others	Total
2012	22107	15851	16437	11965	7791	6388	3940	3360	2693	497	499	16	57	14	4303	95918
2013	27942	15912	19931	12091	7738	6410	5024	4065	3690	757	1081	29	524	20	4591	109805
2014	34699	21554	29115	15219	0	7893	4091	4218	3257	0	2539	0	0	0	5298	127883
2015	47027	24374	29949	15891	0	12130	4487	5655	3611	0	3190	0	0	0	6782	153096

Source: Nutrition Division, MoH

Nutrition Information Centres and Healthy Community Kitchens

Nutrition Information Centre (NIC) functions as a medium in disseminating information on healthy eating to the public whereas Healthy Community Kitchen (HCK) is a facility to carry out nutrition promotional and educational activities. There are 17 NICs and 57 HCKs nationwide.

The main NIC is located at Level 1, Block E3, Ministry of Health, Putrajaya. In 2015, a total of 5,590 clients visited this centre mainly for nutrition counselling. There were numbers of clients whom are overweight and obese attended the NIC routinely. There were significant reduction of weight and body fat for these clients. This conclude that routine follow up with NIC will be able to help clients to achieve healthy weight status.

A total of 32,300 visitors attended cooking demonstrations, healthy recipe modifications and tastings, *Bumi Hijau* programs, cooking classes and health talks held in HCKs throughout Malaysia in 2015.

IMAGE 5
NUTRITION INFORMATION CENTRE AND HEALTHY COMMUNITY KITCHEN

Healthy Community Kitchen

Healthy Community Kitchen

Source: Nutrition Division, MoH

Healthy Catering Training is a training that targeted to operators and food handlers of restaurants, food outlets, cafeterias, fast food restaurants and canteens. This training is aimed to enhance the knowledge and skills of food handlers about healthy and safe meal preparation.

Healthy Catering Training covers four main topics:
Unit 1: Principles of Healthy Eating
Unit 2: Healthy Meals Preparation
Unit 3: Food Safety and Hygiene
Unit 4: The effects of poor diet and unsanitary and unsafety food preparation

In 2015, a total of 2 trainings were held at the headquarters of the Ministry of Health Malaysia (HQMOH) involving 57 operators and food handlers who provides meal services at HQMOH and other ministries.

At the state level, a total of 115 districts/regions/divisions had conducted at least one Healthy Catering Training. This training involves a total of 7,014 operators and food handlers in year 2015. Out of this, 3,842 were operators and food handlers of daily school canteen, 843 health facilities caterers, 545 operators and food handlers of boarding school canteens, 2 operators and food handlers in PLKN camps and 1,782 other categories* have been trained.

* *Other categories: HEM Senior Assistant Teacher, Canteen Supervisor Teacher, office staff,students management assistant, PDK supervisors, managers of IKS, food handlers at KEMAS, nursery, operators and food handlers of restaurants, outside caterers, traders of BeSS program, HPSF kitchen chef, Food Technology Officer, Dietitians, nursing college instructor and canteen of public sector.*

IMAGE 6
HEALTHY CATERING TRAINING, 2015

Source: Nutrition Division, MoH

Healthy Cafeteria

Healthy Cafeteria concept had been introduced in year 2005 in order to create an environment which is encouraging and promoting healthy eating behaviour in the community. A guideline regarding Healthy Cafeteria assessment and recognition was published to facilitate the cafeteria owners in the implementation of the Healthy Cafeteria concept in 2012. In 2015, there are 42 (23.5%) out of 187 cafeterias in health facility have obtained the Healthy Cafeteria recognition. The related cafeterias are as in Table 33.

TABLE 33
CAFETERIAS IN MoH HEALTH FACILITIES WITH HEALTHY CAFETERIA RECOGNITION, 2015

No.	Cafeteria	Health Facility	Recognition Date
Perlis State Health Department			
1.	Rodzina Bt Matt Rose	JKN Perlis	04.12.2015
Kedah State Health Department			

No.	Cafeteria	Health Facility	Recognition Date
1.	QE Ent	Hospital Sultanah Bahiyah	04.12.2015
2.	Serimaz Ent	Kolej Juruawat HSAH Sg. Petani	04.09.2015
3.	Z Suasana Permai Ent	Hospital Kuala Nerang	04.12.2015
4.	Serata rasa Ent	Hospital Jitra	04.12.2015
5.	Lee & Jaa Ent	Hospital Kulim	04.12.2015
Pulau Pinang State Health Department			
1.	Nashlia Ent	KK Seberang Jaya	13.04.2015
2.	Hasrat Kelana Enterprise	Hospital Bukit Mertajam	13.04.2015
3.	Tradisi Catering Ent	Hospital Seberang Jaya	13.04.2015
4.	Rangkaian Serasi Ent	Hospital Kepala Batas	13.04.2015
5.	RMP Catering	Hospital Pulau Pinang	13.04.2015
Perak State Health Department			
1.	Sabnor Ent	Hospital Bahagia Ulu Kinta	26.06.2015
2.	Zahariah Zakaria Ent	Hospital Selama	04.12.2015
Selangor State Health Department			
1.	Warisan Rozan	Hospital Selayang	04.09.2015
2.	AJ Ent	Hosp. Tengku Ampuan Rahimah	04.09.2015
3.	Monash Star Venture	Hospital Serdang	04.09.2015
4.	Dapur Ummi Catering	Hospital Serdang	04.09.2015
5.	Restoran Enzo	Hospital Serdang	04.09.2015
Federal Territories of Kuala Lumpur & Putrajaya State Health Department			
1.	Kafe Tuu… Dia Pak Tam	Hospital Putrajaya	13.04.2015
2	Mislaini Trading	Kafeteria Blok E7, KKM	26.06.2015
3.	S.A.M. Usahasama Ent	Institut Kanser Negara	04.09.2015
Negeri Sembilan State Health Department			
1.	Studio G Ent	KK Port Dickson	04.12.2015
2.	Hospital Tampin	Hospital Tampin	04.12.2015
Melaka State Health Department			
1.	Kak Long Chalet Resort	Hospital Melaka	04.12.2015
Pahang State Health Department			
1.	Norazizi Ent	Hospital Sultanah Hajah Kalsom	04.12.2015
2.	Atil Maju Ent	Hosp. Kuala Lipis (Bang. Lama)	04.12.2015
3.	Fatimah Melanie Catering	JKN Pahang	04.09.2015
4.	KOSIHAT	Hospital Tunku Ampuan Afzan	04.09.2015

No.	Cafeteria	Health Facility	Recognition Date
5.	J.S Jumjaya Ent	KK Beserah	04.09.2015
6.	AM M.Z Enterprise	KK Bandar Jengka	26.06.2015
7.	Restu Iltizam Ent	Hospital Raub	04.09.2015
8	Haiqal Ras Ent	Hospital Muadzam Shah	04.12.2015
9.	KESUKES	Hosp. Sultan Haji Ahmad Shah	26.06.2015
Terengganu State Health Department			
1.	Nur Juliana Jaafar	Hospital Hulu Terengganu	04.12.2015
2.	Norzeri Abdullah	Hospital Setiu	26.06.2015
3.	LY Budi Enterprise	KK Bukit Payong	26.06.2015
Kelantan State Health Department			
1.	Adharith Enterprise	HRPZ II Kota Bharu	04.12.2015
2.	Che Hashim Muhd Sof	Hospital Machang	04.12.2015
3.	AKD Nur Enterprise	Hospital Pasir Mas	04.12.2015
4.	Hawaza Enterprise	Hospital Tg Anis Pasir Puteh	04.12.2015
Sabah State Health Department			
1.	Syarikat R&R	Hospital Keningau	04.09.2015
2.	BTC Maju Holding Sdn Bhd	Hospital Wanita & Kanak-Kanak	13.04.2015

Source: Nutrition Division, MoH

HEALTH EDUCATION

Healthy Lifestyle Promotional Campaign

- **Media Campaign**

Throughout 2015, healthy lifestyle has been promoted through the integrated media campaign in major media outlets, especially during festivities and special events e.g. the Malaysia Cup season (Table 34).

TABLE 34
HEALTHY LIFESTYLE PROMOTION IN MEDIA, 2015

No.	Media	Number of Spots/Inserts
1.	Televison	
	• During Hari Raya	46
	• During Malaysia Cup	428
	• Daily (RTM & Private)	514
2.	Radio	
	• During Malaysia Cup	150
	• Daily (RTM & Private)	2,156

No.	Media	Number of Spots/Inserts
3.	Newspaper	
	• During Chinese New Year	6
	• During Aidilfitri	10
	• During Deepavali	3

Source: Health Education Division, MoH

- **Capacity Building Training**

Capacity Building Training: "Activity Physical Skills" were carried out to health personnel selected and identified potential to be polished into the actuator physical activity and fitness at the state level, respectively. The objective of the training was to form a team that would be active and powerful driving force generation at the state level and provide the latest knowledge and enhanced skills on various aspects of physical activity and exercise. A total of 37 personnel were selected and the training was held for 4 days at the Blue Wave Hotel Shah Alam, from 18 to 21 August 2015.

- **Sweat Wednesday**

Physical activities in MoH were held regularly on Wednesday. The program received good comments from the participants as it was accompanied by a trained fitness instructor. The objective of the program was to promote active lifestyles among members in the Headquarters of the MoH. The Sweat Wednesday's activities will encourage them to be more active and fit through various physical activities provided. Various types of physical activities were organized such as aerobics, Cardio Workout, Pilates, Cycling and *Senamtari.*

- ***Gegar 10,000* Langkah *Merdeka***

This is an annual walking event initiated by MoH since 2012, which had received a certificate from The Malaysia Book of Records on 26 February 2013. In 2015, most of the states had combined this event with National Sports Day. About 43 districts had run this program throughout the country.

- **National Sports Day 2015**

In 2015, MoH has collaborated with Ministry of Youth and Sports for the National Sports Day celebrations. A total of 1,130 people participated in this program. Many attractive activities were organized in this program, such as walking 10,000 steps, aerobics, and aerodance. Number of MoH members across the country who participated in the National Sports Day celebration were 114,978 participants.

TABLE 35
PARTICIPATION OF MoH'S MEMBERS IN THE NATIONAL SPORTS DAY CELEBRATION, 2015

No.	State	No. of Participants
1.	Perlis	1,750
2.	Kedah	7,675
3.	Pulau Pinang	-
4.	Perak	2,500
5.	Kelantan	9,000
6.	Pahang	7,156
7.	Terengganu	10,615
8.	Melaka	3,656
9.	Negeri Sembilan	3,500
10.	Selangor	6,324
11.	Kuala Lumpur	-
12.	Putrajaya	1,200
13.	Johor	10,582
14.	Sabah	10,009
15.	Sarawak	31,511
16.	Labuan	9,500
TOTAL		**114,978**

Source: Health Education Division, MoH

IMAGE 7
NATIONAL SPORTS DAY CELEBRATION, 2015

Source: Health Education Division, MoH

- **I Want Camp**

The I Want Camp is a program that specially designed for community with the goal of delivering the messages and skills related to healthy lifestyle for target groups. The long term effects of this camp will help reduce the relevant NCD such as hypertension, diabetes and stroke. The medical personnel will organized various activities directly to

the targeted group and able to empowered the community with the specific skills in health so that they could empower themselves in behavioural changes.

TABLE 36
NUMBER OF VISITORS ATTENDED THE 'I WANT CAMP PROGRAM', 2015

No	State	No. of Visitors
1.	Perlis	3,000
2.	Kedah	12,449
3.	Pulau Pinang	8,239
4.	Perak	7,524
5.	Selangor	9,001
6.	WPKL	3,100
7.	Melaka	2,345
8.	Negeri Sembilan	3,529
9.	Pahang	14,044
10.	Johor	9,265
11.	Terengganu	13,111
12.	Kelantan	6,250
13.	Sabah	8,094
14.	Sarawak	14,755
15.	Labuan	1,756
TOTAL		**116,462**

Source: Health Education Division, MoH

IMAGE 8
I WANT CAMP, 2015

Source: Health Education Division, MoH

- **Health Camp During Thaipusam**

Health camp was held at Batu Caves on 24 January 2015 from 8.00 am to 8.00 pm. Various activities have been organized throughout the day such as health fairs, health screenings, lectures, demonstrations and it was directly broadcasted on the local radio stations. Overall, there were a total of 1,020 visitors participated in this camp and a total of 800 people undergoing health screening.

Tobacco Prevention and Control Promotional Program

- **Anti-Smoking Program**

In 2015, a media campaign was targeted on children and youth for not-to-start-smoking. During the 2015, this had been broadcasted in the television and cinema as listed below.

TABLE 37
NO SMOKING MEDIA CAMPAIGN, 2015

No.	Chanel	No. of Spots
1.	Astro (Ceria & Ria)	22
2.	TV3	15
3.	NTV7	4
4.	RTM 1 & RTM 2	230
5.	LED Screen	79,920 exposure
6.	Cinema (TGV & GSC)	20,000 (cinema) LCD 20,000

Source: Health Education Division, MoH

- **Health Fatwa Education Seminar**

In collaboration with the Islamic Development Department, MoH has worked to continue organising the National Health Fatwa Education Seminar 2015. This seminar still maintained its three topics on immunization, abortion and smoking which also among the activities to consolidate the existing MoH health promotion programs. In 2015, the tour was covered seven states, i.e. WP Kuala Lumpur, Kedah, Sabah, Sarawak, Johor, Melaka and Pahang. Which involved 3,600 participants. In addition, this program also carried out a field research which related on the participants understanding towards the content of the program.

- ***Nafas Baru Bermula* Ramadhan Campaign**

On 19 June 2015, the *Nafas Baru Bermula Ramadhan* Campaign was conducted in which materials containing health messages were distributed at Masjid Putra, Putrajaya by Deputy Health Minister and MoH's top management. Health Education materials were distributed to 3,000 of pilgrims and public. It also had been implemented at the states level. The program also included various activities such as Health Talk/short reminders after Friday prayers and Banner.

- **Quit Smoking Info Line**

In 2015, Quit Smoking Info line had received around 360 calls for help and counselling services and referrals to smoking cessation services. About 71.7% had managed to take a positive steps suggested by the officers of Quit Smoking Infoline.

- **IMFree**

In collaboration with the Ministry of Education, MoH continued to strengthen the Tobacco Prevention and Control Program among primary schools students as one of the main target groups. In 2015, education materials and teaching aids had been published, which includes a package of material for IMFree Program, Book IMFree Activity Sheet 1 year and Guidelines for Implementation of Activities Year 1 and Sang Kancil the Ingenious Comics. Apart from the interactive and video materials, a smoking prevention education was also produced. These materials would be used as a pilot and it involved 36 primary schools selected by Ministry of Education.

- **World Tobacco Day**

On 13 June 2015, the Smoke-Free Environment Campaign was celebrated at the Mines Mall, Sri Kembangan, Selangor. The activities conducted were aerodance, colouring contests and exhibitions. The Health Screening and Carbon Monoxide test (CO) were also provided to the public. The World Tobacco Day was also implemented in several states and districts across the country. The activities carried out were the opening ceremony, talks, talk shows, quizzes, public forums, distribution of leaflets and posters, health screenings, sports, interactive games, exhibitions, advisory services and lucky draw.

Health Promotion Program in Primary School

- **Doktor Muda Program in Primary Schools**

Doktor Muda's Program was a school-based health promotion program which involved collaboration between the MoH and the Ministry of Education. This program used some co-curricular activities in elementary school (School Division MoE Circular IC / BS (HEM) 8614/062 / E (14) dated 23 May 2006). On 21 - 24 April 2015, the Training of

Trainers (TOT) for *Doktor Muda* Club was successfully implemented which involved 27 teachers from pilot schools and 42 members of the Advisory Health.

The *Doktor Muda* Smart Kids Carnival was held on 10 - 11 October 2015 at Kuala Lumpur Convention Centre. This two day carnival involved 16 members of Doktor *Muda's* Club from Kuala Lumpur. Among the activities held were brushing teeth demonstrations, 7- steps eye wash, inspection and measurement of visual acuity and Body Mass Index (BMI).

IMAGE 9
ACTIVITIES DOKTOR MUDA, 2015

Source: Health Education Division, MoH

The National *Doktor Muda* Summer Health Camp was held from 5 - 9 November 2015 at Universiti Teknologi Mara, Perlis. A total of 283 school children from all states took part in the activities. In 2015, the National *Doktor Muda* Convention was attended by a total number of 400 students and 160 teachers from primary school and 320 students and 60 teachers from secondary school. The activities carried out during the convention are listed as in Table 38 and 39.

TABLE 38
THE NATIONAL DOKTOR MUDA CONVENTION'S ACTIVITIES FOR PRIMARY SCHOOL, 2015

No	Activities	Participant
1.	*Inovasi Bahan Bantu Mengajar*	*Doktor Muda*
2.	*Kuiz Doktor Muda*	*Doktor Muda*
3.	*Pameran Aktiviti Projek Intervensi*	*Doktor Muda*
4.	*Mesej Spontan (BM)*	*Doktor Muda*
5.	*Mesej Spontan (BI)*	*Doktor Muda*
6.	*Projek Penyertaan Komuniti*	*Doktor Muda*
7.	*Tokoh Doktor Muda*	*Doktor Muda*

No	Activities	Participant
8.	*Sekolah Cemerlang Doktor Muda Kategori Bandar*	Teachers
9.	*Sekolah Cemerlang Doktor Muda Luar Bandar*	Teachers
10.	*Projek Intervensi Pendidikan Kesihatan Rakan Sebaya*	*Doktor Muda*

Source: Health Education Division, MoH

TABLE 39
THE NATIONAL DOKTOR MUDA CONVENTION'S ACTIVITIES FOR SECONDARY SCHOOL, 2015

No	Activities	Participant
1.	*Mesej Spontan (BM)*	*Doktor Muda*
2.	*Mesej Spontan (BI)*	*Doktor Muda*
3.	*Pameran Aktiviti Projek Intervensi*	*Doktor Muda*
4.	*Inovasi Bahan Bantu Mengajar*	*Doktor Muda*
5.	*Projek Penyertaan Komuniti*	*Doktor Muda*
6.	*Projek Intervensi Pendidikan Kesihatan Rakan Sebaya*	*Doktor Muda*
7.	*Sekolah Cemerlang Doktor Muda Sekolah Menengah (Projek Rintis)*	Teachers

Source: Health Education Division, MoH

The Badges Test for *Doktor Muda's* Club, 2015 were successfully carried out simultaneously throughout the country with attainment as shown in Table 40.

TABLE 40
THE BADGES TEST FOR *DOKTOR MUDA'S* CLUB, 2015

State	No. Of Candidates	Gold Candidates	Silver Candidates	Bronze Candidates	Unqualified
Perlis	324	18	134	127	45
Kedah	3,377	106	1,350	1,273	648
Pulau Pinang	423	10	197	138	78
Perak	533	7	230	207	89
Selangor	1,672	124	890	474	184
WP Kuala Lumpur	228	3	85	100	40
WP Putrajaya	6	0	3	3	0
Negeri Sembilan	569	26	260	158	125
Melaka	515	7	245	158	105
Johor	1,407	55	526	582	244
Pahang	1,028	107	522	279	120

State	No. Of Candidates	Gold Candidates	Silver Candidates	Bronze Candidates	Unqualified
Kelantan	841	133	389	210	109
Terengganu	1,188	36	494	457	201
Sabah	451	38	212	126	75
Sarawak	975	24	370	363	218
WP Labuan	118	12	32	47	27
Total	**13,655**	**706**	**5,939**	**4,702**	**2,308**

Source: Health Education Division, MoH

HIV / AIDS Prevention and Control Program

- **Media Campaign**

Throughout 2015, MoH has been promoting the prevention of HIV/AIDS through integrated media campaign in major media channels as in Table 41.

TABLE 41
HIV/AIDS PREVENTION MEDIA CAMPAIGN

No	Chanel	No. of Spots/Inserts
1.	Cinema	
	• GSC	9,000
	• TGV	7,000
2.	Newspaper	
	• Utusan	1
	• Kosmo	1
	• The Star	1

Source: Health Education Division, MoH

Patient Education

Health education in the hospital focuses on educating the patients on treatment and rehabilitation as well as carrying out health promotion activities in the hospital setting. The main objective is to educate patients and their families in improving their knowledge and skills to manage the disease and side effects of treatment. Health education primarily focused on four main diseases in Malaysia such as Diabetes, Hypertension, Kidney Disease and Asthma.

TABLE 42
PATIENT EDUCATION PROGAM, 2015

No	Patient Education	No. of Activities (Class , Talk *Bed-side teaching*, Individual Counseling)	Attendance (Patients & Caregivers)
1	Diabetes	973	8,341
2	Hypertension	697	9,880
3	*Asthma*	405	1,174
4	Renal	182	1,015
5	Others (Various Dicipline, Clinic, Ward)	160,576	145,007

Source: Health Education Division, MoH

In 2015, a total numbers of 1,124 clients had received advices and consultancies at the Quit Smoking Clinic and 40% of the clients (450 persons) were successfully quit smoking. The definition of succeed in quitting smoking is a person/individual who is tobacco-free for 6 months, starting from the date of the quit date.

Mass Media Program

- **Health Media Award**

Health Media Award is an annual event organized by this Division as an appreciation and a recognition to journalists and media agencies for their contributions in promoting health information and related issues. Through this, the collaboration between the Division and the medias will enhance an well-established. In 2015, the ceremony was held at Seri Pacific Hotel, Kuala Lumpur. Overall, a total of 278 guests attended the event. A total of 239 journalism entries were received.

- **Publication of Health Education Materials**

Health education materials were produced for health promotion activities throughout Malaysia. In 2015, a total of 2,030,670 pieces of text printed materials were distributed.

- **Social Media Empowerment Workshop for Health Education Officer**

In 2015, the training program for Health Education Officer was focused on advocacy and empowerment skills, which include few related topics as below:

- Health Education Methods
- Theory of Behavioural Change
- Issuance and Usage of Health Education Media
- Effective Presentation

IMAGE 10
HEALTH EDUCATION TRAINING, 2015

Source: Health Education Division, MoH

Special Health Celebration Day 2015

- **World AIDS Day 2015**

The World AIDS Day 2015, was celebrate at the national level on 5 December 2015 with the theme “Towards Zero: End AIDS, Start Now (Getting to Zero: Ending AIDS, Starts Now) ". Various attractive activities were carried out during the celebrations such as Forum Perdana, Exhibition, Cyclethon and also performance by artists.

- **ASEAN Dengue Day**

The ASEAN Dengue Day was established on 15 June every year. The first celebration of ASEAN Dengue Day was held in Jakarta, Indonesia on 15 June 2011. The Fifth ASEAN Dengue Day, was celebrated this year with the aimed is to increase the collaborations and concerted action among ASEAN region in combating Dengue and the theme for 2015 is "Family Ownership Fighting Dengue as the family spirit is a key element in combating Dengue”. The spirit of brotherhood should be fostered between the ASEAN countries and in their respective communities to tackle Dengue Fever.

CONCLUSION

Throughout 2015, the planning, implementation, monitoring and evaluation of the diseases prevention and control programs and activities were conducted as planned. Even though the achievements for these activities are laudable, there are still areas which can be further improved and strengthened in order to cope with the future challenges posed by the various changing disease scenarios and health problems.

CHAPTER 5

MEDICAL

INTRODUCTION

The Medical Program is responsible for matters relating to services provided in hospitals headed by the Deputy Director-General of Health (Medical)

ACTIVITIES AND ACHIEVEMENTS

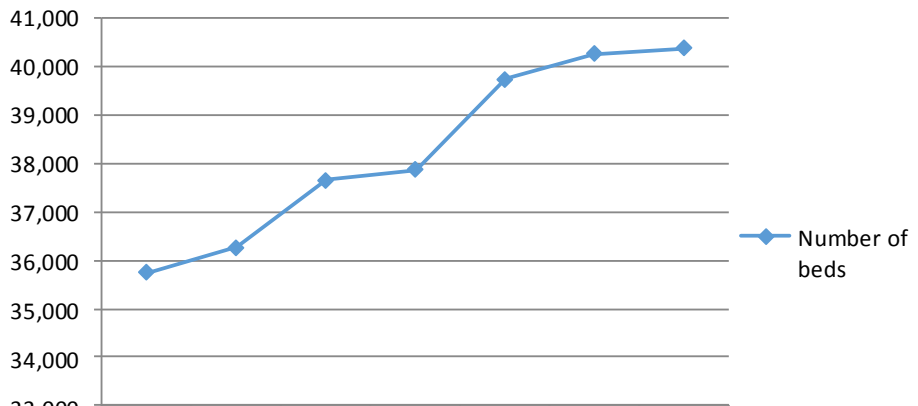
MEDICAL DEVELOPMENT

Medical Services Development

a) Hospital Management Services

The MoH oversees a total of 145 hospitals and special institutions through the country. Working alongside other divisions in MoH, this unit facilitates service delivery in hospitals by ensuring adequate infrastructures, development and implementation of policies, providing platforms for hospitals to migrate into electronic patient management system, overseeing medical record management and many more.

FIGURE 1
TOTAL NUMBER OF HOSPITAL BEDS IN MALAYSIA



	2009	2010	2011	2012	2013	2014	2015
Number of beds	35,745	36,256	37,659	37,857	39,728	40,260	40,374

Source: Medical Development Division, MoH

MoH hospitals are functionally classified into five types i.e. State Hospitals (and HKL), Major Specialist Hospitals, Minor Specialist Hospitals, Special Hospitals/Institutions and Non-Specialist Hospitals. There were 145 MoH hospitals by end of 2015 (As in Table 1 & 2).

TABLE 1

MINISTRY OF HEALTH NON-SPECIALIST HOSPITALS, 2015

NON-SPECIALIST HOSPITALS (65)			
Kedah • Hospital Baling • Hospital Jitra • Hospital Kuala Nerang • Hospital Sik • Hospital Yan **Pulau Pinang** • Hospital Balik Pulau • Hospital Sungai Bakap **Perak** • Hospital Batu Gajah • Hospital Changkat Melintang • Hospital Kampar • Hospital Parit Buntar • Hospital Selama • Hospital Sungai Siput • Hospital Tapah **Selangor** • Hospital Kuala Kubu Baru • Hospital Tanjung Karang • Hospital Tengku Ampuan Jemaah, Sabak Bernam • Hospital Orang Asli, Gombak	**Negeri Sembilan** • Hospital Jelebu • Hospital Jempol **Melaka** • Hospital Alor Gajah • Hospital Jasin **Johor** • Hospital Mersing • Hospital Pontian • Hospital Tangkak • Hospital Temenggong Sri Maharaja Tun Ibrahim, Kulai **Pahang** • Hospital Jengka • Hospital Jerantut • Hospital Muadzam Shah • Hospital Raub • Hospital Rompin • Hospital Sultanah Hajjah Kalsom, Cameron Highlands	**Terengganu** • Hospital Hulu Terengganu • Hospital Setiu **Kelantan** • Hospital Jeli • Hospital Machang • Hospital Pasir Mas • Hospital Tengku Anis, Pasir Puteh • Hospital Tumpat **Sarawak** • Hospital Bau • Hospital Betong • Hospital Daro • Hospital Dalat • Hospital Kanowit • Hospital Lawas • Hospital Lundu • Hospital Marudi • Hospital Rajah Charles Brooke Memorial, Kuching • Hospital Saratok • Hospital Serian • Hospital Simunjan	**Sabah** • Hospital Beluran • Hospital Kinabatangan • Hospital Kota Belud • Hospital Kuala Penyu • Hospital Kudat • Hospital Kunak • Hospital Papar • Hospital Pitas • Hospital Ranau • Hospital Semporna • Hospital Sipitang • Hospital Tambunan • Hospital Tenom • Hospital Tuaran

Source: Medical Development Division, MoH and State Health Departments

TABLE 2

MINISTRY OF HEALTH SPECIALIST HOSPITALS AND INSTITUTIONS, BY TYPE, 2015

SPECIALIST HOSPITALS AND INSTITUTIONS			
HKL + State Hospitals (14)	**Major Specialist Hospitals (28)**	**Minor Specialist Hospitals (28)**	**Special Medical Institutions (10)**
Target of 45 specified resident specialties/sub-specialties	*Target of 20 specified resident specialties/sub-specialties*	*Target of 10 specified resident specialties*	*Specific resident specialties*
1. Hospital Kuala Lumpur	1. Hospital Putrajaya	1. Hospital Labuan	1. Institut Kanser Negara, Putrajaya
2. Hospital Tuanku Fauziah, Kangar	2. Hospital Sultan Abdul Halim, Sungai Petani	2. Hospital Langkawi	2. Institut Perubatan Respiratori, Kuala Lumpur
3. Hospital Sultanah Bahiyah, Alor Setar	3. Hospital Kulim	3. Hospital Kepala Batas	3. Hospital Rehabilitasi Cheras, Kuala Lumpur
4. Hospital Pulau Pinang	4. Hospital Seberang Jaya	4. Hospital Bukit Mertajam	4. Hospital Bahagia, Ulu Kinta
5. Hospital Raja Permaisuri Bainun, Ipoh	5. Hospital Taiping	5. Hospital Sri Manjung	5. *Pusat Kawalan Kusta Negara, Sungai Buloh
6. Hospital Tengku Ampuan Rahimah, Klang	6. Hospital Teluk Intan	6. Hospital Slim River	6. Hospital Permai, Johor Bahru
7. Hospital Tuanku Jaafar, Seremban	7. Hospital Sungai Buloh	7. *** Hospital Grik	7. Hospital Sentosa, Kuching
8. Hospital Melaka	8. Hospital Ampang	8. *** Hospital Kuala Kangsar	8. Hospital Mesra, Kota Kinabalu
9. Hospital Sultanah Aminah, Johor Bahru	9. Hospital Selayang	9. Hospital Banting	9. Hospital Wanita dan Kanak-Kanak, Likas
10. Hospital Tengku Ampuan Afzan, Kuantan	10. Hospital Serdang	10. Hospital Port Dickson	10. **Pusat Darah Negara, Kuala Lumpur
11. Hospital Sultanah Nur Zahirah, Kuala Terengganu	11. Hospital Kajang	11. *** Hospital Tampin	
12. Hospital Raja Perempuan Zainab II, Kota Bharu	12. Hospital Shah Alam	12. Hospital Enche Besar Hajjah Kalsom, Kluang	
13. Hospital Umum Sarawak (+ Pusat Jantung Sarawak), Kuching	13. Hospital Tuanku Ampuan Najihah, Kuala Pilah	13. ***Hospital Kota Tinggi	
14. Hospital Queen Elizabeth, Kota Kinabalu	14. Hospital Pakar Sultanah Fatimah, Muar	14. Hospital Kuala Lipis	
	15. Hospital Sultan Ismail, Pandan	15. Hospital Bentong	
	16. Hospital Sultanah Nora Ismail, Batu Pahat	16. Hospital Pekan	
	17. Hospital Segamat	17. *** Hospital Dungun	
	18. Hospital Sultan Haji Ahmad Shah, Temerloh	18. *** Hospital Besut	
	19. Hospital Kemaman	19. *** Hospital Gua Musang	
		20. Hospital Kapit	
		21. Hospital Limbang	
		22. Hospital Sarikei	
		23. Hospital Sri Aman	

SPECIALIST HOSPITALS AND INSTITUTIONS			
HKL + State Hospitals (14)	**Major Specialist Hospitals (28)**	**Minor Specialist Hospitals (28)**	**Special Medical Institutions (10)**
Target of 45 specified resident specialties/sub-specialties	*Target of 20 specified resident specialties/sub-specialties*	*Target of 10 specified resident specialties*	*Specific resident specialties*
	20. Hospital Kuala Krai 21. Hospital Tanah Merah 22. Hospital Sibu 23. Hospital Miri 24. Hospital Bintulu 25. Hospital Duchess of Kent, Sandakan 26. Hospital Tawau 27. Hospital Queen Elizabeth II, Kota Kinabalu 28. Pusat Jantung Sarawak	24. *** Hospital Mukah 25. Hospital Lahad Datu 26. Hospital Keningau 27. *** Hospital Beaufort 28. *** Hospital Kota Marudu	

** Pusat Kawalan Kusta Negara, although not yet officially de-gazetted as a leprosarium, is now part of Hospital Sungai Buloh for administrative matters.*
*** Pusat Darah Negara, unlike other hospitals or institutions, has no bed.*
**** Upgrading of non-specialist hospital to minor specialist yet to be achieved*
Source: Medical Development Division, MoH

i. Lean Healthcare Initiatives

2015 is a significant year for the Medical Development Division with the recognition of Lean Healthcare and Hospital Cluster initiatives as high impact projects under the MoH. Lean Healthcare was implemented to address long waiting time in hospitals. It emphasizes on improving efficiency, effectiveness and reduces wastage.

Successes of pilot projects conducted in 2013 and 2014, spearheaded the implementation of Lean Healthcare in all 133 hospitals. 15 hospitals were selected in 2015 of which 12 were states hospitals excluding Hospital Kangar and 3 major specialist hospitals in Klang Valley; Hospital Putrajaya, Hospital Sungai Buloh and Hospital Selayang as mentors for nearby district hospitals.

The 15 hospitals involved determined and analyzed their work processes focusing on patient flow in the Green Zone Emergency Department and Medical Wards, making it more efficient and effective. The overall improvements achieved by the 15 hospitals were:

- Increased capacity to treat 44% more patients from improved patient flow at the Emergency Department (Green Zone),
- Increased in bed capacity of 5% in Medical Ward, by improving discharge process and smartly distributing patients' load through ward levelling.

The performance data and improvements from these 15 hospitals will be used to design the template for the ideal Emergency Department and Medical Ward which will be used to roll out Lean Healthcare in the remaining 117 hospitals in batches of 20 hospitals per year. These templates would be continually enhanced with the learning from experiences gained during the implementation. With bigger expansion of Lean Healthcare in the pipeline, Medical Development Division has invited the team from Institute of Health System Research (IHSR) to assist in training component and project monitoring in the hospitals involved.

ii. Hospital Cluster

Hospital Cluster aims at improving quality and safety of clinical service delivery by optimizing existing resources through utilization of non-specialist hospitals to decongest state and specialist hospitals, minimizing waste and increasing accessibility to specialist care. Each Cluster encompasses at least three MoH hospitals (specialist and non-specialist hospitals); located within the same geographic area or nearby within a State and complementary in terms of services and patient flow. A cluster will provide specialised services to all patients in all these areas and all human resources, facilities, and other resources will be shared between all the hospitals in the cluster.

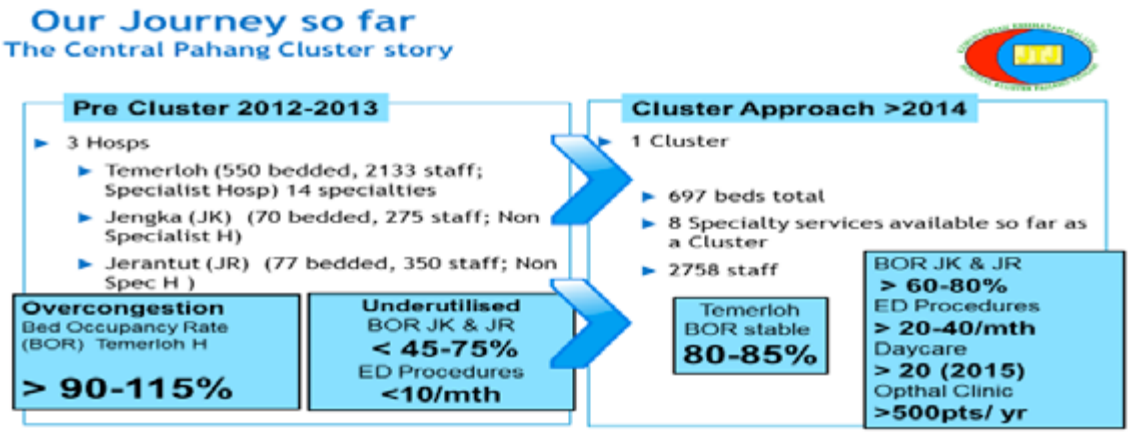
Hospital Cluster has been actively implemented as a pilot project since 2014 till 2016 in three states; Pahang, Melaka and Sabah. In 2015, the overall outcome of the three

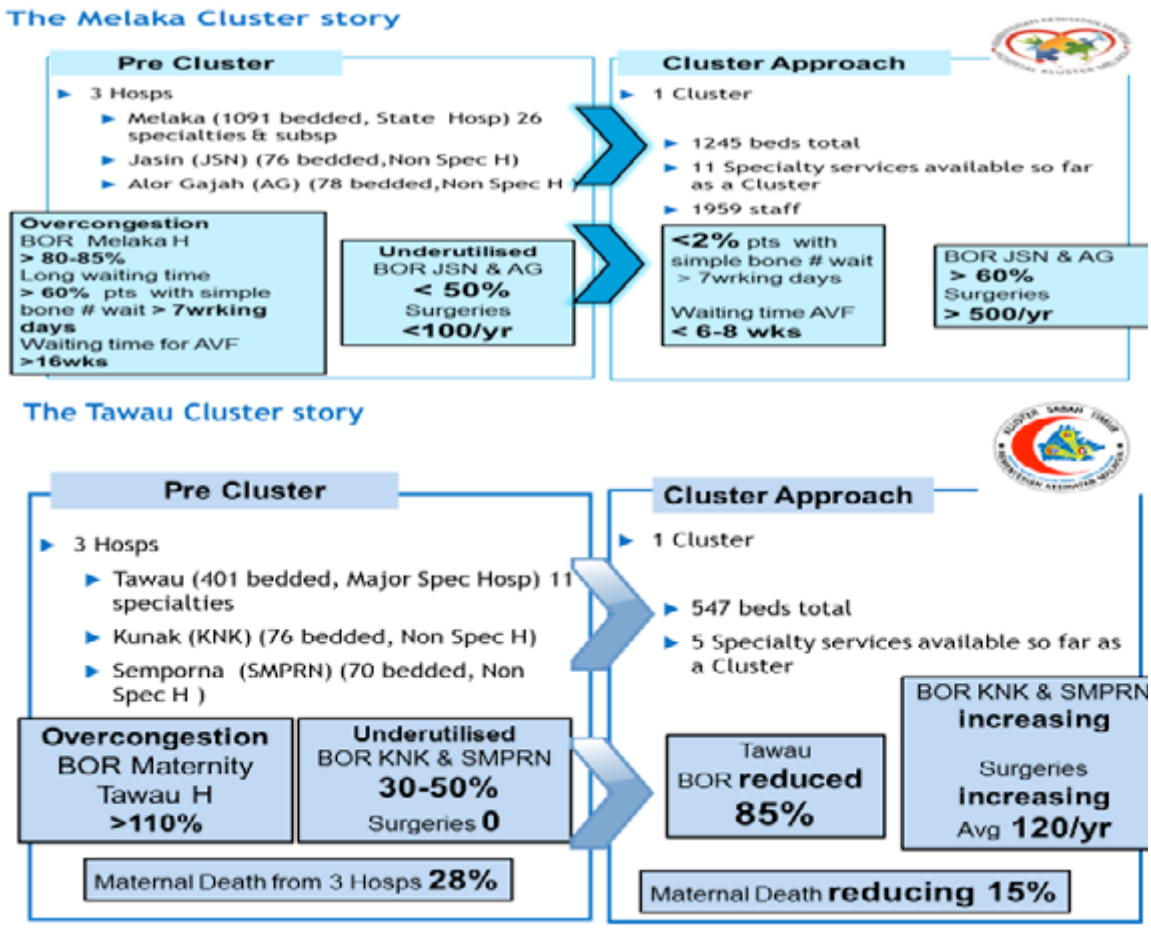
Clusters has been positive. Improvements are seen in most aspects of the services clustered i.e. increased utilisation of beds & facilities, productivity, competency of staff as well as increased patient and staff satisfaction towards the Clusters. Therefore, from 2016 onwards, Hospital Cluster will be expanded nationwide to involve all MoH Hospitals with the establishment of three (3) new Clusters per year; and a total of at least fifteen Clusters by the year 2020.

FIGURE 2
HOSPITAL PILOT CLUSTERS 2014-2016

Source: Medical Development Division, MoH

FIGURE 3
ACHIEVEMENTS OF PILOT CLUSTERS, 2015





Source: Medical Development Division, MoH

iii. Information Technology

e-Health has been recognized as a tool in healthcare transformation, however ICT achievements has not been tremendous by fiscal year 2015 end, due to many constraints financial or human resources. ICT stakeholders are collaboration of many divisions at MoH, namely Medical Development Division as service owner, Information Management Division and Telehealth Division.

- ***Sistem Pengurusan Pesakit (SPP)***

Till December 2015, 6 government hospitals are using this application. The implementation contract of SPP version 3 roll-outs to 3 hospitals, namely Hospital Raja Perempuan Zainab II, Hospital Tuanku Jaafar, Seremban and Hospital Bentong, which started in 2014 are at warranty phase. Hospital Raja Permaisuri Bainun and Hospital Port Dickson are already using SPP, and the latest edition is Hospital Taiping, using SPPv3 Basic, which include few modules Registration, Bed Management, Billing & Account Receivables and is integrated to SMRP. The 3 SPP eKL-hospitals remained as it

is, at Hospital Kuala Lumpur, Hospital Tengku Ampuan Rahimah, Klang and Hospital Kajang.

- **ICT Budget Management for Hospitals**

In 2015 only Hospital Selayang received an allocation for upgrade for Hospital Information System (HIS) and the project kick-off started the year after. The rest of 11 IT hospitals from Package 1 HIS are waiting budget approval for upgrade. Hospital Shah Alam went live on 31 Dec 2015 and warranty starts on 1 January 2016. Hospital Wanita & Kanak-kanak KL (HWKKKL) project is undergoing facility development and IT system preparations and scheduled to go live in 2016.

Medical Development Division was approved for development budget for IT and manual hospital in 2015. Almost 100% were spent accordingly to the hospital in need of hardware (IT infrastructure). This budget is being monitored by the Development Division of MoH.

iv. Medical Records Services

One of the main functions of the Medical Record Services in the hospitals is to ensure that medical reports are prepared within the stipulated timeframe and it is monitored as a key performance indicator (KPI). In 2015, 233,533 applications of medical reports have been received with more than 95% meeting the KPI.

TABLE 3

MEDICAL REPORT PREPARATION ACHIEVEMENT, 2010 - 2015

Hospital Category	Number of Hospital	2010	2011	2012	2013	2014	2015
State Hospital	14 hospitals	6%	77%	84%	90%	94.5%	94.6%
Specialist Hospital	62 Hospitals + Institution	6%	80%	92%	95%	96%	96.8%
Non-Specialist Hospital	66 Hospitals	9%	97%	98%	99%	99%	99%

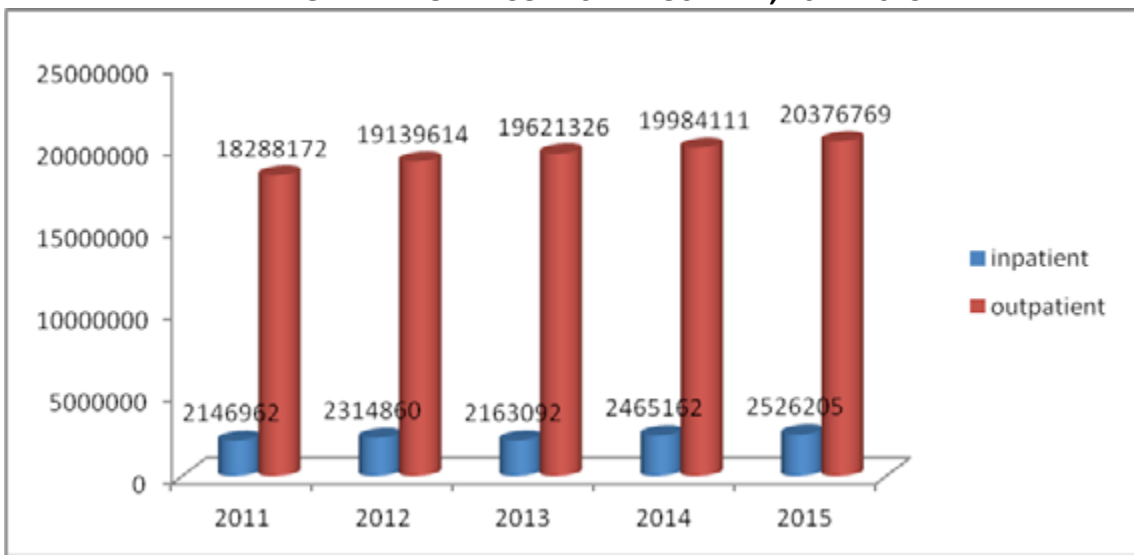
Source: Medical Development Division, MoH

Medical Record Centralisation project was further strengthened in 2015 with the aim to accomplish 100% implementation by 2016. Figure 4 shows an increase of the records management in the MoH hospital from 2011 to 2015 with 11.4 to 17.6% increment in in-patients and out-patients records management respectively.

Guidelines for Management of Medical Records, Medical Board Appointment, Preparation of Medical Report and Medical Record Disposal were reviewed in 2015.

The way forward is for sharing health information between health facilities using Electronic Medical Record platform and managing record within cluster of hospitals.

FIGURE 4
MANAGEMENT OF RECORDS IN HOSPITAL, 2011-2015



Source: Medical Development Division, MoH

v. Medical Services

Medical Services are the medical-based specialist services of General Medicine, Dermatology, Respiratory Medicine, Psychiatry, Nephrology, Neurology, Radiotherapy and Oncology, Cardiology, Gastroenterology, Haematology, Herpetology, Endocrinology, Rheumatology, Infectious Diseases, Palliative Medicine and Geriatrics. The total number of patients treated at specialist clinics of various medical disciplines increased by 5.5% in 2014 and further increase to 6.6% in 2015 (Table 4).

TABLE 4
TOTAL NUMBER OF PATIENTS WHO RECEIVED TREATMENT AT MEDICAL SPECIALIST CLINICS ACCORDING TO DISCIPLINE, 2014 - 2015

Discipline	No. of patients at specialist clinics	
	2014	2015[p]
General Medicine	1,111,318	1,193,136
Dermatology	311,468	321,112
Respiratory Medicine	243,645	254,494
Psychiatry	568,557	589,463
Nephrology	156,538	173,184

Discipline	No. of patients at specialist clinics	
	2014	2015[p]
Neurology	41,785	42,935
Radiotherapy & Oncology	94,562	107,045
Cardiology	137,040	160,724

Note: Data 2015 is Preliminary
Source: HIMS Sub System Medical Care (PER-PL205A), Health Information Centre, MoH

Table 5 shows the total number of patients from various medical disciplines treated as in-patients. In-patients for the medical disciplines increased by 4.1% in 2015 compared to 2014. There was an increase in the number of admissions for most of the medical specialties with the exception of Psychiatry. An increase in inpatients was most prominent for the disciplines of Neurology, Nephrology and Radiotherapy & Oncology. The highest was General Medicine which comprised of total admissions from Gastroenterology, Haematology, Haepatology, Endocrinology, Rheumatology, Infectious Diseases, Palliative Medicine and Geriatrics.

TABLE 5
TOTAL ADMISSIONS FOR THE SPECIALIST MEDICAL DISCIPLINES, 2014- 2015

Discipline	Number of inpatients	
	2014	2015[p]
General Medicine	620,150	633,767
Dermatology	964	967
Respiratory Medicine	11,008	11,698
Psychiatry	18,121	17,964
Nephrology	14,960	19,911
Neurology	2,843	5,273
Radiotherapy & Oncology	19,623	25,472
Cardiology	16,442	17,944

Note: Data 2015 is Preliminary
Source: HIMS Sub System Medical Care, *Health Information Centre, MoH*

Highlights 2015

1. In 2015, 10 hospitals received medical equipment that used a technique known as real-time polymerase reaction that requires only two hours for the confirmation of Tuberculosis (TB).

2. Five Communities Mental Health Centres (CMHC) were set up in 2015 resulting in total of 21 CMHC established till December 2015. These were Hospital Bahagia, Ulu Kinta; Hospital Tuanku Ampuan Najihah, Kuala Pilah, Negeri Sembilan; Hospital Melaka; Hospital Permai, Johor; and Hospital Mesra, Bukit Padang, Sabah.

3. Haemodialysis units were established in two more hospitals in Sabah, namely at Hospital Kunak and Hospital Pitas.

4. The Guideline for the Management of Scabies in Adults and Children was published in February 2015 to provide a standardized practice for the diagnosis, treatment, management and prevention of scabies.

5. In March 2015, the Guideline on Suicide Risk Management in Hospitals was launched by the Director General of Health, Malaysia.

Activities

1. A National dengue management course was held on 3-4 September 2015 to update clinicians from government and private healthcare facilities in the management of dengue and the course content was based on the latest Dengue Management Clinical Practice Guidelines (CPG). The Dengue Management CPG 3rd Edition by the Honourable Minister of Health on 4 September 2015.

2. The Administrative Psychiatry and Professional Skills Development Course for Early Career Psychiatrists were held at Palm Mall Hotel, Seremban, Negeri Sembilan from 7-9 September 2015. Targeted at psychiatrists who had less than five years of working experience.

3. The National Renal Registry (NRR) Annual Meeting 2015 held on 15 December 2015 to report and discusses the latest Malaysian Dialysis and Transplant Registry (MDTR) data for 2014.

b) Surgical And Emergency Services Unit

Surgical Services

The Surgical (Specialty) Services include General Surgery, Orthopaedics, Ophthalmology, Otorhinolaryngology, Urology, Neurosurgery, Plastic Surgery, Cardiothoracic Surgery and various subspecialties. General surgery and orthopaedic services are available in almost all hospitals with specialists. Otorhinolaryngology is

available in all major specialist hospitals. Whereas surgical discipline such as neurosurgery, plastic surgery and cardiothoracic surgery are available regionally. Certain surgical specialties e.g. ophthalmology and subspecialties e.g. vascular surgery provide networking services. The outpatient attendances to surgical (specialty) clinics shown in Table 6 indicated an increased in number of the patients in almost all surgical discipline.

TABLE 6
NUMBER OF OUTPATIENT ATTENDANCES AT SURGICAL (SPECIALTY) CLINICS, 2014 – 2015

Disciplines	No. of Outpatients	
	2014	2015
General Surgery	734,195	764,175
Orthopaedic	973,381	993,954
Ophthalmology	1,018,543	1,082,190
Otorhinolaryngology	577,245	616,049
Urology	130,836	139,257
Neurosurgery	43,647	47,440
Cardiothoracic surgery	27,756	28,080
Plastic Surgery	51,600	51,276
Hand & Microsurgery	9,635	9,991
Hepatopancreaticobiliary	NA	NA
TOTAL	**3,566,838**	**3,732,412**

Source: Health Informatics Centre, MoH
NA = Data not available

The numbers of inpatients in all surgical (specialty) wards are shown in Table 7. Like surgical outpatient attendees, there was an overall increment in admission in 2014 as compared to 2015.

TABLE 7
NUMBER OF BEDS, INPATIENT AND BED OCCUPANCY RATE OF SURGICAL (SPECIALTY) WARD, 2014–2015

Discipline	No. of Beds	No. of Inpatients		Bed Occupancy Rate	
	2014	2015	2014	2014	2015
General Surgery	3,596	3,636	221,634	59.33	59.41
Orthopaedic	3,080	3,221	139,315	71.73	68.62
Opthalmology	622	628	36,094	45.83	45.34
Otorhinolaryngology	413	423	21,388	52.38	52.39
Urology	238	252	14,833	69.22	72.23
Neurosurgery	290	298	8,633	68.30	68.62

Discipline	No. of Beds	No. of Inpatients		Bed Occupancy Rate	
	2014	2015	2014	2014	2015
Cardiothoracic	132	137	2,860	75.92	64.40
Plastic Surgery	121	121	4,101	49.69	46.94
Hand & Microsurgery	18	18	NA	14.16	26.53
Hepatopancreaticobiliary	28	28	1,190	127.33	127.38
Total	**8,538**	**8,762**	**436,879**	**633.89**	**631.86**

Source: Health Informatics Centre, MoH

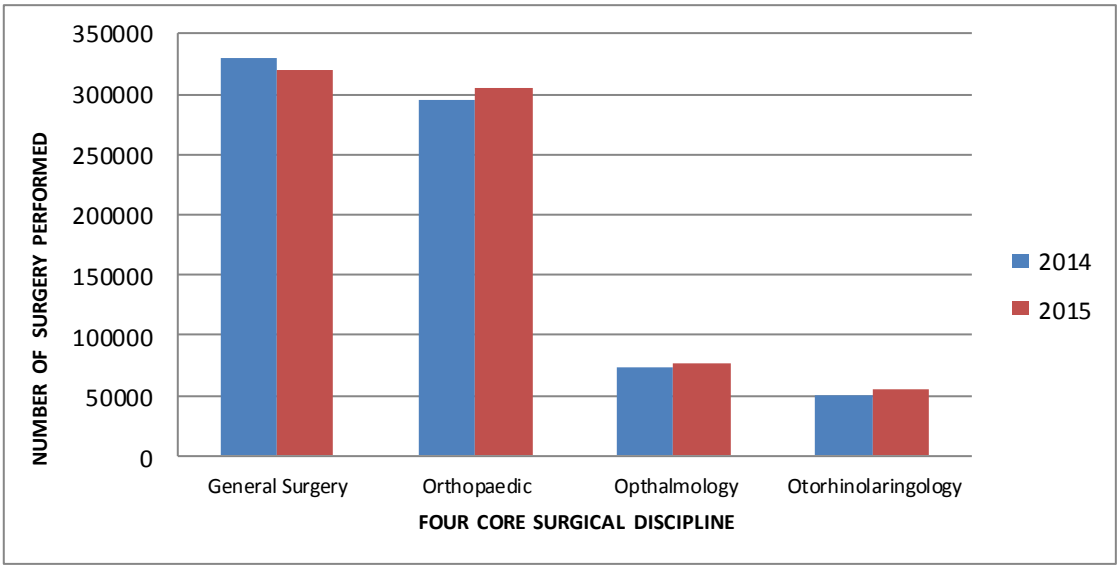
The core activity of the entire surgical specialty was operations performed as shown in Table 8 below. Included in the table are operations by subspecialty which are previously not available, as in asterisk. Overall, there was an increase in number of total operation performed in 2015 as compared to 2014.

TABLE 8
NUMBER OF ELECTIVE AND EMERGENCY OPERATION PERFORMED, 2014 – 2015

Disciplines	No. of Operation Performed					
	2014			2015		
	Elective	Emergency	Total	Elective	Emergency	Total
General Surgery	75,142	255,236	**330,378**	75,607	244,036	**319,643**
Orthopaedic	84,360	210,593	**294,953**	85,140	219,511	**304,651**
Ophthalmology	65,708	8,054	**73,762**	67,598	8,839	**76,429**
Otorhinolaryngology	34,738	15,316	**50,054**	40,751	14,681	**55,432**
Urology	16,106	7,267	**23,373**	16,104	8,824	**24,928**
Neurosurgery	2,429	9,919	**12,348**	2,650	8,987	**11,637**
Cardiothoracic Surgery	1,761	743	**2,504**	1,572	681	**2,253**
Plastic Surgery	7,320	3,324	**10,644**	7,477	2,885	**10,362**
*Hand & Microsurgery	323	805	**1,128**	478	1,391	**1,869**
*Paediatric Surgery	4,955	2,391	**7,346**	4,899	2,080	**6,979**
*Hepatobiliary Surgery	4,198	961	**5,159**	4,081	1,734	**5,815**
*Breast & Endocrine Surgery	2,653	250	**2,903**	2,803	300	**3,103**
*Vascular Surgery	2,421	260	**2,681**	2,761	284	**3.045**
*Colorectal Surgery	1,063	966	**2,029**	1,010	884	**1,894**
Total	**303,177**	**516,085**	**819,262**	**312,931**	**515,117**	**828,048**

Source: Health Informatics Centre, MoH

FIGURE 5
NUMBERS OF SURGERY FOR FOUR SURGICAL DISCIPLINES, 2014-2015



Source: Medical Development Division, MoH

Number of operations performed for the 2 years period is depicted in diagram as in Figure 5. In overall the numbers of surgery performed by four core surgical discipline were increasing as compare to year 2014 and 2015.

c. Anaesthesiology Services

Anaesthesiology Services consist of Anaesthetic Operation Theatre Service, Intensive Care Service and Pain Service. In 2015, there were 83 MoH hospitals providing anaesthetic services with 47 having resident specialists with an increase in number of hospitals having such service as compared to 2014 (Number of hospitals with anaesthesia service in 2014 was 80 hospitals). In the rest of the hospitals, the services were given by anaesthetic medical officers and visiting specialists.

Workload for the Anaesthesiology Services in 2014-2015 is depicted in Table 9. Number of anaesthetic given, inclusive of all modalities, showed an increasing trend. This is also seen in attendances at anaesthetic clinic and chronic pain clinic except intensive care unit admissions in 2015.

TABLE 9
WORKLOAD FOR THE ANAESTHESIOLOGY SERVICES IN 2014-2015

Items	2014	2015
No. of Anaesthetic Administered	387,631	391,150
No. of Attendance at Anaesthetic Clinic	91,258	98,938
No. of ICU Admissions	40,661	40,393
No. of Attendance at Chronic Pain Clinic	12,196	14,297

Source: Anaesthesiology Census 2013 and 2014, MoH

For the Intensive Care Service, there were 51 general intensive care units in MoH Hospitals in 2015 (with 636 functional beds) compared to 2014 there were 52 General Intensive Care Unit available (with 613 functional beds).

d. Emergency and Trauma Services

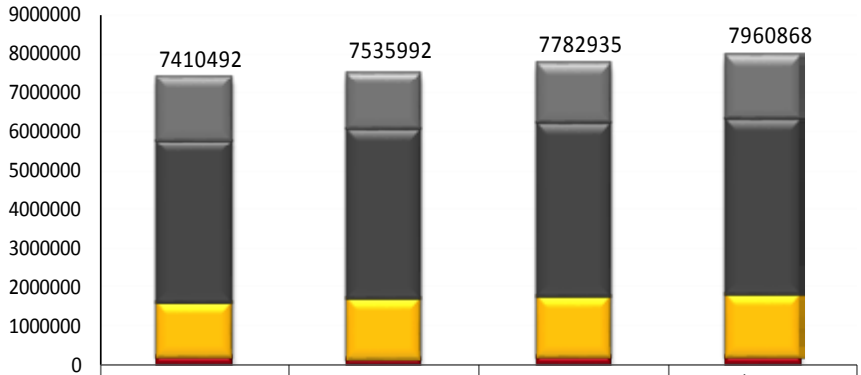
Emergency and Trauma Services has shown marked development over the last 10 years with most specialist hospitals having resident emergency physicians. In 2015, there were a total of 209 Emergency Physicians serving in specialist hospitals in Malaysia as 33 new Emergency Physicians graduated from various local universities, contributing to the increment of 19% from the year 2014.

The number of patients attending the Emergency and Trauma Department in hospitals all over the country also shows an increasing trend. In 2015, a total of 7,960,868 patients attended the department to seek treatment; an increase by about 2.26% compared to the previous year.

The types of cases that were seen in the Emergency and Trauma Department were mostly medical cases followed by paediatrics, trauma and others. About 0.15% cases were OSCC cases such as rape, sodomy and physical abuse. Physical abuse contributed for highest number of all OSCC cases, about 70%.

The number of non-emergency cases such as chronic skin disease, conjunctivitis and upper respiratory infection that presented to Emergency and Trauma Department was also noted to be very high 20.7% of total attendances. This due to lack of understanding of the function of the Emergency and Trauma Department by the public that contribute to the hospital congestion. The distribution of cases according to triage (red, yellow and green) is shown in Figure 6.

FIGURE 6
NUMBER OF PATIENTS ATTENDING THE EMERGENCY AND TRAUMA DEPARTMENT, 2012-2015

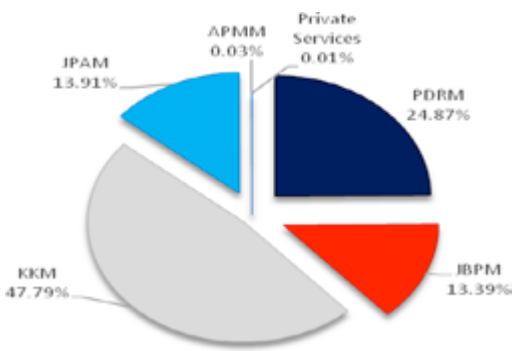


	2012	2013	2014	*2015
Non-Emergency	1606799	1464515	1565624	1652335
Green	4134595	4329656	4412440	4459056
Yellow	1420182	1516328	1576892	1607236
Red	246904	223480	225965	242241
Total	7410492	7535992	7782935	7960868

Note: Data 2015 is Preliminary
Source: Health Informatics Centre, MoH

Pre hospital care, an important scope in Emergency and Trauma Services demonstrated marked increase in its service demand. MoH continued to receive the highest number of 999 calls. A total of 271,024 emergency calls received in 2015, an increase of 9% compared to 2014.

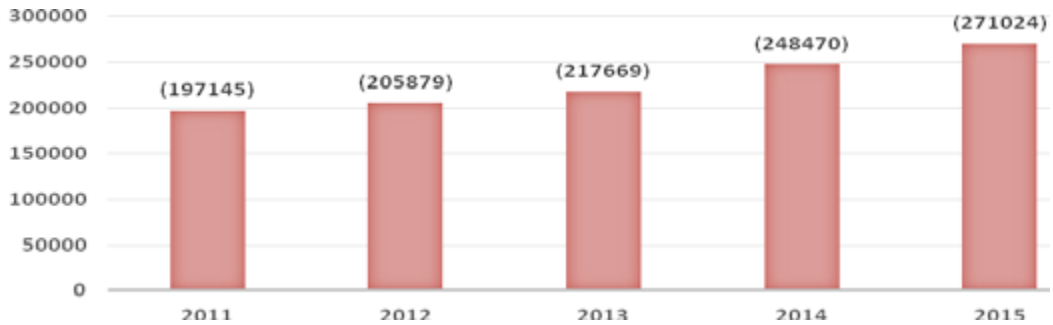
FIGURE 7
DISTRIBUTION OF EMERGENCY CALLS RECEIVED BY AGENCIES



LEGEND:
PDRM : *Polis Diraja Malaysia*
JBPM : *Jabatan Bomba & Penyelamat Malaysia*
KKM : *Kementerian Kesihatan Malaysia*
JPAM : *Jabatan Pertahanan Awam Malaysia*
APMM : *Agensi Penguatkuasaan Maritim Malaysia*

Source: MERS 999

FIGURE 8
TOTAL NUMBER OF EMERGENCY CALLS (999) RECEIVED BY MoH, 2015



Source: MERS 999

Today there are 21 Medical Emergency Coordination Centre (MECC) that has been developed all over country and the list of MECC is shown in Table 10.

TABLE 10
LIST OF HOSPITAL WITH MEDICAL EMERGENCY COORDINATING CENTRE (MECC), 2015

STATE/PLACE	HOSPITAL
Klang Valley	Hospital Kuala Lumpur
	Hospital Tengku Ampuan Rahimah, Klang
	Hospital Serdang
	Hospital Sungai Buloh
	Hospital Selayang
	Hospital Ampang
	Hospital Putrajaya
Perlis	Hospital Tuanku Fauziah, Kangar
Kedah	Hospital Sultanah Bahiyah
Pulau Pinang	Hospital Seberang Jaya
Perak	Hospital Raja Permaisuri Bainun
Kelantan	Hospital Raja Perempuan Zainab
Terengganu	Hospital Sultanah Nurzahirah
Pahang	Hospital Tengku Ampuan Afzan
Negeri Sembilan	Hospital Tengku Jaafar
Melaka	Hospital Melaka
Johor	Hospital Sultanah Aminah
Sabah	Hospital Queen Elizabeth 1
	Hospital Tawau
Sarawak	Hospital Umum Sarawak
	Hospital Miri

Source: Medical Development Division, MoH

Activities and Achievements

1. Advanced Life Support (ALS) Instructor Course was organized twice and were held in Ipoh and Sarawak. A total of 75 new ALS instructors were certified by the National Committee on Resuscitation Training, NCORT during these two ALS Instructor Courses.

2. There were 3 workshops organized for the development of various policies and guidelines;
   - Workshop for the development of GIRN guidelines.
   - Workshop for the development of Clinical Guidelines in Management of Snake Bite.
   - OSCC National Seminar.

3. Collaboration project between MoH and the NGOs (St John Ambulance Malaysia and Red Crescent Malaysia) in Pre Hospital Care and Ambulance Service was started in November 2014 in 5 hotspot areas in Klang Valley. From this project, the ambulance response time were markedly improved whereby almost 100% of priority 1 case had ambulance response time of less than 15 minutes.

4. The waiting time of patients attending the Outpatient Department from the time of registration to the time of consultation this should not exceed 30 minutes. In 2015, 91.2% of patients waited for less than 30 minutes.

5. The Key Performance Indicator (KPI) achievements in 2015 are:
   - Percentage of patients receiving thrombolytic therapy within 30 minutes of presentation at the Emergency Department was 94.8% (STD ≥ 85%), beyond the targeted value.
   - Percentage of inappropriate Triaging (under triaging): Category Green patients who should have been triaged as Category Red was 0.08% (STD < 0.5%).
   - The percentage of ambulance preparedness and dispatch for primary response within (≤ 5 minutes) were 94.80% (STD ≥ 85%).
   - Percentage of severe sepsis managed according to Modified Surviving Sepsis Bundle within by (≤ 60 minutes) of diagnosis was 94.10% (STD ≥ 90%).
   - Percentage of MTC Yellow patients where treatment is instituted by ED staff within (≤ 30 minutes) was 99.08% (STD ≥ 85%), beyond the targeted value.
   - Procedural sedation and analgesia (PSA) complication rate in Emergency and Trauma Department was 0.81% (STD < 10%).

6. The One Stop Crisis Centre: Policy and Guidelines for Hospitals, MoH was produced by the Emergency Services Unit in 2015.

Way Forward

Emergency and Trauma Services focus on strengthening the competency and skill human resource, infrastructures while ensuring quality of the service provided. Under the 11th Malaysia Plan (11MP), Pre Hospital Care and Ambulance Service is one of the top ten priority focus in MoH Malaysia. The number of ambulances and other emergency vehicles were expected to increase in order to achieve better ambulance response time based on the international standards. More collaboration with other government agencies as well as the NGOs in delivering the Pre Hospital Care and Ambulances Service will be strengthened. In view of the increasing demands for the Pre Hospital Care and Ambulance Service, the Emergency and Trauma Services Unit aims for a better ambulance response time whereby target ambulance response time for a Priority 1 case is less than 15 minute.

e. Transplantation Services Unit

Organ donation has been around in Malaysia since the 1970s, when the first kidney transplant was performed in 1975. However, after four decades, the donation rate remains low at 1.0 donor per million population (pmp). On the other hand, there is an ever-increasing demand for organ transplants in Malaysia.

According to Malaysian Dialysis & Transplant Registry (MDTR), there were 7,055 new patients requiring dialysis in 2014 resulting in a total of 34,767 patients on dialysis for the entire country. At least half of them would require a kidney transplant. Yet, less than 90 kidney transplants are being performed in Malaysia each year. As a result, a huge medical social and economic burden is afflicted on the nation.

Other activities in 2015 include:

1. Training
   Frequent, periodic trainings were organised at national, state and hospital level to increase awareness and knowledge amongst the staff on relevant topics on organ donation. These include:
   - Advanced Course in Donor Management and Transplant Coordination
   - Cadaveric Tissue Procurement Workshop
   - Grief Response in Organ Donation
   - Organ Procurement Initiative Focus Person Conference
   - Donate Life (Australia)
   - Training Of Trainers For Health Education Officers On Organ Donation

2. Clinical Activities

   Organ Donation Focused Clinical Initiatives was implemented in 16 MoH hospitals as a pilot project in 2015. The objective of this initiative is to improve the identification of potential cases, to increase the number of referrals and eventually increase the rate of deceased organ donation.

3. Promotional Activities

   National Level:

   - "Organ Donation Awareness Week" *(Minggu Kesedaran Pendermaan Organ)* was launched by our Deputy Minister of Health on 3 October 2015 at *Terminal Bersepadu Selatan*. Themed *"Jom Bincang*-Let's Talk*"*, the project was aimed to create awareness amongst public about organ donation and to encourage them to discuss the intention with their families.
   - The *"YB, Jom Ikrar"*, was launched during *Dewan Rakyat* sessions at the Parliament Malaysia. The campaign was targeted at the Members of Parliament to participate in the organ donation campaign.

   State Level**:**

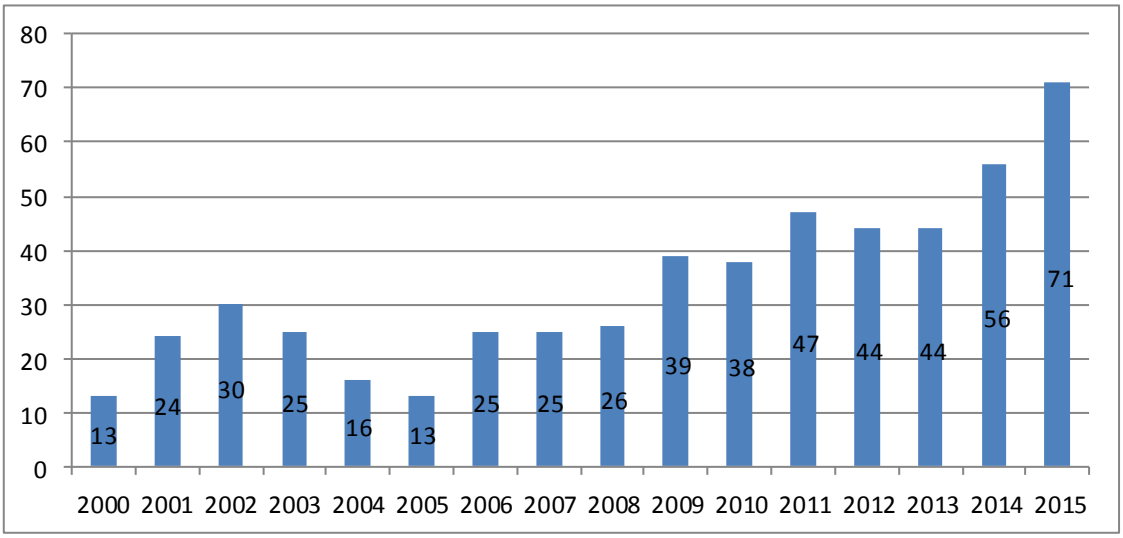
   - Organ Donation Road Show was conducted in Kedah, Negeri Sembilan, Sarawak and Malacca.
   - At hospital level the *"KKM, Jom Ikrar"* campaign is still ongoing. This campaign targets to create awareness among KKM personnel.

4. Mutual Collaboration With Other Agencies
   - Ministry of Youth and Sports Malaysia
   - Awareness campaign was conducted during *Hari Belia* and Fit Malaysia event. Educational materials and posters were distributed during the events to public.
   - Malaysian Association of Private Colleges and Universities (MAPCU)
   - 11 private colleges were involved in the organ donation campaigns
   - Primary and Secondary Schools
   - *Modul Dr Muda* were introduced at primary school *(Nilai-nilai murni)* and at secondary school *(Pendermaan Organ dan Pendermaan Darah)*
   - CPD (Continuing Professional Development) Session for Housemen on Organ Donation
   - In order to improve the awareness and establishing better commitment of healthcare personnel in promoting organ donation, all housemen either in Anaesthesia or Emergency Posting have to undergo the "Organ Donation" CPD Program

Achievement

In 2015, the number of organ/tissue donor is 71, 58 kidneys, 12 liver, 1 heart, 1 lung, 100 corneas, 47 bone and 10 heart valves were procured (Figure 17).

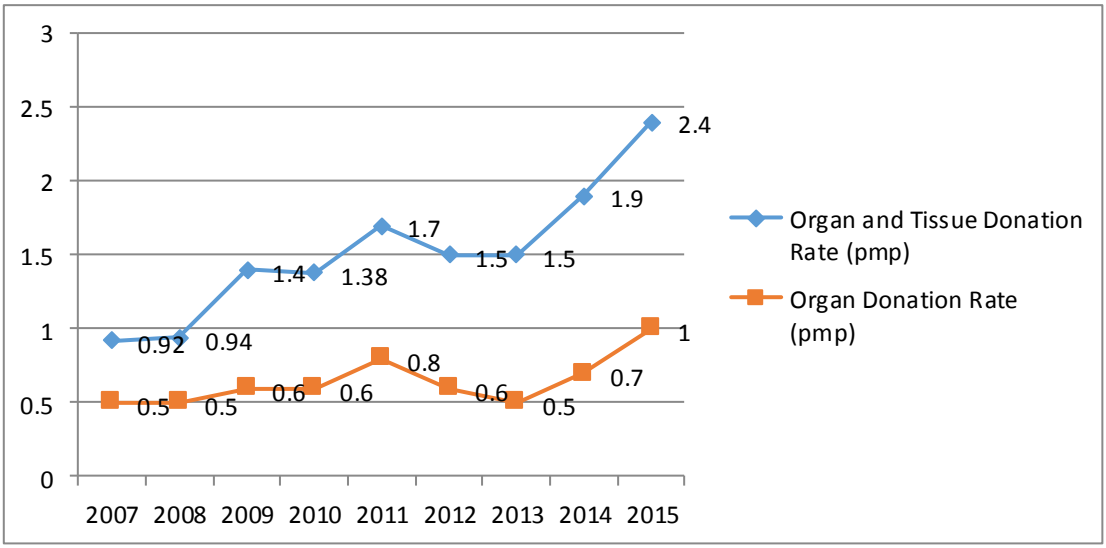
FIGURE 9
NUMBER OF ORGAN/TISSUE DONORS, 2000-2015



Source: National Transplant Resource Centre

Organ and tissue donation rate for 2015 is 2.4 pmp which is the highest so far. However, the rate is still low if compared to other countries such as Australia 18.3 pmp, United Kingdom 20.0 pmp and Spain 36 pmp.

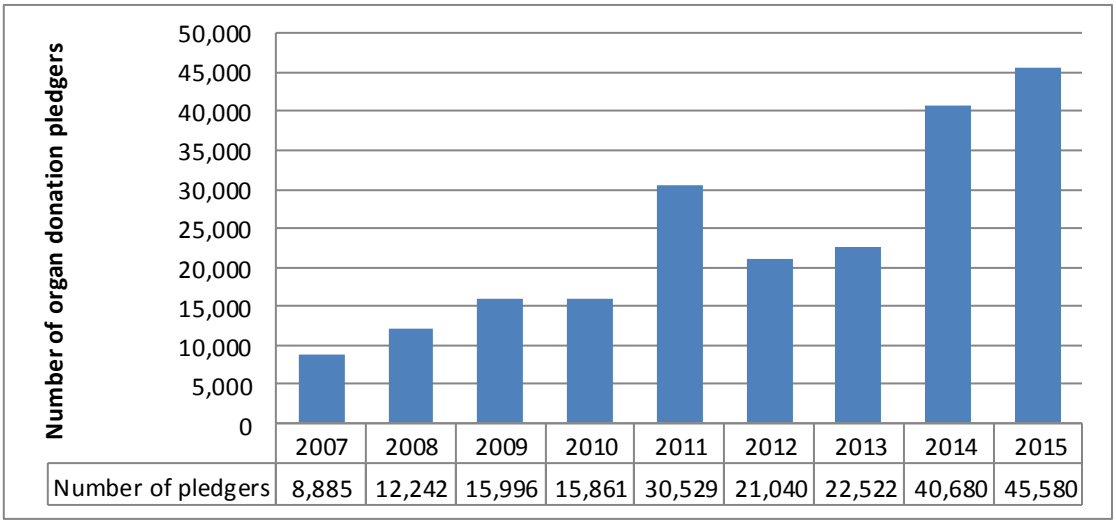
FIGURE 10
ORGAN AND TISSUE DONATION RATE IN MALAYSIA, 2007-2015



Source: National Transplant Resource Centre

New organ pledgers registered in 2015 was increased to 45,580, 18.98% were Chinese, 48.34% Malays and 21.89% Indians and 10.79% were from other ethnicity (Figure 11).

FIGURE 11
ORGAN DONATION PLEDGERS, 2007-2015



	2007	2008	2009	2010	2011	2012	2013	2014	2015
Number of pledgers	8,885	12,242	15,996	15,861	30,529	21,040	22,522	40,680	45,580

Source: National Transplant Resource Centre

Way forward

The challenges faced by the ministry in promoting organ donation are lack of organ supply, poor public awareness, less informed professionals or lack of support, inadequate funding and transplantation economics, human resource constraints, ethical problems (includes organ trading, unrelated living donation, private cord blood banking) and uncoordinated services/programs. Therefore, consolidated effort and multidisciplinary approach involving all stakeholders; MoH, other government agencies, private sectors, mass media, corporate entities and non-government organisations are needed. In line with the Organ Donation Awareness (ODA) Strategic Plan, and the National Transplantation Program, promotional campaigns and activities in improving organ donation awareness in Malaysia will be further strengthened.

f. Obstetrics & Gynaecology (O&G) Services

The O&G discipline remains as one of the largest and busiest clinical disciplines in MoH. The O&G Service contributes towards the improvement of pregnant mothers' access to healthcare, with the availability of general and specialist O&G Services (Reproductive Medicine, Maternal Fetal Medicine, Gynae-oncology and Uro-gynaecology), and the provision of emergency obstetric care through a system of rapid, efficient referrals in managing high risk and complicated deliveries.

Statistics in 2015 showed there were 387,076 deliveries, with 73.5% normal deliveries and 26.5% complicated deliveries (Table 11). This is a significant increase compared to 2014 where the total of deliveries in 2014 was 378,487. The number of birth by state as showed in Figure 12. The highest number of births is in Selangor (57,183), followed by Johor (49,107) and Sabah (35,829).

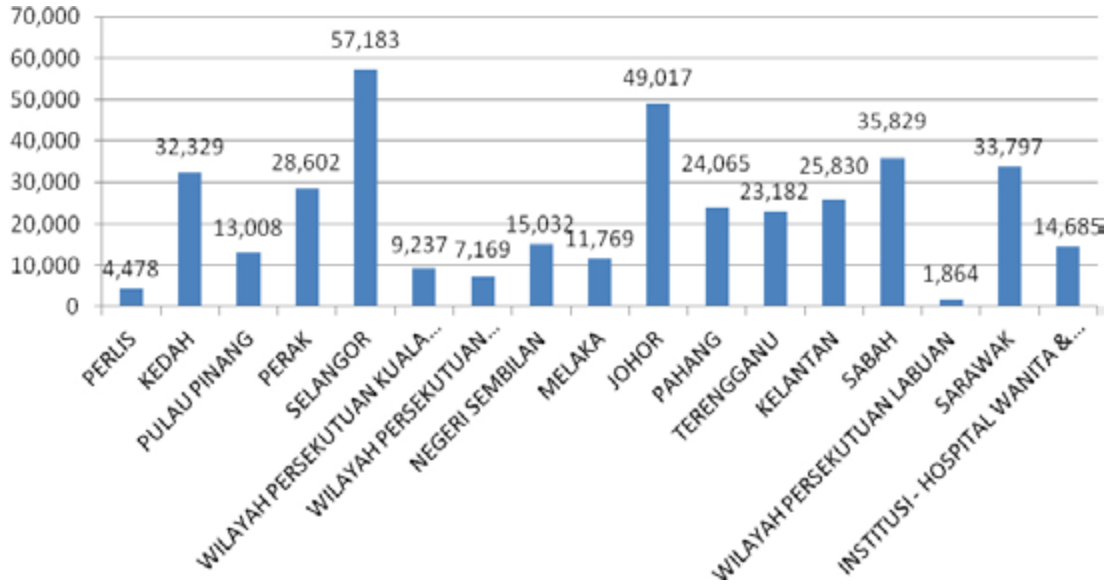
The number of admissions to obstetric wards in MoH hospitals in 2015 were 546,852 and admissions to gynaecology wards were 118,808. As for specialist out-patient clinics, 719,106 patients attended the specialist clinics in MoH hospitals in 2015. Figure 13 showed the number of outpatient attendances and new cases in Obstetrics & Gynaecology Clinic in government hospitals and institutions.

TABLE 11
NUMBER OF DELIVERIES, 2015

NEGERI	Method Of Delivery								
	Spontaneous Vertex Delivery (SVD)	Assisted Forceps Delivery	Assisted Vaccum Delivery	Spontaneous Breech Delivery	Assisted Breech Delivery	Lower Segment Caecerian Section (LSCS)	Classical Segment Caecerian Section (CSCS)	Lain-Lain (Others)	Jumlah Kelahiran
PERLIS	3,129	12	139	2	8	1,188	0	0	4,478
KEDAH	22,353	222	763	24	95	8,858	4	10	32,329
PULAU PINANG	9,075	45	232	10	39	3,561	6	40	13,008
PERAK	20,580	56	233	20	37	7,666	8	2	28,602
SELANGOR	40,219	238	2,602	78	160	13,847	8	31	57,183
WP KUALA LUMPUR	5,494	45	400	26	28	2,864	371	9	9,237
WP PUTRAJAYA	3,812	0	574	0	0	2,759	0	24	7,169
NEGERI SEMBILAN	10,763	29	620	11	41	3,554	12	2	15,032
MELAKA	8,248	3	162	2	9	3,344	0	1	11,769
JOHOR	36,834	195	2,397	81	253	9,081	25	151	49,017
PAHANG	17,761	181	977	94	45	4,968	14	25	24,065
TERENGGANU	18,715	49	465	7	51	3,840	1	54	23,182
KELANTAN	21,287	72	183	35	44	4,197	4	8	25,830
SABAH	29,563	44	801	99	106	5,200	8	8	35,829
WP LABUAN	1,503	1	60	6	1	293	0	0	1,864
SARAWAK	25,474	255	1,211	28	74	6,733	18	4	33,797
INSTITUSI - HOSPITAL WANITA & KANAK-KANAK, LIKAS	9,795	15	576	33	30	4,216	13	7	14,685
MALAYSIA	**284,605**	**1,462**	**12,395**	**556**	**1,021**	**86,169**	**492**	**376**	**387,076**

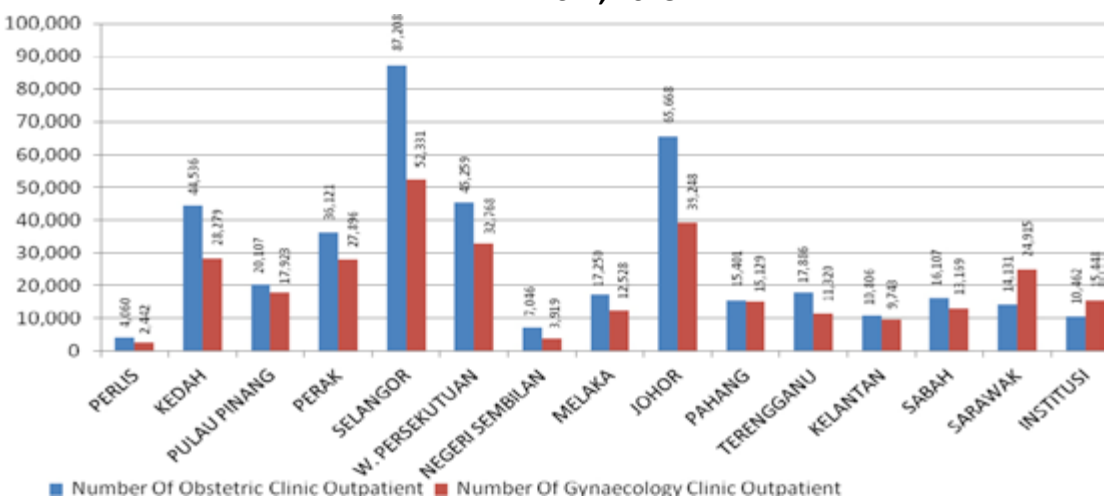
Note: Data 2015 is Preliminary
Source: Health Informatics Centre, MoH

FIGURE 12
NUMBER OF DELIVERIES ACCORDING TO STATES, 2015



Note: Data 2015 is Preliminary
Source: Health Informatics Centre, MoH

FIGURE 13
NUMBER OF OUTPATIENTS ATTENDANCES AND NEW CASES FOR OBSTETRICS AND GYNAECOLOGY SPECIALIST CLINICS IN GOVERNMENT HOSPITALS AND INSTITUTIONS, MALAYSIA, 2015



Note: Data 2015 is Preliminary
Source: Health Informatics Centre, MoH

Table 12 showed the number of patients that underwent Assisted Reproductive Technology (ART) procedures in Government Hospitals in 2015. The clinical pregnancy rate for the procedures done in Hospital Sultanah Zahirah, Kuala Terengganu was low in 2015 due to shortage of trained personnel.

TABLE 12
NUMBER OF ASSISTED REPRODUCTIVE TECHNOLOGY (ART) PATIENTS WITH CLINICAL PREGNANCY RATE IN GOVERNMENT HOSPITALS AND INSTITUTIONS, MALAYSIA, 2015

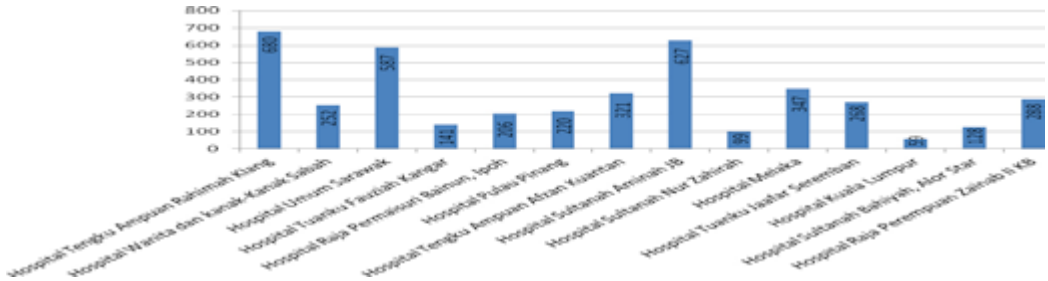
Hospital		Number Of Cases		Clinical Pregnancy Rate	
		Fresh Embryo Transfer (ET)	Frozen Embryo Transfer (FET)	Fresh Embryo Transfer (ET)	Frozen Embryo Transfer (FET)
Hospital Kuala Lumpur	Regional Center	129	86	14.80%	20.10%
Hospital Sultanah Bahiyah Alor Setar		166	42	26.30%	26.10%
Hospital Sultanah Nur Zahirah, Kuala Terengganu		70	16	3.40%	6.25%
Hospital Wanita Dan Kanak-Kanak Likas, Sabah		125	94	26.10%	22.50%
Hospital Tengku Ampuan Rahimah, Klang	Satellite Center	55	18	47.80%	61.10%
Hospital Raja Permaisuri Bainun, Ipoh		288	57	30.60%	43.40%
Hospital Selayang		7	2	0%	50%

Note: Data 2015 is Preliminary
Source: Health Informatics Centre, MoH

Other activities in 2015 include:

1. The numbers of MoH staff trained in Obstetric Life Saving Skills Training Program were significantly increased with 14 State Hospitals involved in conducting courses compared to only 6 in 2014. A total of 2603 staff consisting of specialist and staff nurses were trained (Figure 14).

FIGURE 14
NUMBER OF STAFF TRAINED IN OBSTETRIC LIFE SAVING SKILLS PROGRAM, 2015



Note: Data 2015 is Preliminary
Source: Medical Development Division, MoH

2. The Termination of Pregnancy guideline was reviewed in 2015 and workshops were conducted to strengthen and add on a mental health assessment component to the guideline. This is in line with the existing penal code regarding abortion. This Unit had received some support and assistance from other units and departments for this ongoing exercise.

3. Establishment of Low Risk Birthing Centers is one of the 10 priorities set by the Health Minister, YB Datuk Seri Dr. S. Subramaniam to be implemented by 2018. The aim of these low risk birth centers is to serve the obstetric needs of pregnant women with low risks to decongest the obstetric wards in the hospitals, while allowing O&G specialists to provide a more focused care towards women with high risk pregnancies.

4. Obstetric Retrieval Teams in Sabah and Sarawak were further strengthened with approval of RM299,250.00 for purchase of assets and consumables in Hospital Sibu, Hospital Bintulu, Hospital Sandakan and Hospital Lahad Datu.

In 2015, the O & G services were further strengthened with a Dasar Baru fund of RM3.5 million approved for purchases of assets, drugs and consumables for gynae-oncology services. The hospitals that provide these services are Hospital Tuanku Fauziah Kangar, Hospital Sultanah Bahiyah Alor Setar, Hospital Pulau Pinang, Hospital Selayang, Hospital Ampang, Hospital Serdang, Hospital Sultan Ismail Johor Bahru, Hospital Tengku Ampuan Afzan Kuantan, Hospital Sultanah Nur Zahirah Kuala Terengganu, Hospital Raja Permaisuri Zainab II Kota Bharu, Hospital Umum Sarawak and Hospital Wanita Dan Kanak-Kanak Likas Sabah.

g. Paediatric Services

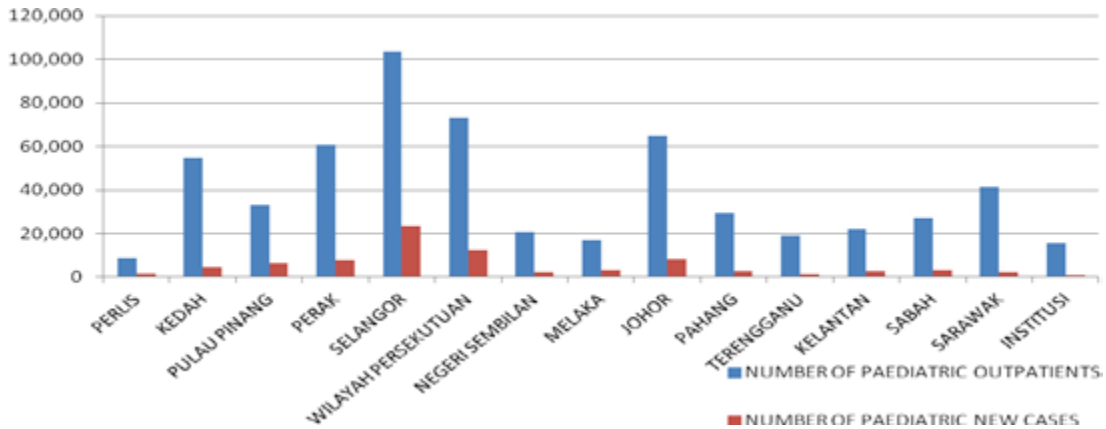
Paediatric speciality services are available in almost all MoH hospitals. Emphasis on improving service delivery given to certain areas such as thalassaemia, genetics and intensive care services in paediatrics in 2015. A substantial increase in paediatric workload was observed in 2015. This is shown in Table 13 where the increase in the number of new paediatric cases in 2015 was 135,755 compared to 77,959 cases in 2014. Figure 15 showed the total number of patients that had attended the paediatric specialist clinics were 590,999 with the highest in Selangor (103,628), followed by Johor (64,717), Perak (60,719), Kedah (54,746) and Sarawak (41,385).

TABLE 13
NUMBER OF OUTPATIENTS AND NEW CASES IN PAEDIATRIC SPECIALIST CLINIC IN ALL MoH HOSPITALS AND INSTITUTIONS, 2011- 2015

Year	Number of paediatric outpatients	Number of paediatric new cases
2011	485,102	69,638
2012	511,103	72,537
2013	539,699	75,427
2014	564,410	77,959
2015	590,999	135,755

Note: Data 2015 is Preliminary
Source: Medical Development Division, MoH

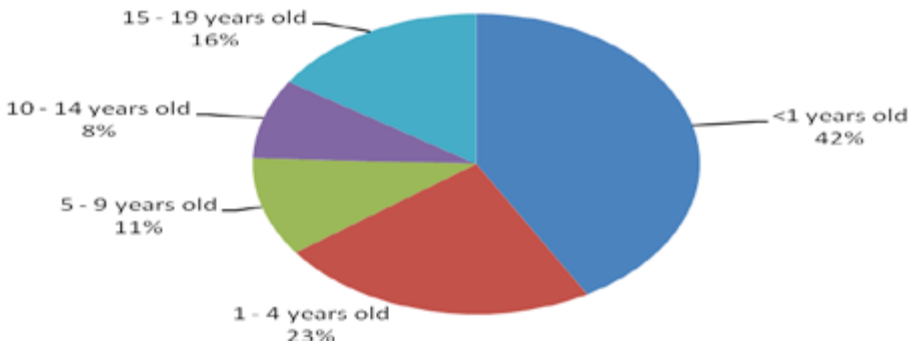
FIGURE 15
NUMBER OF OUTPATIENTS ATTENDANCES AND NEW CASES FOR PAEDIATRIC SPECIALIST CLINICS IN GOVERNMENT HOSPITALS AND INSTITUTIONS, MALAYSIA, 2015



Note: Data 2015 is Preliminary
Source: Medical Development Division, MoH

Figure 16 showed the number of paediatric patients admitted to MoH hospitals based on age for year 2015. From total 747,963 patients admitted between the ages of less than 1 year old to 19 years old, the highest number is 312,036 patients among those less than a year old, with the lowest number of patients (63,919) between 10 to 14 years old.

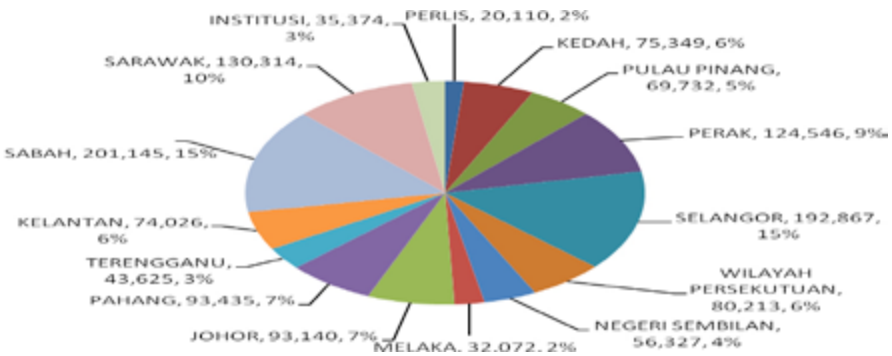
FIGURE 16
DISTRIBUTION OF PAEDIATRIC PATIENT ADMITTED TO MOH HOSPITALS BASED ON AGE, 2015



Note: Data 2015 is Preliminary
Source: Medical Development Division, MoH

In Figure 17, showed the total number of paediatric cases seen in Emergency & Trauma Department (ED) are 1,322,275 patients with the highest number in Sabah (201,145), followed by Selangor (192,867), Sarawak (130,314), Perak (124,546) and Pahang (93,435).

FIGURE 17
NUMBER OF PAEDIATRIC CASES SEEN IN EMERGENCY DEPARTMENT AT MoH HOSPITALS, 2015



Note: Data 2015 is Preliminary
Source: Medical Development Division, MoH

Achievements

1. Appointment of Research Assistants for data entry in MyThalassaemia Registry in six (6) MoH hospitals, supervised by Paediatric Hemato-Oncologist in the hospital.

2. An additional allocation of RM40 million was approved by Treasury for purchasing of oral Deferasirox (Exjade), a continuation from Cabinet's approval of additional drugs budget on 3 December 2011 to strengthen the thalassemia program in Malaysia. The allocation of RM23 million is for paediatric patients aged 2 to 7 years and RM17 million for adult patients above the age 20 years for other chelating agents such as Desferrioxamine and Deferiprone.

3. Under the Millennium Development Goals 4 (MDG-4) program, a total of RM7 million was allocated in year 2015 to purchase 2 units of Neonatal and Paediatric Mobile Retrieval Unit for Hospital Raja Perempuan Zainab II Kota Bharu and Hospital Sultanah Nur Bahiyah Alor Setar. This retrieval unit serves as a transportation for neonatal and paediatric patients from district hospitals to hospitals with available Neonatal and Paediatric Intensive Care Units (ICU). This service aims to improve medical care and reduce the mortality among these groups of patients.

4. The National Stem Cell Research and Ethics Committee had reviewed an application on clinical trial using the stem cell for Phase I Clinical Study on Safety of Intravenous Mesenchymal Stem Cells Infusion in Healthy Volunteers from Beacon International Specialist Centre.

5. A team of geneticists, paediatricians, pathologists, O&G specialists and other relevant parties are in the final process of reviewing the Guidelines on Ethical Issues in Medical Genetics and Genetic Services in Malaysia. This guideline is for persons involved in the delivery of genetic services and research and other interested members of the public. It covers ethical aspects of genetic healthcare delivery and research in relation to health and diseases. It is intended to provide a guide to good ethical practice in the provision of genetic testing services. It also aims to ensure all the practices are in line with the prevailing legal, religious and cultural practices and beliefs. The reviewing process took place in Hotel Premiere, Klang on 27 – 29 October 2015. This guideline is expected to be circulated early 2016.

6. The O&G and Paediatric Services Unit had successfully organized the Workshop on Thalassaemia Registry - Governance Issues, Policy And Future

Direction 2015 - 2020 on 4-8 November 2015 in Hotel Premiere, Klang. The workshops were attended by multidisciplinary team from paediatric haemato-oncology, pathologist, geneticist, and others. The objectives of the workshop were divided into two, i.e. formulation of the Thalassaemia Registry Committee with the development of terms of reference for the committee. The other objective is for data optimization and data cleaning for the registry.

7. The Obstetrics & Gynaecology and Paediatric Services Unit as a secretariat with National Blood Bank reviewed the National Standards for Cord Blood Banking and Transplantation. The final reviewing process with all stakeholders took place in Hotel Awana Genting Highlands on 11–13 November 2015. It is expected that this guideline will be circulated in year 2016.

h. Pathology Services

Pathology services provide diagnostic and consultancy services in the following disciplines of pathology: Chemical Pathology, Haematology, Anatomical Pathology (Histopathology and Cytopathology) and Microbiology (Diagnostic Bacteriology, Mycology, Virology, Immunology and Parasitology). These services are available in dedicated hospitals all over the country to provide routine and special tests. Comprehensive services are provided with collaboration from other agencies such as the Institute for Medical Research, Chemistry Department, Public Health Laboratories and Public University Laboratories. Outsourcing of services to the private sector is also made available for tests not offered by MoH and other government medical laboratories.

Other activities in 2015 include:

- National Pathology Conference 2015 in Alor Setar Kedah
- Celebration of International Pathology Day on 5 November 2015
- National Strategic Plan for Cancer Control Programme-NSPCCP 2015-2020

Achievements

- Strengthening the Guidelines on Standardization of Pathology Workload Data Collection
- Strengthening the SOP for reagent/ consumables procurements with Pharmacy services
- Launching of Pathology Website

Plans For 2016

- Publishing the National Standards for Stem Cell Transplantation: Collection, Processing, Storage and Infusion of Hemopoietic Stem Cells and Therapeutic Cells
- Submission of Guidelines on Standardization of Pathology Workload Data Collection

i. National Blood Transfusion Service (BTS)

The Blood Transfusion Service (BTS) remains as an integral and indispensible part in the national healthcare system. Service expansion are being continued to meet customers' demand and to ensure patient safety. MoH has adopted the WHO's recommended strategies for achieving safe blood transfusion, which include establishment of nationally coordinated BTS, collection of blood from voluntary non-remunerated donors belonging to the low risk populations, screening of all donated blood for the presence of transfusion transmissible infection, proper and effective use of blood and blood components, and the integration of quality systems in all areas of BTS.

BTS in Malaysia is coordinated by the National Blood Centre (NBC) Kuala Lumpur, which plays a major role in planning and developing the blood transfusion services in the country. On the operational aspects, the NBC currently serves both as the national and as well as the regional referral for transfusion service in the central region, which include the Federal Territories of Kuala Lumpur and Putrajaya, Selangor, Negeri Sembilan and the western region of Pahang. The objective of the BTS is to provide safe, adequate and equitable supply of blood and blood product to meet the health care needs of the nation

Other activities in 2015 include:

- Intensified blood donation campaign and mobile blood donation drive
- Developed My Blood Stock System - inventory system (MyBSS)
- Celebration of World Blood Donors Day at Tasik Titiwangsa 14 June 2015
- Participated in National Thalassemia Program-Curative Group 2015-2025

Achievements

- Total collection of donated blood increased 4.2% than 2014
- Mobile donation contributed 547,160 blood (77% of total blood collected)
- About 60% of the donated blood screened with NAT testing
- NBC has opened Donation Suite in Midvalley Megamall started operating in 1 October 2015

Plans For 2016

- Targeting for 725,000 collection of donated blood
- Aiming for more than 70% of blood screened with NAT testing and eventually 100% by 2020

TABLE 14
NUMBER OF BLOOD DONATION FROM DIFFERENT COLLECTION SITES, 2013 – 2015

Activity		2013	2014	2015
Blood collection	Centre/Blood bank	144,097	151,025	156,894
	Mobile site	509,027	524,290	547,160
	TOTAL	**653,124**	**675,315**	**704,054**

Source: National Blood Centre

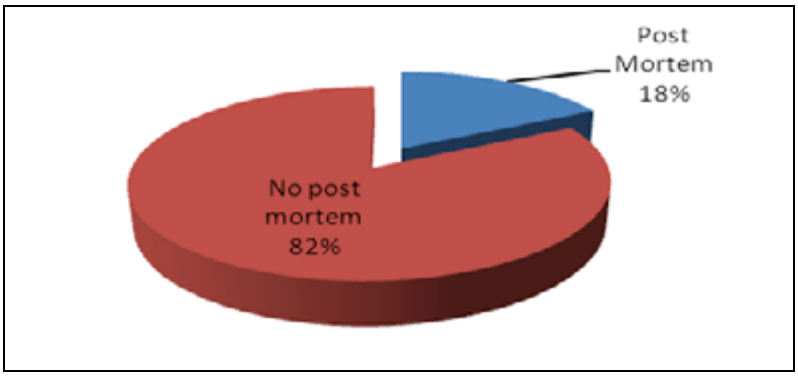
j. Central Sterile Services Unit (CSSU)

CSSU is one of the important unit of the hospital because of the main function is to control the infection among the patients and to ensure all instruments are in good condition and sterile which are very important tool for a successful surgery or procedure. In 2015, CSSU managed to organize CSSE National Convention at the Sunway Putra which was officially inaugurated by Director of Medical Development Division. A way forward, the CSSU is striving forward to provide better quality care in sterilization processes for patient.

k. Forensic

In the past decade, we have witnessed the rapid growth and development of the Forensic Medicine Services in Malaysia. This service need to be delivered in an efficient and standardized manner in accordance to Malaysian Law and consistent with the vision and mission of Ministry of Health. In 2015, the Forensic Medicine Services had managed a total of 82,091 deaths which increased by 11% and conducted a total of 14,378 post mortem examinations.

FIGURE 18
PERCENTAGE OF POST MORTEM DONE ON TOTAL DEATHS IN THE MoH HOSPITALS, 2015



Source: Medical Development Division, MoH

Achievements

- *Operasi Wawasan Khas* in May 2015 which total of approximately 108 body bags suspected victims of human trafficking have been found in the mass grave.
- Boat capsized in Sabak Bernam was a new experience which no other country experienced in DVI.
- *Ops Gangga* – excavation mission to retrieve the remains of three American crew members and the cargo plane C-47B Dakota Bravo which crashed in Gunung Bubu, Beruas in 1945. Malaysia in general, especially Forensic Services had involved in several similar missions with other nations as well.

Way Forward

- To enhance the usage of the National Suicide Registry Malaysia (NSRM) this was set up with the objective to have a database on the suicide cases and subsequently to have a dedicated program inclusive preventive strategies and actions to overcome the issues.
- To build Forensic Histopathology Laboratory at hospitals with Forensic Medicine Consultants and creating a clinical forensic examination room starting with Pulau Pinang Hospital and Tuanku Ja'afar Hospital, Seremban.

l. Nuclear Medicine

Nuclear Medicine is one of the main diagnostic services in medical field. The main material that used is radioactive material. The radioactive material is injected into

patients according to the type of scan carried out to help in diagnosis. It is also used in the treatment of cancer patient.

The total number of Nuclear Medicine cases handled over the last 3 years had seen an increase rise of 34%, from 14,993 in 2012 to 20,050 in 2014; this increment depends on the number of functioning machines in a centre.

Achievements

In 2015 there are few new services have been started, as follows:

1. National Cancer Institute
   - Lu-177 DOTATOC for PRRT
   - I-124 Internal Dosimetry for DTC
   - Ga-68 PSMA for Prostate Cancer

2. Hospital Pulau Pinang (HPP)
   - Re-186 Radiosynovectomy for small joint

3. Hospital Wanita dan Kanak-kanak Sabah (HWKK)
   - Scintimun Scan to diagnose and locate osteomyelitis in the limbs
   - Nuclear Cardiology to assist screening, diagnosis and prognostication of ischemic heart diseases
   - Bone Scintigraphy for screening of bone metastases

HWKK had successfully organized a National Nuclear Medicine Update on 8-10 September 2015, with the theme on “Paediatric Nuclear Medicine”.

Way Forward

The Nuclear Medicine services will continue to strive to achieve higher level of excellence in fulfilling the responsibilities to deliver the services in medical field.

m. Radiology

Radiology services are provided in all MoH hospitals and most Health Clinics ranging from special radiological examinations (Ultrasound, CT, MRI, Mammography, Fluoroscopy, Angiography) in the tertiary and larger hospitals to general radiographic examination in smaller hospitals and health clinics. In year 2015, many activities were carried out under Radiation Safety Activities:

1. International Day of Radiology 2015
2. Guidelines for justification of imaging
3. Preparation QAP Manual of Radiology Service
4. Preparation of Standard Operating Procedures for Diagnostic Imaging

Achievements

There are many achievements for radiology services in year 2015:

1. Awarded *Anugerah Ketua Pengarah MAMPU KIK Perkhidmatan Awam – Hospital Selama*
2. Awarded *Anugerah Inovasi Negara Bagi Kategori Perkhidmatan – Hospital Pasir Mas*
3. Selayang Hospital started performing MRI guided breast biopsy.
4. Multi-parametric MRI for early prostate cancer now performed in National Cancer Institute.

Planning For 2016

1. Equipping more hospitals with CT & MRI scans.
2. Training more radiologist
3. Increase subspecialty training to support tertiary level services
4. Strengthen and expand scope of tele-radiology in Sabah and Sarawak via tele-radiology to bigger hospital.
5. Increase awareness of radiation safety
6. To expand interventional radiology services
7. To replace conventional film processing system to digital imaging processing system.
8. Stronger collaboration with IAEA on Justification of Radiology Request project.

n. Rehabilitation Medicine

Rehabilitation Medicine was introduced in MoH Hospital in the year 1996 with the establishment of *Unit Perubatan Rehabilitasi* in General Hospital, Kuala Lumpur. It has been one of the fastest growing disciplines and the Rehabilitation Medicine Department consists of 4 major units which are Rehabilitation Medicine, Physiotherapy, Occupational Therapy and Speech Therapy.

In 2012, Hospital Rehabilitasi Cheras was officially opened and served as the national referral centre for the discipline. Rehabilitation is more specific towards specific conditions namely neuromedical (stroke and other neuromedical conditions),

cardiopulmonary, paediatrics, geriatrics, spinal cord injury, traumatic brain injury, as well as amputee and other orthopaedic conditions.

The main function of Rehabilitation Medicine is to restore the functional ability and quality of life of those with physical and/or cognitive impairments or disabilities as a result of diseases or trauma.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2016
1. Clinical evaluation and management of physical and/or cognitive impairment and disability through: • Inpatient clinical services • Outpatient clinical services 2. Multidisciplinary approach in the therapy of patients which include: • Rehabilitation Medicine • Physiotherapy • Occupational Therapy • Speech Therapy • Rehabilitation Nursing • Others i.e. Clinical Psychology, Medical Social Work, Dietetics.	• All state hospitals have their own resident Rehabilitation Medicine Specialists except for Perlis • Increased number of inpatient services with dedicated / assigned beds at those hospitals • Increased number of therapists being placed at both hospitals and clinics throughout the country	• Provision of specialist services at selected Major hospitals • Strengthening current services with new equipment, consumables and manpower • More training opportunities specifically in the field of Rehabilitation for staff • Introduction of new services e.g. Intrathecal Baclofen • Organizing international level conferences i.e. the 10th International Society of Physical and Rehabilitation Medicine in Kuala Lumpur • Closer working relationship with OKU and Rehab-related NGOs

o. Sports Medicine

The main function of Sports Medicine is to restore the functional ability and quality of life of those with physical and/or cognitive impairments or disabilities as a result of diseases or trauma. This specialty service was first established in Hospital Queen Elizabeth, Kota Kinabalu.

Secondment of a Sports Medicine Specialist to head the Sports Medicine Division in *Institut Sukan Negara* (ISN) since 2014 strengthened the collaboration between MoH and ISN in the field of Sports Medicine.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2016
1. Clinical evaluation and management of acute and chronic injuries related to sports and exercise / recreational activities 2. Prevention of sports-related injuries through education and pre-tournament / participation assessment 3. Medical Coverage during sporting events	• More Sports Medicine specialists being placed at state hospitals (in conjunction with the placement of Sports Surgeons) • Increased number of inpatient services at MoH hospitals • Collaboration with ISN in organizing the 6th ISN International Sports Medicine and Sports Science Conference 2015 in Putrajaya	• Provision of specialist services at more hospitals • Strengthening current services with new equipments, consumables and manpower • More training opportunities specifically in the field of Sports Medicine for staff • Introduction of new services e.g. Sports Emergency and trauma management for extreme, combat and collision sport • Better collaboration with ISN in the field of Sports Medicine including utilizing their Satellite Centres for the purpose of therapy of patients

p. Clinical Dietetics and Food Services

Clinical Dietetics provides clinical dietetics service by supporting the medical treatment through clinical dietetic services and health promotion, based on evidence-based and providing related dietetic clinical subspecialty as well as contributing to research in nutrition and dietetics field.

Food Services plan the food and meal preparation by considering nutrient requirement, catering procedures, food safety and hygiene principle using current technology. It also implements the management system based on current policies, circulars and instructions.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2016
Clinical Dietetics Service	• Increased no of inpatient consultations provided (135,889 patients) • KPI 2015: Urgent cases should be seen within one (1) working day (≤ 24 hours) upon receiving the referral for nutrition support services based on 65,121 urgent case seen: Achievement : 99.1 % (Standard: ≥ 95%) Non-urgent cases should be seen within two (2) working days (≤ 48 hours) upon receiving the referral for dietary consultation based on 70,768 non-urgent case seen: Achievement: 99.5% (Standard: ≥ 90%)	1. To refine the draft of Strategic Plan (2016-2020) for Clinical Dietetics and Foodservice 2. To look into redistribution of manpower based on Workload Indicators Staffing Needs (WISN) 3. Relook into the current KPIs to be more in line with the current demand and situation reflect the current situation 4. Identifying room for improvement of quality in clinical skills by implementing Clinical Dietetics Audit 5. Improving further the level of inpatient's satisfaction towards food service in the hospital and implementing the Food Safety Assurance Programme 6. To ensure more hospitals with receive the relevant certifications i.e. Good Manufacturing Certification (GMP), Hazard Analysis Critical Control Point Certification (HACCP), Halal Certification
Food Service	• KPI 2105 Percentage of in-patients satisfied with the food served in hospital (based on 45, 555 subjects): Achievement: 93.3% (Standard: ≥ 80%) • NIA 2015 Occurrence of physical contamination of food served to patients (based on 47, 048, 118 meals): Achievement: 0.0003% (Standard: ≤1%)	

q. Medical Resources Unit

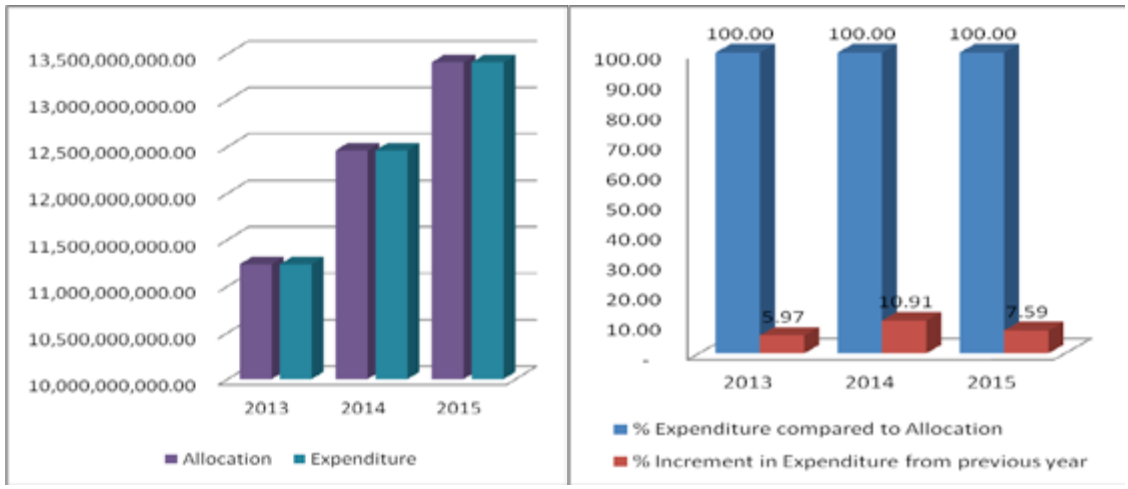
Medical Resource Unit is one of the units under Medical Service Development Section, MoH. Medical Resource Unit is responsible in planning and procurement of medical equipment and medical consumables for all services in MoH hospitals. Apart from that, it also coordinates various budget allocations for hospitals such as operating budget, development budget, One Off budget and *Peruntukan Khas* budget.

In addition, this unit monitors the privatized hospital support services in collaboration with the MoH Engineering Division, monitors the pharmaceuticals and consumable products services privatization under Pharmaniaga Logistics Sdn. Bhd. and organizes product demonstration on the latest medical products introduced by various manufacturers and medical trading companies.

1. Medical Program Expenditure and Budget

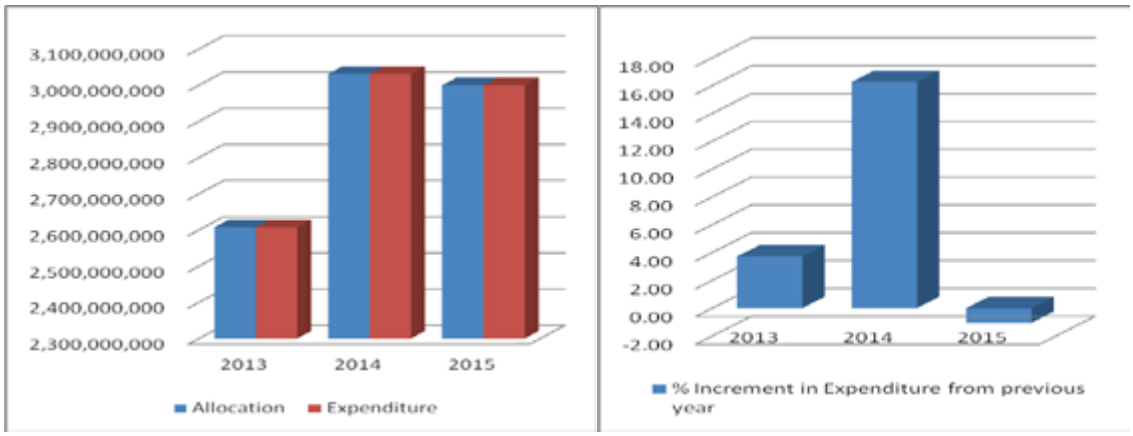
a) Medical Program Expenditure and Budget

FIGURE 19
MANAGEMENT EXPENDITURE, 2015



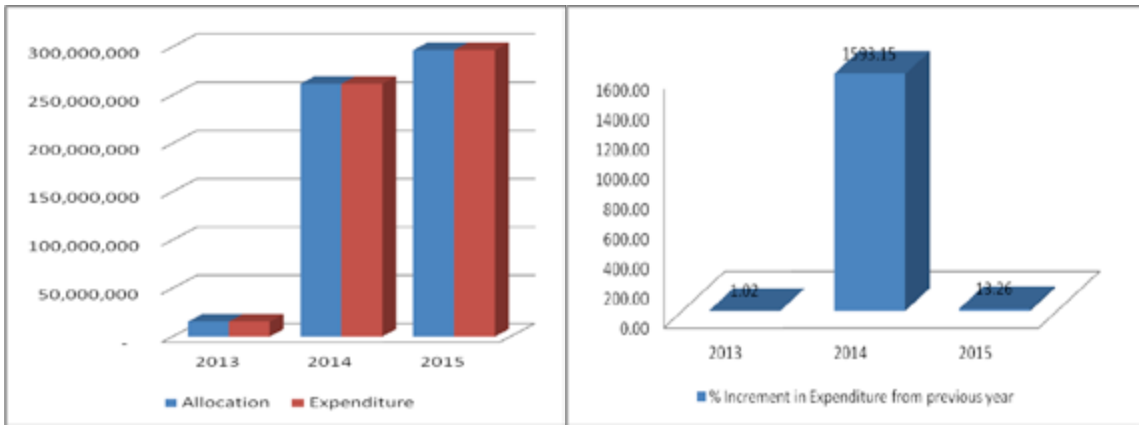
Source: Finance Division MoH

FIGURE 20
CONSUMABLES/ DRUGS/ VACCINE/ REAGENTS, 2015



Source: Finance Division MoH

FIGURE 21
ASSETS



Source: Finance Division MoH

2. Procurement

a) Medical equipment

In 2015, there were 16 central tenders for 900 units of medical equipment conducted by Medical Resource Unit with overall cost of RM296, 644,358.87. Among all these medical equipment, there were 3 major equipment include two (2) units of Linear Accelerator (LINAC), one (1) unit of Invasive Cardiac Laboratory (ICL) and two (2) units of Brainsuites.

IMAGE 1
BRAINSUITE PROJECT IN HOSPITAL SULTANAH AMINAH, JOHOR BAHRU

Source: Medical Development Division, MoH

IMAGE 2
LINAC PROJECT IN HOSPITAL LIKAS & HOSPITAL UMUM SARAWAK

Source: Medical Development Division, MoH

IMAGE 3
ICL PROJECT IN HOSPITAL SERDANG

Source: Medical Development Division, MoH

b) Consumables

There were six (6) central tenders for consumable items with overall cost of at least RM238 million were done in 2015. These were the extension of the contract for items which were tendered previously. They were monitored closely to ensure that the supply items comply with the specifications, terms and conditions as stated in the contract. This unit also collaborates with the MoH Procurement and Privatization Division to monitor the pharmaceuticals and consumable products services privatization under Pharmaniaga Logistics Sdn. Bhd. Among the activities include technical evaluation of consumable products requested to be added in the Approved Products Purchased List (APPL), evaluation of all non-drug APPL products for 2014-2017 retendering and price revision process; and monitoring of APPL products complaints by the end-users.

c) Off-take Program

Off-take program is one of the government initiatives to help local industry to develop and be competitive at the international level, which may contribute to the Gross National Income (GNI) through investment and creates job for the people. Medical Resource Unit is involved in specification development and technical evaluation of the product before it is accepted into the program. In

2015, 68 medical products were proposed by local companies under this program. Among these medical products, 35 products were absorbed into the program.

3. Monitoring and Audit

The objective of auditing is to ensure the medical equipment and consumable complies with the specification, meets the standard and the quantity of equipment received by the end-users in MoH hospitals. Medical Resource Unit is responsible to monitor all medical equipment in MoH hospital and to ensure they are in used.

4. Product demonstration (medical equipment's and consumables)

In 2015, there were 21 medical products presentation conducted. These medical products ranging from complex medical equipment like Magnetic Resonance Imaging (MRI) to simple consumable such diaper for paediatric and geriatric patients. Clinicians as well as officers from other relevant divisions in MoH are invited to give technical and financial inputs regarding the products involved.

5. Hospital Support Services

Medical Resources Unit is also involved as one of the committee members in collaboration with the MoH Engineering Division to monitor the privatized hospital support services which are rendered by concession companies. As a committee member, this unit is responsible in giving advices and opinions to enhance better services provided to the end-users in MOH hospitals.

6. Government Services & Tax (GST)

In 2015, Medical Development Division Director and Medical Practice Division Director were given an authority to issue certificate of GST exemption over the procurement of medical equipment by private facility. During the period of May to October 2015, about 487 certificates were issued for 1919 medical equipment from 183 private health care facilities. Since August 2015, the states are empowered to process the application and issue the certificate. The process is monitored four (4) monthly by this unit and to date; about 500 certificates were issued by states all over the country.

MEDICAL PROFESSIONAL DEVELOPMENT SECTION

Medical Professional Development Section involves in the planning, developing and monitoring the specialities and subspecialties development, and also skill training including for the House Officers. It oversees and gives technical input to MoH's Human Resource Division in reviewing the doctors' service scheme; along with development and distribution of MoH's specialists according to the service's need. It also involve in providing technical input related to recruitment of contract specialists base on their

qualifications, clinical experience, service need, and placement or distribution of medical officers based on service need. In addition, this Section is also responsible in planning the continuing professional development, specialise skill training using human capital development budget, training collaboration with public and private higher learning institutions, plus agencies from over sea and involves in strategic medical human resource planning.

Activities and Achievements

1. Housemanship Program

After completing medical degree, medical graduates are appointed into Civil Service as House Officers and they are mandated to undergo housemanship training program at accredited training hospitals. Housemanship Training Program is a period of apprenticeship after graduation from medical school before medical graduates are given Full Registration to practice independently as medical doctors. This program is formulated in such a way to ensure that medical graduates gain sufficient knowledge, skills and experiences as well as to groom them with the right attitude to meet the standards of the profession.

The number of medical graduates appointed as House Officers (HO) increased significantly from 1,059 in the year 2006 to 2,319 in year 2008. This number increased further each year and in the year 2014 and 2015, the total numbers of newly appointed House Officers were 3,860 and 4,140 respectively (Refer Table 15). It is anticipated that there will be more medical graduates produced in the coming years, either from local public and private medical schools or from medical schools abroad such as United Kingdom, United States, Australia, Indonesia, Middle East countries, Russia, India and etc.

In 2011 there were 41 Houseman ship Training Hospitals including 3 public university hospitals (refer Table 16). These were increased to 44 hospitals in August 2015 when Bintulu Hospital started to offer housemanship training program. The MoH is in the process of accreditation other hospitals as housemanship training centres, such as network of Army Hospitals, Shah Alam Hospital and Langkawi Hospital.

Since 2008, the period of housemanship training program was extended from one year to two years, with a minimum period of four monthly rotations in the five major disciplines, namely Internal Medicine, Paediatrics, General Surgery, Obstetrics and Gynaecology, Orthopaedics and an obligatory posting in Emergency Medicine. Since 2010, Anaesthesiology posting was introduced as an alternative to Emergency Medicine, followed by Primary Care and Psychiatry posting in 2014. Hence, House

Officers will be supervised by specialists for a longer period as compared to only one year prior to 2008. This extension of training period to two years has provided more opportunities for House Officers for more hands-on training such as clinical tagging, clinical works in the ward, Operation Theatre, Day Care Centre and outpatient clinic settings. The House officers are also expected to be involved in the Continuing Professional Development (CPD) and bed-side teaching activities.

The Medical Qualifying Board (MQB) which is established under jurisdiction of the Medical Act 1971 is the highest level committee that is responsible to oversee housemanship training programme. In 2011, the MQB decided that Full Registration can be given by the Malaysian Medical Council (MMC) for House Officers who have successfully completed five compulsory postings. The sixth posting is considered as an obligatory posting.

Since 1 September 2011, the MoH has implemented the Flexi Working Hour System replacing the traditional long working hours of On-Call System. Series of meetings, engagements and discussions were held in the year 2013, resulting in the introduction of Modified Flexi Working Hour System since January 2014. Essentially, this system is an improvised version of the earlier Flexi Working Hour System. As stipulated under this Modified Flexi Working Hour System, the House Officers are required to work for an average of 60-72 hours a week, with two days off per week. They are also entitled for Special Flexi Allowance of RM600 per month.

Since 2010, all new House Officers employed upon successfully completing their housemanhip training and obtained Full Registration by MMC, are eligible for promotion from UD41 grade to UD44 grade; subject to fulfilment of other criteria of civil service as outlined by Public Service Department.

Among issues and challenges faced in Housemanship Training Program include the increasing number of medical graduates each year compared to limited number of House Officer Job posts, leading to prolonged waiting time for fresh medical graduates to be employed into Public Service as House Officers. These medical graduates were from various medical institutions, whereby there are variation between curriculums and clinical exposures between each medical program, leading to discrepancies between their knowledge, competency and skills. Increasing number of House Officers undergoing training simultaneously at all 44 Housemanship Training Hospitals may also give impact to the quality of training received and opportunities to perform hands-on clinical procedures. In addition to that, inadequate number of supervising specialist delays the opening of new Housemanship Training Hospitals.

House Officers are also provided with Log Books for each discipline that they were posted to for their Housemanship Training. These log books are reviewed periodically and improvised accordingly. The new log books were successfully introduced for all disciplines, except for Medicine and Surgery. Currently, the MoH is planning to introduce Common Log Book, and Certificate of Completion of Housemanship Training.

TABLE 15
NUMBER OF NEW HOUSE OFFICERS APPOINTED, 2006 - 2015

No	YEAR	NO. OF HOUSEMEN
1.	2006	1,059
2.	2007	1,290
3.	2008	2,319
4.	2009	3,058
5.	2010	3,252
6.	2011	3,564
7.	2012	3,743
8.	2013	4,991
9.	2014	3,860
10.	2015	4,140

Source: Medical Professional Development Section, Medical Development Division, MoH

TABLE 16
LIST OF ACCREDITED HOUSEMANSHIP TRAINING HOSPITALS, 2015

HOSPITAL	HOSPITAL
Hospital Tuanku Fauziah, Kangar	Hospital Sultanah Aminah, Johor Bahru
Hospital Sultanah Bahiyah, Alor Setar	Hospital Batu Pahat, Johor
Hospital Sultan Abdul Halim, Sungai Petani	Hospital Sultan Ismail, Johor
Hospital Kulim, Kedah	Hospital Tengku Ampuan Afzan, Kuantan
Hospital Pulau Pinang	Hospital Sultan Haji Ahmad Shah, Temerloh
Hospital Seberang Jaya	Hospital Sultanah Nur Zahirah, K. Terengganu
Hospital Taiping	Hosp. Kemaman
Hospital Raja Permaisuri Bainun	Hospital Raja Perempuan Zainab ii, Kota Bahru
Hospital Teluk Intan	Hospital Kuala Krai
Hospital Seri Manjung	Hospital Tanah Merah

HOSPITAL	HOSPITAL
Hospital Kuala Lumpur	Hospital Umum Sarawak
Hospital Putrajaya	Hospital Sibu
Hospital Tengku Ampuan Rahimah, Klang	Hospital Miri
Hospital Selayang	Hospital Queen Elizabeth
Hospital Kajang	Hospital Tawau
Hospital Serdang	Hospital Duchess Of Kent, Sandakan
Hospital Ampang	Pusat Perubatan Universiti Malaya
Hospital Sungai Buloh	Pusat Perubatan Universiti Kebangsaan Malaysia
Hospital Tuanku Jaafar, Seremban	Hospital Universiti Sains Malaysia
Hospital Tuanku Ampuan Najihah, Kuala Pilah	Hospital Segamat
Hospital Melaka	Hospital Kluang
Hospital Pakar Sultanah Fatimah	Hospital Bintulu

Source: Medical Professional Development Section, Medical Development Division, MoH

2. Basic Specialty Training Program

Master of Medicine Programme (M. Med Program)

The Master of Medicine (M. Med) Program for basic specialties are jointly managed by seven local public universities under the Ministry of Higher Education (MOHE) namely the National University of Malaysia (UKM), the University of Malaya (UM), University of Science, Malaysia (USM), the International Islamic University of Malaysia (IIUM), Putra University Malaysia (UPM) and Universiti Malaysia Sarawak (UNIMAS), Universiti Teknologi MARA (UiTM) and the MoH. Within the MoH, the general administration of the M. Med Program is under the purview of the Training Management Division of MoH. The Medical Development Division of MoH is responsible in providing medical or technical input for the planning, implementation and monitoring of the M. Med Programme. As of 2015, there were 23 disciplines offered in the program.

The scholarship slots for the M. Med Program were increased from 450 in 2007/2008 session the 1,000 slots starting from the 2013/2014 session. For the 2015/2016 session, 926 slots were offered and only 889 were taken by the candidates for the same year. This is an increase compared to 2014/2015 session, whereby 847 slots were offered and 804 candidates had finally accepted to register in the programme in 2014. The detail number of candidates offered and accepted to join the program is

summarised in Table 17. In 2015, there were 28 MoH hospitals accredited by universities as training centres for the Master Program (Table 18).

TABLE 17
NUMBER OF TRAINEES IN M.MED PROGRAM, SESSION 2011/2012 - 2015/2016

	Session 2011/2012		Session 2012/2013		Session 2013/2014		Session 2014/2015		Session 2015/2016	
	No. of Offers	No. of Acceptance	No. of Offers	No. of Acceptance	No. of Offers	No. of Acceptance	No. of Offers	No. of Acceptance	No. of Offers	No. of Acceptance
No. of Candidates	**735**	**707**	**706**	**663**	**756**	**721**	**835**	**814**	**926**	**889**

Source: Training Management Division, MoH

TABLE 18
LIST OF MoH HOSPITALS ACCREDITED AS TRAINING HOSPITALS FOR M. MED PROGRAM, 2015

NO	HOSPITAL
1.	Hospital Tuanku Fauziah, Kangar
2.	Hospital Sultanah Bahiyah, Alor Setar
3.	Hospital Pulau Pinang
4.	Hospital Seberang Jaya
5.	Hospital Raja Permaisuri Bainun, Ipoh
6.	Hospital Taiping
7.	Hospital Bahagia Ulu Kinta
8.	Hospital Kuala Lumpur
9.	Hospital Putrajaya
10.	Hospital Tengku Ampuan Rahimah, Klang
11.	Hospital Selayang
12.	Hospital Sungai Buloh
13.	Hospital Serdang
14.	Hospital Ampang
15.	Hospital Tuanku Jaafar, Seremban
16.	Hospital Melaka
17.	Hospital Sultanah Aminah, Johor Bahru
18.	Hospital Pakar Sultanah Fatimah, Muar
19.	Hospital Sultan Ismail, Pandan, Johor Bahru
20.	Hospital Permai, Tampoi
21.	Hospital Tengku Ampuan Afzan

NO	HOSPITAL
22.	Hospital Sultanah Nur Zahirah, Kuala Terengganu
23.	Hospital Raja Perempuan Zainab II, Kota Bharu
24.	Hospital Umum Sarawak
25.	Hospital Sentosa, Kuching
26.	Hospital Queen Elizabeth, Kota Kinabalu
27.	Hospital Wanita dan Kanak-Kanak, Likas
28.	Hospital Mesra Bukit Padang, Kota Kinabalu

Source: Training Management Division, MoH

There are several issues and challenges in the implementation of the M. Med Program, for example monitoring and placement of trainees, the number of qualified candidates in the university screening test (entry exam), performance of trainees in passing the examination and wastage of scholarship slots (*Hadiah Latihan Persekutuan*). Among measures taken include strengthening the monitoring of all trainees, particularly those in the Open System. The deployment of trainees at the training hospitals needs to be improved and well organized (Rotational System). In addition, tutorials are conducted to prepare prospective candidates for university screening, particularly for those from remote areas including Sabah and Sarawak. For existing trainees, tutorials are conducted to increase the number of trainees successfully passing the exams. In addition, recruitment of trainees twice a year should be increased to avoid wastage of scholarship slots.

For further improvement of the M. Med Program, more scholarship slots will be offered gradually and the number of MoH's hospitals accredited as training centres for this program will also be increased. Besides that, more slots for the 'Open System' will be made available, with more disciplines will be offered by the universities (depending on the capacity of the universities). As for the output of M. Med Program, 2015 saw a total of 441 successful candidates completed their M. Med program and reported to MoH as new specialists. This is an increased compared to 366 in 2013 and 371 in 2014.

Parallel Pathway Program for Specialty Training

Besides the M. Med Program, there are Parallel Pathway programs i.e. Membership and Fellowship Programs which also produce specialists in the basic specialties to cater for the need of the country. The training for this Parallel Pathway is conducted either partially or fully in Malaysia, but the qualifications or certificates are awarded by the renowned international organisation. The implementation of the Parallel Pathway

program is continuously being strengthened to produce more specialists for the country. Examples of the Membership Program are summarized in Table 19.

TABLE 19
EXAMPLES OF THE MEMBERSHIP / FELLOWSHIP PROGRAMS

DISCIPLINE	EXAMPLES OF THE ALTERNATIVE PROGRAMS
Internal Medicine	Member of the Royal College of Physicians (MRCP), UK
Pediatric	Member of the Royal College of Pediatrics and Child Health (MRCPCH), UK
Obstetrics & Gynaecology	Member of the Royal College of Obstetricians and Gynaecologist (MRCOG), UK
Radiology	Fellow of the Royal College of Radiologists (FRCR), UK
Anaesthesiology	Fellow of the Australian and New Zealand College of Anaesthesia (FANZCA)
Pathology	Fellow of the Royal College of Pathologist (FRCPath), UK
Ophthalmology	Fellow of the Royal Australasian College of Ophthalmologists (FRACOpth)
Radiotherapy & Oncology	Fellow of the Royal College of Radiologists of London (FRCR) UK

Source: Medical Professional Development Section, Medical Development Division, MoH

All medical officers who passed or obtained the specialists qualification are required to undergo a minimum period of supervision (the pre-gazettement period) for six months before can be gazetted as a specialist by the MoH.

TABLE 20
NUMBER OF MEDICAL SPECIALIST FROM PARALLEL PATHWAY PROGRAM, 2009-2015

DISCIPLINE	QUALIFICATION	2009	2010	2011	2012	2013	2014	2015
Internal Medicine	MRCP	30	55	67	76	47	77	85
Paediatric	MRCPCH	10	13	25	27	27	37	35
O&G	MRCOG	3	3	5	5	4	2	9
Clinical Oncology	FRCR ONCOLOGY	1	0	1	1	3	0	2
Surgery	FRCS	0	0	0	0	0	0	0
Psychiatry	MRC PSYCH	-	-	-	-	-	-	1
Radiology	FRCR RADIO	-	-	-	-	-	-	2
Ophthalmology	FRC OPH	-	-	-	-	-	-	2
TOTAL		**44**	**71**	**98**	**109**	**81**	**116**	**136**

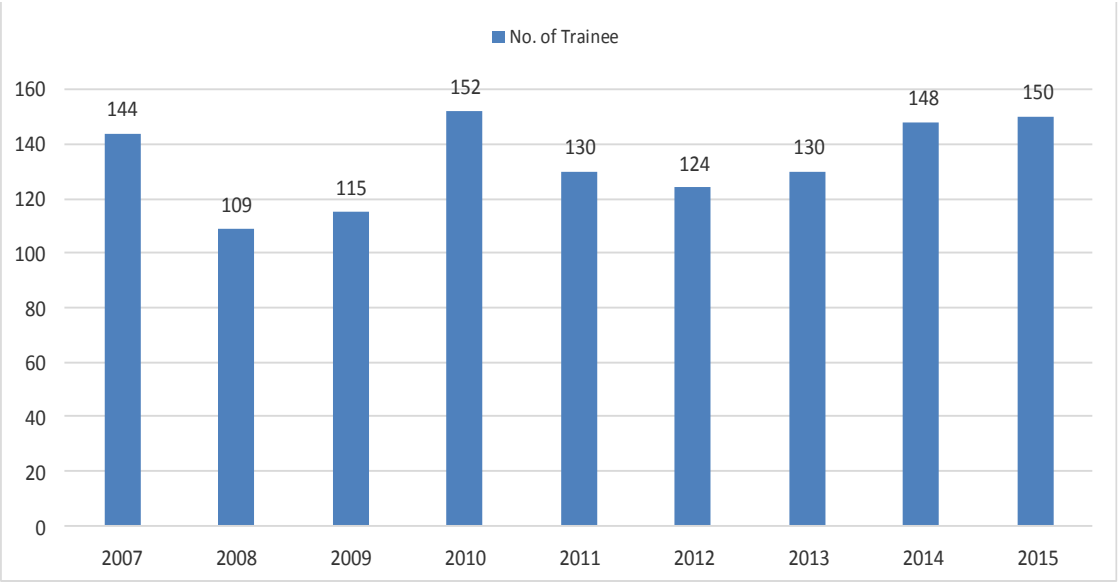
Source: Medical Professional Development Section, Medical Development Division, MoH

3. Subspecialty or Fellowship Training Program

In the effort to further increase the number of subspecialists for the country, the Subspecialty Training Program has been strengthened whereby in July 2010 the Treasury and the Public Service Department had approved the MoH's application for the provision of scholarship for specialist who wish to pursue subspecialty training. "Partial Scholarship" is awarded to those pursuing their subspecialty training locally, while "Full Scholarship" is awarded to those who pursue overseas training. The MoH provides 150 scholarship slots for subspecialty training annually.

The number of subspecialty trainees in 2015 was 150 as compared to 148 trainees in 2014 (Table 21). The most popular subspecialties in 2015 were Cardiology followed by Nephrology, Endocrinology, Rhinology and Maternal Fetal Medicine.

TABLE 21
NUMBER OF TRAINEES IN THE SUBSPECIALITY PROGRAM, 2007-2015



Source: Medical Professional Development Section, Medical Development Division, MoH

4. Gazettement of Specialists and Subspecialists

Every doctor with recognised post-graduate qualification has to be gazetted by the Special Gazettement Committee *(Jawatankuasa Khas Perubatan)* which is chaired by Director-General of Health and 3 panel members; in accordance to Section 27, Chapter F of the Public Service's General Order. In 2015, 503 clinical specialists were gazetted

as compared to 528 in 2014. The field of Internal Medicine has produced the most number of gazetted specialists, followed by Anaesthesiology and Emergency Medicine.

TABLE 22
NUMBER OF SPECIALISTS AND SUBSPECIALISTS GAZETTED BASED ON SPECIALTY, 2009 – 2015

Specialty/Subspecialty	No. of Gazetted Specialists*						
	2009	2010	2011	2012	2013	2014	2015
Anaesthesiology	34	33	43	41	42	51	78
Cardiothoracic Anaesthesiology	2	0	3	2	1	1	1
Neuro-Anaesthesiology				1			1
Intensive Care		1	2	1	-	1	4
Pain Management		1	1	4	1	4	2
Obstetrics Anaesthesiology			2	1	1		1
Paediatric Anaesthesiology			1	-	-		3
Breast and Endocrine Surgery	2	1	1	-	4	6	2
Cardiology	7	4	7	6	7	6	2
Cardiothoracic Surgery	1	4	1	1	-	4	1
Dermatology	-	3	3	1	-	3	3
ENT	18	14	10	20	12	15	16
Emergency Medicine	9	12	15	19	26	27	40
Endocrinology	2	6	3	4	2	2	3
Forensic	-	2	2	-	3	3	
Gastroenterology	4	2	2	4	3	1	1
Geriatric	-	0	2	2	-		
Internal Medicine	51	66	64	92	105	85	81
General Surgery	18	21	16	21	36	35	25
Hepatology			1	3	-		1
Palliative Medicine	1		2	-	-		
Hand and Microsurgery	-		-	-	-		
Nephrology	3	5	1	2	8	1	5
Neurology	1	1	1	3	9	3	2
Neurosurgery	5	7	3	4	4	4	8
Nuclear Medicine	-	0	1	1	4	3	6

Specialty/Subspecialty	No. of Gazetted Specialists*						
	2009	2010	2011	2012	2013	2014	2015
Obstetrics and Gynaecology	23	17	33	37	23	33	26
Maternal Fetal Medicine	1	0	1	6	-	1	
Uro-Gynaecology	1	0	-	2	-	2	1
Advance Obstetrics and Gynaecology	1	0	-	-	-		
Gynae-Oncology		2	4	1	4	1	2
Ophthalmology	22	21	18	21	32	25	21
Orthopaedics	30	23	29	29	22	30	34
Haematology Medicine	1			6	1		
Medical Oncology					1	1	
Clinical Genetic					1	2	
Acute Internal Medicine						2	1
Reproductive Medicine		4		1	2		1
Pathology	1	2					
Pathology (Anatomy)	2	13	5	8	11	14	9
Pathology (Microbiology)	3	6	8	7	6	5	3
Pathology (Haematology)	4	4	9	8	5	9	4
Pathology (Chemistry)	1	5		8	7	3	3
Paediatrics	31	22	30	38	42	48	34
Paediatric Cardiology	1	0	2	1	2	2	
Paediatric Neurology	-	0	-	-	-		
Paediatric Dermatology			1	-	-		1
Paediatric Rheumatology			1	-	-		1
Paediatric Adolescent Medicine	1		1	-	-		
Paediatric Infectious Disease			1	-	-		
Paediatric Surgery	1	1	1	4	3	2	2
Paediatric Endocrine	0	0	-		-		1
Paediatric Cardiothoracic					1		
Paediatric Radiology				2	1		
Development Paediatric						2	
Paediatric Gastroenterology							1

Specialty/Subspecialty	No. of Gazetted Specialists*						
	2009	2010	2011	2012	2013	2014	2015
Paediatric Haematology-Oncology							1
Neonatology						2	3
Plastic Surgery	2	3	2	4	1	1	2
Psychiatry	5	18	17	11	22	14	13
Radiology	11	17	31	38	26	37	24
Uro-Radiology					1	1	
Breast Imaging				1		1	1
Interventional Neuroradiology		2				1	
Interventional Radiology	2		-	2	1		
Radiology-Gastrohepatobiliary							1
Radiology Forensic							1
Neuro-Radiology						1	
Musculoskeletal Radiology			1	-	-		
Radiotherapy and Oncology	2	6	6	3	5	3	1
Rehabilitation Medicine	6	2	3	3	9	7	6
Respiratory Medicine	4	1	1	6	2	5	3
Rheumatology	3	3	2	1	3	6	5
Sports Medicine	2	0	2	1	3	2	3
Transfusion Medicine			1	5	5	7	6
Upper Gastroenterology	-	0	-	-			2
Urology	2	3	-	6	4	3	
Total	**321**	**358**	**397**	**493**	**514**	**528**	**503**

Source: Medical Professional Development Section, Medical Development Division, MoH

5. Clinical Specialists in MoH Hospitals

The number of clinical specialists and subspecialists in MoH Hospitals are still not enough to cater for the need of the country. In 2015, the total number of specialists from various specialties and subspecialties were 4,319. This number has reduced as compared to 2014 when there were 4,333 specialists working in the MoH.

TABLE 23
NUMBER OF CLINICAL SPECIALISTS IN MoH HOSPITALS, 2009-2015

Discipline	No. of Specialists (Including Subspecialty Trainee)						
	2009	2010	2011	2012	2013	2014	2015
Anaesthesiology	282	350	328	350	387	479	474
Cardiology	36	47	49	47	51	51	49
Cardiothoracic Surgery	10	22	19	22	22	24	24
Dermatology	24	33	32	33	40	41	40
Emergency Medicine	54	110	89	110	146	207	207
Forensic	19	24	21	24	27	28	28
General Medicine	311	515	461	515	552	622	644
General Surgery	204	238	231	238	262	287	284
Hand and Microsurgery	1	1	1	1	1	1	1
Nephrology	48	60	57	60	71	71	70
Neurology	17	26	23	26	28	30	30
Neurosurgery	24	29	30	29	33	47	46
Nuclear Medicine	6	10	6	10	13	22	22
Obstetrics and Gynaecology	224	280	276	280	300	303	293
Ophthalmology	155	196	188	196	226	233	232
Orthopaedic	190	255	222	255	249	278	276
Otorhinolaryngology	103	129	124	129	146	159	159
Paediatric	258	344	315	344	398	438	435
Paediatric Surgery	11	16	16	16	20	25	24
Pathology	160	227	201	227	260	306	305
Plastic Surgery	21	28	28	28	27	27	26
Psychiatry	108	148	135	148	158	176	176
Radiology	162	220	208	220	249	275	275
Radiotherapy and Oncology	11	24	22	24	29	32	31
Rehabilitation Medicine	23	32	26	32	40	49	49
Respiratory Medicine	23	33	31	33	40	39	38
Sports Medicine	6	11	9	11	13	19	19
Urology	29	29	31	29	32	30	28
Transfusion Medicine		18	13	18	24	34	34
Total	**2,520**	**3,424**	**3,192**	**3,424**	**3,845**	**4,333**	**4,319**

Note*: Excluding Family Medicine Specialists, Public Health Specialists and Dental Specialists*
Source: Medical Professional Development Section, Medical Development Division, MoH

6. Medical Officers in MoH

The number of Medical Officers (excluding the House Officers) working in MoH has been increasing. There were 19,982 Medical Officers as compared to 18,072 in 2014 (Table 24).

TABLE 24
NUMBER OF MEDICAL OFFICERS (EXCLUDING HOUSE OFFICERS) IN MoH, 2009-2015

2009	2010	2011	2012	2013	2014	2015
9,634	9,257	11,244	12,465	14,898	18,072	19,982

Source: Human Resources Division, MoH, Medical Professional Development Section, Medical Development Division, MoH

7. Employment of Contract Medical Officers and Contract Specialists in MoH

In 2015, MoH has stopped the employment of foreigner Medical Officers. However the employment of Malaysian as Contract Medical Officers is still continued for the purpose of fulfilling compulsory service period as stipulated by the Medical Act 1971; subject to availability of posts. As the MoH is still facing inadequate number of specialist, hence the employment of specialist on contractual basis is still being considered especially to cater for Sabah and Sarawak.

The employment of these officers is coordinated by the MoH's Contract Officers' Selection Committee, chaired by the Deputy Director-General of Health (Medical) with the Human Resource Division of MoH as the secretariat. The Medical Development Division and the Malaysia Medical Council are committee members responsible to provide technical inputs related to the qualification, experience and skills of the applicants. In 2015, there were 268 doctors employed by MoH on contractual basis compared to 523 in 2014 (Table 25).

TABLE 25
NUMBER OF DOCTORS EMPLOYED ON CONTRACTUAL BASIS, 2010 – 2015

Category of Doctors	Number of Doctors					
	2010	2011	2012	2013	2014	2015
Medical Officers	445	389	378	365	355	190
Specialists	222	337	244	173	168	78
Total	**667**	**726**	**622**	**538**	**523**	**268**

Source: Human Resource Division, MoH

8. Engagement of Private Practitioners in Providing Services for MoH on Sessional Basis

Private practitioners particularly specialists continued to be employed by the MoH on sessional basis for provision of certain specialties as required by the Government. In 2015, there were 19 private specialists employed on sessional basis by MoH as compared to 16 in 2014 (Table 26).

TABLE 26
NUMBER OF PRIVATE PRACTITIONERS EMPLOYED ON SESSIONAL BASIS, 2010 – 2015

Hospital	Discipline	Number					
		2010	2011	2012	2013	2014	2015
Sarawak General Hospital	Neurology	1	1	-	-	-	1
	Radiology	1	1	-	1	-	-
	Ophthalmology	1	-	-	-	-	-
	Plastic Surgery	1	-	1	1	-	-
	Cardiology	-	-	-	1	-	1
	Cardiac Anaesthesia	-	-	-	2	-	-
	Vascular Surgery	-	-	-	-	1	-
	Paediatrics	-	-	-	-	-	1
	Urology	-	-	-	-	1	-
Sub Total		**4**	**2**	**1**	**5**	**2**	**3**
Sibu Hospital, Sarawak	Obstetrics & Gynaecology	-	-	1	-	-	-
	General Surgery	-	-	-	1	-	-
	Radiology	-	-	-	-	-	1
	Otorhinolaryngology	-	-	-	-	-	1
	Orthopaedic	-	-	-	-	1	1
Sub Total			**-**	**1**	**1**	**1**	**3**
Miri Hospital, Sarawak	Paediatrics	**-**	**-**	1	-	-	-
	Radiology	**-**	**-**	1	-	-	1
	Plastic Surgery	**-**	**-**	-	1	-	-
Sub Total		**-**	**-**	**2**	**1**	**-**	**1**
RCBM Hospital, Sarawak	Infectious Disease	**-**	**-**	1	-	2	-
Sub Total			**-**	**1**	**-**	**2**	**-**
Bau Hospital, Sarawak	Paediatrics	**-**	**-**	1	-	2	-
Sub Total			**-**	**1**	**-**	**2**	**-**
Tawau Hospital, Sabah	Orthopaedics	-	-	-	-	-	1
Sub Total		**-**	**-**	**-**	**-**	**-**	**1**

Hospital	Discipline	Number					
		2010	2011	2012	2013	2014	2015
Sultanah Aminah Hospital, Johor Bahru	Internal Medicine	-	1	-	-	-	-
	Pathology	1	-	-	-	-	-
	Plastic Surgery	1	-	-	-	-	-
	Obstetrics & Gynaecology	1	-	-	-	-	-
	Paediatrics	2	-	-	-	-	-
	Radiology	1	-	-	-	-	-
Sub Total		**6**	**1**	**-**	**-**	**-**	**-**
Sultan Ismail Hospital, Johor	Anaesthesiology	1	-	-	-	-	-
Sub Total		**1**	**-**	**-**	**-**	**-**	**-**
Muar Hospital, Johor	Dermatology	-	1	-	-	-	-
Sub Total		**-**	**1**	**-**	**-**	**-**	**-**
Kuala Lumpur General Hospital	Anaesthesiology	5	3	-	2	-	1
	Paediatrics	3	1	-	-	-	1
	Internal Medicine	-	1	-	2	-	-
	Ophthalmology	1	1	1	1	1	2
	Otorhinolaryngology	-	1	-	1	1	1
	Oncology	-	-	1	-	2	-
	Orthopaedics	-	-	1	-	-	-
	Nephrology	1	-	-	-	-	-
	Urology	1	-	-	-	1	-
	Gastroenterology	-	-	-	1	1	1
Sub Total		**11**	**7**	**3**	**7**	**6**	**6**
Pusat Darah Negara	Pathology	-	-	-	-	-	1
Sub Total		**-**	**-**	**-**	**-**	**-**	**1**
Pulau Pinang Hospital	General Surgery	-	2	-	-	-	-
	Paediatrics Surgery	-	1	-	-	1	-
	Thoracic Surgery	-	-	1	-	-	1
	Paediatrics	-	-	1	-	-	-
	Obstetrics & Gynaecology	-	-	-	1	-	-
Sub Total		**-**	**3**	**2**	**2**	**1**	**1**
Melaka Hospital	Pathology	-	1	-	-	-	-
	Cardiology	-	-	-	1	-	-
	Neurosurgery	-	-	-	2	-	1
	Radiology	-	-	-	1	-	-
Sub Total			**1**	**-**	**4**	**-**	**1**

Hospital	Discipline	Number					
		2012	2013	2014	2015	2010	2011
Jasin Hospital	Radiology	-	-	-	1	-	-
Sub Total		**-**	**-**	**-**	**1**	**-**	**-**
Ipoh Hospital, Perak	Pathology	**-**	**-**	1	-	-	
	Anaesthesiology	**-**	**-**	1	-	-	
	Dermatology	1	**-**	-	-	-	
	Urology	-	**-**	-	1	-	
	Paediatrics	-	**-**	-	1	-	
	Gynae-Oncology	-	**-**	-	-	-	1
	Ophthalmology	-	**-**	-	-	2	1
Sub Total		**1**	**-**	**2**	**2**	**2**	**2**
Total		**23**	**15**	**13**	**22**	**16**	**19**

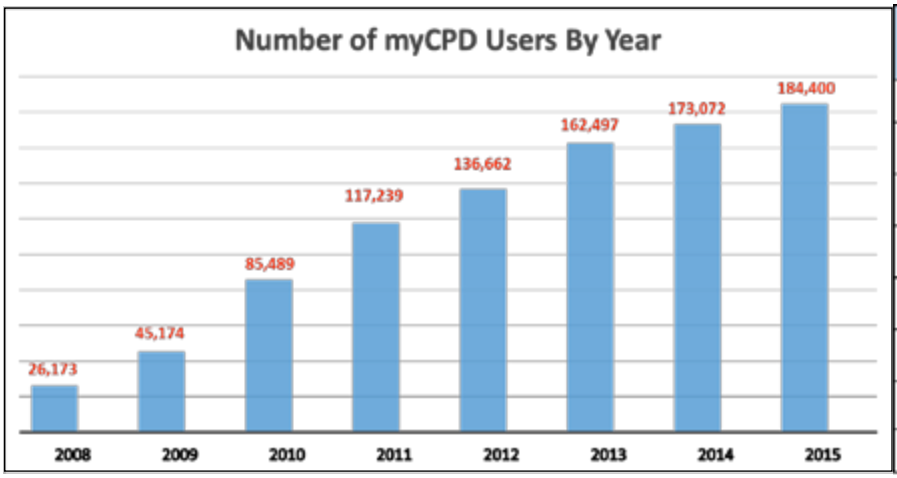
Source: Medical Professional Development Section, Medical Development Division, MoH

9. Continuing Professional Development (CPD)

Continuing Professional Development (CPD) is a bigger form of Continuing Medical Education (CME) which is implemented in a more comprehensive in nature. It is a systematic planned process of lifelong learning and professional development. It enables health professionals to maintain and enhance knowledge, skills and competency for practice in providing delivery of health care in the country. The MoH has developed and launched its online CPD system in 2007 and currently undergoing enhancement phase since July 2015 (known as myCPd v2.0). It is expected to be completed by 2017. As of December 2015, the MoH's myCPD are used by 184,400 registered users since it was launched in 2007. myCPD is used by 49 various health professional or health schemes in MoH, private sectors and universities. Various awareness programs, workshop and audit had been carried out throughout 2015.

Various improvements have been proposed as efforts to increase the capacity of the system. Awareness programs were implemented to increase users' awareness on the use of CPD and for the CPD Committees at various stages to be more active in carrying out the CPD activities. CPD will continue to be used for various purposes in the MoH. The use of credit points from the myCPD system will be adapted to numerous purpose including as a requirements for the ward of Excellent Service Award, Annual Practicing Certificate renewal for Practitioners, Physician enrolment in the National Specialist Register (NSR), Key Performance Index (KPI) and will continue to be used as a reporting requirement of minimum seven days training in year for civil servants**.** With rapid advancements in medicine, it is imperative that healthcare professionals continue to keep themselves abreast with new developments that would provide better care and treatment outcomes for their patients.

TABLE 27
NUMBER OF myCPD USERS, 2008-2015



Year	User
2008	26,173
2009	45,174
2010	85,489
2011	117,239
2012	136,662
2013	162,497
2014	173,072
2015	184,400

Source: Medical Professional Development Section, Medical Development Division, MoH

10. Human Capital Development and In-service Training Activities in the Medical Program

The sub-section coordinates sponsorship and selection of the candidates to attend courses, workshops, seminars and conferences locally or internationally. In the year 2015, RM23.152 million was allocated by the MoH to the Medical Program for in-service training locally or internationally. Out of the RM23.152 million, RM21.152 million was allocated for local training of which 10,592 courses were conducted and attended by 266,160 medical personnel. The balance RM2 million was utilised for oversea short courses of which 68 participants from various categories had been sent abroad for training (Table 28).

TABLE 28
HUMAN CAPITAL DEVELOPMENT AND IN-SERVICE TRAINING ACTIVITIES, 2015

Year	Total Allocations (RM)	Expenditure (RM)	No. of Training Activities	No. of Medical Personnel
2013				
Overseas Training	3,000,000.00	3,112,257.77	71	109
Local Training	20,800,000.00	20,527,419.40	9,730	210,152
Total	**23,800,000.00**	**23,639,677.17**	**9,801**	**210,278**

Year	Total Allocations (RM)	Expenditure (RM)	No. of Training Activities	No. of Medical Personnel
2014				
Overseas Training	3,000,000.00	2,691,530.53	88	122
Local training	20,152,000.00	19,571,957.50	16,413	277,878
Total	**23,152,000.00**	**22,263,488.03**	**16,501**	**278,000**
2015				
Overseas Training	2,000,000.00	1,939,069.01	50	68
Local training	21,152,000.00	20,710,100.42	10,592	266,092
Total	**23,152,000.00**	**22,649,169.43**	**10,642**	**266,160**

Source: Medical Professional Development Section, Medical Development Division, MoH

Smart Partnership between the MoH and the Local and Foreign Agencies – Medical Program:

Smart Partnership with Local Agencies

Since 1993, the MoH had established a formal partnership with both Private and Public Institutes of Higher Learning through the utilisation of MoH facilities for clinical training of medical students from each respective medical college. As of December 2015, there are 32 institutions (11 public and 21 private institutions) which were given permission to utilise the MoH facilities for the clinical training of their medical students. In addition, MoH facilities were also utilised for post-graduate training in various fields of medical specialties and subspecialties.

In line with the implementation of the National Blue Ocean Strategies (NBOS), MoH has also offered the MoH hospitals without resident specialist to be utilised by Institute of Higher Education (public/private) in providing specialist services to the patient, particularly in the six (6) basic specialties namely Internal Medicine, General Surgery, Paediatrics, Obstetrics and Gynaecology, Orthopaedics and Anaesthesiology. To date there are a total of 9 public universities and 11 private universities that have offered to provide specialist services in MoH hospitals without resident specialist.

MoH is also working with the Academy of Medicine of Malaysia in areas related to post-graduate medical training. Two Memorandum of Understandings (MoU) were

signed between MoH and the Academy of Medicine of Malaysia on 25 May 2012, in which it was related to implementing education and training programs for the MoH medical professionals in the Care of Critically Ill Surgical Patient (CCrISP) and Endocrine and Breast Surgery. The MoH has also signed MoU with Talent Corporation on 3 May 2012 on the collaboration to facilitate the return of Malaysian medical professionals from abroad to work in Malaysia.

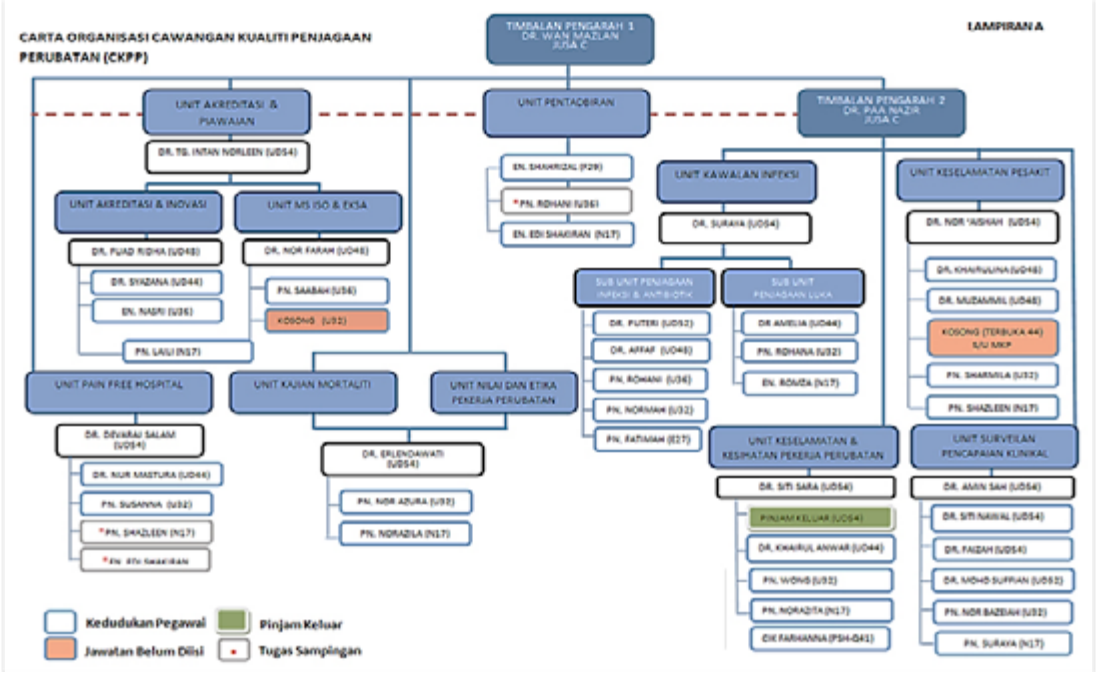
Smart Partnership with Foreign Agencies

MoH has a smart partnership in the field of medical education with foreign agencies. A MoU (Memorandum of Understanding) was signed with the Royal College of Physician and Newcastle University, United Kingdom on 19 January 2012 on medical education including postgraduate, particularly for the Training of Trainers.

Quality In Medical Care Section

The major role of the Quality in Medical Care Section or better known as *Cawangan Kualiti Penjagaan Perubatan* is that of providing high quality evidence for evidence-based decision making by the decision-making arms of the Medical Program specifically and the MoH in general.

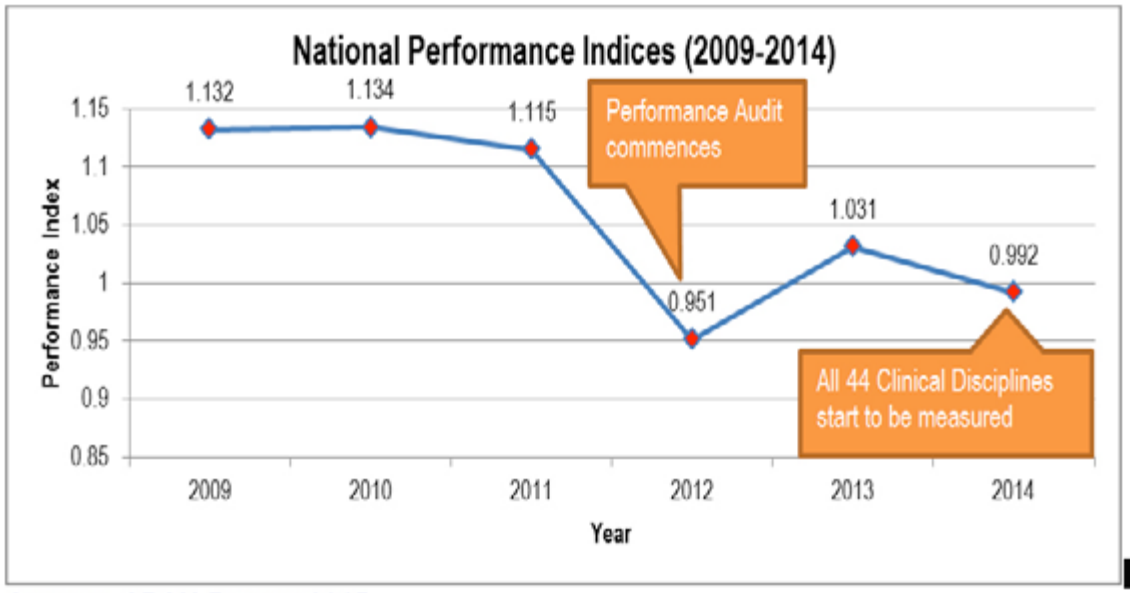
FIGURE 22
ORGANISATIONAL STRUCTURE



Source: Medical Professional Development Section, Medical Development Division, MoH

The Clinical Performance Surveillance Unit (CPSU) was previously known as the Quality Assurance Unit has established three (3) main functions, i.e. surveillance of clinical specialty and sub-specialty services, surveillance of Hospital Performance Indicators for Accountability indicators (HPIA or Hospital Director's KPI, including Balanced Scorecard elements) and higher level performance surveillance.

FIGURE 23
NATIONAL PERFORMANCE INDICES, 2009-2014



Source: Medical Development Division, MoH

Based on the analysed performances, CPSU has generated the National Clinical Services Performance Index and the National SIQ Index. The National Performance Index is the average of all measured performance indices of the clinical services. A performance index which is above 1.0 means the performance is above target and if the value is below 1.0, it means that the performance is below target.

Infection Control Unit (ICU)

The Infection Control Unit oversees two major programs, namely:

- Infection and Antibiotic Control Program and
- Wound Care Program.

The Infection Control Unit is the technical coordinator for the National Infection and Antibiotic Control Technical Committee as well as the National Wound Care Committee

FIGURE 24
SUMMARY OF THE STATUS OF THE NATIONAL INDICATORS
(COMPARISON BETWEEN 2013 AND 2015)

National Indicator	Status	Comment (comparison of year 2013 and 2015)
Healthcare Associated Infection (HCAI)		Survey 2, 2013 vs Survey 2, 2015
Total HCAI	↑	14% increase from 1.3 to 1.49 /100 patient surveyed
Healthcare Associated Blood Stream Infection	↓	11% decrease from 0.28 to 0.25/100 admissions
Alert Organism/ MDRO		Incidence rate of Jan-Dec 2013 vs Jan-June 2015
MRSA	↑	11.7% increase from 0.17 to 0.19 /100 admission
ESBL-*klebsiella pneumoniae*	↑	9% increase from 0.22 to 0.24/100 admission
ESBL-E.Coli	↑	14% increase from 0.14 to 0.16/100 admission
Acinetobacter baumannii	↑	10% increase from 0.19 to 0.21/100 admission
Carbapenam Resistant Enterobacteriaceae	↑	24% increase from 377 cases in 2013 to 467 cases in 2015
Hand Hygiene		Average rate of Q1-Q4 2013 vs Q1-Q2 2015
National Hand Hygiene Compliance	↓	3% decrease from 83.2% to 80.4%

Source: Medical Development Division, MoH

Pain Free Hospital Unit (PFHU)

Recognizing that improving pain assessment and management are important components of patient safety as well as ensuring patient-centred healthcare, the MoH introduced the Pain Free Hospital (PFH) concept and program in order to improve pain management in its hospitals. It is also in line with the Declaration of Montreal (International Pain Summit 2010) that access to pain management is a fundamental human right. Through a Director General of Health's circular (9/2008), implemented Pain as 5th Vital sign progressively from 2008, which includes setting up of acute pain services (APS), the implementation of "Pain as the 5th Vital Sign" and the concept of "Pain Free Hospitals".

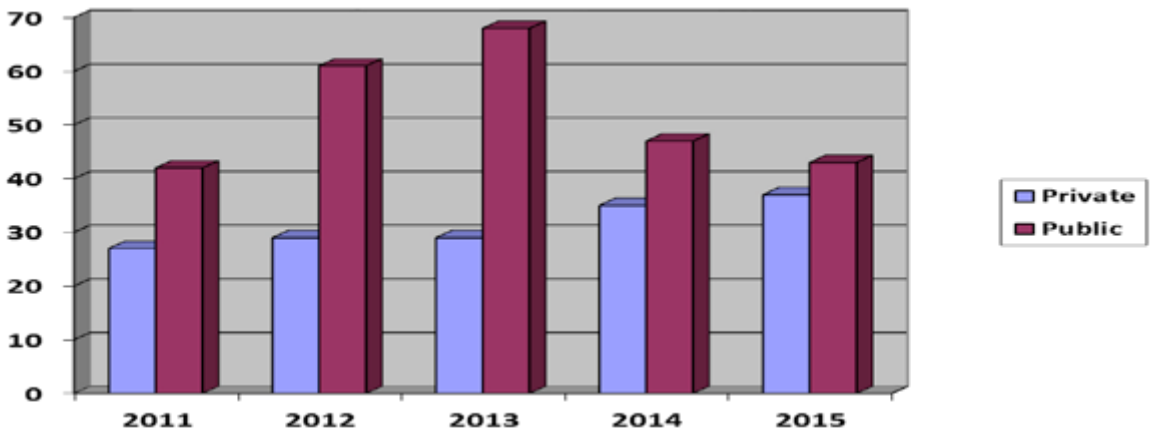
The next phase was the introduction of "Pain as the Fifth Vital Sign" in all its hospitals in 2008. In 2011, the MoH took pain management to another level by introducing the concept of "Pain Free Hospitals". Hospital Raja Permaisuri Bainun (HRPB) Ipoh, is one of the 3 hospitals selected to pilot this ambitious project, together with Hospital Putrajaya and Hospital Selayang. Now in 2015/2016 there are another 5 hospitals (Hospital Sultan Ismail Johor, Hospital Melaka, Hospital Sultanah Nur Zahirah Kuala Terengganu, Hospital Tengku Ampuan Rahimah Klang, and Hospital Kuala Lumpur) were also recognized as a Pain Free Hospital through the certification process and audit, and at least 5 hospitals will also be recognized this year.

This concept is the integration of the various policies and practices related to pain management. Iniatives include expansion of scope of services/treatment modalities in Pain Free Hospitals. Initially focus was on surgical base , Anaesthesia / analgesics and acupuncture assisted procedures but now scope have undergone major expansion and includes Emergency dept , Physiotherapy, Occupational therapy, Pharmacy, Pediatrics, Oncology and Public health care units.

Accreditation and Standards Unit

The Accreditation and Standards Unit originally comprises three sub-units namely: Hospital Accreditation, MS ISO and 5S. Later in 2014; 5S has evolved into Public Sector Condusive Ecosystem or *Ekosistem Kondusif Sektor Awam* (EKSA) activities; and lean healthcare has been substituted with innovation activity to encompass a wider scope of quality improvement initiatives in 2015. For Hospital Accreditation, the main function is to coordinate and monitor the status of Malaysian Healthcare Accreditation Program in Malaysia, in collaboration with Malaysian Society for Quality in Healthcare (MSQH); which is the national accrediting body for healthcare facilities and services in Malaysia. Of date, there are 46 hospitals with valid accreditation status, and 66 hospitals with expired status. However, there was a slow in pace in the accreditation program towards the end of 2014 as the contract ended in 2013 and the *Dasar Baru* amounting RM792,000 dried up. The new contract commenced in December 2014 and will end in November, 2018 amounting RM10, 996,662.50.

FIGURE 25
TRENDS IN MALAYSIAN HOSPITALS ACCREDITATION 2011-2015



Source: Medical Development Division, MoH

Patient Safety Unit

Patient Safety Unit was established in Medical Care Quality Unit Section in 2012 to focus on improving patient safety especially in MoH hospitals. The unit has evolved from Patient safety Council Secretariat which was established in 2003.
The functions of Patient Safety Unit are as follows:

- To act as the Secretariat of Patient Safety Council of Malaysia.
- To increase patient safety awareness as well as to promote and facilitate a positive patient safety culture in Malaysia
- To plan and establish patient safety policies and programs in Malaysia
- To monitor and evaluate the level of patient safety in Malaysia
- To assist & facilitate in the implementation of Patient Safety Programs in Malaysia

There are 8 main programs under the purview of the Patient Safety Unit i.e.:

- Secretariat of the Patient Safety Council of Malaysia
- Patient Safety Awareness
- Malaysian Patient Safety Goals (MPSG)
- Incident Reporting & Learning System
- PATIENTS for Patient Safety Malaysia (PFPSM)
- Safe Surgery Saves Lives (SSSL)
- Patient Safety Curriculum for Medical Students, Allied Health and House Officers.

2015 is a memorable year for Patient Safety Unit, MoH as Malaysia was given the honour to host of the annual WHO-OECD meeting. Patient Safety Unit, Medical Care Quality Section, Medical Development Division and Institute of Health System Research Malaysia were given the opportunity to collaborate with WHO and OECD to plan and organize the meeting. This prestigious international meeting was held on 15-17 Dec 2015 and was officiated by the Deputy Director General of Health (Medical) Malaysia, representatives from WHO & Organisation for Economic Co-operation and Development (OECD) Korea Policy Centre.

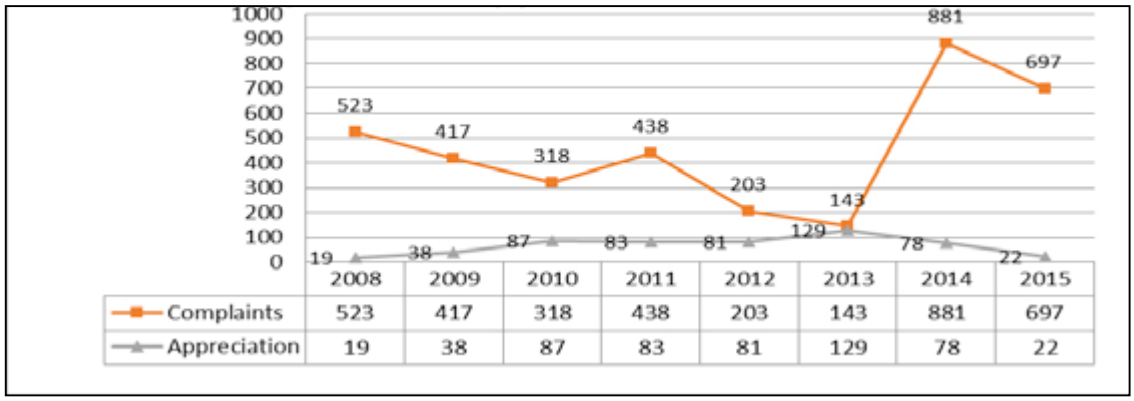
IMAGE 4
4TH WHO-OECD CONSULTATION ON HEALTHCARE QUALITY IMPROVEMENT NETWORK ASIA-PACIFIC, 2015

Source: Medical Development Division, MoH

Values and Ethics Unit

The main function of this unit is to systematically monitor and study all complaints against MoH hospitals regarding patient care and review the related investigation reports. In Figure 29 appears to be an upward trend for appreciation from 2008 to 2013, but it declined somewhat in 2014. The reason for this is probably the introduction of the SISPAA system, whereby hospitals and state health departments are more inclined to record complaints rather than appreciation. More efforts should be made to encourage the relevant officers to key in data regarding appreciation into SISPAA. These appreciations can act as morale boosters for the enhancement of service delivery by all MoH hospital staff. Encouragingly, complaints showed a downward trend from 2008 to 2013, with an increase of more than 600% in 2014, when the SISPAA system went online. There was a slight decrease in 2015. In 2015, the five states with the most number of complaints were Selangor, Perak, Sabah, Pulau Pinang and Johor.

FIGURE 26
STATISTIC OF COMPLAINTS AND APPRECIATION RECEIVED FROM 2008 - 2015



	2008	2009	2010	2011	2012	2013	2014	2015
Complaints	523	417	318	438	203	143	881	697
Appreciation	19	38	87	83	81	129	78	22

Source: Medical Development Division, MoH

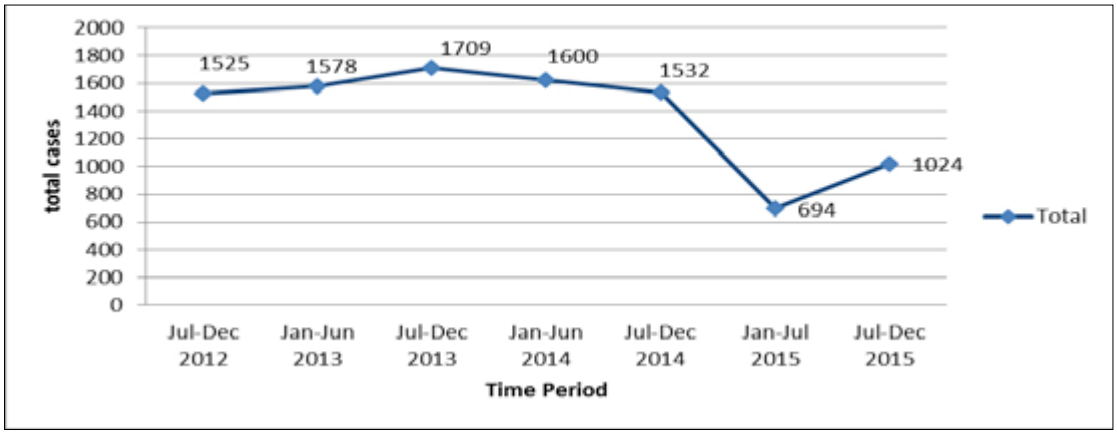
Mortality Survey Unit

Mortality Survey Unit involves with audit activities related to peri-operative death; also known as Peri-Operative Mortality Review (POMR). POMR is a confidential enquiry into peri-operative deaths in 53 government hospitals.

The audit is based on the following principles:

- Confidentiality of all reports and data.
- Anonymity of doctors reporting deaths as well as patients and hospital involved.
- Objectivity in assessment/ review of cases.
- Evaluate the quality of care against a professional standard

FIGURE 27
POMR CASES DISCUSSED FROM 2012 - 2015



Source: Medical Development Division, MoH

For the Third cycle starting from July 2012 till December 2014, a total of 9642 deaths were discussed, averaging 230 cases a month. These were cases reported by Specialist Hospitals with operative services. There is no monitoring system for reporting by non-MoH Hospitals and is planned to be included in future cycles. All cases were reviewed by National POMR Committee every 4 months, and actions including new policies, guidelines and SOP were discussed and implemented to further reduce mortality rates and improvise surgical outcome. These guidelines and cases write up are published in POMR Bulletins and reports.

MEDICAL PRACTICE

a) **Medical Legislation and Globalization**

Medical Legislation Section comprises of the Legislation Unit, Globalization Unit and Aesthetic Medical Practice Unit. The Legislation Unit is responsible for the drafting and amending of laws and its regulations under the Medical Program. The unit also gives views to Acts and Regulations under other Ministries. The Globalization Unit, on the other hand functions as the technical secretariat for the liberalization of healthcare services sector while the Aesthetic Medical Practice Unit is given the privilege to credential aesthetic medical practitioners in Malaysia.

i. Aesthetic Medical Practice
   - The completion of the Guidelines on Aesthetic Medical Practice for Registered Medical Practitioners marked the commencement of its implementation in the second half of 2013.
   - All registered medical practitioners who wish to practise aesthetic medical practice are required to obtain Letter of Credentialing and Privileging (LCP) and be registered under the National Registry of Aesthetic Medical Practitioners Practising Aesthetic Medical Practice.
   - The credentialing process for the Chapter 1 (for general medical practitioners) involves two steps assessment which are written examination and interviews/viva.
   - The credentialing process for medical specialists (Chapter 2) and surgical specialists (Chapter 3) are done by Cosmetic Dermatology and Laser Medicine (CDLM) Board of *Persatuan Dermatologi Malaysia* (Malaysian Dermatology Society) and the College of Surgeons, Academy of Medicine Malaysia respectively.

In 2015 this Section conducted three (3) written examinations and two (2) interviews/ viva. The table 29 below indicates the total number of registered medical practitioners who attempted for the above assessments.

TABLE 29
ASSESSMENTS OF REGISTERED MEDICAL PRACTITIONERS IN AESTHETIC MEDICAL PRACTICE, 2015

ASSESSMENTS			
Date	Written Examination/ MCQ candidates	Date	Interviews/VIVA candidates
6 May 2015	51	28 July 2015	13
5 August 2015	56	7 October 2015	24
9 December 2015	55		

Source: Medical Legislation Section, Medical Practices Division, MoH

- The Medical Practice Division will issue Letter of Credentialing & Privileging (LCP) of Aesthetic Medical Practice to successful candidates upon recommendation by the Main Credentialing & Privileging Committee.

- The table below indicates the total number of registered medical practitioners registered in the Registry as of December 2015.

TABLE 30
NATIONAL REGISTRY OF REGISTERED MEDICAL PRACTITIONERS PRACTISING AESTHETIC MEDICAL PRACTICE, 2015

Chapter	No. of Registered Medical Practitioners
1.	78
2.	36
3.	41

Source: Medical Legislation Section, Medical Practices Division, MoH

b) Private Medical Practice Control

The Private Medical Practice Control Section undertakes the role to implement and enforce the Private Healthcare Facilities and Services Act 1998 which has come to its ninth year of implementation in 2015. The regulation and control of private healthcare facilities and services under this Act include registration, approval, licensing, handling of complaints, evaluation of quality, enforcement activities and matters relating to the private healthcare facilities and services.

i. Registration

At the end of 2015, 7146 private medical clinics and 1868 private dental clinics were registered with the Ministry of Health, as in Table 31

TABLE 31
NUMBER OF REGISTERED PRIVATE MEDICAL CLINICS AND PRIVATE DENTAL CLINICS IN MALAYSIA, 2015

No	State	Clinic Categories	
		Private Medical Clinic	Private Dental Clinic
1.	Johor	868	202
2.	Kedah	345	67
3.	Kelantan	217	55
4.	Malacca	293	43
5.	Negeri Sembilan	275	54
6.	Pahang	231	53
7.	Penang	508	139
8.	Perak	631	117
9.	Perlis	34	7
10.	Selangor	1,849	563
11.	Terengganu	157	49
12.	Sabah	356	106
13.	Sarawak	330	91
14.	FT** (KL)	1,039	317
15.	FT** (Labuan)	13	5
Total		**7,146**	**1,868**

*Note: ** FT refers to Federal Territory*
Source: Private Medical Practice Control Section, MOH

ii. Approval and Licensing

Licensing of private hospitals and other private healthcare facilities other than private clinics consists of two stages namely approval to establish or maintain and license to operate or provide. Until the end of 2015, 662 private healthcare facilities were licensed as in Table 32

TABLE 32
NUMBER OF LICENSED PRIVATE HEALTHCARE FACILITIES AND SERVICES OTHER THAN THE PRIVATE CLINICS IN MALAYSIA, 2015

No	State	Licensed Private Healthcare Facility or Service Categories			Total
		Private Hospital	Private Haemodialysis Centre	Others*	
1.	Johor	25	61	18	**104**
2.	Kedah	5	33	1	**39**
3.	Kelantan	1	11	0	**12**
4.	Malacca	5	17	2	**24**

No	State	Licensed Private Healthcare Facility or Service Categories			Total
		Private Hospital	Private Haemodialysis Centre	Others*	
5.	Negeri Sembilan	8	20	1	**29**
6.	Pahang	7	16	2	**25**
7.	Penang	17	38	8	**63**
8.	Perak	18	32	5	**55**
9.	Perlis	0	4	0	**4**
10.	Selangor	48	81	25	**154**
11.	Terengganu	1	12	2	**15**
12.	Sabah	7	9	3	**19**
13.	Sarawak	9	11	7	**27**
14.	FT** (KL)	32	32	28	**92**
15.	FT** (Labuan)	0	0	0	**0**
TOTAL		**183**	**377**	**102**	**662**

Source: Private Medical Practice Control Section, MoH

Note:

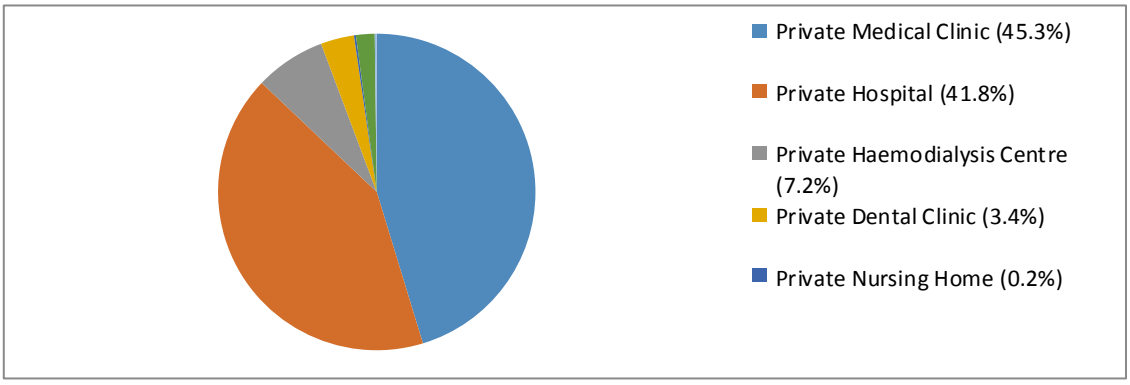
**Others include private maternity home, private nursing home, private hospice, private ambulatory care centre, private blood bank and private community mental health centre.*

***FT refers to Federal Territory*

iii. Complaints

Throughout 2015, Private Medical Practice Control Section received a total of 419 complaints, involving healthcare facilities and services regulated under the Private Healthcare Facilities and Services Act 1998 *[Act 586],* as shown in Figure 28.

FIGURE 28
COMPLAINTS RECEIVED ACCORDING TO FACILITIES REGULATED UNDER ACT 586, 2015



Source: Private Medical Practice Control Section, MoH

Note: No of complaints received involving private psychiatric nursing home, private maternity home, private psychiatric hospital, private blood bank and private community mental health centre

Complaints received from the patients or patients' representative were dealt according to the patient grievance mechanism plan, as stipulated under Act 586. For complaints that were received from other parties, further investigations will be carried out and followed by necessary actions.

iv. Enforcement

Private Medical Practice Control Section monitors the enforcement activities carried out by our colleagues in Private Medical Practice Control Unit, State Health Department. Throughout 2015, a total of 29 raided activities were done by various states, targeting the unlicensed or unregistered healthcare facilities as stipulated under Act 586, and the licensed or registered facilities which hire/employ unregistered or unqualified healthcare professionals. These activities were usually triggered by public information or complaints, or the facilities were caught red-handed during our surveillance activities on the registered and licensed facilities.

v. Incident Reporting and Notification of Assessable Death

Enforced since 1 January 2011, all licensed facilities under Act 586 were required to report their unexpected incidents (Incident Reporting – IR) and occurrence of Assessable Death (AD), as directed under *Arahan Ketua Pengarah Kesihatan Bil. 1/2010*. The aim of monitoring these IR and AD are mainly for the purpose of quality improvement. Thus, for the time being, all reporting and notifications will not be subjected to punitive action. The scope of IR and AD is mainly to gather data and inputs regarding incidents and deaths that occurred in private healthcare facilities. The reporting and notifications are on voluntary basis, using the following forms:

a) Form IR-1 : every time any incident (as listed in form) happen;
b) Form IR-2 : 6-months statistical summary of incidents that occur (incidents that are not listed to be reported under IR-1);
c) Form AD-1 : every time an assessable death occurs (within 72 hours of death).

Throughout 2015, a total of 49 AD notifications, 65 IR-1 reports, and 80 IR-2 reports were recorded.

Malaysian Medical Council (MMC)

The MMC is governed by the Medical Act 1971. The increasing number of doctors has raised the role of the MMC as not just a monitoring body but also to play the role of a regulatory body. With the approval of the amended Act, MMC is heading towards corporatisation. The principal aim is to ensure the highest standards of medical ethics, education and practice, in the interest of patients, public and the profession through the fair and effective administration of the Medical Act.

MMC looks forward in continuing to provide excellent services for both its registered practitioners and public. It is MMC's sincere hope that the noble profession strive to excel and each and every one of its registered practitioners continues to practices medicine not only professionally and also ethically both locally and globally.

a) Registration of Medical Practitioners

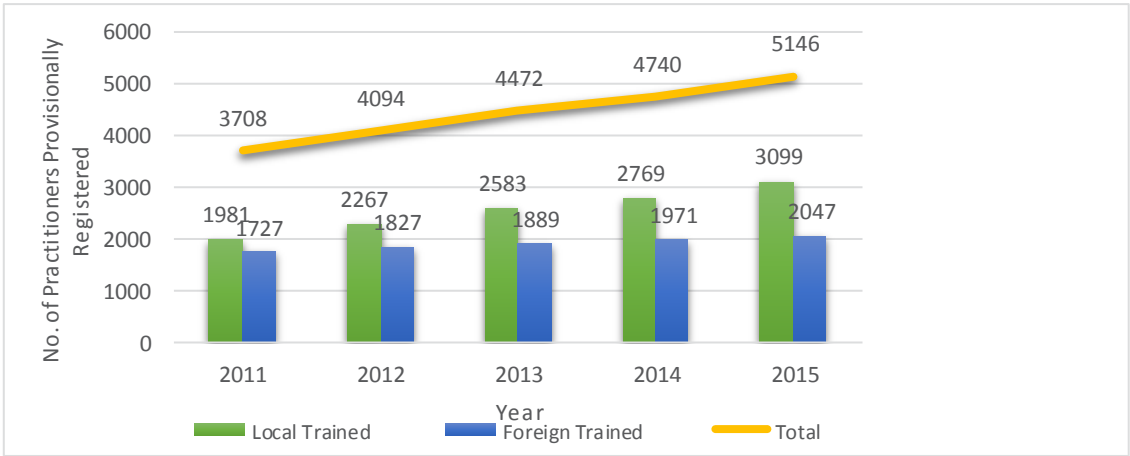
Via registration, MMC ensures that only eligible persons based on knowledge, skill and experience that has met the required standards of competence to practice safely, are allowed to practice medicine in Malaysia. MMC managed these 3 registration categories:

- Provisional Registration - Section 12 and 13
- Full registration (without conditions) - Section 14(1)
- Full registration with conditions - Section 14(3); and
- Temporary Practicing Certificate - Section 16.

i. Provisional Registration

Provisional Registration allows newly qualified practitioners to undertake general clinical training before being granted full registration. Provisionally registered medical practitioners must go through the houseman ship training for 2 years. Figure 32 shows the increasing number of medical graduates registered provisionally annually, in which almost 60% were locally trained. More overseas trained graduates are also returning to Malaysia upon completion of their studies as many Western countries have begun restricting employment of international medical graduates in their country.

FIGURE 29
NUMBER OF PROVISIONALLY REGISTERED MEDICAL PRACTITIONERS, 2011-2015



Source: Medical Development Division, MoH

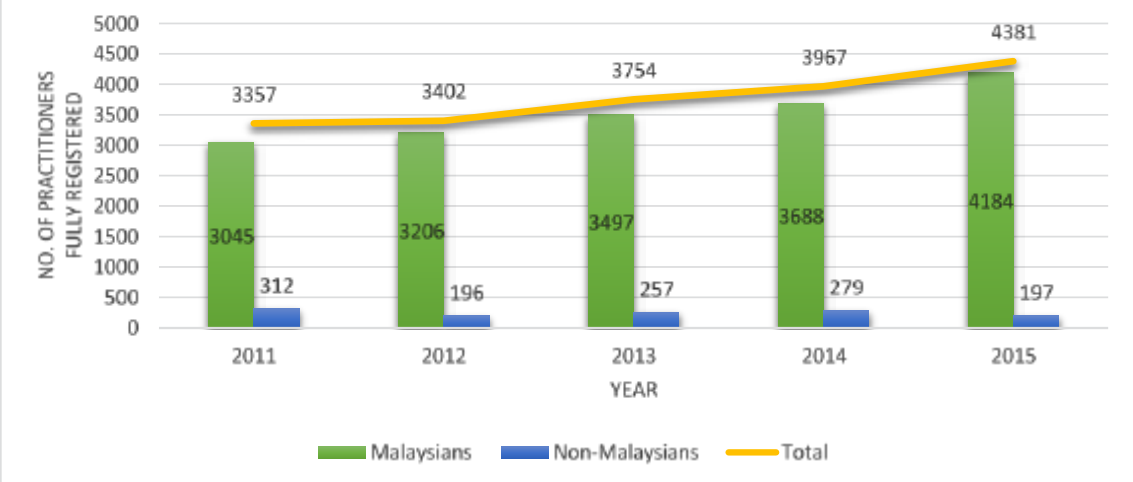
TABLE 33
NUMBER OF FULL REGISTRATION CERTIFICATES ISSUED ACCORDING TO CITIZENSHIP AND PLACE OF INTERNSHIP TRAINING, 2011-2015

Full Registration	2011	2012	2013	2014	2015
Registered According to Section 14(1):					
• Malaysians - Completing Housemanship Locally	2,898	3,076	3,344	3,592	4,098
• Malaysians - Completing Housemanship Overseas	147	130	153	96	86
Total	**3,045**	**3,206**	**3,497**	**3,688**	**4,184**
Registered According to Section 14(3):					
• Foreigners – Completing Housemanship Locally	25	10	30	10	10
• Foreigners - Completing Housemanship Overseas	287	186	227	269	187
Total	**312**	**196**	**257**	**279**	**197**
Total No. of Certificates Issued	**3,357**	**3,402**	**3,754**	**3,967**	**4,381**

Source: Malaysian Medical Council (MMC)

ii. Full Registration

FIGURE 30
NUMBER OF FULL REGISTRATION CERTIFICATES ISSUED ACCORDING TO CITIZENSHIP, 2011-2015



Source: Malaysian Medical Council (MMC)

iii. Temporary Practicing Certificate (TPC)

The TPC is issued to foreign-registered practitioners who wish to practice medicine in Malaysia, usually for (1) training local practitioners in workshops/conferences; (2) Research; and/or (3) Clinical attachment. The certificate is valid for 3 months and is renewable.

TABLE 34
NUMBER OF TPC ISSUED, 2011-2015

Year	2011	2012	2013	2014	2015
Total TPC's issued	223	163	345	149	157

Source: Malaysian Medical Council (MMC)

TABLE 35
NUMBER OF TPC APPLICATIONS ACCORDING TO PRACTITIONERS' COUNTRY OF ORIGIN

Country	Applicants	Country	Applicants
Australia	8	Morocco	1
Bangladesh	1	Myanmar	3
Belgium	1	Nepal	1
Bhutan	1	Nigeria	1
Brazil	1	Pakistan	1
Canada	1	Palestine	1
China	1	Philippines	3
France	1	Poland	1
Germany	3	Singapore	11
Hong Kong	1	Slovenia	1
India	17	Somalia	2
Indonesia	15	Sri Lanka	1
Iran	2	Sudan	8
Iraq	2	Taiwan	4
Italy	4	Thailand	26
Japan	14	Tuvalu	1
Korea	5	U.A.E	1
Libya	1	United Kingdom	4
Malaysia	2	United States	4
Maldives	1		
TOTAL:			**157**

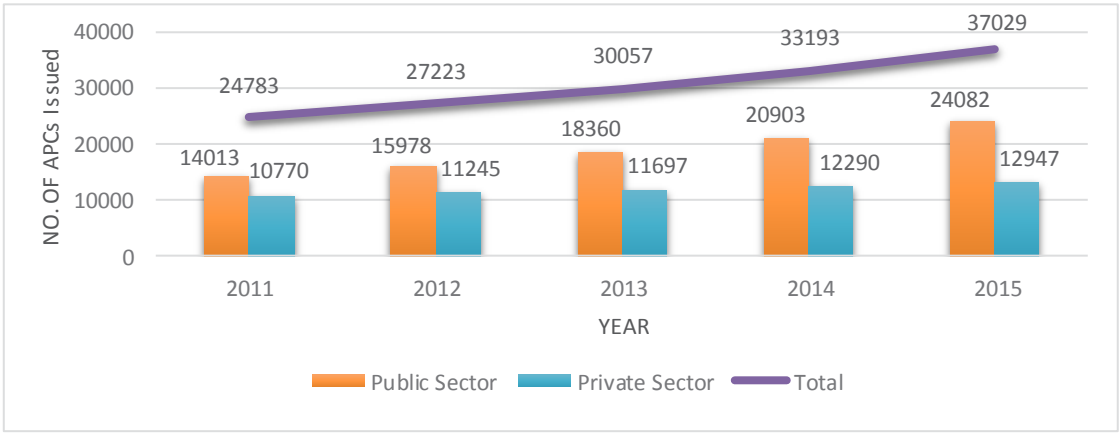
Source: Malaysian Medical Council (MMC)

b) Annual Practising Certificate (APC)

Pursuant to Medical Act 1971, practitioners are required to register with the MMC to practice medicine in Malaysia. Section 20 of the Medical Act 1971 states that all fully registered medical practitioners need to apply for an APC.

Figure 34 shows the number of practitioners in the private sector has not increased in tandem with that in the public sector. This is possibly brought about by a growing number of practitioners opting to stay in Government service due to the better incentives and opportunities.

FIGURE 31
NUMBER OF APCs ISSUED BY SECTOR, 2011-2015



Source: Malaysian Medical Council (MMC)

Malaysian Optical Council (MOC)

Malaysian Optical Council was established on 1 February 1992. As a regulatory body, MOC is responsible for the registration of optometrists and opticians. MOC is also given the responsibility to monitor optometry services and practices in Malaysia through the enforcement of laws according to the Optical Act 1991 and Optical Regulations 1994. As a professional body, MOC also evaluate and recognized Optometry and Opticianary Program provided by Higher Education Provider in Malaysia.

a) Registration

At the end of 2015, the number of registered optometry practitioners under section 18 and section 19 of the Optical Act 1991 had increased by 4.8% from 4,524 in year 2014 to 4,740 optometry practitioners in year 2015.

- **Opticians**
  Similarly, the total number of opticians was also observed to be 2.4% higher in 2015 compared to 2014 (Table 36).

TABLE 36
NUMBER OF OPTICIANS GRANTED FULL REGISTRATION, 2014-2015

No	SECTION	No. of Opticians (Cumulative)		Increment from 2014 to 2015 (%)
		2014	2015	
1.	18(1)*	1,376	1,452	5.5
2.	18(2)*(a)***	1,731	1,731	0
3.	18(2)*(b)****	1	1	0
4.	18(3)*****	0	0	0
Total (Cumulative)		**3,108**	**3,184**	**2.4**

Source: Malaysian Optical Council, MoH

Note:

*refers to any person who holds the qualifications specified in the First Schedule on registrable qualifications for opticians.

** refers to any person who has been practicing for a period not less than one year immediately prior to the coming into force of the Act.

*** refers to any person who holds a qualification which is not specified in the First Schedule but is deemed suitable by the Minister.

**** refers to any person who attends a course which includes practical training leading to any of the qualifications specified in the First Schedule.

- **Optometrists**
  The total number of optometrists had also increased by 9.9% from 1,416 in 2014 to 1,556 optometrists in 2015 (Table 33).

TABLE 37
NUMBER OF OPTOMETRIST GRANTED FULL REGISTRATION, 2013-2014

No	SECTION	No. of Optometrists (Cumulative)		Increment from 2014 to 2015 (%)
		2014	2015	
1.	19(1)*	1,300	1,416	8.9
2.	19(2)**	116	140	20.7
Total (Cumulative)		**1,416**	**1,556**	**9.9**

Source: Malaysian Optical Council, MoH

Note:

*refers to any person who holds the qualifications specified in the Second Schedule on registrable qualifications for optometrists.

** refers to any person who holds a qualification not specified in the Second Schedule but is declare suitable by minister.

- **Contact Lens Practitioners**
  The number of contact lens practitioners in Malaysia had increased by 7.1% in 2015, whereas for optician there was no increment and the number of contact lens practitioners for optometrist had increased by 7.0% (Table 38).

TABLE 38
NUMBER OF CONTACT LENS PRACTITIONERS, 2013-2014

NO	SECTION	No. of Contact Lens Practitioners (Cumulative)		Increment from 2014 to 2015 (%)
		2014	2015	
1.	Opticians	568	568	0
2.	Optometrist	1,416	1,556	7
Total (Cumulative)		**1,984**	**2,124**	**7.0**

Source: Malaysian Optical Council, MoH

a) Annual Practicing Certificate (APC)

A total number of 3,744 (79%) optometry practitioners had renewed their annual practising certificates for 2015 and the Malaysian Optical Council had sent reminders to the remaining 996 optometry practitioners to apply for renewal (Table 35).

TABLE 39
NUMBER OF REGISTERED OPTOMETRY PRACTITIONERS WITH RENEWED APC, 2005-2015.

No	Item	No. of Optometry Practitioners										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1.	**Registered practitioners**	2,660	2,847	2,992	3,200	3,493	3,693	3,919	4,076	4,367	4,524	4,740
2.	**Registered practitioners with APC renewed**	2,077	2,220	2,443	2,496	2,707	3,023	3,187	3,285	3,352	3,485	3,744
Percentage of APC renewed		78.1	78.0	81.7	78	77.5	81.9	81.3	80.6	76.8	77.0	79.0

Source: Malaysian Optical Council, MoH

Achievements 2015

1. Malaysian Optical Council Standard Operating Procedure Development Workshop. The workshop was held on 26-29 April 2015 at Ancasa Residences, Port Dickson aimed at developing Standard Operating Procedure for Malaysian Optical Council and to highlight the task and function of MOC secretariat.

2. Excellent Administrative Staff Course
   This course was organized on 13 – 14 May 2015 with the objective to enhance the motivation of the staff hence they will performed better in their work and become an excellence individual.

3. Workshop to review Guideline on Approval and Accreditation of Optometry and Opticianry Programs in Higher Education Institutions.
   Malaysian Optical Council has organized this event on 27-29 May 2015 which was held in De Palma Hotel, Shah Alam with the aim the revising and improving the content of the guideline which was published in 2019.

4. Workshop to review Optical Act 1991
   In preparation for amendments to the Optical Act 1991, a workshop was held on 16-18 November 2015. The purpose was to revise the content of Optical Act 1991 and compare it with other relevant professional act in Malaysia.

5. Optometry practice way forward road-show 2015
   The road-show was organized with aimed the stakeholder engagement as an initiative to accelerate the Optical Act 1991 amendment process which is delayed since 2002.

Medical Assistant Board

The Medical Assistants Board is responsible for the registration and the matters involving the Assistant Medical Officers in accordance the Medical Assistants (Registration) Act 1997. Assistants Medical Officers are healthcare professionals licensed to practice medicine under the supervision of a Medical Officer or Public Health Specialist or Registered Medical Practitioner in the private sector.

a) Registration

Table 40 shows the number of Registered Assistants Medical Officers for 2013-2015. There are increasing in number of registered assistant medical officers from 2013-2015 in public sectors.

a. Number of annual renewal certificate issued for assistants medical officers 2013-2015

TABLE 40
NUMBER OF REGISTERED ASSISTANT MEDICAL OFFICERS BY SECTOR, 2013 – 2015

No	Years Registered	Public	Private	Total
1.	2013	812	483	**1,305**
2.	2014	828	536	**1,364**
3.	2015	1,354	424	**1,778**

Source: Medical Assistants Board, MoH

b) Issuance of Annual Renewal Certificate (ARC)

Every registered Assistants Medical Officers must have a valid ARC to practice as an Assistant Medical Officer in Malaysia. The online ARC form can be obtained from the Business Licensing Electronic Support System (BLESS). Table 41 shows number of ARC issued.

TABLE 41
NUMBER OF ARCs ISSUED FOR ASSISTANTS MEDICAL OFFICERS IN PUBLIC AND PRIVATE SECTORS, 2013 - 2015

No	Years Registered	Total
1.	2013	**10,994**
2.	2014	**12,100**
3.	2015	**11,646**

Source: Medical Assistants Board, MoH

c) Estate Hospital Assistants Board

The Estate Hospital Assistants Board is responsible for the registration and the matters involving Estate Hospital Assistants according to Section 2(1) Act 435 EHA (Registration) No.12/1965. Table 42 shows the number of registered Estate Hospital Assistants for 2015.

TABLE 42
NUMBER OF REGISTERED ESTATE HOSPITAL ASSISTANTS, 2015

No	State	Grade 1	Grade II	Grade III	Trainee	Total
1.	Johor	0	1	10	41	52
2.	Kedah	4	5	26	21	165
3.	Pulau Pinang	0	0	0	5	5
4.	Melaka	0	0	0	10	10

No	State	Grade 1	Grade II	Grade III	Trainee	Total
5.	Negeri Sembilan	0	0	1	32	33
6.	Pahang	0	1	4	22	27
7.	Perak	4	12	44	133	193
8.	Selangor	4	6	22	80	112
9.	Kuala Lumpur	0	0	0	15	15
10.	Terengganu	0	0	0	7	7
11.	Kelantan	0	0	0	3	3
12.	Sabah	0	17	71	93	181
13.	Sarawak	0	0	0	1	1
Total		**12**	**42**	**178**	**463**	**804**

Source: Medical Assistants Board, MoH

NURSING DIVISION

The Nursing Division underwent organizational restructuring in 2015 with the approval of additional nursing leadership posts. Several new units were established namely the Research and Evidence-Based Unit; Credentialing and Privileging and International Relations Units.

The Division governs, monitors and regulates nursing practice as stipulated in the Nurses' Act and Regulations, 1985: the Code of Professional Conduct for Nurses (1st Edition April, 1998); Midwife Act 1990 as well as Standard Operating Procedures and guidelines related to nursing. It is also responsible for the accreditation of nursing programs in Malaysia.

Nursing Practice

a) Nursing Practice in Hospitals

TABLE 43
STATISTICS OF MoH NURSES IN HOSPITAL, 2015

No	Particulars	No. of visits done
1.	Nurses with Post Basic Education	28,750
2.	Nurses with Degree	2,763
3.	Nurses with Masters/PhD	44

Source: Nursing Division, MoH

Practice monitoring and supervisory visits done in 2015.

TABLE 44
PRACTICE MONITORING AND SUPERVISORY VISITS CONDUCTED, 2015

No	Particulars	No. of visits done
1.	MoH Hospitals	12
2.	Public Health Clinics	13
3.	Health facilities with IPTA/IPTS student nurses	13

Source: Nursing Division, MoH

Policy

a) Quality and Standard Development

National Nursing Audit is conducted in 2 phases to determine the competency of nurses performing critical procedures in hospitals, public health and private facilities. 4 and 13 indicators have established for hospitals and public health respectively. Results are collated, complied, analyzed and presented during the national senior nurses administrative technical meeting Corrective action are to be taken by health facilities accordingly. No shortfall in quality has been identified for hospitals. However, in the public health sector, all indicators were achieved with the exception of 'cold chain management' where the standard set is 100% against 99% achievement.

b) Continuous Professional Development (CPD)

Nurses are required to continuously update their knowledge and skills in accordance to the Nurses Code of Professional Conduct. Thus, the establishment of this unit, Nurses must fulfil the required amount of CPD points their Annual Practice Certificate renewal.

TABLE 45
PERCENTAGE OF STAFF ACHIEVING REQUIRED CPD POINTS 2015

Particulars	Total No of Staff (by Grade Designation)			No. of Staff Achieving Required *CPD* Points (by Grade Designation)			Percentage of Achievement (%) $\frac{B}{A} \times 100$
	Professional	Support	Total (A)	Professional	Support	Total (B)	
Nursing Division	33	55	88	33	55	88	**100 %**

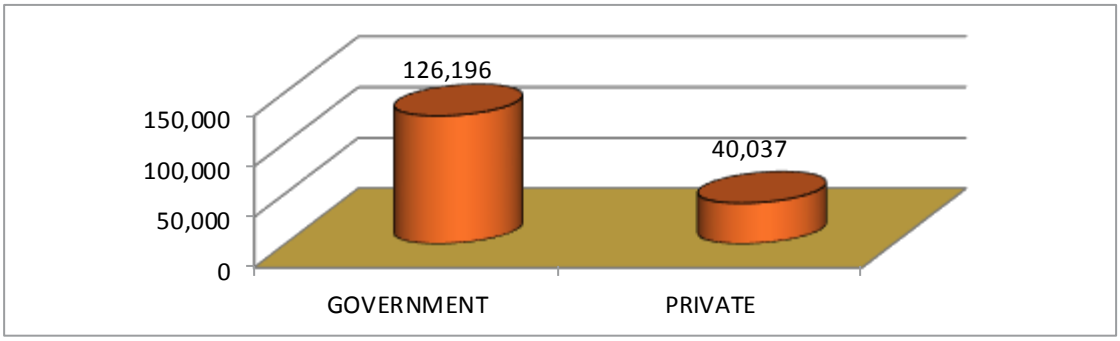
Source: Nursing Division, MoH

c) Registration and Control

It is mandatory for all nurses practicing in Malaysia to be registered and have valid annual practising certificate. This section handles the registration of all nurses who have passed the Nursing Board of Malaysia (NBM) and Midwifery Board of Malaysia (MBM) examinations.

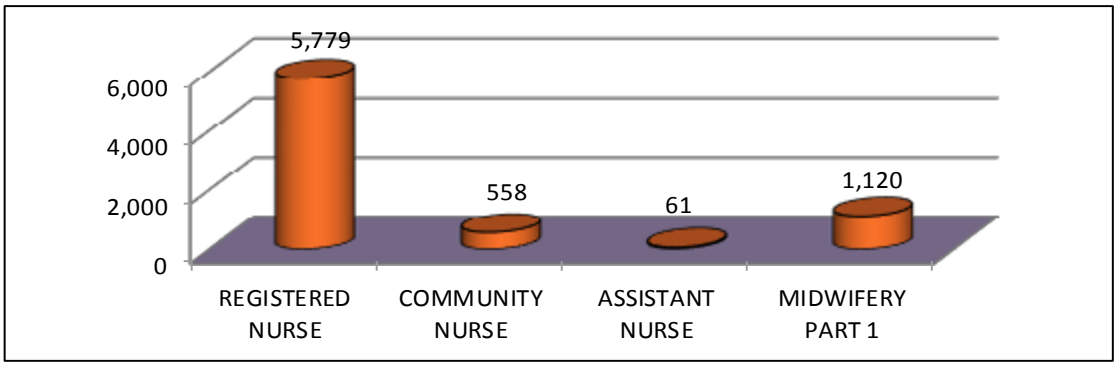
a. Number of nurses registered year 2015 (figure 32)
b. Number of Annual Practicing Certificate issued Year 2015 (Figure 33)
c. Statistics Application for Temporary Practicing Certification for Foreign Nurses (Table 46)

FIGURE 32
NUMBER OF NURSES REGISTERED, 2015



Source: Nursing Division, MoH

FIGURE 33
NUMBER OF ANNUAL PRACTICING CERTIFICATE ISSUED YEAR 2015



Source: Nursing Division, MoH

TABLE 46
STATISTICS APPLICATION FOR TEMPORARY PRACTICING CERTIFICATION FOR FOREIGN NURSES, 2015

No	Institution	Total Applicants	Total Approved	Total Rejected	Total Incomplete	Total Application Pending
1.	Health Facility/ Institutions	41	27	1	13	13
2.	College/ University	5	4	1	-	-
3.	Elective Training	11	6	-	5	5
TOTAL		**57**	**37**	**2**	**18**	**18**

Source: Nursing Division, MoH

d) Examination and Curriculum

Curriculum Unit collaborates with the Malaysian Qualifications Agency (MQA) and the Ministry of Education (MOE) for approval and certification accreditation standards in nursing. It is responsible for reviewing, evaluating and approving the curriculum adopted by the Institutions of Nursing and recommend approval of accreditation for Public Colleges and Universities (UA) and Private Colleges and Universities (US). The examination unit conducts examination designed for evaluating nurses' competencies to practice nursing/midwifery in Malaysia.7

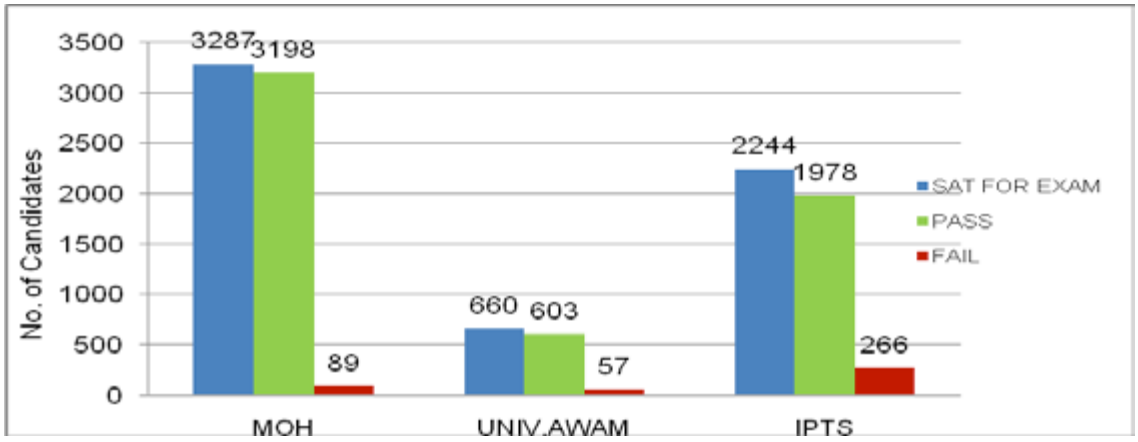
a) Number of Examination Conducted By The Nursing and Midwifery Board of Malaysia and achievement (Table 47)
b) Overall achievement amongst colleges Year 2015 (Figure 34)
c) Number of institution providing nursing program Year 2015 (Figure 35)
d) List of nursing programme in MoH, IPTA, IPTS and Ministry of Defence (Figure 36)
e) Number of document assessment done by NBM panel 201 (Figure 37)

TABLE 47
NUMBER OF EXAMINATION CONDUCTED BY NURSING AND MIDWIFERY BOARD OF MALAYSIA AND ACHIEVEMENT, 2015

No	Program	College/Intuition				Candidates	
		MoH	public Higher Education Institutions (IPTA)	Public Higher Education Institutions (IPTS)	Total	Passed (%)	Failed (%)
1.	Degree/ Diploma/ Conversion Diploma Program	27	9	46	7,933	7,486 (94.4%)	447 (5.6%)
2.	Advanced Diploma in Midwifery	11	1	2	1,151	1,120 (97.3%)	31 (2.7%)
3.	Community Nurse	6	-	-	529	526 (99.4%)	3 (0.6%)
4.	Assistant Nurse	-	-	4	62	61 (98.4%)	1 (1.6%)
TOTAL		**44**	**10**	**52**	**9,675**	**9,193 (95%)**	**482 (5%)**

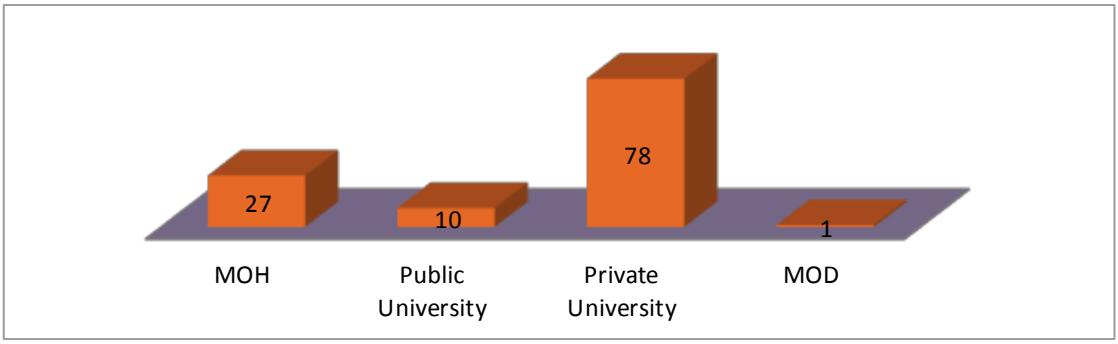
Source: Nursing Division, MoH

FIGURE 34
OVERALL ACHIEVEMENT AMONGST COLLEGES, 2015



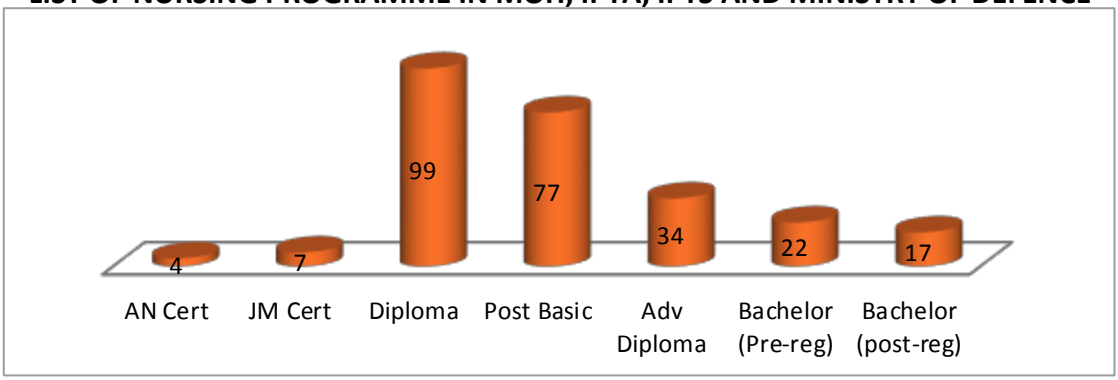
Source: Nursing Division, MoH

FIGURE 35
NUMBER OF INSTITUTION PROVIDING NURSING PROGRAMS, 2015



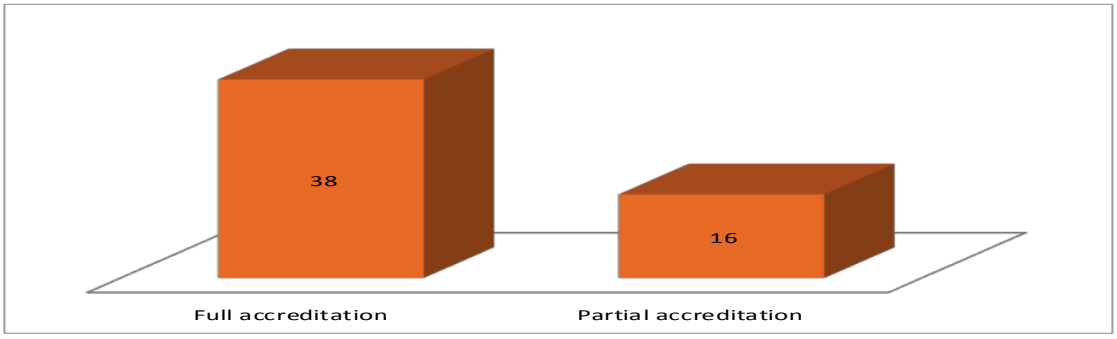
Source: Nursing Division, MoH

FIGURE 36
LIST OF NURSING PROGRAMME IN MOH, IPTA, IPTS AND MINISTRY OF DEFENCE



Source: Nursing Division, MoH

FIGURE 37
NUMBER OF DOCUMENT ASSESSMENT DONE BY NURSING BOARD MALAYSIA PANEL, 2015



Source: Nursing Division, MoH

Way forward

Nurses need to move in tandem with the advancement of ever increasing informed clients, the emergence of novel diseases as well as increasing specialities and sub-specialities in their quest to provide competent and high quality nursing services.

The Nursing Division needs to constantly revise on the planning, implementation, coordination and monitoring of nursing services in ensuring the practise among nurses remains relevant, of high quality and safe patient care. Upgrading of community nurses to staff midwives is one such endeavour. Development and implementation of high level post basic such as advanced diplomas and degrees are in development. Upgrading of nursing colleges to college universities has also been considered.

TELEHEALTH

Telehealth Division is leading transformation of MoH healthcare system through information and communication technology (ICT) by:

- Enabling the health system transformation plan using ICT.
- Strengthening health care services through ICT.
- Improving individual skills and expertise in the field of Health ICT.
- Engaging Change Management in the implementation of health ICT projects and programs relating to Health ICT.

Telehealth Division is responsible to deliver Health ICT initiative for MoH by:

- Developing ICT policies relating to telehealth (such as User Access Policy Control) and monitoring compliance of health and safety controls.
- Planning and providing infrastructure for telehealth project requirements.
- Designing and developing applications for telehealth project systems.
- Providing MyHEALTH Portal as a platform over the internet for the dissemination of health information and health education to the public.
- Providing Teleconsultation Services (TC) to MoH healthcare facilities throughout the country (selected facilities).

TABLE 48
QUALITY OBJECTIVES OF TELEHEALTH, 2015

No	Activity	Target/Indicator	Achievement (%)
1.	Developing integration profile to enable information sharing between health systems	One (1) profile of every two (2) year	-
2.	% of Telehealth staff	All Telehealth staff	100%

No	Activity	Target/Indicator	Achievement (%)
	that have attended seven (7) days' training a year		
3.	Providing SME advisory services for MoH health ICT projects	At least 2 projects seeking SME advisory services annually	50%

Source: Telehealth Division, MoH

TABLE 49
STRATEGIC PLAN OF TELEHEALTH, 2015

No	Activity	Target/Indicator	Achievement (%)
1.	Enable the sharing of patient health information between MoH health facilities via MyHIX	10 MoH facilities with HIS/CIS sharing patient health information via MyHIX	80% (8 facilities)
2.	Feedback/response provided to customers for "Ask the Expert" service, MyHEALTH Portal	80% Feedback/response provided to customers for "Ask the Expert" service, MyHEALTH Portal within 3 days	85.1%

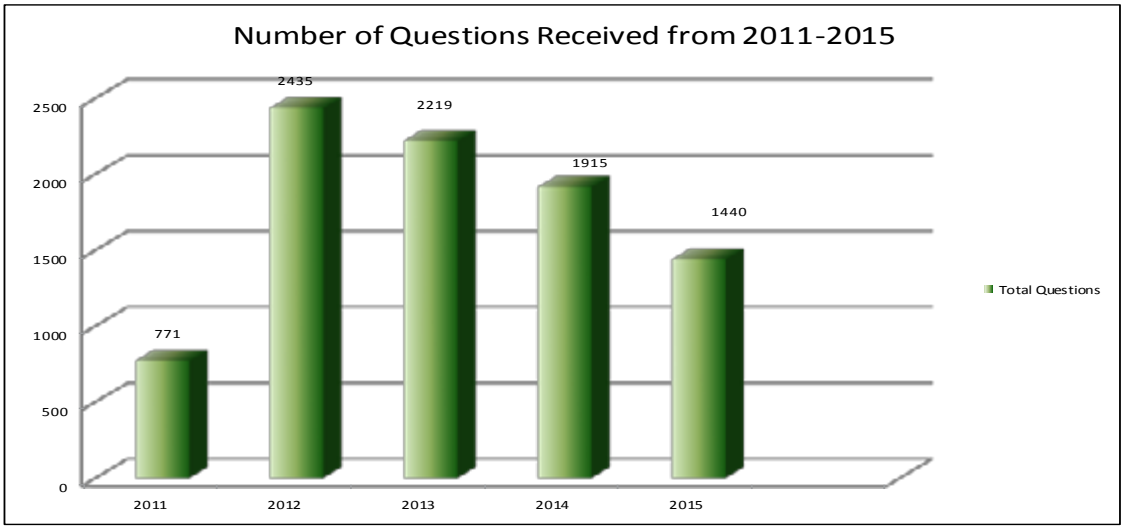
Source: Nursing Division, MoH

ACTIVITIES AND ACHIEVEMENTS

1. Ask The Expert Service, MyHEALTH Portal

Ask The Expert Service is managed by Telehealth. Moderators from Operational Unit permanently handling this service during involving three personnel (two Medical Officers and one Sister (head nurse). For capacity building, other doctors and paramedics in Telehealth are given training as moderators to assist Ask the Expert Service. Statistics on Number of questions received from Ask The Expert Service, MyHEALTH Portal from 2011 to 2015 as shown in Figure 38

FIGURE 38
NUMBER OF QUESTIONS RECEIVED FROM ASK THE EXPERT SERVICE, MYHEALTH PORTAL, 2011-2015

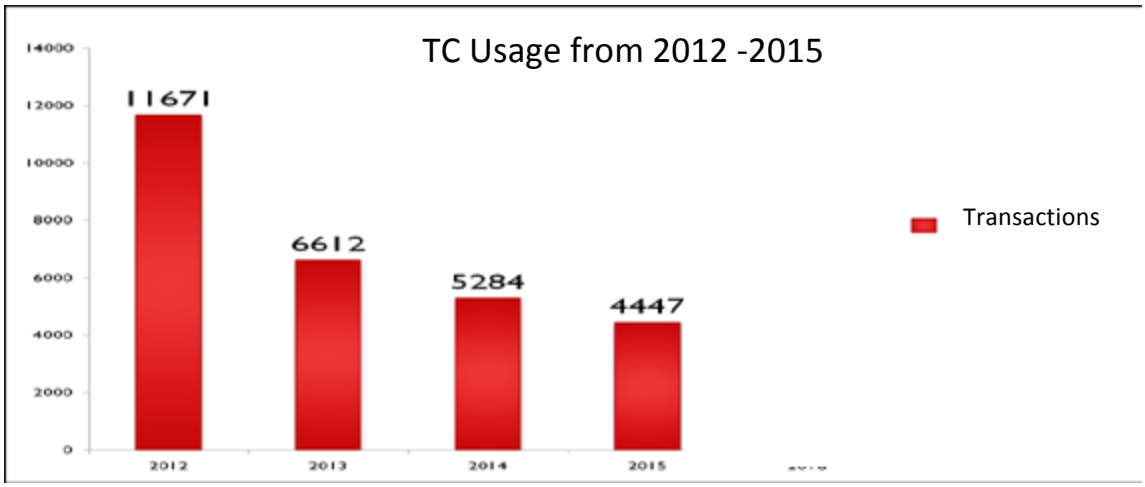


Source: Nursing Division, MoH

2. Teleconsultation Services (TC)

Teleconsultation Services has covered a total of 45 facilities and 60 stations throughout the nation, which includes Sabah and Sarawak. Figure 39 showed the usage of TC for 2012-2015

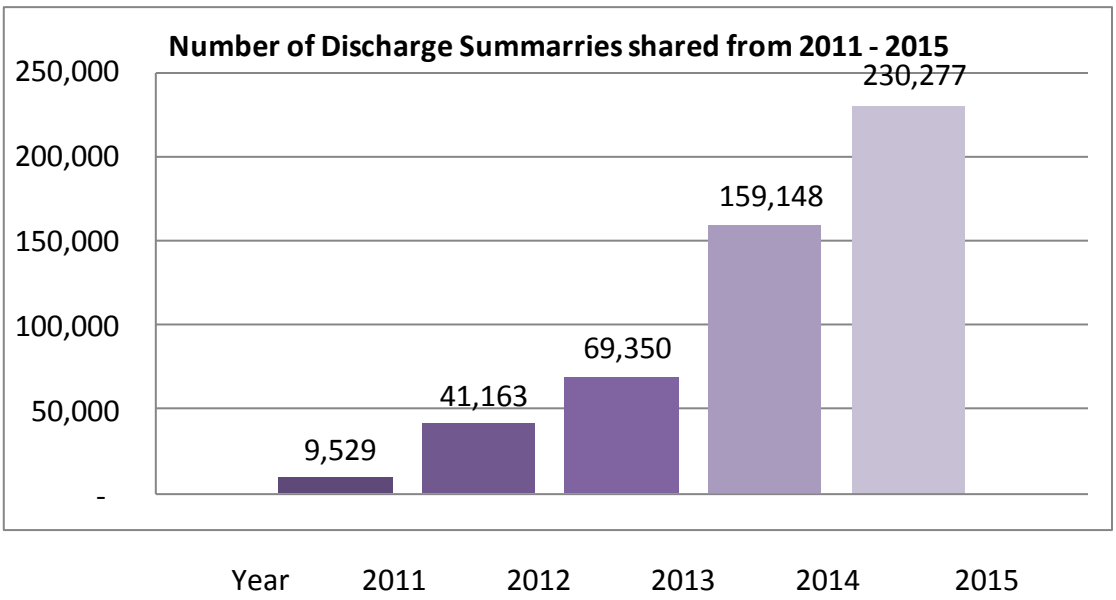
FIGURE 39
TC USAGE, 2012-2015



Source: Nursing Division, MoH

3. Malaysia Health Information Exchange (MyHIX)

FIGURE 40
MYHIX USAGE, 2011- 2015



Source: Telehealth Division, MoH

ACTIVITIES

Awareness Programs

MyHIX's awareness programs was conducted at Hospital Raja Perempuan Zainab II, Kelantan and the National Cancer Institute, Putrajaya, with the objective to instil awareness and provide knowledge to the healthcare providers about the importance of compliance to UACP. For MyHIX 2.0, a requirement survey is conducted for e-referral at the following designated locations:

1. Hospital Sultanah Nur Zahirah, Kuala Terengganu;
2. Hospital Bentong, Pahang;
3. Hospital Raja Perempuan Zainab II, Kota Bharu;
4. Hospital Putrajaya;
5. Hospital Tuanku Jaafar, Seremban;
6. Hospital Port Dickson; and
7. Klinik Kesihatan Putrajaya Precint 9.

IMAGE 5
MyHIX's EXHIBITION AT TELEMEDICINE CONFERENCE, SUNWAY MEDICAL CENTRE, 2015

Source: Telehealth Division, MoH

IMAGE 6
PUBLIC- PRIVATE SECTORS ENGAGEMENT MEETING, 2015

Source: Telehealth Division, MoH

The first engagement meeting between public and private health sectors regarding the sharing of health information has been initiated on 14 December 2015. This is one of the pre-requisites for the development and implementation of Lifetime Health Record (LHR).

CHALLENGES

Budget constraint and limited human resources will always be a challenge, especially for project implementation. Despite of that, the Division will keep moving forward as much as possible in order to serve the country. Moving forward, the main focus of the

Division will be implementation of the *Sistem Pengurusan Pesakit* (SPP), Enhancement of MyHIX application and Expansion of MyHIX services and maintaining MS ISO 9001:2008 certification and quality management of Telehealth Division. Furthermore, the Division will continue close collaboration with other relevant stakeholders to ensure the Telehealth projects are supported with appropriate policies and successfully implemented.

CHAPTER 6

RESEARCH AND TECHNICAL SUPPORT

INTRODUCTION

The Research and Technical Support (R&TS) Program, headed by the Deputy Director General of Health (R&TS), carries out activities that are aimed at providing technical and support services to the other Programs within the Ministry of Health (MoH). The Program consists of the following Divisions: Planning, Engineering Services, and six research institutes under the National Institutes of Health (NIH).

ACTIVITIES AND ACHIEVEMENTS

PLANNING DIVISION

The Planning Division focuses on several crucial activities such as the formulation of the Health Sector Transformation Plan, improving the quality of health data, setting up the Health Informatics Standards for Malaysia, and planning, development, monitoring and evaluation of programs and projects as planned in the Tenth Malaysian Plan (10MP). Previously known as the Planning and Development Division, it was separated on 1 September 2012 in efforts to enhance each respective branch's functions.

Health Policy and Plan Section

Health Policy and Plan involves the activities of planning, monitoring and evaluating the health sector plans.

11th Malaysia Plan (11MP)

The Eleventh Malaysia Plan (11MP), 2016-2020 is in the last 5 years of the development plan towards realizing the Vision 2020. The Focus area is "Achieving universal access to quality healthcare" while "Well-Being" remains a priority thrust.

The 11th Malaysia Plan Document was launched by the Government on 21 May 2015. The main document of 11MP, outlines four (4) strategies to guide the health sector, namely;

- Enhancing Targeted Support, Particularly for Underserved Communities
- Improving System Delivery for Better Health Outcomes
- Expanding Capacity to Increase Accessibility

- Intensify collaboration between public, private and NGO sectors to raise health awareness

Subsequently, the MoH Strategic Plan 2016-2020 was developed to be aligned with the 11MP.

Health Services Transformation Plan

Health Services Transformation Plan is part of the Government Transformation Program under the Public Services Transformation Program. Two labs were organized by the Public Services Department:

i. 17 June 2015
   - Four MoH initiatives were highlighted as high impact namely ***Program Komuniti Sihat Perkasa Negara*** **(KOSPEN), Domiciliary Care Services in Primary Healthcare, Cluster Hospital and Lean Healthcare.**

ii. 27-30 November 2015, (Public Service Transformation Plan 2.0)
   - To develop the plan the action for the year 2016.
   - The Health Services Transformation Plan (PTPK) 2016 was tabled and approved at JPPKK Meeting 2/2015. The plan consists of 8 Strategic Measures with 21 Strategic Initiatives.

Implementation status of each PTPK initiative was updated and monitored monthly through the *jpamonitor* system and for 2015, 26 initiatives (93.6%) had achieved the desired target.

Planning of Human Resources for Health (HRH) In Malaysia

In 2015, the Health Policy and Plan Unit had carried out several activities to prepare 3 documents related to Planning for Human Resource for Health (HRH) requirement in Malaysia. These are:

I. Human Resources for Health Country Profile 2015

The draft report Human Resource for Health (HRH) Country Profile 2015 was completed by mid-2015. This document will be published in early 2016.

II. Human Resource for Health (HRH) Master Plan 2016 - 2030

Preparation for the production of the HRH Master Plan 2016 – 2030 is ongoing. Among the topics covered in this document are strategic planning and governance, rules and regulations, data and information systems as well as training and education related to HRH. The preparation of this draft takes into account inputs from the HRH Profile report, WHO consultation reports and consultation sessions with stakeholders conducted in October 2015.

III. Projection of Human Resources for Health (HRH)

Projection of HRH's requirement to fulfill the country need was done using "Need-based modeling" method using the "System Dynamic" platform. Meanwhile, staffing norms of HRH in MoH, the "Work-load Indicator for Staffing Need" (WISN) method was used. The project was conducted in collaboration with researchers from public universities, Research Institution of MoH and program representatives. The results of this study are expected to be completed in June 2016.

MoH Planning Steering Committee (JPPKK)

JPPKK is the highest policy making committee in the MoH. A total of five policy papers were tabled to JPPKK in 2015 as in Table 1.

TABLE 1
JPPKK POLICY PAPERS, 2015

No	Policy	Status	Program/Activity
JPPKK 1/2015 (26 August 2015)			
1/2	Proposal of establishment Malaysian Healthcare Performance Unit (MHP)	Approved	Malaysian Healthcare Performance Unit
2/2	MoH Strategic Plan Preparation Paper 2016-2020	Approved	Planning Division
JPKK (10 Disember2015)			
1/3	Proposal of MoH Strategic Plan Preparation Paper 2016-2020	Approved	Planning Division
2/3	Proposal of reviewing Transformation of Health Services Plan 2016	Approved	Planning Division
3/3	Proposal of establishment of Kuala Nerus Dental Office	Approved	State Health Department of Terengganu

Source: Health Policy and Plan Unit, Planning Division, MoH

Monitoring the Implementation of 10MP Initiatives through *Sistem Pemantauan Inisiatif (SPI)*

Throughout year 2015, there were 20 KPIs led by MoH to be monitored under initiatives 56, 57, 58, and 59. The KPI's target were set by the relevant Divisions involved in the meeting chaired by the Director of Planning Division on 5 January 2015 before uploaded into the *Sistem Pemantauan Inisiatif* (SPI).

The overall achievements from 2011 to 2014 are as in Table 2

TABLE 2

OVERALL ACHIEVEMENTS MoH INITIATIVE, 2011 - 2014

Statement	Score (%)			
	2011	2012	2013	2014
Overall achievements by year	80.67%	86% (exceed target)	84% (exceed target)	86% (exceed target)

Source: Health Policy and Plan Unit, Planning Division, MoH

Star Rating Assessment

Planning Division has been entrusted to coordinate for Component B (Core Services) B2.1-B2.6. Several meetings and discussions between the MoH Top Management were held to select programs/activities that could meet the new SSR criteria. Among the programs/activities selected for assessment were Lean Management, KOSPEN and HPV immunization. A session with MAMPU was held in late August to discuss all the questions and problems faced by the MoH. The actual SSR Star Rating Index Audit was held on 8-9 September 2015.

National Health Financing Section (NHF)

The NHF was given the honor of becoming the secretariat for the Malaysia Health System Research (MHSR) which is a collaborative study involving the Government of Malaysia (GoM) headed by the MoH, Harvard School of Public Health and local universities. The study started in mid-December 2014 and is for 3.5 years. Its aim is to conduct a situational analysis of the Malaysia Health System with a view to transform

the health system functions in term of governance, financing and service delivery to improve health outcomes, financial risk protection and user satisfaction.

This study involved more than 200 researchers from MoH divisions, MoH research institutes, Central Government agencies and local universities. The Malaysian MHSR researchers and management collaborated closely with Harvard's researchers through 22 analytical teams assessing various aspects of the health system. The MHSR is guided by a steering committee (SC) chaired by the Minister of Health. SC members include the Deputy Minister of Health, MoH Secretary General and Director General of Health along with heads of programs and divisions in MoH; and also members from the Ministry of Finance (MoF), Economic Planning Unit (EPU), Performance, Management and Delivery Unit (PEMANDU), Central Bank of Malaysia (BNM) and Department of Statistics of Malaysia (DOSM). The results of the MHSR done in 2015 will be compiled into a strategic plan report that is due in March 2016.

IMAGE 1
PRESENTATION SESSION OF MHSR PRELIMINARY RESULTS BY HARVARD'S LEAD PRINCIPAL INVESTIGATOR TO THE STEERING COMMITTEE AND GoM STAKEHOLDERS, 2015

Source: National Health Financing (NHF), Planning Division, MoH

IMAGE 2
HIGH LEVEL EXECUTIVE POLICY SEMINAR ON MALAYSIA'S HEALTH SYSTEM TRANSFORMATION, 2015

Source: National Health Financing (NHF), Planning Division, MoH

In 18 August 2015, a High Level Executive Policy Seminar on Malaysia's Health System Transformation was held at Putrajaya. The seminar was chaired by the Minister of Health. The aim of the seminar was to build a common understanding of key conceptual frameworks, vocabulary, and approaches to health system transformation to improve system performance. It also helped strengthen the collaboration between our Government agencies and the Harvard School of Public Health.

Joint Learning Network (JLN) Collaborative

The JLN is a collaborative country-driven network that involves health practitioners and policymakers from all over the world as well as a diverse group of international, regional and local partner who share knowledge and co-develop new tools, guides and resources to address the practical challenges of health systems reform to achieve Universal Health Coverage (UHC). At the moment, JLN has 9 full founding members' countries including Malaysia, and 18 associate member countries. JLN received its funding from Bill & Melinda Gates Foundation, Rockefeller Foundation, The World Bank, GIZ and World Health Organization.

Malaysia has participated actively in JLN activities since year 2010. Through the establishment of Malaysia Country-Core Group (CCG) in year 2013, the NHF became

the secretariat for local arrangement and coordination with the JLN Global Network Coordinators. The Director of Planning Division is chairperson for the CCG. In 2015, the JLN Steering Group representative for Malaysia was elected as Convener for JLN for a 2-year period. This appointment has acknowledged our contributions and significant role in the JLN. NHF officers were also actively involved in many activities like Provider Payment Mechanism-Information Technology (PPM-IT) collaboration, Primary Health Care (PHC) Self-Assessment Tool for UHC as well as in Taiwan's National Health Insurance (NHI) 20th Anniversary Symposium and Study Tour which was funded through the JLN Joint Learning Fund. In the future, we will continue the momentum of engagement with JLN for our country's benefits.

IMAGE 3
JLN PPM-IT COLLABORATION ON DATA ANALYTICS TO MONITOR PROVIDER PAYMENT SYSTEM AT HANOI, VIETNAM, 2015

Source: National Health Financing (NHF), Planning Division, MoH

Malaysia National Health Accounts Section (MNHA)

In 2001 MoH, Malaysia embarked on a journey to produce quality national health accounts information that led to development and institutionalization of Malaysian National Health Accounts Unit. Since its establishment, Malaysian National Health Accounts Unit strives to provide policy makers with quality information for development of evidence-based health policies. The Malaysia National Health Accounts (MNHA) data provides a wealth of useful macro-level health expenditure

information to assist not only policy makers, but also various researchers and other stakeholders.

- **National Health Expenditure**

IMAGE 4
MNHA HEALTH EXPENDITURE REPORT, 1997-2014

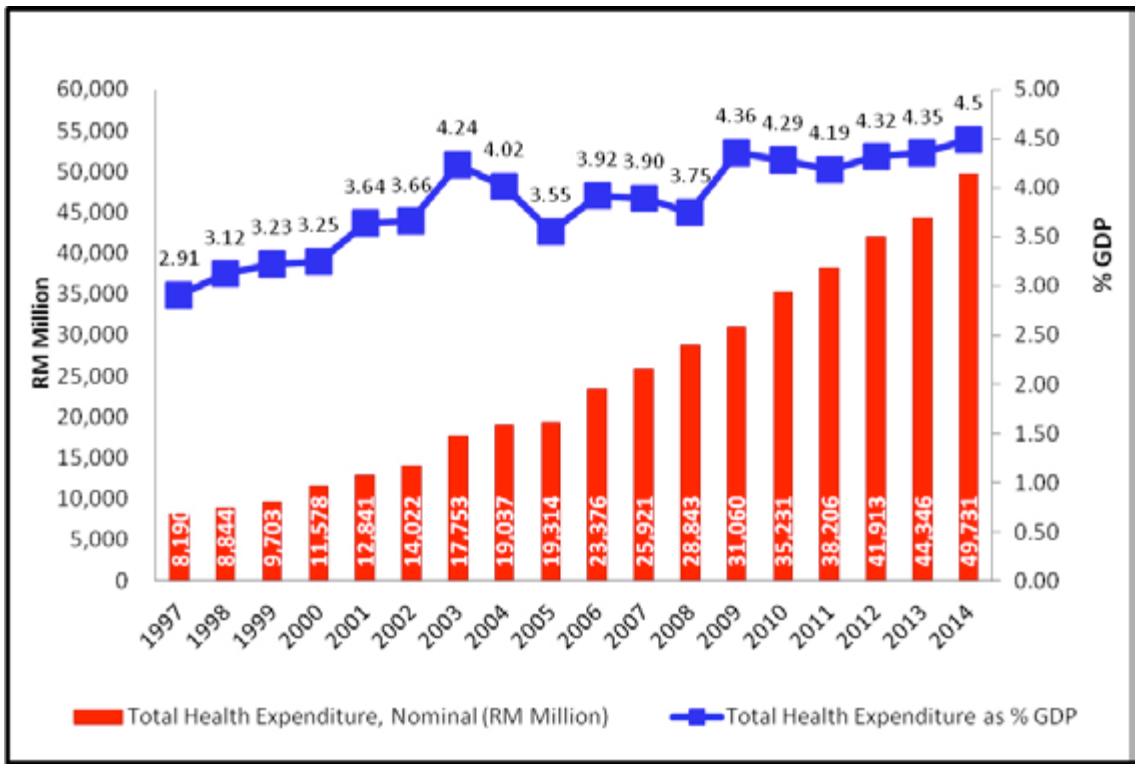
Source: MNHA Unit, Planning Division, MoH

In 2015, MNHA published the fifth Malaysia NHA Health Expenditure time series report (1997-2014). This time series report captures and reports data for 18 years, describing key trends of both public and private sectors spending for health based on internationally standardized National Health Accounts (NHA) methodology. The chapters in this publication covers some general expenditure overviews followed by expenditure reports using the standard NHA framework, which is, expenditures by sources of funding, expenditures by providers of health services and products, and expenditures by functions of health services and products.

Malaysia's total expenditure on health (TEH) ranged from RM8, 190 million in 1997 to RM49, 731 million in 2014. This expenditure as a ratio to Gross Domestic Product (GDP) for the same period ranged from 2.91% to 4.49% (Figure1). The Total General Government Health Expenditure (GGHE) as percentage of General Government Expenditure (GGE), increased from RM 4,318 million in 1997 to RM 25,814 million in 2014 or an increase from 4.79% to 6.47%.

FIGURE 1

TOTAL NATIONAL HEALTH EXPENDITURE (RM MILLION AND % GDP), 1997-2014

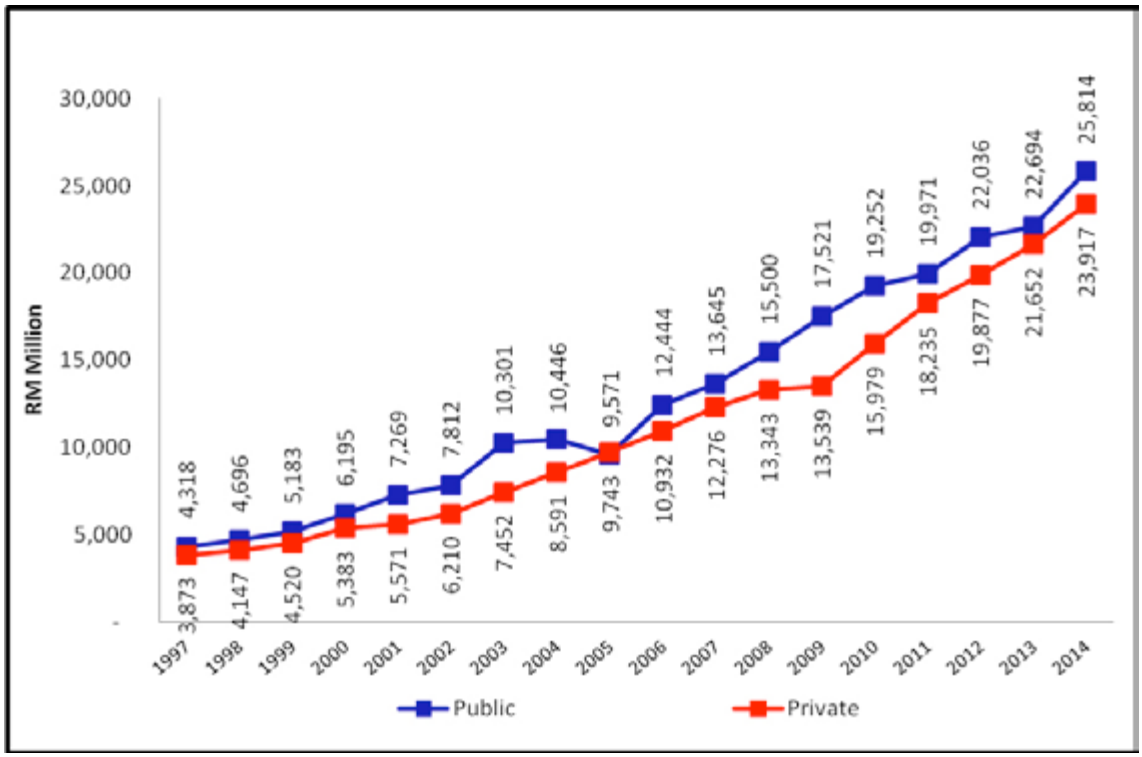


Source: MNHA Unit, Planning Division, MoH

Various sources of financing for health care services and products are identified and categorized as either public sector or private sector agencies. Throughout the 1997-2014 time series, both the public and private sector spending shows an upward trend with the public sector health spending remaining higher than the private except in 2005 (Figure2). During the same time period MoH was identified as the highest financier followed by private household Out-of-Pocket (OOP).

The providers of health care services and products include hospitals, nursing and residential care facility providers, ambulatory health care providers, retail sale and medical goods providers and public health program providers. Over the span of 18 years from 1997-2014, highest expenditure for health was at hospitals as providers of health care services followed by providers of ambulatory health care.

FIGURE 2
HEALTH EXPENDITURE BY SOURCE OF FUNDING FOR THE PUBLIC AND PRIVATE SECTORS, 1997-2014



Source: MNHA Unit, Planning Division, MoH

Functions of health services based on NHA includes core functions of health care (e.g. curative care, rehabilitative care, long term nursing care, ancillary services, out-patient medical goods, public health services, health administration and health insurance) and health related functions (e.g. education, training of health personnel, research and development). When exploring 1997-2014 time series TEH by functions/ services/medical goods purchased, curative care remain the highest health services expenditure ranging 55% to 64%. This is followed by expenditure for medical goods dispensed to outpatients who ranged 10% to 16% of TEH. The TEH is disaggregated to show thirteen states and three federal territories, health expenditure. Selangor and Kuala Lumpur are the two locations with highest health expenditure. In 2014, Selangor's health expenditure was RM8, 494 million and in Kuala Lumpur the health expenditure was RM6, 031.

OOP health expenditures are attained through a complex method called the integrative method whereby the gross level of direct spending from consumption,

provision and financing perspective is collated followed by a deduction of third party financial reimbursements by various agencies to avoid double counting.

The 1997-2014 time series data shows that the household OOP health expenditure remains the largest single source of funding in the private sector amounting to an average of 78% of this sector spending which is equivalent to about 30% - 40% of total health expenditure. The OOP health expenditure from 1997 to 2014 has increased from RM2, 930 million to RM19, 544 million. The annual publication of NHA technical report provides valuable information for various health transformation endeavors and assists to better understand the national trends in health expenditure. It provides a clearer picture of funding, distribution and types of healthcare services within the country.

- **National and International Collaborations**

MNHA actively participated with many National and International projects/programs. On behalf of the Planning Division, MNHA was involved in several National Projects such as Malaysia Health System Research and submitted data for MoH's publication such as Health Facts. MNHA played an important role in analyzing and extracting data to assist several request in preparation for Healthcare Sector Transformation, pharmaceutical database updates (DUNAS) and also for ad hoc requests relating to national health expenditure from national agencies and local universities as well as in preparation for top level management speeches.

As in previous years, MNHA continued to be involved in international collaborations and data submissions. Malaysia was represented by MNHA unit member in the OECD Korea, WHO, Asia Pacific National Health Accounts Network (APNHAN) annual conjoint meeting held in Republic of Korea. NHA time series national health expenditure estimation by MNHA Unit was submitted to several international agencies such as WHO Geneva for World Health Statistics, Global Health Expenditure Database (GHED) and Health at a Glance (HAG).

World Health Organization (WHO) has produced a revised version of the System of Health Accounts (SHA 2011) which has improved and strengthened the original classifications to support the production of more detailed results for policy makers. MNHA has initiated steps to migrate towards the revised version. MNHA's work and

contribution adds value to many financial policy decisions at national, regional and international levels.

Health Informatics Center (HIC)

Health informatics is a discipline at the intersection of information science, computer science, and health care. It deals with the resources, devices, and methods required in optimizing the acquisition, storage, retrieval, and use of information in health and biomedicine. In its simplest term, health informatics is about getting the right information from the right source to the right person at the right time. It is critical to the delivery of information to healthcare professionals so they can deliver the most appropriate care.

- **Malaysian Health Data Warehouse (MyHDW)**

The HIMS Blueprint (2005) outlined the importance of having a comprehensive health database in MoH, which later translated into the MyHDW project. The working definition for MyHDW is ***a trusted source of truth of comprehensive healthcare data structured for query and analysis purposes***. The Malaysian Health Data Warehouse (MyHDW) 2011-2013 publication which contained all MyHDW reports with the expert consultant has been published on September 2013.

- **Web-Based SMRP**

The in-house developed web-based SMRP continued to be utilized by all MoH hospitals in 2014. Integration between SMRP and National Registration Department's birth registration system to enable a faster mechanism for certification during the birth registration process was further refined to improve the data quality on both sides, which was found to be improving.

Continuous negotiations with the non-MoH (Ministry of Higher Education, Ministry of Defense) hospitals and the private hospitals to use SMRP as a centralized data collection platform for all hospitals in Malaysia have finally bore fruits of labor. Preliminary agreements have been achieved but system utilization will only commence after the current web-based SMRP has been upgraded to SMRPv 2.0, which will be done concurrently with the development of MyHDW.

- **Health Informatics Standards**

Health informatics is applied to the areas of health and health-related fields. Using standards for health informatics aims to support integration and interoperability between systems. The following standards focus on supporting semantic interoperability, which deals with consistent meaning in different systems.

i) International Statistical Classification of Disease (ICD)

ICD is an international disease classification endorsed by the World Health Organization (WHO). In Malaysia, the policy was to use the ICD-10 (version 2010) for diagnosis classification and the ICD-9CM (version 2013) for procedure classification. As the program coordinator for ICD, these activities were held throughout 2015 to improve the quality of ICD coding in Malaysia:

a. ICD-10 Certification Courses. Two certification courses were held for coders from non-MoH and private sectors.
b. Centralized Coding and Coding Error Rate Validation Study. The coding error rate validation study is part of a National Indicator Approach (NIA) for the Quality Assurance Program (QAP). Eight centralized coding workshops were held.
c. Proper Diagnosis Documentation in PD301 Admission and Discharge Form. A 1-hour slot was provided by the Training Management Division during the pre-service course for all new doctors.

ii) Malaysian Health Data Dictionary (MyHDD)

MyHDD is a data definition standard, which specifies data element name and descriptions applicable to the healthcare industry. MoH adopts the consensus-driven methodology involving related stakeholder in developing MyHDD. This methodology was approved in 2012 workshop attended by the representative of Healthcare Information Technology Standards Panel (HITSP) of USA and the Joint Learning Network for Universal Health Coverage (JLN). MyHDD activities in 2015 focused on coordination of all developed datasets for publication and project development.

iii) SNOMED CT International

SNOMED CT International is a clinical terminology standard owned and maintained by the International Health Terminology Standards Development Organization

(IHTSDO). MoH, on behalf of Malaysia, became the 22nd country member after the Cabinet Meeting approval on 12 December 2012. MoH aims to use SNOMED CT to support consistent clinical information to support Big Data Analytics (BDA).

The first SNOMED CT reference set was developed for Cardiology in 2013 through stakeholder engagement, development of application, and strategizing implementation. In 2014, the method to develop a SNOMED CT reference set was verified by the IHTSDO. Activities in 2015 include development of other reference sets using the same method. For that purpose, Malaysia will continuously enlist MoH officers for the SNOMED CT E-learning courses and Consultant Terminologist Program.

iv) Malaysian Health Reference Data Model (MyHRDM)

MyHRDM is a high-level data model that defines key concepts used across organizations and illustrates the relationship between these concepts. This is to enable a more precise way to store data and an efficient way to build reports in systems. Activities in 2015 include stakeholder engagement (high-level managers) with support from IT experts.

v) ISO/TC 215

ISO/TC 215 is the abbreviation for International Organization for Standardization's (ISO) Technical Committee (TC) on Health Informatics. There were two ISO/TC 215 meetings organized in 2015 but the Malaysia Delegation were sponsored to attend only one event due to funding issues.

- ***Jawatankuasa Kerja Standard Informatik Kesihatan***

One meeting was held in 2015. Among significant decisions made were:

i. Support by MAMPU for MoH to lead Malaysian Health Reference Data Model's (MyHRDM) committee.
ii. Proposal paper to WHO to establish WHO Collaboration Centre;
iii. Use of LOINC as a defector standard for Laboratory Information System (LIS).

- **Publication and Health Information Dissemination**

In 2015, reports and annual publications continue to be produced such as the MoH Annual Report, Health Facts and Indicators for Monitoring and Evaluation for Strategy for Health for All (Health Indicators), and the HIMS Subsystem Reports.

With reference to the Director General of Health's circular No. 31/2012: Official Release of Health Information by MoH, the Health Informatics Centre (HIC) are to be the official source of health information for MoH. Information requests are mainly those that not contained within any published publication and provided on an ad hoc basis. Apart from the ad hoc requests, HIC also provided information to international agencies such as WHO and UNICEF. Amongst the routine annual data submitted to international agencies are as the following:

i. WHO Western Pacific Country Health Profile;
ii. WHO/UNICEF Joint Reporting Form on Immunization, coordinated by Disease Control Division;
iii. International Institute for Management Development-World Competitiveness Yearbook (IIMD-WCY), coordinated by Malaysia Productivity Corporation (MPC); and
iv. World Economic Forum-Global Competitiveness Report (WEF-GCR), coordinated by Malaysia Productivity Corporation (MPC).

- **National Health Informatics Council (NHIC/JKKIK)**

Two NHIC meeting was held in 2015. Among the significant decisions made during the meeting were:

i. Establishment of Centralized Coding Unit, National Release Centre (NRC) for health informatics standards, and Analytic Unit under HIC;
ii. Inclusion of Private Hospital HIMS module and e-Reporting under SMRP;
iii. Use of the term e-HIMS after all system have been upgraded from manual to electronic format;
iv. The combined governance of three projects: MyHDW, SMRP and PRIS.

Health Facility Planning Section

The functions of Health Facility Planning are to ensure that health facility development is in line with government policies and adopting appropriate technology based on health needs and available resources. It is also responsible in planning of medical and non-medical equipment systems and their constituents for development projects appropriate for the function and level of service of the facility, selecting appropriate technology and ensuring that the equipment chosen is safe, efficient and cost effective.

ENGINEERING SERVICES

The Engineering Services Division (ESD) comprises of:

i. Regulatory Branch consisting of Environmental Health Control Section, Radiation Health & Safety Section; and Private Healthcare Facilities and Services Unit;
ii. Services Branch consisting of Project Implementation Section, Hospital Operations Section and Clinic Operations Section; and
iii. Planning Branch consisting of the Healthcare Facility Engineering Unit, Biomedical Engineering Unit, Public Health Engineering Unit and Medical Physics Unit.

Engineering Services Division provides:

i. Engineering and technical support services for medical and health programs;
ii. Preventive health programs to ensure all public water supply is safe and protect public health from adverse air quality and indoor environment conditions;
iii. Environmental Health Engineering programs to improve environmental sanitation, proper management of solid, clinical and toxic waste and proper wastewater management systems;
iv. Healthcare Facility and Biomedical Engineering support for effective & proper functioning of building, medical equipment & engineering system;
v. Engineering support for proper maintenance for healthcare facilities to ensure reliability & efficiency of engineering installation facilities;
vi. Legislative control and medical physics services to ensure safe and efficacious use of ionizing radiation (IR);
vii. Technical advice on issues pertaining to health effects of non-ionizing radiation (NIR); and
viii. Project implementation of new or upgrading healthcare facilities and engineering system replacement in healthcare facilities.

Project Implementation

In 2015, under the 10th Malaysia Plan (10MP), ESD continued the implementation of various projects i.e. construction of new hospital, clinics and quarters, upgrading of old hospitals and clinics, renovation and refurbishment of hospitals and also upgrading and replacing engineering systems in healthcare facilities. In total, there were 132 projects implemented by ESD, from which 90 projects have been completed but in final process of closing account, 15 projects were completed by end 2015, while the other 15 projects are under construction and 10 projects are in the planning stage. Unfortunately, two projects were cancelled by the client due to the current requirement and other issues associated with the development of clinics.

Among the major projects managed by ESD are the construction of Kuala Lipis Hospital (Phase 2), Klinik Kesihatan Kuala Lumpur and National Institutes of Health (NIH). Table 3 shows the list of project implemented in 2015. In implementing all the projects, ESD also has to manage 108 consultant firms from various field including architecture, civil and structure, mechanical and electrical and quantity surveyor. These consultants were appointed to do all the design and supervision for various projects. In terms of budget, ESD have spent about RM 2.2 billion in implementing these various projects.

TABLE 3
LIST OF PROJECTS IMPLEMENTED, 2015

Project Category	Year 2015		
	No. of Projects	*CPC Awarded	Status
(i) New Facilities	8	-	2 project in progress 6 projects completed in 2011/ 2012/ 2014
(ii) Hospitals Upgrading	74	13	43 projects completed in 2011/ 2012/2013/ 2014 Remainder 8 projects in planning phase 9 projects in progress 1 project cancelled
(iii) Clinics/ Quarters Upgrading	50	2	41 projects completed in 2012/ 2013/ 2014 Remainder 2 projects in planning phase Remainder 4 projects in progress 1 project cancelled

Project Category	Year 2015		
	No. of Projects	*CPC Awarded	Status
TOTAL	**132**	**15**	90 Projects completed in 2011/ 2012/ 2013/ 2014 Remainder 10 projects in planning phase Remainder 15 projects in progress 2 project cancelled

**Certificate of Practical Completion*
Source: Engineering Services Division, MoH

Hospital Support Services (HSS)

The Privatized Hospital Support Services (HSS) consists of five services, namely, Facility Engineering Maintenance Services (FEMS), Biomedical Engineering Maintenance Services (BEMS), Clinical Waste Management Services (CWMS), Cleansing Services (CLS) and Linen & Laundry Services (LLS) in all hospitals and facilities as per contract agreement. The idea of outsourcing MoH's public healthcare was raised in 1996 by the Government while announcing the Seventh Malaysia Plan to increase service efficiency and to retain its own qualified and experienced manpower.

i. FEMS - the Company is required to operate and maintain all installed plants and systems, maintain all assets (non-biomedical), including pest control activities and maintain the grounds and landscapes within boundaries of the hospitals.
ii. BEMS - Services at the Contract Hospital is aimed to ensure biomedical equipment are available, safe, and ready for use at any point of time.
iii. CWMS - Services regulate the collection, storage, transportation, treatment and disposal of Clinical Waste produced by the Contract Hospital.
iv. CLS - Provide services and develop appropriate programs within industry standards, which will not only comply with various regulations and guidelines of the Government, but also incorporate proper and effective procedures to carry out cleansing activities.
v. LLS - A proper program for the delivery of adequate clean linen to the Contract Hospital and removal of soiled linen, which is to be processed at the Concession's Laundry Facilities.

TABLE 4

NUMBER OF HEALTH FACILITIES MANAGED BY HSS CONCESSION COMPANIES, 1997 – 2014

Concession Company	1997	2009	2010	2011	2012	2013	2014
Faber Mediserve Sdn Bhd	71	79	79	79	80	80	80
Radicare Malaysia Sdn Bhd	37	46	46	46	46	46	46
Medivest Sdn Bhd	19	22	22	22	22	22	22
Total	**127**	**147**	**147**	**147**	**148**	**148**	**148**

Source: Engineering Services Division, MoH

By 2014, the number of contract hospitals and institutions having HSS were increased to 148 from 127 hospitals and institutions in 1997 (year of implementation). The previous statistics (1997-2014) of the number of hospitals and institutions by concession companies are shown in Table 4. Meanwhile Table 5 shows the comparison of asset numbers of HSS compared between their between 1997, 2011 till 2015 number facilities managed by the concession companies.

TABLE 5

NUMBER OF ASSETS FOR HSS 1997 & 2011- 2015

ITEM	1997	2011	2012	2013	2014	2015
No. of Contracted Health Facilities	127	147	148	148	148	148
Floor Area (M2)	4,297,523	4,692,089	4,633,788	4,633,788	6,111,210	6,111,210
FEMS Assets	250,000	420,327	388,198	390,482	431,226	441,620
BEMS Assets	81,254	210,454	193,590	187,946	197,005	266,697

Source: Engineering Services Division, MoH

The new contract takes into effort of 1 April 2015 with improvement to its key services; FEMS, BEMS, CLS and LLS. In addition, CWMS has been expanding its scope of services becoming HWMS to cater all the healthcare waste in healthcare facilities. As assurance of good governance, FMS has been introduced to ensure the coordination and effectiveness of the delivering off all related services. Furthermore, to uphold the new policy set by the Ministry towards "Green Healthcare Facilities" Concession

Company are required to implement a Sustainability Programmed which includes Indoor Air Quality, Energy Management and 3R (Reduce, Reuse and Recycle) at the respective Contract Hospital in accordance with the requirements.

- **HSS Quality Assurance Program (QAP)**

In year 2002, two services were incorporated under Quality Assurance Programs (QAP) namely FEMS and BEMS. Subsequently three other services namely CWMS, CLS and LLS were included since October 2006. This QAP is such that the plan and management of quality control could be under taken for all services. So that, the quality of all services could be improve continuously with the help of monitoring tools such as Central Management Information System (CMIS) at all level be it at hospital, state, consortia or national level. The QAP report is assessed and analyzed yearly and presented to the MoH Quality Assurance Committee yearly.

- **Contractor's Performance Assessment (CPA)**

The performance of the Concession Company in delivering the services will be assessed and reported every six (6) month bases by the State Operation Engineer in the CPA Report. Table 6 shows the Contractor's Performance Assessment (CPA).

TABLE 6

CONTRACTOR PERFORMANCE ASSESMENT (CPA), 2015

SERVICES	FABER MEDI-SERVE SDN BHD				RADICARE MALAYSIA SDN BHD				MEDIVEST SDN BHD			
	CPA Percentage %											
	Jan – Jun 2013	Jul – Dec 2013	Jan – Jun 2014	Jul – Dec 2014	Jan – Jun 2013	Jul – Dec 2013	Jan – Jun 2014	Jul – Dec 2014	Jan – Jun 2013	Jul – Dec 2013	Jan – Jun 2014	Jul – Dec 2014
FEMS	87.23	90.31	89.58	90.01	78.34	80.93	79.82	81.71	78.05	77.23	77.01	74.69
BEMS	83.68	89.33	89.24	89.17	80.91	85.40	83.24	86.80	77.35	85.33	84.53	84.57
CLS	90.40	91.98	91.04	91.70	87.81	87.93	88.04	88.08	85.15	86.46	85.35	84.08
LLS	91.33	92.80	92.27	92.25	89.05	88.71	86.22	87.23	89.69	89.82	88.99	87.97
CWMS	92.32	92.76	92.24	89.88	89.77	91.76	90.33	91.92	89.71	90.47	88.41	87.79

Source: Engineering Services Division, MoH

- **Key Performance Indicator (KPI) for HSS**

This KPI refers to the "Percentage of equipment/systems/facilities to achieve uptime for Facilities Engineering and Biomedical Engineering". Medical equipment and systems, and facilities at the hospital should be ensured to be functional in order to

provide an effective health service delivery. In line with the motto of the "People First, Performance Now", it is important for each equipment/system/facilities at the hospital is operating at its optimum level so that the health service delivery to patients/consumers is not affected. The targeted maximum uptime of equipment, systems and facilities for 2015 is 92 % in which 97.34 % was achieved for the monitored equipment, systems and facilities. Reasons for not achieving the uptime target are due to ageing factor, major repairs and other reasonable causes of breakdown. Table 7 breaks down the achievement for this KPI in 2013-2015.

TABLE 7

EQUIPMENT/SYSTEMS/FACILITIES ACHIEVING THE SPECIFIED UPTIM, 2013- 2015

ITEM	2013	2014	2015
Number of equipment / systems / facilities achieve specified uptime	442,695	461,352	417,498
The total number of equipment / systems / facilities that are monitored in the QAP	477,235	510,752	428,909
% of equipment / systems / facilities achieved uptime	92.76%	90.33%	97.34%
KPI for % of equipment / systems / facilities to achieve uptime	92.00%	92.00%	92.00%

Source: Engineering Services Division, MoH

Clinics Support Services (CSS)

Engineering Services Division (ESD) has implemented a CSS pilot project in 10 Health Clinics in the state of Pahang, 17 Health Clinics in the state of Sarawak and 20 Health Clinics in the state of Sabah. In year 2015, CSS has been implemented throughout the country by adding more 11 states. The project involves Planned Preventive Maintenance (PPM) of healthcare Facility Engineering Maintenance Services (FEMS), Biomedical Engineering Maintenance Services (BEMS), Cleansing Services (CLS) and Clinical Waste Management Services (CWMS), and also Corrective Maintenance (CM). Table 8 provides summary information on the above projects. CSS have been planned by the Ministry to be implemented throughout the country in phases subject to the provision of allocation.

TABLE 8
SUMMARY FOR CLINIC SUPPORT SERVICES (CSS) PROJECTS, 2015

State	Scope Of Services	Contract Value (Million)	Contract Period	No. of Selected Clinics
PAHANG	FEMS, BEMS, CWMS & CLS	RM9.4	1 July 2010 – 30 June 2011 (Pilot)	10
		RM6.7	18 June 2012 – 17 June 2013 (Extension)	10
		RM67.1	1 September 2014 – 31 August 2015 (Extension)	10
SARAWAK	FEMS, BEMS, CWMS & CLS	RM14.7	15 March 2012 – 14 March 2013 (Pilot)	17
		RM41.2	15 August 2013 -14 August 2016 (Extension)	17
SABAH	FEMS, BEMS, CWMS & CLS	RM24.7	15 November 2013- 14 November 2015 (Pilot)	20
PERLIS	FEMS, CWMS & CLS	RM4.5	1 July 2015 – 30 June 2018	2
KEDAH	FEMS, CWMS & CLS	RM20.4	1 July 2015 – 30 June 2018	13
PULAU PINANG	FEMS, CWMS & CLS	RM19.8	1 July 2015 – 30 June 2018	9
PERAK	FEMS, CWMS & CLS	RM24.9	1 July 2015 – 30 June 2018	14
SELANGOR	FEMS, CWMS & CLS	RM 32.9	1 July 2015 – 30 June 2018	21
W.P KUALA LUMPUR	FEMS, CWMS & CLS	RM12.2	1 July 2015 – 30 June 2018	5
TERENGGANU	FEMS, CWMS & CLS	RM15.5	1 July 2015 – 30 June 2018	10
KELANTAN	FEMS, CWMS & CLS	RM12.6	1 July 2015 – 30 June 2018	7
MELAKA	FEMS, CWMS & CLS	RM15.8	1 July 2015 – 30 June 2018	8
NEGERI SEMBILAN	FEMS, CWMS & CLS	RM28.0	1 July 2015 – 30 June 2018	13
JOHOR	FEMS, CWMS & CLS	RM27.7	1 July 2015 – 30 June 2018	16

Source: Engineering Services Division, MoH

Medical Equipment Enhancement Tenure (MEET)

MEET was introduced to assist the MoH to improve its healthcare service delivery especially in health and dental clinics throughout Malaysia. There are 2 main scopes of MEET program. One is to supply new biomedical equipment to the clinic. The other is to provide comprehensive maintenance to the new and existing biomedical equipment. In 2011, the Government has agreed to appoint these 4 concessionaires to implement the program.

a. Quantum Medical Solutions (QMS) - Penang, Perak, Selangor, Negeri Sembilan, Melaka, Johor, Sabah, Sarawak and Federal Territory of Kuala Lumpur, Putrajaya and Labuan
b. Produktif Kualiti Medical Supply - Perlis, Kedah, Pahang, Terengganu and Kelantan
c. ADL Medical System - 17 clinics in Sarawak
d. Jawat Johan - 20 clinics in Sabah

The concession agreement between MoH and QMS was signed on 17 April 2014. It involves 1,807 health clinics and 1,050 dental clinics in MoH. The comprehensive maintenance started on 15 January 2015. The QMS was responsible to provide scheduled maintenance and unscheduled maintenance for 82,211 unit of existing biomedical equipment and 41,022 unit of new biomedical equipment as stipulated in the agreement. Scheduled maintenance covers preventive maintenance, routine inspection, third party calibration and statutory certification whereas unscheduled maintenance covers breakdown and corrective maintenance. To ensure that the maintenance has been carried out properly, QMS have to adhere to 4 agreed Key Performance Indicators (KPI) which are Response Time, Repair Time, Scheduled Maintenance and Uptime Guarantee.

Under the agreement, QMS is also responsible to supply, deliver, install, testing and commissioning of new biomedical equipment. The procurement of biomedical equipment is divided into two (2) types which are New Biomedical Equipment (NBE) and Purchased Biomedical Equipment (PBE). For NBE, the equipment will be leased out to the Government for a period of 8 years after which the equipment ownership is belonging to the Government.

For PBE, the Government will own the equipment after it has been supplied. All of the equipment will be supplied in 12 batches years within a 3 years period. The numbers of equipment which will be supplied by QMS are tabulated in Table 9

TABLE 9

NUMBERS OF EQUIPMENT WILL BE SUPPLIED BY QMS, 2015

NO	MEET PACKAGES	NEW BE		PURCHASED BE		TOTAL CAT.	BE QUANTITY
		CAT.	QTY	CAT.	QTY		
1.	Patient Support & Point of Care	7	5,066	9	6,491	16	11,557
2.	Basic Equipment	5	2,345	8	8,959	13	11,304
3.	Radiology & Imaging	4	319	2	1,519	6	1,838
4.	Sterilization	5	1,782	0	0	5	1,782
5.	Laboratory	12	3,219	2	363	14	3,582
6.	Physiotherapy	6	794	3	591	9	1,385
7.	Pharmacy	9	2,881	1	582	10	3,463
8.	Dental Surgery	11	910	3	1,578	14	2,488
9.	Dental Laboratory	16	2,346	2	342	18	2,688
10.	BE with CW	9	935	0	0	9	935
TOTAL		**84**	**20,597**	**30**	**20,425**	**114**	**41,022**

Source: Engineering Services Division, MoH

Renovation works have to be carried out for 9 types of equipment to ensure that the equipment supplied will function properly. Total number of 935 unit of equipment and 414 clinics are involved in the renovation works as shown in Table 10.

TABLE 10

NUMBERS OF NEW EQUIPMENT INVOLVE IN RENOVATION WORKS, 2015

CATEGORIES	CLINIC TYPE	QTY	TOTAL LOCATIONS
X-Ray Film Processors, Automatic	KK	34	34
Radiographic/ Fluoroscopic Systems, General-Purpose	KK	34	34
Analyzers, Laboratory, Clinical Chemistry, Automated (High)	KK	117	100
Analyzers, Laboratory, Clinical Chemistry,	KK	152	152

CATEGORIES	CLINIC TYPE	QTY	TOTAL LOCATIONS
Automated (Medium)			
Hoods, Isolation, Laminar Air Flow	KK	60	60
Chairs, Examination/ Treatment, Dentistry	KP	410	233
Chairs, Examination, Dentistry, Specialist	KP	28	25
Dental Workstation	KP	79	32
Fume Extractor, Dental	KP	21	21
TOTAL		**935**	**691**

Source: Engineering Services Division, MoH

Implementation of MEET

The maintenance works of Existing Biomedical Equipment (EBE) started on 15 January 2015. Starting from this effective date, the users in clinic level are able to make work request to QMS if the biomedical equipment unable to operate in good condition.

During the duration of condition precedent, QMS had conducted several activities to make sure the program awareness is established and understand the implementation of the program throughout the contract period. Those activities are:-

a) Nationwide briefing on the asset retagging – In May 2014;
b) Nationwide road show – June until August 2014
c) Echo briefing – January until June 2015.

All the activities organized by QMS participated by representatives from Engineering Services Division. In Engineering Services Division, this program is closely monitored and overseen by Biomedical Operations Section. There are several activities organized throughout the year of 2015. Those activities were:-

a) Execute a special program so call 'adopt clinic' at Klinik Kesihatan / Pergigian Bandar Baru Bangi for 3 months to monitor the operation of equipment maintenance carried out by QMS and resolve operation issues raised by users.
b) Auditing program at these selected clinics in each state to observe the effectiveness of program implementation.
   - KK/KP Bukit Jambul, Penang,
   - KK/KP Tengkera, Melaka,

- KK/KP Tampoi, Johor,
- KK/KP Port Dickson, Negeri Sembilan,
- Kolej LatihanPergigian Malaysia, Penang,
- KK/KP Penampang, Sabah.

c) Workshop on program implementation to State Engineers and Assistant Engineers. Establishing awareness to Engineers and Assistant Engineers who are involved in the program.

d) Visit the clinics which are involved in renovation works.

e) Workshop on developing the Standard Operating Procedures.

Rural Water Supply

The oldest program in ESD where it incorporates simple technological principles on design, construction and maintenance for the provision of rural water supply. The requirement for the systems is 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 under this program throughout rural area in Malaysia are the gravity-feed system, sanitary well, sanitary well with house connection and rainwater collection system.

The implementation of rural water supply component in the water supply and rural environmental sanitation program is planned according to the 5 years Malaysia Development Plan. In 2015, a total of 2,247of various types of water supply systems were installed and provided clean water to 4,326 houses. At the end of 2015, the overall status of rural water supply coverage is at 94.52%, which represents 1,756,631rural houses as shown in Table 11.

Sanitary Latrines

Initiated together with Rural Water Supply, the target for the program is that each household in rural areas would be equipped with one sanitary latrine. The most effective and cheapest method for disposal of excreta in rural areas is by using pour-flush latrines. Population densities, soil conditions, cultural habits, depth of water table and the availability of water for flushing are the main criteria considered when providing this system to the rural population. The systems given to these people should eliminate

odors, flies and generally provides a more aesthetic environment. The construction of sanitary latrines also provides the means to initiate the effort to educate rural people on the use of proper and hygienic method for disposal of excreta. In 2015, MoH has constructed a total of 2,828 pour flush latrines. The coverage of sanitary latrines at the end of 2015 was at 90.78% that represents 1,687,078 rural houses as shown in Table 12.

Sullage and Solid waste Disposal

Although the coverage for rural water supply and sanitary latrines is still high on the government's agenda for many years to come, priority also has to be given to the implementation of proper sullage and solid waste disposal management in rural areas. In 2015, a total of 861 sullage disposal systems and 1,579 solid waste disposal systems were constructed. Started only in 1996, the addition of these systems manages to contribute to the total household coverage of sullage disposal systems and solid waste disposal systems of 65.59% (1,218,971) and 69.89% (1,298,826) respectively as shown in Table 12.

TABLE 11
CONSTRUCTION OF RURAL WATER SUPPLY PROJECT BY MINISTRY OF HEALTH, 2015

STATE	TOTAL HOUSES IN RURAL AREA	SANITARY WELL		SANITARY WELL WITH HOUSE CONNECTION		GRAVITY FEED SYSTEM		RAINWATER COLLECTION		JKR/KKM CONNECTION		TOTAL		TOTAL HOUSES SUPPLIED (CUMMULATIVE)	COVERAGE
		Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied	Nos. Built	No. of Houses Supplied		
Perlis	33,950	0	0	0	0	0	0	0	0	165	165	165	165	33,504	98.69%
Kedah	197,823	0	0	0	0	1	201	0	0	331	331	332	532	192,245	97.18%
P. Pinang	92,634	0	0	0	0	0	0	0	0	91	91	91	91	70,945	76.59%
Perak	143,402	0	0	2	3	4	107	0	0	120	120	126	230	140,032	97.65%
Selangor	116,014	0	0	0	0	0	0	0	0	0	0	0	0	115,629	99.67%
N. Sembilan	59,714	0	0	0	0	0	0	0	0	133	133	133	133	59,621	99.84%
Melaka	74,624	0	0	0	0	0	0	0	0	5	5	5	5	74,624	100%
Johor	152,848	0	0	0	0	0	0	0	0	44	44	44	44	149,807	98.01%
Pahang	101,878	14	33	2	5	2	65	2	2	41	41	61	146	100,410	98.56%
Terengganu	149,888	0	0	0	0	0	0	0	0	302	302	302	302	147,788	98.60%
Kelantan	306,216	0	0	89	278	21	739	0	0	509	509	619	1,526	282,941	92.40%
Sarawak	209,909	0	0	0	0	6	197	18	260	0	0	24	457	188,345	89.73%
Sabah	219,490	5	40	1	14	3	177	4	132	332	332	345	695	200,740	91.46%
MALAYSIA	**1,858,390**	**19**	**73**	**94**	**300**	**37**	**1,486**	**24**	**394**	**2,073**	**2,073**	**2,247**	**4,326**	**1,756,631**	**94.52%**

Source: Engineering Services Division, MoH

TABLE 12
CONSTRUCTION OF LATRINES, SULLAGE AND SOLID WASTE DISPOSAL SYSTEM BY MoH, 2015

STATE	TOTAL HOUSES IN RURAL AREA	Latrines			Sullage			Solid Waste Disposal System		
		Nos. Built	No. of Houses Supplied	Coverage (%)	Nos. Built	No. of Houses Supplied	Coverage (%)	Nos. Built	No. of Houses Supplied	Coverage (%)
Perlis	33,950	0	33,372	98.30%	0	21,806	64.23%	0	20,916	61.61%
Kedah	197,823	251	194,137	98.14%	234	132,443	66.95%	280	157,270	79.50%
P. Pinang	92,634	26	72,415	**78.17%**	36	58,135	62.76%	174	67,283	72.63%
Perak	143,402	192	138,861	97%	40	90,191	62.89%	30	88,071	61.42%
Selangor	116,014	35	102,322	**88.20%**	15	98,226	84.67%	75	97,806	84.31%
N. Sembilan	59,714	125	59,282	99.28%	49	52,454	87.84%	98	52,103	87.25%
Melaka	74,624	13	74,607	99.98%	20	68,154	91.33%	20	68,496	91.79%
Johor	152,848	50	149,937	98.10%	0	145,963	95.50%	5	146,250	95.68%
Pahang	101,878	183	93,013	91.30%	71	59,498	58.40%	126	60,462	59.35%
Terengganu	149,888	65	149,556	99.78%	90	94,935	63.34%	158	104,879	69.97%
Kelantan	306,216	1076	302,450	98.77%	222	164,066	53.58%	281	192,222	62.77%
Sarawak	209,909	539	120,245	**57.28%**	65	105,154	50.10%	332	120,245	57.28%
Sabah	**219,490**	273	196,881	**89.70%**	19	127,946	58.29%	0	122,823	55.96%
MALAYSIA	**1,858,390**	**2,828**	**1,687,078**	**90.78%**	**861**	**1,218,971**	**65.59%**	**1,579**	**1,298,826**	**69.89%**

Source: Engineering Services Division, MoH

TABLE 13

SUMMARY OF SAMPLING PERFORMANCE FOR 2015

STATE	GROUP 1			GROUP 2			GROUP 3			GROUP 4		
	A	B	C (%)	A	B	C (%)	A	B	C (%)	A	B	C (%)
Johor	18,695	18,697	100.01	4,420	4,420	100	1,338	1,340	100.15	847	849	100.24
Kedah	10,152	10,050	99	2,172	2,161	99.49	938	933	99.47	615	612	99.51
Kelantan	7,458	7,431	99.64	1,650	1,625	98.48	662	641	96.83	453	393	86.75
Melaka	4,339	4,198	96.75	918	898	97.82	436	423	97.02	256	250	97.66
Negeri Sembilan	6,829	6,774	99.19	1,460	1,439	98.56	682	663	97.21	433	416	96.07
Pahang	16,793	16,793	100	3,930	3,930	100	1,470	1,470	100	1,057	1,057	100
Pulau Pinang	3,716	3,696	99.46	726	696	95.87	442	442	100	257	250	97.28
Perak	12,093	11,987	99.12	2,554	2,524	98.83	1,174	1,137	96.85	767	738	96.22
Perlis	1,193	1,140	95.56	284	284	100	116	116	100	90	90	100
Selangor	16,415	15,999	97.47	3,718	3,652	98.22	1,746	1,715	98.22	1,261	1,236	98.02
Terengganu	6,495	6,483	99.82	1,428	1,418	99.3	500	492	98.4	304	290	95.39
WP Kuala Lumpur	2,654	2,528	95.25	558	531	95.16	269	263	97.77	163	156	95.71
WP Putrajaya	480	480	100	102	96	94.12	44	44	100	24	17	70.83
WP Labuan	576	567	98.44	136	136	100	70	69	98.57	49	49	100
PEN. MALAYSIA	**107,888**	**106,823**	**99.01**	**24,056**	**23,810**	**98.98**	**9,887**	**9,748**	**98.59**	**6,576**	**6,403**	**97.37**
Sabah	12,138	11,966	98.58	2,598	2,580	99.31	1,114	1,103	99.01	773	763	98.71
Sarawak	17,266	16,545	95.82	3,846	3,577	93.01	1,542	1,455	94.36	1,142	1,031	90.28
MALAYSIA	**137,292**	**135,334**	**98.57**	**30,500**	**29,967**	**98.25**	**12,543**	**12,306**	**98.11**	**8,491**	**8,197**	**96.54**

Note: A = Number of samples to be taken (Programme Agreement) B = Number of samples taken C = Percentage of samples taken (%)

Source: Engineering Services Division, MoH

TABLE 14

PERFORMANCE OF QAP FOR NATIONAL DRINKING WATER QUALITY SURVEILLANCE PROGRAM, 2015

STATE	*E. coli*& Free Res. Chlorine (QAP < 0.10)			*E. coli* (QAP < 0.35)			Turbidity (QAP < 2.00)			Free Residual Chlorine (QAP < 1.85)			Aluminium (QAP < 10.20)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Johor	16,178	9	0.06%	16,180	67	0.41%	16,183	30	0.19%	16,183	160	0.99%	3,800	389	10.24%
Kedah	7,906	2	0.03%	7,916	7	0.09%	8,012	118	1.47%	8,005	38	0.47%	1,660	145	8.73%
Kelantan	5,847	6	0.10%	5,849	14	0.24%	5,849	535	9.15%	5,847	82	1.40%	1,270	106	8.35%
Melaka	3,761	2	0.05%	3,764	4	0.11%	3,763	120	3.19%	3,762	187	4.97%	764	67	8.77%
Negeri Sembilan	5,579	7	0.13%	5,582	9	0.16%	5,622	49	0.87%	5,619	132	2.35%	1,056	167	15.81%
Pahang	12,428	4	0.03%	12,428	45	0.36%	12,509	488	3.90%	12,509	138	1.10%	2,780	498	17.91%
Pulau Pinang	3,091	0	0.00%	3,092	0	0.00%	3,092	0	0.00%	3,091	4	0.13%	562	12	2.14%
Perak	9,377	12	0.13%	9,427	33	0.35%	9,480	28	0.30%	9,436	28	0.30%	1,736	158	9.10%
Perlis	789	0	0.00%	789	5	0.63%	789	40	5.07%	789	38	4.82%	187	10	5.35%
Selangor	13,813	0	0.00%	13,842	2	0.01%	13,943	3	0.02%	13,939	33	0.24%	3,148	62	1.97%
Terengganu	5,809	0	0.00%	5,810	0	0.00%	5,809	30	0.52%	5,809	39	0.67%	1,256	74	5.89%
WP Kuala Lumpur	2,256	0	0.00%	2,256	1	0.04%	2,272	1	0.04%	2,272	4	0.18%	464	33	7.11%
WP Putrajaya	435	0	0.00%	435	0	0.00%	435	0	0.00%	435	3	0.69%	87	3	3.45%
PEN. MALAYSIA	**87,269**	**42**	**0.05%**	**87,370**	**187**	**0.21%**	**87,758**	**1,442**	**1.64%**	**87,696**	**886**	**1.01%**	**18,770**	**1,724**	**9.18%**
Sabah	6,911	17	0.25%	7,043	20	0.28%	6,948	490	7.05%	7,761	400	5.15%	1,114	187	16.79%
Sarawak	6,134	24	0.39%	7,308	30	0.41%	8,351	227	2.72%	10,074	893	8.86%	1,404	503	35.83%
WP Labuan	**268**	**0**	**0.00%**	**274**	**0**	**0.00%**	**295**	**7**	**2.37%**	**290**	**34**	**11.72%**	**59**	**14**	**23.73%**
MALAYSIA	**100,582**	**83**	**0.08%**	**101,995**	**237**	**0.23%**	**103,352**	**2,166**	**2.10%**	**105,821**	**2213**	**2.09%**	**21,347**	**2,428**	**11.37%**

Note: A = Number of samples analysed B = Number of samples violated C = Percentage of samples violated (%)

Source: Engineering Services Division, MoH

National Drinking Water Quality Surveillance Program (NDWQSP)

Guidelines for the implementation of an effective, systematic and comprehensive National Drinking Water Quality Surveillance Program (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 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 program 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.

The NDWQSP which has been adopted by all states since 1986 provides a mechanism towards improving drinking water quality through five elements of the program, i.e., monitoring, sanitary survey, data processing and evaluation, remedial action and institutional examination. Since the implementation of the program, 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 program, a Quality Assurance Program (QAP) for NDWQSP was launched in December 1992 and implemented nationwide in January 1993. The QAP standards is set based on five performance indicators, i.e. Free Residual Chlorine, *E. coli*, Combine Free Residual Chlorine and *E. coli*, Turbidity and Aluminium. 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 2015, a total of 188,826 water samples taken and to which it is divided into Group 1 of 137,292 samples, Group 2 of 30,500 samples, Group 3 amounted to 12,543 and total of 8,491 water samples for Group 4.This involves monitoring water samples of 505 water treatment plants and 539 water courses, while 119 sanitary surveys have been implemented throughout the whole Malaysia. The water sampling performance for 2015 is shown in Table 13, while Table 14 indicates the performance of QAP in 2015.

National Environmental Health Action Plan (NEHAP)

The term Environmental Health, as defined by WHO, addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-

supportive environments. This definition excludes behavior not related to environment, as well as behavior related to the social and cultural environment, and genetics.

To address the major environmental health problems and needs for action, many countries in the world including Malaysia have decided to prepare and implement NEHAP which represents strategies on how to improve environmental health within the country and defines the roles and responsibilities of various stakeholders. Highlights of NEHAP Malaysia activities are as follows:

- **NEHAP Malaysia Steering Committee**

The Steering Committee Meeting was held 2 times in 2015. The first meeting was chaired by the Deputy Director General of Health, MoH on 17 April 2015 to discuss the current development of NEHAP implementation program. The meeting was attended by 25 members representing various technical agencies, Chairmen of Thematic Working Groups (TWGs), Core Team members as well as Liaison Officers from Engineering Services Division. The committee agreed to endorse Conceptual Framework of Malaysia Environmental Health Information System (EHIS) and the proposal of implementation of State Environmental Health Action Plan (SEHAP).

The second Steering Committee Meeting was conducted on 9 December 2015 and chaired by Director General of Health, MoH. The meeting endorsed the action plan of TWG 5: Climate Change, Ozone Depletion and Ecosystem Change. Besides that, the Sabah State Government also shared their experiences implementing NEHAP Sabah Chapter in this meeting.

- **NEHAP Malaysia Technical Committee**

The meetings were conducted on 10 March 2015 and 11-12 August 2015, chaired by the Director of Engineering Services Division. The meetings were attended by nine TWGs Chairmen, Core Team members as well as Liaison Officers from Engineering Services Division. Both meetings focused mainly on the progress of the TWGs Action Plan. The meeting was also discussed the Environmental Health Information System (EHIS) before being presented to the Steering Committee for endorsement.

IMAGE 5
NEHAP MALAYSIA TECHNICAL COMMITTEE MEETING, 2015

Source: Engineering Services Division, MoH

- **Thematic Working Groups**

A total of nine TWG meetings were held between January to December 2015 which involved 45 agencies related to environment and health. The TWGs main agenda is focused on finding gaps within each thematic environmental health issues and formulating NEHAP's draft action plans.

- **Workshop for Preparation of Draft Action Plans**

A workshop was successfully organized by the Secretariat NEHAP Malaysia on 7 - 9 September 2015 (brainstorming session) to prepare the draft action plan for TWG 9: Urban Drainage. The meeting attended by the Liaison Officers, Core Team and the related agencies discussed associated issues under the TWG.

- **NEHAP Conference**

The inaugural NEHAP Conference was successfully held on 9 June 2015 at Berjaya Times Square Hotel, Kuala Lumpur. The conference was attended by 100 participants from related agencies and universities. Four general papers and three scientific papers which are relevant to environment and health issues were presented in the conference.

IMAGE 6

NEHAP CONFERENCE, BERJAYA TIMES SQUARE, KUALA LUMPUR, 2015

Source: Engineering Services Division, MoH

- **NEHAP Sabah Chapter**

In 2015, Sabah State Government and State Health Department had successfully organized the Steering Committee Meeting for Sabah Chapter on 28 April 2015. The meeting was chaired by Sabah Deputy State Secretary (Development). Moreover, two (2) workshops was conducted on 28 – 30 April 2016 and 20 – 21 October 2015 to discussed further the action plan for five (5) TWGs under NEHAP Sabah Chapter. The workshop involved 17 agencies including Sabah State and Federal agencies and the Secretariat NEHAP Malaysia was invited as facilitators in order to make sure the drafted action plan was prepared in accordance to NEHAP Guidance Document.

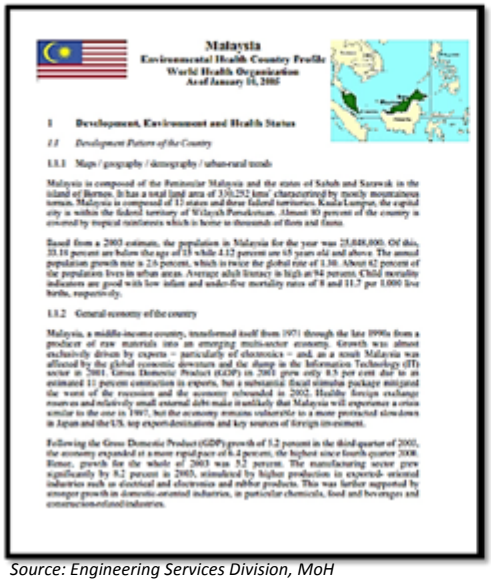
- **NEHAP Sarawak Chapter**

Early discussion on NEHAP Sarawak Chapter was conducted on 15 December 2015 at Sarawak State Health Department, chaired by Deputy Health Director (Public Health). The briefing on NEHAP Malaysia was given by the Secretariat NEHAP and the focus of discussion was about the way forward for NEHAP Sarawak Chapter implementation and setting up the Committees under NEHAP Sarawak Chapter.

- **Environmental Health Country Profile (EHCP) and Environmental Health Data Sheet (EHDS)**

The Third Ministerial Regional Forum on Environment and Health in Southeast and East Asian Countries was successfully held on 10 September 2013 in Kuala Lumpur. In the meeting, all the country members agreed to develop and implement mechanisms to enable more effective sharing of information between the health and environment sectors and other sectors by using Environmental Health Country Profiles (EHCP) and Environmental Health Data Sheets (EHDS). These documents will provide a snapshot of the current status and provide the basis to monitor trends into the future and are considered to be essential to priority settings and policy dialogue and engagement amongst different stakeholders and inter ministerial collaboration and cooperation. The secretariat has compiled all relevant information regarding EHCP and EHDS and submitted the information to WHO - Western Pacific Regional Office in September 2015.

IMAGE 7
ENVIRONMENTAL HEALTH COUNTRY PROFILE (EHCP) &
ENVIRONMENTAL HEALTH DATA SHEET (EHDS)



Malaysia
Environmental Health Country Profile
World Health Organization
As of January 31, 2005

1 Development, Environment and Health Status

1.1 Development Pattern of the Country

1.1.1 Maps / geography / demography / urban-rural trends

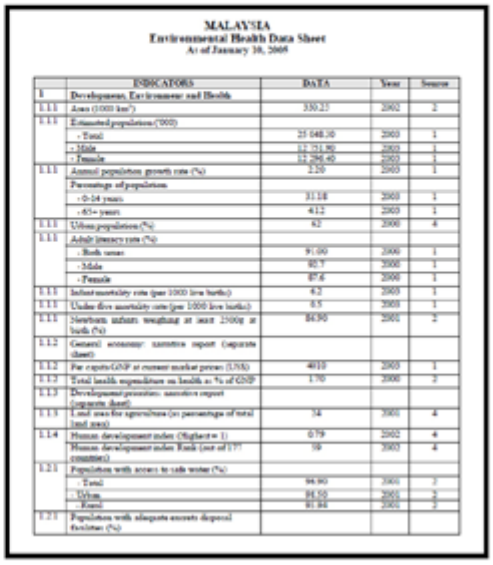
Malaysia is composed of the Peninsular Malaysia and the states of Sabah and Sarawak in the island of Borneo. It has a total land area of 330,252 kms² characterized by mostly mountainous terrain. Malaysia is composed of 13 states and three federal territories. Kuala Lumpur, the capital city is within the federal territory of Wilayah Persekutuan. Almost 80 percent of the country is covered by tropical rainforests which is home to thousands of flora and fauna.

Based from a 2003 estimate, the population in Malaysia for the year was 25,048,000. Of this, 33.16 percent are below the age of 15 while 4.12 percent are 65 years old and above. The annual population growth rate is 2.6 percent, which is twice the global rate of 1.30. About 62 percent of the population lives in urban areas. Average adult literacy is high at 94 percent. Child mortality indicators are good with low infant and under-five mortality rates of 9 and 11.7 per 1,000 live births, respectively.

1.1.2 General economy of the country

Malaysia, a middle-income country, transformed itself from 1971 through the late 1990s from a producer of raw materials into an emerging multi-sector economy. Growth was almost exclusively driven by exports – particularly of electronics – and, as a result Malaysia was affected by the global economic downturn and the slump in the Information Technology (IT) sector in 2001. Gross Domestic Product (GDP) in 2001 grew only 0.5 per cent due to an estimated 11 percent contraction in exports, but a substantial fiscal stimulus package mitigated the worst of the recession and the economy rebounded in 2002. Healthy foreign exchange reserves and relatively small external debt make it unlikely that Malaysia will experience a crisis similar to the one in 1997, but the economy remains vulnerable to a more protracted slowdown in Japan and the U.S., top export-destinations and key sources of foreign investment.

Following the Gross Domestic Product (GDP) growth of 1.2 percent in the third quarter of 2003, the economy expanded at a more rapid pace of 6.4 percent, the highest since fourth quarter 2000. Hence, growth for the whole of 2003 was 5.2 percent. The manufacturing sector grew significantly by 8.2 percent in 2003, stimulated by higher production in exported- oriented industries such as electrical and electronics and rubber products. This was further supported by stronger growth in domestic-oriented industries, in particular chemicals, food and beverages and construction-related industries.



MALAYSIA
Environmental Health Data Sheet
As of January 31, 2005

	INDICATORS	DATA	Year	Source
1	Development, Environment and Health			
1.1.1	Area (1000 km²)	330.25	2002	2
1.1.1	Estimated population ('000)			
	- Total	25 048.30	2003	1
	- Male	12 751.80	2003	1
	- Female	12 296.40	2003	1
1.1.1	Annual population growth rate (%)	2.20	2003	1
	Percentage of population			
	- 0-14 years	31.18	2003	1
	- 65+ years	4.12	2003	1
1.1.1	Urban population (%)	62	2000	4
1.1.1	Adult literacy rate (%)			
	- Both sexes	91.00	2000	1
	- Male	92.7	2000	1
	- Female	87.6	2000	1
1.1.1	Infant mortality rate (per 1000 live births)	9.2	2003	1
1.1.1	Under-five mortality rate (per 1000 live births)	11	2003	1
1.1.1	Newborn infants weighing at least 2500g at birth (%)	84.90	2001	2
1.1.2	General economic narrative report (separate sheet)			
1.1.2	Per capita GNP at current market prices (US$)	4010	2003	1
1.1.2	Total health expenditure on health as % of GNP	3.70	2000	2
1.1.3	Development priorities: narrative report (separate sheet)			
1.1.3	Land area for agriculture (as percentage of total land area)	34	2001	4
1.1.4	Human development index (Highest = 1)	0.79	2002	4
	Human development index Rank (out of 177 countries)	59	2002	4
1.2.1	Population with access to safe water (%)			
	Total	94.90	2001	2
	Urban	98.50	2001	2
	Rural	91.90	2001	2
1.2.1	Population with adequate excreta disposal facilities (%)			

Source: Engineering Services Division, MoH

Environmental Health Protection

- **Indoor Air Quality (IAQ)**

In 2015, the Air Quality Unit, NEHAP Section, Engineering Services Division carried out Indoor Air Quality (IAQ) sampling and monitoring activities at the Headquarters of the MoH, Putrajaya, involving 5 blocks in Complex E. IAQ sampling and monitoring activities were also conducted at three (3) State Health Department offices; Perlis, Perak and Negeri Sembilan. Besides, the Unit also conducted investigation sampling at Dewan Bahasa dan Pustaka (DBP) and Polis Di Raja Malaysia (PDRM) after receiving complaints from the offices. The activities

are divided into 4 sessions; briefing to the occupants of the building, walkthrough survey of the building, sample taking, and reporting of findings. The activity was carried out in accordance to the Industrial Code of Practice 2010, published by the Department of Occupational Safety and Health.

IMAGE 8
INDOOR AIR QUALITY ACTIVITY, 2015

Source: Engineering Services Division, MoH

Hazardous Substance and Waste Management Unit

The main activity of the Unit is the Environmental Health Impact Assessment (EHIA) of Environmental Impact Assessment (EIA) report. The assessment was carried out in accordance to the Environmental Quality Act 1974 and Guideline of EIA – Procedure and Requirement, 2007, published by Department of Environment (DOE). In 2015, the Unit had received 22 EIA Reports from DOE and had prepared the EHIA reports and submitted to DOE for the EIA approval of prescribed activities regulated in the Act.

- **Environmental Health Risk Assessment**

This activity was developed for the purpose of detecting environmental health risks that cause health effects to human. In 2015, three states (Melaka, Perak and Sabah) had been selected for a pilot project. Activities that were carried out last year were collecting data and mapping on environmental health profile in the district involved. Environmental health

profile report has been prepared for the state which has successfully completed data collection and mapping. The activity intended to provide GIS mapping on environmental health profile and health risk assessment matrix for future planning.

IMAGE 9
ENVIRONMENTAL HEALTH RISK ASSESSMENT ACTIVITY, 2015

Source: Engineering Services Division, MoH

Radiation Health and Safety

ESD's Radiation Health and Safety Section is responsible for regulating the use of ionizing radiation (for medical purposes) pursuant to the authority of the Director General of Health, Malaysia as the appropriate authority under the Act 304 and its subsidiary regulations. This regulatory activities comprise licensing, monitoring and enforcement.

Apart from its core business to regulate the use of ionizing radiation, the Section also plays a role in providing medical physics services, particularly to the hospitals and clinics under MoH. This activity includes technical advice and the development of codes and standards. In addition, it is also involved in the implementation of the Radiation Protection Program (RPP), Quality Assurance Program (QAP) and Radiation Quality Audit Management in radiology, radiotherapy and nuclear medicine at the national level.

The Section is also in the process of developing several programs on radiation safety to ensure that it is in line with current international standards and requirements. In addition,

existing activities are continuously reviewed to ensure it is relevant and applicable for future MoH services.

- **Licensing under the Atomic Energy Licensing Act (Act 304) and Subsidiary Regulations**

A total of 1,039 licenses were issued to private medical institutions in 2015. The number of premises using irradiating apparatus and/or radioactive sources for medical purposes is shown in Table 15. It comprises of 964 government hospitals/clinics and 3,067 private centers. A class H license is issued to the consultant medical physicist company to carry out safety and quality control test of irradiating apparatus for medical purposes as well as to provide consultation and technical advice particularly to private sector users.

TABLE 15
TOTAL NUMBERS OF PREMISES WITH IRRADIATING APPARATUS, 2015

Type of Premises	No. of Premises		Total
	Government	Private	
Hospital	167	162	329
Health Clinics	255	NA	255
GP's	NA	1,277	1,277
Non-X-Ray Sp. Clinics	NA	84	84
Nuclear Medicine Centres	7	20	27
Radiology Clinics	NA	59	59
Radiotherapy Centres	7	29	36
Cyclotron Centres	1	1	2
Veterinary Clinics	4	83	87
Dental Clinics	482	1,348	1,830
Blood Irradiator Centres	3	4	7
Army Hospitals/ Clinics	38	NA	38
TOTAL	**964**	**3,067**	**4,031**

Source: Engineering Services Division, MoH

As of December 2015, there are a total of 8,045 registered/licensed irradiating apparatus in both the government and private sectors. Details of irradiating apparatus according to type of modality are shown in Table 16**.** Besides irradiating apparatus, radioactive sources are also used in medicine. There are altogether 439 radioactive sources comprising of 340 sealed sources and 99 unsealed sources, registered/licensed in both the government and private medical institutions, as shown in Table 17.

TABLE 16

NUMBER OF IRRADIATING APPARATUS BY TYPE, 2015

Type of Irradiating Apparatus	No. of Irradiating Apparatus		Total
	Government	Private	
General, Mobile X-Ray, Veterinary	1,508	1,848	3,356
Dental (Intra Oral/OPG)	862	2,176	3,038
Fluoroscopy /C-Arm	358	343	701
Angiography / Cath-Lab	44	101	145
CT Scanner /CT Simulator	110	165	275
Mammography	92	178	270
Lithotripter	13	35	48
Bone Densitometer	22	88	110
Linear Accelerator	18	38	56
Simulator	3	9	12
SPECT-CT	2	3	5
PET-CT	2	13	15
Cyclotron	1	1	2
Tomoterapi	1	3	4
Blood Irradiator	4	4	8
TOTAL	**3,040**	**5,005**	**8,045**

Source: Engineering Services Division, MoH

TABLE 17

RADIOACTIVE SOURCES, 2015

Type of Sources	No. of Sources		Total
	Government	Private	
Sealed Source	118	222	340
Unsealed Source	27	72	99
TOTAL	**145**	**294**	**439**

Source: Engineering Services Division, MoH

- **Monitoring & Enforcement Under Act 304**

The purpose of monitoring and inspection is to ensure the compliance to all regulatory requirements for safety, security and safeguards. During monitoring and inspection, attention is given on the validity of the license, compliance with licensing conditions, qualifications of personnel, radiation protection program, record-keeping as well as maintenance of equipment to ensure protection and safety of patients, workers and public.

In 2015, a total of 964 premises were inspected, 303 were government clinics/ hospitals while the other 661 were private establishments. A total of 845 (87.7%) premises fully complied with all the necessary requirements while 119 (12.3%) premises did not comply at the time of inspection. Follow-up actions were taken to ensure all premises adhered to regulatory requirements.

- **Medical Physics Services**

i) Technical Advice on Radiation Safety in Medicine

In 2015, a total of 173 technical advice activities on radiation protection aspects to the MoH hospitals and clinics were carried out. The details are as listed in Table 18.

TABLE 18
TECHNICAL ADVICE ON RADIATION SAFETY, 2015

Type of Activities	No. of Activities		Total
	Ionizing Radiation	Non-Ionizing Radiation	
Preparation: Radiation Equipment Technical Specifications	5	2	7
Evaluation: Equipment Technical Specifications	5	0	5
Meeting: Tender / Bill of Quantity (BQ)	22	1	23
Site Visits/ Progress Meetings	112	10	122
Testing and Commissioning	9	2	11
Advice on the security aspect	5	0	5
TOTAL	**158**	**15**	**173**

Source: Engineering Services Division, MoH

ii) Development of Codes & Standards

Development of codes & standards, safety guides, circulars or technical manuals is aimed to provide additional requirement or to give details of the requirements as stated in the regulations or special matters related to provisions entrusted by the Act. The development of said documents is carried out mostly through working groups which consist of members nominated from various related professional bodies, industry and interest groups.

The development of codes and standards in 2015 includes:

i. Guidance Document on Radiological Emergency Preparedness for Medical Physicists

ii. Standard Operating Procedures for Patients Undergoing Treatment of Iodine-131 (I-131) In Nuclear Medicine Department Under Ministry of Health *di Bawah Akta Perlesenan Tenaga Atom (Akta 304) bagi Maksud Perubatan*

iii. Final Draft - Guidelines for Occupational Radiation Protection in Medical Interventional Procedures

iv. Final Draft – Guidance Document on The Safe Use of Medical Lasers

v. Final Draft – Development and Implementation of Security Policy for Radioactive Materials in Medical Institutions

vi. Final Draft - *Pekeliling Keperluan Latihan Personel Dalam Perkhidmatan Perubatan Nuklear Dibawah Akta 304*

vii. Final Draft- *Pekeliling Latihan Bagi Pengendali PET/CT Dalam Perkhidmatan Perubatan Nuklear Dibawah Akta 304*

viii. Final Draft - Technical Quality Control Protocol Handbook for Scintillation Camera and Single Photon Emission Computed Tomography (SPECT) Systems

ix. Final Draft- Technical Quality Control Protocol Handbook for Positron Emission Tomography/Computed Tomography (PET/CT) Systems

x. Final Draft- Technical Quality Control Protocol Handbook for Dose Calibrator, Gamma Counter/ Well Counter/Thyroid Uptake System and Gamma Probe

xi. Final Draft- Standard Operating Procedures for Radioactive Material Inventory Management *Di Jabatan Perubatan Nuklear di Bawah Akta Perlesenan Tenaga Atom (Akta 304)*

xii. Final Draft- Standard Operating Procedures for Radioactive Contamination Control *Di Jabatan Perubatan Nuklear di Bawah Akta Perlesenan Tenaga Atom (Akta 304)*

xiii. Final Draft- Standard Operating Procedures for Management of Incident, Accident, Emergency and Special Procedures *Di Jabatan Perubatan Nuklear di Bawah Akta Perlesenan Tenaga Atom (Akta 304)*

xiv. Draft – Guidance Document on Security of Radioactive Sources for Blood Irradiators at Medical Facilities

Conferences, Symposium, Workshops and Courses

i. Establishing Security Culture Systems in Medical Institutions:
   a. Part I: Workshop on Security Culture Self-Assessment 21-22 April 2015, Kuala Lumpur.
   b. Part II: Trial of Security Culture Self-Assessment 23-24 April 2015, Kuala Lumpur.

ii. Distance Assisted Training (DAT) Program for Nuclear Medicine Professionals Workshop, 22 – 24 May 2015, Penang

iii. Expert Mission on Security Culture Self-Assessment: Support for Security Culture Self-Assessment Trial at Medical Institutions in Malaysia,1-4 December 2015, Kuala Lumpur.

iv. National Workshop On Security Culture Self-Assessment For Radioactive Sources At Medical Institutions, 21-24 April 2015, Vistana Hotel, Kuala Lumpur

v. CBRNe Terrorism Awareness and Consequence Management in Disaster Medicine 2015, 3-5 November 2015, Hospital Melaka

vi. Regional Workshop on Developing Hazard Assessment for Radiation Emergencies, 6-8 October 2015, Everly Hotel, Putrajaya

vii. IAEA Expert Mission on Support for Security Culture Self-Assessment Trial at Medical Institutions in Malaysia, 1-4 December 2015, Hotel Vistana Kuala Lumpur

viii. Establishing Security Culture Systems in Medical Institutions:
   a. Part I: Workshop on Security Culture Self-Assessment 21-22 April 2015, Kuala Lumpur.
   b. Part II: Trial of Security Culture Self-Assessment 23-24 April 2015, Kuala Lumpur.

ix. Expert Mission on Security Culture Self-Assessment: Support for Security Culture Self-Assessment Trial at Medical Institutions in Malaysia, 1-4 December 2015, Kuala Lumpur.

x. Training Course On Radioactive Waste Management in Nuclear Medicine and Shielding Calculation, 18-20 March 2015, Sabah

xi. Workshop On Quality Control for PET/CT, Intraoperative Gamma Probe, Dose Calibrator & Gamma Counter, 02-04 June 2015, Penang

xii. Nuclear Medicine Update, 8-10 September 2015, Sabah

xiii. International Conference on Radiation Safety & Security in Healthcare Services 2015, 3-4 Oct 2015, National Cancer Institute Putrajaya

Engineering Service Department (ESD) Way Forward

In view of the expanding services in the provision of healthcare to the patients and public, and protecting the public health and radiation workers, the roles of engineers and scientists in ESD have become more prominent in assisting the medical team to realize MoH's vision. There is a need for a long-term commitment to continuously train the personnel to improve their knowledge, skills and competencies. A system for a fast, efficient and effective processing and delivery of information and services is necessary, thus ESD will optimize the use of available infrastructure, equipment and technology in its daily work processes.

ESD has become a major provider of Engineering and Scientific Support Services to the MoH's Medical and Public Health Program. It will continue to plan, implement, monitor and coordinate preventive health programs through the application of public health engineering principles and methods. ESD is committed to provide engineering support for the effective and proper functioning of buildings, equipment and engineering systems, ensure reliability and efficiency of engineering installations and ensure all healthcare facilities are well maintained to appropriate standards. It will also continue to provide an effective and efficient control in the use of ionizing radiation in medicine.

NATIONAL INSTITUTES OF HEALTH

The National Institutes of Health (NIH) comprises of the Institute for Medical Research (IMR), Institute for Public Health (IPH), Network of Clinical Research Centres (CRCs), Institute for Health Management (IHM), Institute for Health Systems Research (IHSR) and Institute for Health Behavioral Research (IHBR) continue their activities in research, training, consultancy and diagnostics services in supporting the Program of the MoH. Each institute continues to focus its research to addresses the Health Research Priority Areas as well as in the core research areas of each institute thus further strengthening their functions as Centres of Excellence for health research.

The NIH Secretariat continues to provide research management and support for the NIH Institutes. In strengthening the process of research management, the NIH has developed a web portal system called the National Medical Research Register (NMRR) for the purpose of research registration, submission and approval of access to any unpublished health information.

Institute for Medical Research (IMR)

IMR is the research arm of MoH and its main function is to carry out research to identify, elucidate, control and prevent diseases and health issues prevalent in the country. The activities of the IMR consist of:

1. Research activities;
2. Diagnostic services;
3. Consultative services; and
4. Scientific and Technical training programs.

- **Research**

In 2015, staff members of the Institute were engaged in 70 research projects. The Institute published 116 scientific papers and produced 21 reports. In addition, staff of the Institute was involved in 22 presentations at local and international seminars. Table 19 lists the research projects conducted at the Institute.

TABLE 19
IMR RESEARCH PROJECTS, 2015

No	Project Title
1.	Updates of Malaysian Food Composition Database
2.	Development of New Molecular Detection Methods in Knowledge Malaria in Malaysia
3.	Translational Oncology Program for the Development of New Assays for Cancers - Screening of Markers for the Diagnosis and/or Prognosis of Nasopharyngeal Carcinoma
4.	Identification and Characterization of Cancer Stem Cells in Nasopharyngeal Carcinoma (NPC) Samples
5.	To Study Functional Metabolite Properties of Malaysian Edible Seaweed for Potential Glucose Lowering Effect Targeting the Digestive Enzyme Activities: An In Vitro Study
6.	siRNA Mediated Gene Silencing and Quantitative Pathway Analysis in Multiple Myeloma
7.	Identification of Genetic Modifiers of HbE/Beta-Thalassaemia in Malaysia - By Whole Exome Sequencing
8.	Genotype-Phenotype Correlation in SCN1A-Related Infantile Onset Epileptic Encephalopathy Among Children in Malaysia
9.	Genomic Characterization and Whole Genome Sequencing of Philadelphia Positive in Adult Acute Lymphoblastic Leukemia (ALL)
10.	Identification of Markers of Treatment Response and Recurrence in Nasopharyngeal Carcinoma
11.	Gene Expression Profiling in Women with Metabolic Syndrome and Association of Microsatellite Marker D19S884 in Those with Polycystic Ovary Syndrome
12.	Sequence Variants of Putative Tumor Suppressor Genes in Nasopharyngeal Carcinoma
13.	Determination of Biomarkers Associated with Severe Human Leptospirosis
14.	Genetic Diversity of Plasmodium falciparum and Plasmodium vivax Isolates in Sabah
15.	Study on the Evaluation of Compounds/ Standardized Extracts for Potential Anti Filarial Agents and The Mode of Action of the Selective Agents Using Biochemical and Molecular

No	Project Title
	Targets
16.	Anti-Malaria Drug Discovery: In Vitro and In Vivo Efficacy Evaluation for Chemotherapeutic and Prophylaxis on Selected Compounds/Extracts
17.	The Effect of Haze and Air Pollution on Hospital Admissions in Klang Valley, Malaysia
18.	CD63 Expression on Basophil in Patients with Allergy to Beta Lactam as a Strategy to Prevent Misdiagnosis
19.	Decontamination of Medicinal Leeches Used for Leech Therapy
20.	In Vitro Evaluation of a Naturally-Occurring Polyphenol for Targeted Therapy of Nasopharyngeal Carcinoma
21.	Identification of Biomarkers Associated With Disease Severity in Immunoglobulin A Nephropathy Patients
22.	Establishment of a Molecular Based Method in Prediction and Diagnosis of Multiple Sclerosis in Malaysia
23.	The Identification of Diagnostic Biomarkers to Improve Early Risk Assessment in Malaysian Patients with Ankylosing Spondylitis
24.	Detection and Identification of Post-Transplant Anti-HLA and Non-HLA Antibodies in Predicting Graft Rejection
25.	A Study of Immune Parameters in DiGeorge Syndrome
26.	Population Pharmacokinetics-Pharmacodynamics (PKPD) of Colistin in Critically Ill Patients with Multi Drug Resistant Gram-Negative Bacterial Infection: A Malaysian Scenario
27.	A Study of Malaysian Families Affected by Autoimmune Lymphoproliferative Syndrome (ALPS) a Form of Primary Immunodeficiency Disorder (PID)
28.	Evidence of Submicroscopic Malaria in Low Transmission Area
29.	Establishment of Molecular Method for Rapid Detection and Identification of Candidiasis
30.	Gene Rearrangement Using Fluorescence In Situ Hybridization (FISH) in the Diagnosis of Burkitt's Lymphoma
31.	Genetic Profiling of Carbapenem Resistant Enterobacteriaceae Induced by Production of Carbapenemases Enzyme
32.	A New Model for Predicting Dengue Outbreak
33.	Wall Residual Spray for Dengue Vector Control in a High Rise Residential Area in Selangor
34.	Hepatotoxicity Study of Carica papaya L. (Sekaki) Leaves Aqueous Extract in Sprague Dawley Rat
35.	In Vivo and In Vitro Genomic Interactions and Variability in Dengue Virus Serotypes in Infected Aedesaegypti (L.) and Cell Culture
36.	Novel Antifungal and Antibacterial Bioactive Derived from Metabolites Produced by Streptomyces Species Isolated from Malaysian Herbal Products
37.	Identification and Characterization of Potential Oncogenes and Tumor Suppressor Genes Involved in the Pathogenesis of Oligodendroglioma and Glioblastoma Multiforme Using Next Generation Sequencing
38.	New Development of Electrochemical Based Biosensor/Sensor and Spectrophotometry Micro Method for Salt Iodine Analysis
39.	Determining Vitamin D Levels in Food Samples and Effect of Micronutrients on Regulation of Vitamin D Absorption
40.	Transmission Mechanisms of Plasmodium knowlesi Malaria
41.	The Effects of Wolbachia on Chikungunya Virus (CHIKV) Infection in Aedesalbopictus

No	Project Title
42.	Formaldehyde Exposure Among Healthcare Workers and Effects to Health
43.	Study of Zoonotic Parasitic Disease of Human Importance in Malaysia
44.	Evaluation of Transgenic AedesalbopictusSkuse Mating Competitiveness in a Semi Field Containment Facility
45.	Carica papaya: Isolation and Characterization of Active Compounds from Leaves Extracts for In-Vivo and Gene Expression Study
46.	Bionomics of Knowlesi Malaria Vectors in Sabah
47.	Mass Spectrometric Approach To Study Protein N-Glycosylation: N-Glycan Profiling of Congenital Disorders of Glycosylation (CDG)
48.	The Effects of Standardized Orthosiphonstamineus Extract on the Male Fertility in Rats
49.	Potential Prenatal Developmental Toxicity and Mutagenicity Effects of Ficusdeltoidea Aqueous Extract
50.	Establishment of Induced Pluripotent Stem Cells from Malaysian β-Thalassemia Patients and Normal Donors for Disease Modeling and Bio banking
51.	Quantitative Microbial Risk Assessment as a Tool for Improving Drinking Water Quality to Safeguard the Health of the Population and Tourists of a Tropical Island
52.	Health Risk Assessment of Air Quality and the Benefits of Low Carbon Strategies in Johor
53.	In Silico Approach in Designing of Potential Future Vaccine Candidates Against Pathogenic Leptospira Species
54.	Epidemiology, Clinical and Laboratory Features of Patients Admitted to Hospitals with Leptospirosis in Malaysia
55.	Biochemical, Immunological and Proteomic Characterization of Mitochondrial Oxidative Phosphorylation (OXPHOS) Complexes in Fibroblasts of Patients with Mitochondrial Encephalomyopathies
56.	Targeted Oncogenes Silencing in Childhood Leukemia
57.	Epidermal Growth Factor Receptor (EGFR) Gene Alteration and Protein Overexpression in Triple-Negative Breast Cancer (TNBC)
58.	Identification of Prognostic Markers of Plasma Cell Myeloma by Cytogenetic and Molecular Cytogenetic
59.	Cardiomyocytes Model From Human Pluripotent Stem Cells as Tool for Prevention of Chemotherapy Induced Cardio toxicity
60.	Production of anthocyanin as chemical markers from Hibiscus sabdariffa L. (Roselle) (Cyanidin-3-O-sambubioside and delphinidin-3-O-sambubioside)
61.	Differentiation of Hibiscus sabdariffa L. (Roselle) Anthocyanin Rich Extract by a Multi Step Infrared Macro-Fingerprint Method for Anti-Obesity Derived Product
62.	Bioavailability of Hibiscus sabdariffa L. (Roselle) in Rats: In Preparation of Tisane as Anti-Obesity
63.	Mycobactins as Genomic Markers of Mycobacterium tuberculosis in the MyTB Detection Kit
64.	The Relative Risk of Pneumonia Among Malaysian Hajj Pilgrims Whom Being Vaccinated With 23 Valent Pneumococcal Vaccine: A Prospective Cohort Study (PCS)
65.	Analysis of Specific Extracellular MicroRNA for Mesenchymal Stem Cell Modification in Liver Cirrhosis
66.	A Correlational Study Between Vitamin D Level, Inflammatory Status and Metabolic Syndrome Risk in Adolescents
67.	Identification of Novel Biomarkers in B-Cell Lymphoma
68.	Efficacy Evaluation of Carica papaya Leaves Juice, Freeze-Dried and Its Compounds to

No	Project Title
	Dengue Virus Using Dengue Mice Model AG129
69.	Proteomic Marker of Pyrethroid Resistance in Aedes (Stegomyia) aegypti (Linneaus) as a Novel Tool in Resistance Detection and Management
70.	Identification of Clonal Evolution in Relapsed Acute Myeloid Leukaemia Using High Throughput Exome Sequencing

Source: Institute for Medical Research (IMR), MoH

- **Diagnostic service**

Being MoH's referral laboratory, IMR continues to provide and improve clinical laboratory tests. IMR provides specialized and referral diagnostic tests, and tests that are not done in other laboratories. In 2015, IMR provided about 450 different tests conducted by 30 different units/laboratories.

- **Consultative services**

IMR's staffs provide advisory and consultative services to the MoH, other government departments, as well as international organizations. Most units of the Institute also serve as referral centers to MoH laboratories throughout the country. In 2015, 123 staff members provided consultative services at the national level, while 32 staff members provided such services at the regional /international level.

- **Scientific and Technical training program**

Training activities carried out by the Institute comprise regular courses offered annually as well as ad hoc training program and attachments to various units for industrial training. The regular training courses include the SEAMEO-TROPMED postgraduate courses namely, the Diploma in Applied Parasitology and Entomology and the Diploma in Medical Microbiology courses.

The ad hoc program provided training opportunities for 83 scientists, medical doctors and allied personnel from other departments and local and foreign institutes. In 2015, the Institute conducted 43 training workshops, 16 seminars and 16 courses.

Institute for Public Health (IPH)

Public health research is aimed at improving the quality of life of population. It indicates a population-level approach with a likelihood of society-wide benefits. IPH, as one of the research institutes under the NIH, is focusing in public health research. As a research institute which focused towards public/population health, the aim was to support MoH in providing optimum health care to the Malaysian population based on two stages:

i. Planning stage; data and information for the planning of health care services and resource allocation.
ii. Implementation stage; data and information in the monitoring and evaluation of the services.

- **My Salt Study: Spot Urine and 24-Hour Urinary Sodium Determination Among Ministry of Health Staff**

There is overwhelming evidence that dietary salt is one of the major determinants of raised blood pressure; a major cause of cardiovascular disease. In conjunction with the effort of sodium monitoring, a sodium determination study or My Salt had been undertaken among MoH's staff. This study was the project that focusing on sodium / salt intake which is now an indicator under the Non Communicable Disease (NCD) Global Monitoring Framework (GMF). The reporting on the dietary salt intake to the United Nations General Assembly (UNGA) is required in every five years starting 2015.

The aim of this study was to determine the dietary salt intake through 24-hour urinary output, spot urine and dietary assessment. Other associating factors including knowledge, attitude, practice and physical assessment were also investigated. This cross-sectional study was conducted from November to December 2015 in 16 study sites including head quarter of the MoH, National Health Institutes and 14 State Health Departments.

The study was participated by 1,116 from 1,568 respondents. The respondents were randomly selected. During the data collection in each study site, respondents underwent the data collection process facilitated by data collector team members and supervised by officers from Nutrition or Non-Communicable Disease Division in each study site. Before the study was commenced, the data collector team member that comprised from nutritionist/ dietician, nurses/ medical assistant was officially trained in My Salt data collection training.

There were several methods of evaluating salt intake such as dietary recall, food frequency questionnaires and 24- hour urine collection. Twenty-four hour urine collection is the gold standard for assessing salt intake through 24-h urinary sodium excretion despite the fact that the collection is regularly inconvenient. Therefore, the use of spot urine samples, as an alternative would be desirable. In this study, spot urine was utilized and the validated equation developed for Japanese such as Kawasaki and Tanaka had been used to predict 24-hour urinary sodium. In Malaysia, an equation to predict 24-hour urinary sodium has not been developed. Therefore the association between measured 24-hour urinary sodium and predicted 24-hour urine sodium by the equation in this current study is useful for future sodium monitoring in larger scale.

Furthermore, the current sodium intake among MoH's staff in this current finding is important to determine the necessary step towards sodium reduction initiatives in Malaysian population.

- **National Health & Morbidity Survey (NHMS) 2015**

The NHMS is a nationally representative health survey of population in Malaysia. It was first initiated in 1986 and has been used as an important method for monitoring the health of the population in Malaysia. Its objectives were to supplement community-based data on the common health problems, health needs and expenditure on health in the community to

enable the MoH to review priorities and activities of programs, evaluate the impact of strategies and plan future allocation of resources. The interval of NHMS has been shortened from every 10 years to a 4 yearly cycle with annual data collection since 2011 to ensure timely information is obtained for planning of health programs. In 2015, the NHMS was conducted as the first survey in a new cycle of NHMS (2015-2018). Based on the request from the stakeholders, NHMS 2015 has repeated most of the modules in NHMS 2011 especially on health care demands, health service utilizations, non-communicable diseases and risk factors. A few other modules such as on traditional and complementary medicine, mental health and disability were also included.

In designing the study, NHMS 2015 has adopted a standard methodology for a household survey to produce a nationally representative data. The samples covered both urban and rural areas and canvassed all states in Malaysia. Data collection was by face to face interview using structured questionnaires as well as self-administered method. Clinical assessment and biochemistry tests were performed based on the modules. Survey information was collected electronically using handheld devices.

In the implementation of NHMS 2015, a few committees were set up at various levels to ensure optimum coordination of the survey. Assistance was obtained from various categories of staffs within the MoH at national, state and district levels before and during the implementation of the survey. In each state, a liaison officer was appointed to assist the central team in the preparation of the field work. These would include assistance in the delivery of information about the survey to the selected communities, District Health Officers and local authorities and also logistic preparations. A total of 75 data collection teams were established throughout the country. Data collections were conducted from early March until early June 2015. About 10,000 randomly selected living quarters (LQ) were visited and 30,000 populations responded to the survey with the overall response rate of 86.4%. Findings from NHMS 2015 were presented to the NHMS Steering Committee which was chaired by the Director General of Health on 1 September 2015 and the reports were published in December 2015.

IMAGE 10
BUNTING OF NHMS, 2015

Source: Institute for Public Health (IPH), MoH

IMAGE 11

TOOLS OF DATA COLLECTION, NHMS, 2015

E-NHMS 2015 application was developed for data collection using

Questionnaires used in NHMS 2015

Source: Institute for Public Health (IPH), MoH

- **Research**

Research is one of IHM's main functions where the main focus is related to health management for organizations under MoH. Most of the researches are based on the 10MP requirements as well as directive/request from MoH stakeholders.

i) Research Project

In 2015 a total number of six projects including the extension projects were successfully implemented:

1. Strengthening community empowerment and participation of population for maternal health problems and health-seeking behavior of Orang Asli at Peninsular Malaysia-UNDP.
2. HO Extension: Issue and Challenges.
3. HO Extension: Analysis on Medical Practitioner Under Medical Review Panel (MRP).
4. Comparison of Perception by Supervisors on Aspects Related to Competency (KAP) Towards Newly Employed Nurses in MoH.
5. Assessing the level of Knowledge, Attitude, and Practice of Assistant Medical Officer in the Ministry of Health Malaysia Facilities.
6. Cost effectiveness of Hospital Cluster in Transforming the Health Care Service in Malaysia.

ii) Publication

In 2015, IHM published an article in local journal (Table 20).

TABLE 20

ARTICLES PUBLISHED IN LOCAL JOURNAL, 2015

No	Title	Authors	Journal
1.	Pre-deployment Flood Disaster Volunteer Activities in Crisis Preparedness Response Centre of Institute for Health Management (CPRC IHM): Our Maiden Experience.	Pangie, B., M Fairuz, A.R., Noriah, B., N Izzah, A.S.	Journal of Health Management (Special Edition): Flood Disaster Dec 2014 - Jan 2015 Vol. 1 pp 45-56.

Source: Institute for Health Management (IHM), MoH

iii) Presentation to Stakeholders

There were a total of 10 presentations to stakeholders by IHM's technical officers in 2015 (Table 21). This is one way of communicating research findings to stakeholders while enhancing evidence-based decision making.

TABLE 21

IHM PRESENTATION FOR STAKEHOLDERS, 2015

No	Title	Stakeholders	Date
1.	Houseman Extension: Issues and Challenges.	*TimbalanKetua Pengarah Kesihatan (P&ST)*	17 February 2015
		Bahagian Perkembangan Perubatan, KKM	18 February 2015
		YB Menteri Kesihatan	26 February 2015
		Ketua Pengarah Kesihatan	9 March 2015
		Malaysian Medical Council	24 March 2015
2.	Factors Influencing Healthcare Professionals to Serve In East Malaysia.	*Timbalan Ketua Pengarah Kesihatan (Penyelidikan dan Sokongan Teknikal)*	17 February 2015
		Ketua Pengarah Kesihatan dan Bahagian Perkembangan Perubatan	9 March 2015
		Bahagian Sumber Manusia	13 March 2015
3.	Access Block for Adult Inpatients in Public Sector Hospitals, Malaysia.	*Timbalan Ketua Pengarah Kesihatan (Penyelidikan dan Sokongan Teknikal)*	17 February 2015
4.	Entry Qualification into Medical school in Malaysia.	*Timbalan Ketua Pengarah Kesihatan (Penyelidikan dan Sokongan Teknikal)*	28 March 2015
5.	*Pembentangan Kajian UNDP & Pelan Tindakan kepada* Stakeholder.	*Unit Perkhidmatan Kesihatan Orang Aslidan BPKK*	10-11 February 2015
6.	Exploring the Best Models for Training Structures in Ministry of Health.	*Ketua Pengarah Kesihatan*	9 March 2015

No	Title	Stakeholders	Date
7.	Specialist Retention.	*Ketua Pengarah Kesihatan (Penyelidikan dan Sokongan Teknikal)*	22 January 2015
		Bahagian SumberManusia (BSM)	17 September 2015
		KSU & BSM	30 September 2015
		Jawatankuasa Pemandu Sumber Manusia (JPSM) dipengerusi oleh KSU	5 October 2015
8.	*Kajian pengamalan penerapan nilai-nilai murni dan budaya korporat KKM di kalangan anggota hospital KKM.*	*Mesyuarat Memajukan Penyampaian Perkhidmatan (MPP) bil. 2/2015 dipengerusikan oleh TKSU (pengurusan)*	1 October 2015
9.	Analysis On Medical Practitioners Under MRP.	*Pembentangan preliminary results kepada stakeholders (BPP, BSM, MMC)*	24 August 2015
		Pembentangan kepada TKPK (P&ST)	29 September 2015
		Pembentangan kepada KPK bersama stakeholders (BPP, BSM, MMC)	23 October 2015
		Pembentangan kepada KPK bersama Dekan-Dekan Perubatan, Pengarah JKN	13 November 2015
10.	Strengthening Community Empowerment As An Approach To Improve Maternal Health Of Orang Asli At Peninsular Malaysia.	*EPU, BPKK, Unit Perkhidmatan Kesihatan Orang Asli Pejabat TKPK(KA), PKD Kuala Lipis, Gua Musang, Hulu Perak*	15 December 2015

Source: Institute for Health Management, MoH

- **Training**

i) In-Service Training

Every year, IHM conducts in-service training for MoH healthcare professionals. In 2015, there were seven clusters of training being conducted as follows:

1. Leadership Development and Organizational Governance
2. Research Enhancement
3. Supervisory Development Cluster
4. Professional and Personal Development
5. Collaboration
6. Generic
7. TGP Podium

In 2015, IHM conducted a total of 60 courses (Table 22). These training sessions help to improve their competency and enhance their quality of service, outputs and quality of research.

TABLE 22

IHM IN-SERVICE TRAINING, 2015

No	Training Cluster	Course (Total)	Participant (Total)
1.	Leadership Development and Organizational Governance	20	408
2.	Research Enhancement	10	145
3.	Supervisory Development Cluster	5	230
4.	Professional and Personal Development	12	252
5.	Collaboration	6	211
6.	Generic	4	796
7.	TGP Podium	3	1150
Total		**60**	**3192**

Source: Institute for Health Management, MoH

ii) Talent Grooming Program for Technical Healthcare Professionals (TGP)

The TGP is a new initiative and the brainchild of the Director General of Health, MoH, Malaysia to establish a systematic special program. The program is designed to identify and develop leadership potential among healthcare professionals that have the ability to become leaders in the future. The program is in accordance with the Pekeliling Perkhidmatan Bil. 3/2006: *"Panduan Mewujudkan"* Search Committee "*Dan Proses Pelaksanaan Pelan Penggantian*" (Succession Planning). Participation is open to all the technical officers in the MoH with Grade 41 and above.

The TGP program is one of the Key Performance Indicator (KPI) for MoH, under the New Index System Star Rating in which the Succession Planning was systematically implemented. In 2015, this program was also appointed as one of the *Inisiatif Transformasi Perkhidmatan Awam KKM (JPA):Teras 1 – Mendaya upaya Bakat.*

The selected TGP's candidates must go through several layers of screening before being selected as a talent. The first batch of candidates was selected in June 2014 with 16 representatives from all programs in the MoH. Table 23 shows the number of TGP's candidates from every program in MoH for every cohort as in 2015

TABLE 23

TGP STATUS, 2015

Program	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Total
Medical	8	4	5	4	**21**
Public Health	4	4	6	4	**18**
Research & Technical Support	1	1	3	5	**10**
Dental	2	6	0	3	**11**
Pharmacy	1	4	3	0	**8**
Safety & Food Quality	0	0	1	1	**2**
TOTAL	**16**	**19**	**18**	**17**	**70**

Source: Institute for Health Management, MoH

The TGP's training frame covers five main aspects and there are leadership, organizational governance, communication skills and relationship, personal values and professional values. Training structure for every talent is taking into account the level of their competence in the aspects mentioned above. In addition to all these aspects, every talent should be involved in a research project that has been determined based on program and their work field and to publish technical reports of the research results. In addition, to improve and strengthen the skills and knowledge of each talent, there are some courses or training conducted in partnership with organizations outside MoH or overseas organizations such as the National University of Singapore (NUS), INTAN and Singapore CSC, as well as the Royal College of Physicians of London.

iii) Consultation

IHM provides consultation to agencies associate with MoH. Consultancy services provided are based on applications received and also through formal instruction. Normally, consultation through the application is related to the performance of an activity after receiving training from IHM. In 2015, a total of 50 consultations were given by officers based on their field of expertise (Table 24).

TABLE 24

CONSULTATION SERVICES, 2015

No	Consultation Services	Total
1.	*Kumpulan Inovatif dan Kreatif* (KIK)	14
2.	Corporate Culture Workshop	8
3.	Soft Skill Course	5
4.	Action Research Workshop	2
5.	*Imej & Ketrampilan*	2
6.	Talent Grooming Program (TGP)	1
7.	QA Approach in Primary Care Settings	1
8.	Investigation of Shortfall In Quality Workshop	1
9.	Quantitative Research Methodology for Beginner	1
10.	*Pengurusan wabak Denggi: Pendidikan Kesihatan*	1
11.	*Seminar Pemikiran Kreatif dan Inovasi Makmal Kesihatan Awam Kebangsaan*	1
12.	Interpersonal & Communication skill for Professionals Course	1
13.	*Kursus Profesionalism bagi Pegawai Kesihatan Persekitaran*	1
14.	Leadership Seminar	1
15.	Management & TQM	1
16.	Health Indicator Approach & Hospital Specific Approach	1
17.	9th Malaysia- Singapore Seniour Executive Development Program (SEDP)	1
18.	*Seminar Penyelidikan Sains Bersekutu (Zon Selatan)*	1

No	Consultation Services	Total
19.	*Perkahwinan vs Kerjaya*	1
20.	*Jururawat Dalam Era Global*	1
21.	Family and Marriage	1
22.	*Anjakan Pradigma : Tranformasi Pekerja Gemilang*	1
23.	Psychosocial First Aid	1
24.	*Kursus Kajian Kepuasan Pelanggan menggunakan Perisian SPSS*	1

Source: Institute for Health Management, MoH

Institute for Health Systems Research (IHSR)

Health Systems Research is a research field focuses on system functions, which comprises of individual units, organizations and institutions or the complex inter-link between organizations and the health system as a whole. It provides scientific evidence to policy-makers and health managers, enabling them to make evidence-based decision-making on health matters. To address the gap in health systems research in Malaysia, IHSR was initiated as a Unit within the Institute for Public Health (IPH) before expanding into a Division. It was subsequently established as an independent Institute in November 2002. Currently, IHSR consists of seven divisions with the following functions:

i. Health Policy Studies and Analysis;
   a. To stimulate, coordinate and conduct basic and applied policy research and analysis dealing with the organization, financing and effectiveness of health services;
   b. To provide tools and strategies that will facilitate decision-making;
   c. To facilitate in translating research findings into health policies; and
   d. To provide methodology courses in health policy research and analysis.

ii. Health Care Quality Research;
   a. To contribute towards the development and evaluation of tools, methods and approaches for the development of quality management system;
   b. To provide relevant data and information to support the implementation and evaluation of the Strategic Plan for Quality in Health;
   c. To develop, implement and evaluate educational programs to develop critical mass in the capacity and capability for quality improvement; and
   d. To document best practices, experiences and lessons learned in quality improvement efforts.

iii. Health Care Services Research;
   a. To undertake research in health systems and society, production and distribution of health resources, organizational structure of health systems, delivery of health services, health services management and community participation; and
   b. To support education in the areas of health systems development.

iv. Health Outcomes Research;

To promote, coordinate and conduct of research and development of health outcomes research in the areas of population-based and clinical-based programs and interventions, health outcome measures, methods for health outcome measurement, and research skills in conducting outcomes research.

v. Health Economic Research;
   a. To contribute to the development of the theory, methods and applications of health economics in relation to addressing specific policy relevant questions such as equity, efficiency, cost effectiveness, cost benefit and others;
   b. To promote, coordinate and conduct basic and applied health economics research; and
   c. To introduce the perspectives of health economics to policy development and evaluation through educational programs and consultancy services.

vi. Medical Statistics, Data Management and ICT;
   a. To support research design, data collection, data processing and data analysis for all projects;
   b. To support dissemination of research results;
   c. To conduct educational programs related to data management, statistics and ICT; and
   d. To participate in innovative works on ICT.

vii. Administration.

The Institute plays a part in facilitating the decision-making process at various levels, in particular at policy level within and outside MoH. IHSR aspires to strengthen this role through building its capacity and capability in knowledge translation (KT), making KT the two-way exchange medium for researchers and other parties to apply the knowledge further. IHSR was also envisioned to be a centre of excellence for Health Policy and Systems Research in the WHO Western Pacific Region by 2025.

- **Research**

The research projects conducted by IHSR in 2015 are described in Table 25

- **Publications**

In 2015, IHSR has produced seven publications in international journals and ten publications in national journals as shows in Table 26. The Institute has also produced two technical reports and research highlight.

TABLE 25

IHSR RESEARCH PROJECTS, 2015

No.	Research Title	NMRR ID	Principal Investigator	Research Objectives
Service Delivery: Health Economics & Financing				
1.	Malaysia Health Care Demand (2015)	14-354-19363	Adilius Manual	To describe the community perception and demand for health care
2.	Joint Learning Network (JLN) – Primary Health Care (PHC) Initiatives: Country Self-Assessment Tool for Universal Health Care (UHC)-PHC Alignment, Malaysia	14-1068-21679	Siti Haniza	To validate the country assessment tool for PHC alignment with UHC in Malaysia
Service delivery: Accessibility of Care/Quality of Care				
3.	Development of Systems to Provide Measure of Equity, Including Accessibility of Private and Public Healthcare Services for Vulnerable Populations in Malaysia	14-869-19364	Adilius Manual	Objective of project covered under Malaysia Health System Reform (MHSR): PAT-Equity & Utilizations
4.	Re-engineering Work Processes in Clinics	14-595-21342	Zalilah Abdullah	The aim of this study is to improve waiting time by redesigning work processes in health clinics
Service Delivery: Efficiency & Effectiveness				
5.	Community Perception on Malaysia Health Care (2014)	14-952-21142	Jabrullah Ab. Hamid	To describe the community perception and demand for health care
Human Resource				
6.	Need-Based Modeling and Projections of Health Human Resources	14-903-21795	Ainul Nadziha Mohd Hanafiah	To develop models for projecting both private and public health provider supply and requirements based on population's needs and demands (doctors, dentists, pharmacists, nurses and assistant medical officers)

Source: Institute for Health System Research (IHSR), MoH

TABLE 25

IHSR RESEARCH ON-GOING PROJECTS, 2015

No	Project title	NMRR ID	Principal Investigator
1.	Project On Blood Transfusion Errors in Ministry Of Health Hospitals: A Study To Explore Underlying Causes And Effectiveness Of The Interventional Measures	13-510-14915	Dr Norris Naim/ Anis Syakira Jailani
2.	Asthma Clinical Pathway: Impact On Cost And Quality	13-1407-17464	Dr Ramli Zainal
3.	A Study of the Factors Influencing Oral Healthcare Delivery Among Schoolchildren	14-748-21710	Dr Nur Ezdiani Mohamed
4.	Cost of diabetes & its management: A retrospective database analysis on outpatient management of adult type 2 diabetes mellitus patients in Selangor	14-723-2179	Dr Nur Hidayati Abdul Halim
5.	Secondary Database Analysis: Resource Utilization Among Diabetes Patients	14-722-19361	Dr Ramli Zainal
6.	*Jom Mama* Project: Pre-pregnancy intervention to reduce the risk of diabetes and prediabetes	14-904-21963	Dr Roslinah Ali
7.	Measurement of Health Systems Performance and Indicators for Delivering Quality Healthcare Services: A Systematic Review	14-582-19401	Pn Zaiton Kamarruddin
8.	Improving Congestion at Emergency Department and Medical Ward at MoH hospitals: LEAN Initiatives	15-467-23900	Pn Zaiton Kamarruddin
9.	Effective Patient-Centered Care Approaches and Interventions: A Systematic Review	14-828-21689	Dr Chan Yee Mang
10.	Mining for Knowledge Translation for Health Seeking Behavior in Malaysian Population	15-840-26087	Dr Muhd Zulfadli Hafiz bin Ismail
11.	Reviewing and Strengthening of District Public Health Services in Malaysia	14-1427-22010	Dr Mohd Ridzwan bin Shahari

Source: Institute for Health System Research (IHSR), MoH

TABLE 26
IHSR PUBLICATIONS, 2015

No	Title	Journal
International Journals		
1.	Reducing Medical Errors in Primary Care Using a Pragmatic Complex Intervention	Asia Pacific Journal of Public Health 1-8, 2015
2.	Survival Rates of Cancer Patients in Malaysia	Asian Pacific Journal of Cancer Prevention. 16 (7), 30167-3072
3.	Modeling the Relationship between Human Intelligence, Knowledge Management Practices and Innovation Performance	Journal of Information & Knowledge Management, Vol. 14, No. 1 (2015), World Scientific Publishing Co.
4.	Process of selection of treatment strategies among patients with Type 2 Diabetes Mellitus in Malaysia: A grounded theory approach.	PLOS One (in press)
5.	Social Influences of help-seeking behavior among patients with Type 2 Diabetes Mellitus in Malaysia	2015 APJPH. Asia Pacific Journal of Public Health 1-9.
6.	Massage Therapy for Improving Functional Activity After Stroke.	The Cochrane Library 2015, Issue 10
7.	A Dental Quality Effort: Sharing the Success Story	Journal of US-China Public Administration, September 2015,Vol.12,No.9, 706-713
Local Journals		
1.	The Changing Face of Primary Care: A Cross Sectional Study in Malaysia	Sains Malaysiana Volume 44 Number 5, May 2015
2.	Re-engineering work processes in clinics	The Medical Journal of Malaysia Volume 70 Supplement 1, September 2015
3.	Reducing patient's waiting time at Klinik Kesihatan Bukit Kuda (KKBK) using Lean management	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015
4.	Improving Waiting Time through Re-engineering of Primary Care: A Systematic Review	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015
5.	Reengineering Work processes in Clinics	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015
6.	Continuity of care: Is the personal doctor practice valued? Preliminary results from an inner-city clinic	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015

No	Title	Journal
7.	*Jom Mama* - The Pilot Test Experience	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015
8.	Diabetes: How Severe? Evidence from e-HIS	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015
9.	Are We Measuring Correctly? Questionnaire Translation And Validation Process	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015
10.	Lean initiative: Improving Patient Journey At Emergency Department of MOH State Hospital	Malaysian Family Physician Journal Volume 10 Supplement 2, 2015

Source: Institute for Health System Research (IHSR), MoH

- **Presentations**

Throughout the year, IHSR had taken part in Oral Presentations – four international and 45 local presentations as well as Poster Presentations – 17 international and 15 local presentations.

- **Consultations**

IHSR had provided 46 consultancies and technical assistance to external agencies both locally and internationally in matters related to health systems research, quality assurance/improvement, research methodology and others.

- **Training**

In 2015, IHSR has conducted a total of ten research-oriented training courses, and 12 personnel training courses.

TABLE 27

IHSR RESEARCH ORIENTED TRAINING, 2015

No	Training	Date
1.	Workshop Introduction To Stata	26-29 January 2015
2.	Advance Data Management in Excel	18-19 March 2015
3.	Program Exercise at Workplace	16 March 2015
4.	Workshop Development of A Health System Framework for patient centre care	6-7 May 2015
5.	Basic & Intermediate Statistic for Research	3-4 June 2015
6.	WHO funded consultancy Patient Centred Care Framework Development Date: 22-25 June 2015	22 June 15
7.	Training On Infrastructure Monitoring & Evaluating (TIME)	17 August 2015
8.	Workshop Sharing Experience in Evaluating Cost Analysis Study in Diabetes Mellitus	25 August 2015
9.	Workshop Application of Modeling in Costing of Healthcare Intervention	21-22 September 2015
10.	Workshop Data Envelopment Analysis (DEA) In Healthcare 5	5-6 October 2015

Source: Institute for Health System Research (IHSR), MoH

TABLE 28

IHSR PERSONNEL TRAINING, 2015

No	Training	Date
1.	Customized Speaking English Course 36 Hours	February –June (Each Tuesday)
2.	*Program peningkatan Integriti diri dalam Kumpulan Kerja Berpasukan*	27-29 March 2015
3.	Poster Design for Scientific Presentation by Microsoft PowerPoint	14 May 2015

No	Training	Date
4.	In House Train The Trainer	29-30 July 2015
5.	ISO 9001:2008 Understanding & Implementing QMS	3 August 2015
6.	*Kursus Asas Pengurusan Kewangan*	5-6 August 2015
7.	*Program Makanan Sihat*	22 August 2015
8.	Body Language for Business Setting	25-26 August 2015
9.	*Kursus Gaji, Elaun dan Kemudahan Penjawat Awam*	1-3 September 2015
10.	Workshop Creative Thinking	9-10 September 2015
11.	Leading and Empowering Your Team : A Systematic Succession Plan	18-19 August 2015
12.	*Kursus Amalan 5S Kaizen*	6-7 October 2015

Source: Institute for Health System Research (IHSR), MoH

CONCLUSION

The Research & Technical Program will continue to support all programs and activities within the MoH and also other sectors towards achieving the best in all health related endeavors and play an important role in ensuring that MoH activities are geared towards achieving national objectives. Research activities will continue in supporting the other programs and providing evidence for policy making and improving public health services and health delivery systems.

CHAPTER 7

DENTAL

INTRODUCTION

The Oral Health Program of the Ministry of Health undertakes the stewardship and governance for oral healthcare which includes oral health policies development, management of oral health programs and services, legislation and regulations pertaining to the practice of dentistry and promotion of oral health to ensure continual improvement of the oral health status of Malaysians.

ORAL HEALTH EPIDEMIOLOGY AND RESEARCH

Research efforts were concentrated at National and Program levels as follows:

1. National Oral Health Research Initiative (NOHRI) oral health research priority identified.
2. National Health and Morbidity Survey (NHMS) 2015: Healthcare Demand Module - statistical report.
3. NHMS 2014: Malaysian Nutrition Survey 2014 (MANS 2014) - report on food consumption habit was completed in early 2015.
4. National Health Financing Mechanisms Studies - data mining.
5. Collaborative Project "An Evaluation of Diabetic Patients Referred to the Dental Clinic**"**- collaborative study with Institute of Public Health (IPH), Institute of Health System Research (IHSR), Disease Control Division and the Family Health Development Division in the MoH.
6. NHMS 2017: School-Based Oral Health Survey – protocol development.
7. National Oral Health Survey of Pre-school Children (NOHPS 2015) – data analysis and data dictionary.
8. Costing of Dental Procedures in Sabah Dental Facilities – disseminating findings.
9. A Study on the Drinking Water Supplies, Dietary Habits and Oral Health Status of Adults in Kelantan- report printed.
10. Compendium of Abstracts 2014 – published.
11. Compendium of Abstracts 2015 – compilation.
12. Human Capital Development for Oral Health Research in MoH.
13. Research Submission reviews.
14. Monitoring and evaluation of Oral Health Research in MoH.

PROFESSIONAL DEVELOPMENT

Recognition of Dental Specialties and Postgraduate Qualifications

Pursuance for recognition of various postgraduate qualifications in MoH is an ongoing process. In Jun 2015, the following qualifications were given full recognition as specialty courses by Ministry of Education, Malaysia at the Qualification Assessment and Recognition Standing Committee (JTPPK) Meeting:

1. Doctorate in Clinical Dentistry (DClinDent), Periodontics, University of Sheffield, United Kingdom
2. Master of Dental Surgery (Periodontology), University of Hong Kong
3. Doctor of Clinical Dentistry (Orthodontics), Universiti Teknologi MARA (UiTM)

Gazettement of Dental Specialist

A total of 38 federal scholarships for postgraduate training were obtained in 2015 comprising of 24 local and 14 abroad. These include two specialists who pursued Areas of Special Interest in Conscious Sedation in Special Needs Dentistry and Cognitive Behavioral Therapy and Maxillofacial Prosthodontics.

Training of Dental Personnel

In 2015, a total of 1,284 courses were attended by 38,124 dental personnel. A total of RM 275,060.00 was spent on 13 dental officers who went for in-service training abroad.

FACILITY MANAGEMENT & DEVELOPMENT

Development projects under the 10th Malaysian Plan (10MP)

Under the 4th Rolling Plan of the 10MP (2015), dedicated oral health development projects approved were as listed below:

a) 4 Standalone Dental Clinic
   - Klinik Pergigian Bukit Selambau, Kedah
   - Klinik Pergigian Kluang, Johor.
   - Klinik Pergigian Sipitang, Sabah.
   - Klinik Pergigian Beluran, Sabah.

b) Non Hospital Based Dental Specialist Centre, Jalan Zaaba, Seremban, Negeri Sembilan.
c) Upgrading dental facilities in hospital – Dental Paediatric Department, Hospital Melaka.
d) Upgrading Klinik Pergigian Karakit, Pulau Banggi, Sabah.
e) Mobile Dental Clinic for Wilayah Persekutuan Kuala Lumpur & Putrajaya
f) Mobile Dental Teams for Negeri Terengganu.
g) Public Water Fluoridation in Perak

Mobile Dental Clinic bus with two (2) dental chairs built up was completed and delivered to Wilayah Persekutuan Kuala Lumpur & Putrajaya.

Development of Norms and Guidelines for New Facilities

Brief of Requirements (BOR) and standard list of equipment, specification of other requirement for new dental facilities were reviewed and updated:

a) BOR for Paediatric Dental Specialist Department in Women's and Child Hospital (WCH)
b) Specification of Mobile Dental Clinics Bus with 2 Dental Chairs.
c) Specification of Mobile Dental Clinics Van with 1 Dental Chair.
d) Specification of Mobile Dental Laboratory.
e) Specification of Portable Mobile Cart.
f) Specification of Electric Portable Dental Chair.
g) BOR for new development projects approved under 4th Rolling Plan 2015 10MP.

Disaster Funding

End of December 2014, a total of 20 dental facilities including school dental clinics in Kelantan, Pahang, Terengganu and Perak were affected by flood. Total estimated damaged cost was 6.4 million.

In 2015, flood budgets for replacement of equipment, vehicles and upgrading of infrastructures of affected facilities was approved for the following states:

- RM415, 305.00 -Terengganu
- RM469, 700.00 - Pahang

- RM584, 000.00 - Perak
- RM16,237,464.00 – Kelantan

Health Clinic Support Services of Biomedical Equipment Management Services (BEMS) Under Medical Equipment Enhancement Tenure (MEET) Program.

Maintenance services of existing biomedical equipment for dental clinics under MEET by Quantum Medical Services (QMS) started on 15 January 2015 in Pulau Pinang, Perak, Selangor, WPKL, Negeri Sembilan, Melaka, Johor, Sabah and Sarawak as well as in Pusat Pergigian Kanak-Kanak dan Kolej Latihan Pergigian Malaysia, Pulau Pinang. The delivery and implementation of these services were monitored together with Engineering Division MoH and Procurement and Privatization Division, MoH

Health Clinic Support Services of Facilities Engineering Management Services (FEMS), Cleaning Services (CLS) and Clinical Waste Management Services (CWMS) under *Perkhidmatan Sokongan Klinikal* (PSK).

Privatization of health clinic support services at MoH dental clinics were also expanded to three other services such as FEMS, CLS and CWMS. In 2015, MoH coordinated by Engineering Division managed to finalize a new contract agreement of PSK for 11 states effective 1 July 2015 until 30 June 2018. With this new PSK contracts, 11 different contractors for 11 states were appointed to deliver support services at 118 identified MoH clinics including 9 Standalone Dental Clinics.
The contracts for PSK for continual delivery of support services at identified health clinics in Sabah (Jawat Johan Sdn. Bhd.) and Sarawak (ADL Sdn. Bhd.) have been renewed. All activities were monitored together with *Seksyen Operasi Klinik,* Engineering Division.

Medical and Non-Medical Equipment and Non-Ambulance Vehicles

A total of RM20, 056,370 was approved under the Development Funds for the following:

- RM7, 679,630 for replacement, upgrading and new procurement of medical and non-medical equipment for primary care.
- RM7, 380,740 for replacement, upgrading and new procurement of medical and non-medical equipment for specialist care.

- RM4, 996,000 for replacement and new procurement of non-ambulance vehicles.

Procurement of Assets under Operating Budget

A total of RM35.2 million was received under the Operating Budget (B42) *Dasar Sedia Ada Penjimatan MEET 2015* and used for procurement of assets for primary and specialist care. In addition, another RM3 million was given for the procurement of medical and non-medical asset as follows:

- New improved edition of 2 Dental Laboratories (coaster type) - RM830, 000.00.
- 2 Portable Cart With Built In Suction Air Compressor - RM120,000.00
- 2 Mobile Dental Clinics van type with dental chair(portable) - RM440,000.00
- 10 Automatic Portable Dental Chair - RM37,800.00
- 11 Electric Motor Cutting System - RM424,249.00

Centralized tender coordinated with Procurement and Privatization Division, MoH for a total cost of RM6 million was prepared for procurement of one bus under the development budget and 4 buses under National Blue Ocean Strategy (NBOS) funding for Mobile Community Transformation Centre (MCTC).

Training

Kursus Pembangunan dan Perkembangan Fasiliti Kesihatan Pergigian was held from 15 to 17 November 2015 at Hotel Mahkota, Melaka to review and update dental equipment specification (Dental chair cum unit (officer & specialist), Portable Dental Unit, Autoclave vacuum type B, Intra-Oral Computed Radiography, Digital Panoramic & Cephalometric X-Ray Unit (Digital Managing System) and Dental Technology Workstation. In addition, guide on management of development projects and procurement process was also included in the agenda.

Financing

The 2015 allocation for Oral health program were as below:

a. Existing Policy :
   - Emolument - RM664,549,726.00
   - Operating Budget - RM105,619,709.00
   - Assets - RM36,521,728.00
b. New Policy : RM998,208.00
c. One off : RM24,198,209.00

ORAL HEALTH TECHNOLOGY

In 2015, Dental Clinical Practice Guidelines under development are as listed below (Table 1).

TABLE 1
CLINICAL PRACTICE GUIDELINES AS OF 31 DECEMBER, 2015

Title of CPG	Publication (Year)	Edition	Status
1) Management of Ameloblastoma	2015	1st edition	* Current
2) Management of Anterior Crossbite in Mixed Dentition	2013	2nd edition	* Current
3) Orthodontic Management of Developmentally Missing Incisors	2012	1st edition	* Current
4) Management of Chronic Periodontitis	2012	2nd edition	* Current
5) Management of Severe Early Childhood Caries	2012	1st edition	* Current
6) Management of Unerupted Maxillary Incisors	2006	2nd edition	Printing
7) Management of Palatally Ectopic Canine	2004	2nd edition	Printing
8) Antibiotic Prophylaxis in Oral Surgery for Prevention of Surgical Site Infection	2003	2nd edition	Printing
9) Management of Unilateral Condylar Fracture of the Mandible	2005	Review	In Progress
10) Management of Periodontal Abscess	2003	Review	In Progress
11) Management of Acute Orofacial Infection of Odontogenic Origin in Children	-	New topic	In Progress
12) Management of Unerupted and Impacted Third Molar	2005	1st edition	Due for Review
13) Management of Avulsed Permanent Anterior Teeth in Children	2010	2nd edition	Due for Review

** Current: Less than 5 years as of December 2015*
Source: Oral Health Division, MoH

Approved Purchase Price List (APPL)

Activities in 2015 included, attending meetings coordinated by the Procurement and Privatization Division, MoH to discuss matters related to the supply of items to MoH by Pharmaniaga Logistics Sdn. Bhd. APPL issues include delivery time, penalty on late delivery, product shelf life and complaints on products. As of December 2015, there were 9 complaints made on various dental products under APPL. Pharmaniaga Logistics Sdn. Bhd. who took the responsibility in communicating with related suppliers for quality improvement of products and other shortfalls.

Medical Device

In 2015, a dental officer was appointed as a member in the *Jawatankuasa Kerja Pembangunan Polisi/Garis Panduan – Kompetensi Pengguna Peranti Perubatan* to develop policies and guidelines to control user's competency in relation to medical devices.

MINAMATA Convention on Mercury

Dental amalgam comes under the mercury-added products and provisions are for measures to phase down, not phase out, dental amalgam, taking into account domestic circumstances and relevant international guidance.

HUMAN RESOURCE MANAGEMENT

Professionals and Auxiliaries

Matters related to career advancements and welfare of professionals and auxiliaries undertaken in 2015 were as below:

Improving Organizational Capacity for Service Provision

- Restructuring of the Oral Health Program organization.
- Proposal for reduction of Compulsory Service to one year was approved effective from 1 July 2015.
- 94 dedicated Dental Public Health Specialist post was approved as strategic placement
- Managed 4 (four) *Mesyuarat Penempatan dan Pertukaran Pegawai Pergigian*

- The scope and function of Dental Nurses and Dental Technologists were revised
- Degree programme for the Dental Technologist intake started in September 2015

Ensuring Staff Welfare

- *Gred* Utama and *Gred Khas* post was approved for:
  - 15 Gred JUSA C KUP
  - 3 Gred Khas B
  - 2 Gred Khas C
- 391 trade off posts for dental officers was approved

- Promotional exercise for Dental Officers was undertaken for:
  - 391 Gred U44
  - 164 Gred U48
  - 95 Gred U52
  - 43 Gred U54

- Promotional exercise for Dental Technologist:
  - 18 Gred U32
  - 11 Gred U36
  - 12 Gred U38

- Promotional exercise for Dental Nurse:
  - 123 Gred U32
  - 20 Gred U36
  - 12 Gred U38
  - 5 Gred U40

- Promotional exercise for Dental Surgery Assistant:
  - 16 Gred U22
  - 3 Gred U24

- Ensuring Continuous Professional Development for all dental auxiliaries
  - 2nd Malaysian Dental Therapists' Scientific Conference 2015 (8 – 10 May 2015) at Berjaya Times Square
  - *Kursus Pembantu Perawatan Kesihatan Pergigian* (27 – 29 September 2015) at MyHotel Langkawi

- *Kursus Pembantu Pembedahan Pergigian* (22 – 24 November 2015) at Hotel Seri Costa Melaka

ACCREDITATION AND GLOBILIZATION

Accreditation of Dental Degree programs

Verification and validation of the different levels of accreditation was ongoing in 2015. Preliminary evaluation of the Higher Education Providers (HEPs) database documents was conducted by the appointed panel of assessors and the accreditation process and continued in 2015. Quest International University of Perak (QIUP) application for provisional accreditation was rejected. Second surveillance accreditation visit was conducted to assess the implementation of the clinical phase of SEGi University BDS Program. Accreditation visit for the purpose of renewal of accreditation status was conducted for Universiti Sains Islam Malaysia (USIM), University of Malaya (UM), International Islamic University of Malaysia (IIUM), AIMST University and International Medical University (IMU). Accreditation period for USIM, UM and IMU were extended for a term of 5 years while IIUM was given a period of 3 years. AIMST University was given a period of 6 months to undertake corrective actions on the areas of concern raised by the panel of assessors. Two Memorandum of Agreements (MoA) for the use of MoH facilities by students of dental degree undergraduate programs were signed between Lincoln University College (LUC) and MAHSA University.

Globalization and Liberalization of Oral Healthcare Services

The Oral Health Division (OHD) represented Malaysia for the 14th ASEAN Joint Coordinating Committee (AJCCD) Meeting on 5 May 2015 in Kuala Lumpur. Among the issues discussed during the meeting were:

a. Policies on Temporary Licensing/Practicing privileges for Foreign Dental Practitioners;
b. Requirements for Temporary Registration/Licensing Process;
c. Requirements for Full Registration/Licensing Process for Dental Practitioners;
d. Types of Registration and Licensing Periods and Extension for Foreign Practitioners;
e. Requirement of CPD; and
f. Malpractice Insurance.

The committee also reviewed and updated its Future Plans and Goals for 2015 which includes the Mutual Recognition Arrangement for Dental Practitioners (MRA) objectives, outcomes and implementation status.

The committee continued their discussion on the implementation status of its Plans and Goals for 2015 during the 15th AJCCD meeting on 28 September 2015 in Singapore. Activities to be undertaken in 2016-2020 towards full implementation of the ASEAN MRA on Dental Practitioners were also deliberated. This includes:

a. Provision of procedures and mechanism to facilitate mobility of ASEAN dental practitioners in the region;
b. Development of minimum competency standard for dental undergraduate education.
c. Possibility of developing common accreditation standard of dental schools; and
d. Sharing of training opportunities, including fellowship for postgraduate trainings.

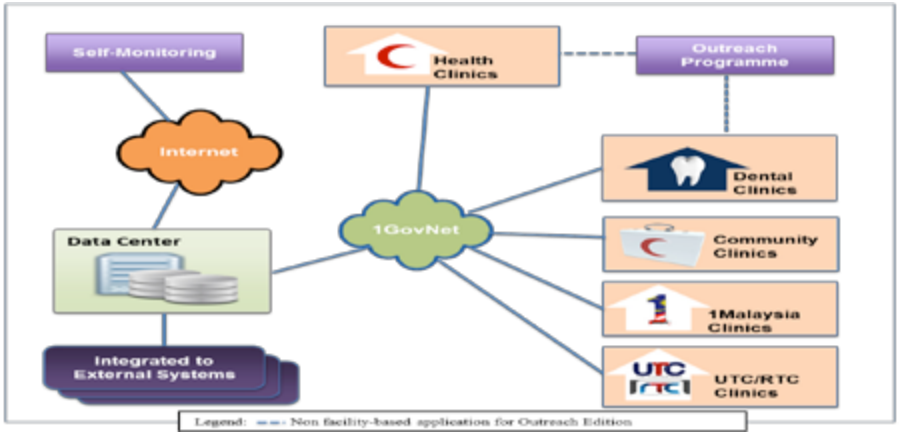
The committee also agreed to develop common core competency standard for dental undergraduate education.

ORAL HEALTHCARE INFORMATION SYSTEM

TelePrimary Care and Oral Health Clinical Information System (TPC-OHCIS) Project

MIMOS a government owned company under MOSTI is the technology provider and developer. The TPC-OHCIS system takes the advantages of new technologies such as cloud computing, web services and security and has included participation of clients through a self-monitoring portal. The project kicked off on 8 December 2014 and expected to end in November 2016.

FIGURE 1
TPC-OHCIS SYSTEM COVERAGE IN SUPPORTING PRIMARY HEALTHCARE SERVICE



Source: Oral Health Division, MoH

OHCIS and eKL (Dental)

The rollout of OHCIS to Putrajaya Presint 18 began on 1 Mac 2015 for primary oral health, orthodontic and periodontics services.

***SISTEM PENGURUSAN PESAKIT* (SPP)**

In 2015, Oral Health hospital based specialties were included in the development of clinical documentation (CD) modules in SPP enhancement project. Various system requirements specifications (SRS) workshops were conducted starting from February 2015. The disciplines involved are Oral Maxillofacial Surgery, Pediatric Dental, Oral Pathology & Oral Medicine, Special Needs Dentistry and Forensic Odontology.

The SRS CD Oral Health Discipline was signed off with the SPP project team witnessed by Senior Dental Director on the 20 October 2015 at the OHD, MoH. The CD module development projects and implementation of SPP at Hospital Raja Perempuan Bainun (HRPB) Ipoh was expected to begin in early 2016. The development of the CD will complete the SPP system and will be rolled out to all other hospitals.

IMAGE 1

THE HANDING OVER OF THE SRS CD ORAL HEALTH DISCIPLINE DOCUMENT FROM TELEHEALTH DIVISION

Source: Oral Health Division, MoH

ORAL HEALTH PROMOTION

Throughout the year 2015, the OHD continues its effort in empowering the public on the importance of oral health by participation in various health campaigns, exhibitions, media slots and collaborative efforts.

Media slots

In 2015, 20 oral health topics has been identified for radio/TV slots but only 13 slots were successfully held (Table 2).

TABLE 2

ORAL HEALTH TOPICS FOR RADIO/TV SLOTS, 2015

Media	Topic	Speaker
Radio Nasional FM	*1. Rawatan dan Penjagaan Pergigian di Bulan Ramadan* *2. Wajib Tahu: Kepentingan Susu Ibu dan Gigi Susu Kanak-Kanak* *3. Pemutihan Gigi: Selamat atau Mudarat* *4. Penjagaan Gigi Palsu*	1. Dr. Ahmad Sharifuddin bin Mohd Asari 2.Dr. Burhanuddin bin Saripudin 3. Dr. Ithnaniah binti Abdul Wahab 4. Dr. Ithnaniah binti Abdul Wahab

Media	Topic	Speaker
Radio Asyik FM	*1. Tanam Gigi: Apa yang perlu saya tahu?* *2. 'Doktor Gigi' Jalanan* *3. Aduh! Sakitnya Bengkak Gusi* *4. Ubat & Penjagaan Gigi Selepas Cabutan* *5. Rawatan Akar: Peluang Kedua Gigi Anda*	1. Dr. Sharifah Munirah Al Idrus 2. Dr. Ithnaniah binti Abdul Wahab 3. Dr. Haznita binti Zainal Abidin 4. Dr. Sharol Lail bin Sujak 5. Dr. Balkis bin Ghazali
TV1	*Gigi Palsu dan Implan Pergigian*	Dr. Rosrahimi binti Abd Rahim
Selamat Pagi Malaysia	*Hari Kesihatan Pergigian Sedunia 2015*	Datin Dr. Nooral Zeila binti Junid
Stetoskop, Nasi Lemak Kopi O TV9	*Bahaya Pendakap Gigi Palsu*	Dr. Rashidah binti Dato' Hj Burhanudin
Rancangan Feminim TV1	*Antara Gigi Palsu dan Implan Pergigian*	Dr. Rosrahimi binti Abd Rahim

Source: Oral Health Division, MoH

Health Campaigns and Exhibitions

Activities such as health campaigns and exhibitions were carried out in **c**ollaboration with other Divisions in MoH. The major events were as follows:

- MDA Scientific Convention and Exhibition at Sunway Pyramid, 23-25 January 2015
- *Karnival Jom Heboh* at Kajang, 8 March 2015
- One Kiddie Mom and Baby Expo at PICC, 13 - 15 March 2015
- *Mini Jom Heboh* at Tangga Batu Melaka, 27 March 2015
- *Karnival Jom Heboh* at Stadium Hang Jebat Melaka, 28 March 2015
- *Raudhah di Hatiku* at Amanjaya Mall Kedah, 24 - 25 April 2015
- *Karnival Perpustakaan Negara*, 30 May 2015
- *Minggu Kesihatan dan Keselamatan Pekerjaan* at E1 Block, MoH, 2 - 4 September 2015
- *Raudhah di Hatiku* at RTC Kelantan, 4 - 5 September 2015
- *Karnival Jom Heboh* at Stadium Batu Kawan, Pulau Pinang, 2 October 2015
- *Karnival Jom Heboh* at Plaza Angsana Johor Bharu, 30 - 31 October 2015
- *Program Sudut Rehat & Baca 'Rest n Read' Perpustakaan Negara at Dataran Merdeka, 30 October - 1 November 2015*

- *Karnival Jom Heboh at Bukit Jalil Selangor, 28 - 29 November 2015*
- *Singgah Santai @ PNM at Perpustakaan Negara Malaysia, 12 November 2015*

IMAGE 2
JOM HEBOH WITH TV3

Source: Oral Health Division, MoH

Content development and production of new materials for oral health education and promotion

Pamphlets, posters and infographic roll-up were developed, printed and distributed to the states. Some of the titles of printed materials were:

- Pamphlet on Bruxism
- Poster on BRUSH Concept- For Long Lasting Healthy Smile and Super Teeth
- Poster *Beruslah untuk Senyuman Berseri*
- Poster *Langkah Selepas Cabutan*
- Flipchart *Pengesanan Awal Kanser Mulut*

Human resource development in oral health promotion

- *Bengkel Teknik Bercerita Secara Kreatif* was held at Flamingo Hotel, Ampang Selangor on 24-26 October 2015
- *Bengkel Halatuju Promosi* was held at Best-Western Hotel, i-City, Shah Alam on 18-20 November 2015

PRIMARY ORAL HEALTHCARE

Expansion and consolidation of primary oral healthcare delivery

To further ensure decrease in tooth loss among adults, in 2013 the Oral Health Program established 21 *Klinik Endodontik Perkhidmatan Pergigian Primer* (KEPP), which offer endodontic treatment. Identified dental officers from these 21 clinics were trained to undertake endodontics of anterior and posterior teeth using rotary instruments. In 2015, a total of 2,127 endodontic cases were seen and completed in these KEPPs.

The outpatient dental services have also expanded in the following aspects;

- Number of dental clinics with daily outpatient services increased from 90.7% (2014) to 92.8% (2015)
- Number of dental clinics with permanent dental officers increases from 77.0% (2014) to 79.4% in 2015.
- Delivery time for issue of dentures to the public and elderly patients has also improved. The percentage of denture patient receiving dentures within 3 months in 2015 was 70.6% compared to 63.3% in 2014.
- Percentage of denture patients aged ≥ 60 years old receiving dentures within 8 weeks in 2015 was 53.9% compared to 48.7% in 2014.

The draftings of 3 new guidelines were undertaken: Oral Healthcare for Young Adults, Dental Officers with Special Interest in Periodontics and Standard Operating Procedure (SOP) on blood pressure taking at primary oral healthcare clinics. Review on SOP for Examination and Diagnosis, HIMS reporting format and dental treatment card LP8 was also started in 2015.

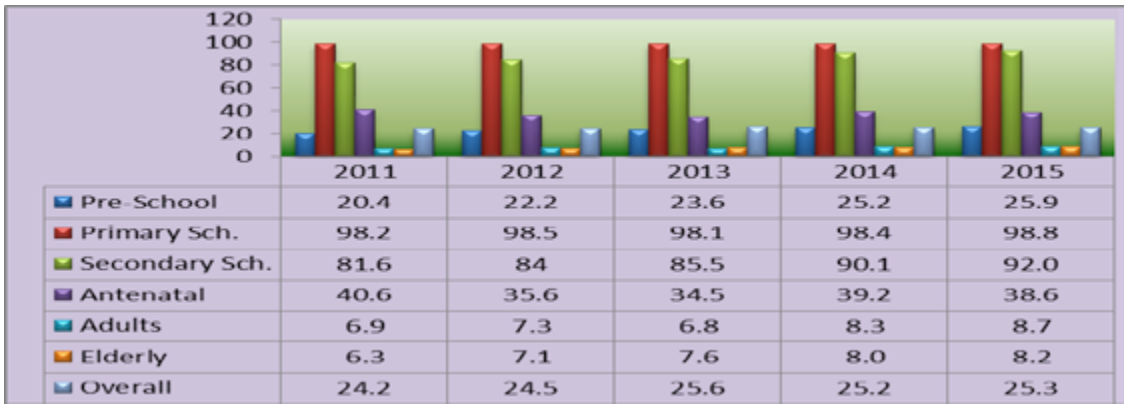
Monitoring and Evaluation of primary oral healthcare

The provision of oral healthcare to the population has been, and continues to be given priority by target groups; toddlers (0 - 4 years), pre-school children (5 - 6 years), schoolchildren (7 - 17 years), children with special needs, antenatal mothers, adults and the elderly. The performances were monitored quarterly and reports presented at Technical and *Jawatankuasa Dasar dan Perancangan Kesihatan Pergigian* (JDPKP) meetings.

The overall utilization of primary oral healthcare in the MoH has remained almost the same, with a slight increase from 25.2% in 2014 to 25.3% in 2015 (Figure 2).

FIGURE 2

COVERAGE OF PRIMARY ORAL HEALTHCARE BY PATIENT CATEGORY, 2011-2015



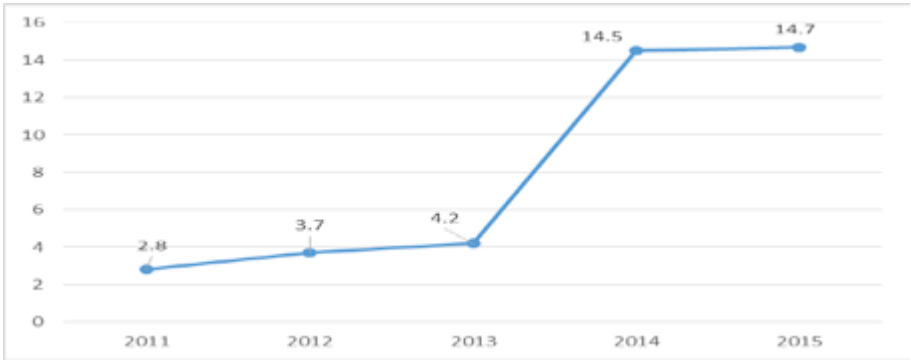
	2011	2012	2013	2014	2015
Pre-School	20.4	22.2	23.6	25.2	25.9
Primary Sch.	98.2	98.5	98.1	98.4	98.8
Secondary Sch.	81.6	84	85.5	90.1	92.0
Antenatal	40.6	35.6	34.5	39.2	38.6
Adults	6.9	7.3	6.8	8.3	8.7
Elderly	6.3	7.1	7.6	8.0	8.2
Overall	24.2	24.5	25.6	25.2	25.3

Source: Health Informatics Centre, MoH

There has been a large increase in the coverage of toddler population since 2011 to reach 14.07% in 2015 (Figure 3). Cursory examination of the oral cavity of toddlers - 'lift-the-lip' - is done in settings such as in childcare centres or Maternal and Child Health clinics. Clinical preventive measures, such as fluoride varnish are instituted where required. As for preschool children, the number of children receiving care increased from 893,544 (2014) to 924,920 in 2015 (Figure 4). Meanwhile, the percentage of primary schoolchildren receiving primary oral healthcare increased to 98.8% (2015) compared to 98.4% in 2014 (Figure 5). The increase was also seen for secondary schoolchildren that is from 90.1% (2014) to 90.5% in 2015 (Figure 6).

FIGURE 3

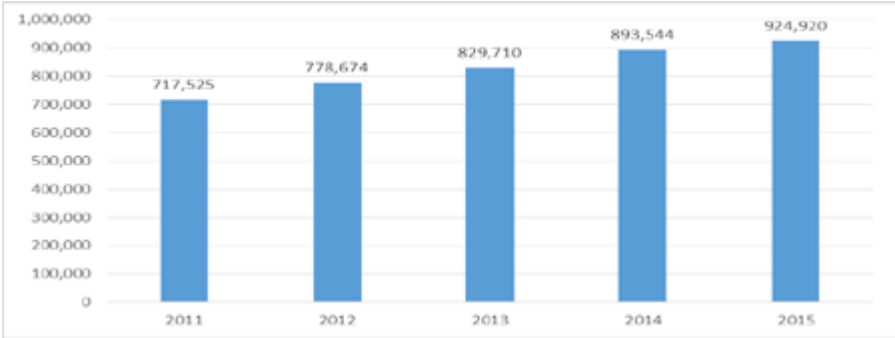
PERCENTAGE OF TODDLERS RECEIVING PRIMARY ORAL HEALTHCARE, 2011-2015



Source: Health Informatics Centre, MoH

FIGURE 4

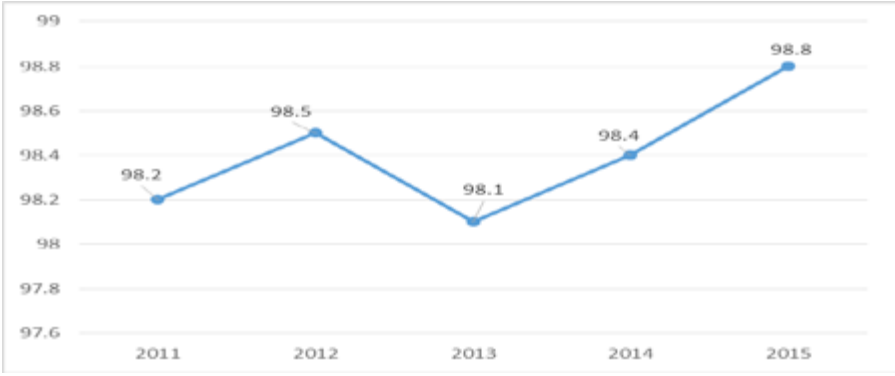
NUMBER OF PRESCHOOL CHILDREN RECEIVING PRIMARY ORAL HEALTHCARE, 2011-2015



Source: Health Informatics Centre, MoH

FIGURE 5

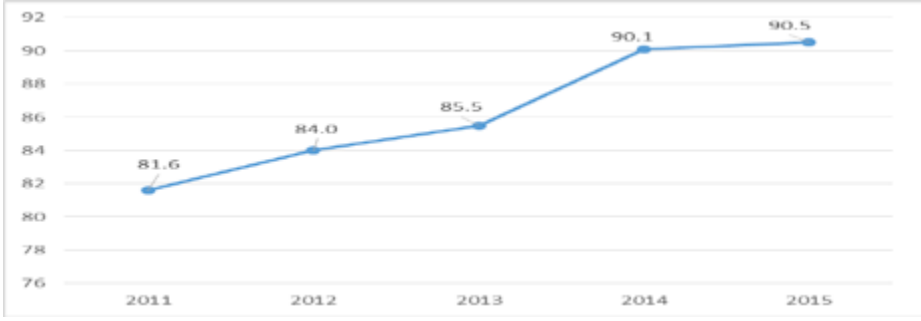
COVERAGE OF PRIMARY SCHOOLCHILDREN RECEIVING PRIMARY ORAL HEALTHCARE, 2011-2015



Source: Health Informatics Centre, MoH

FIGURE 6

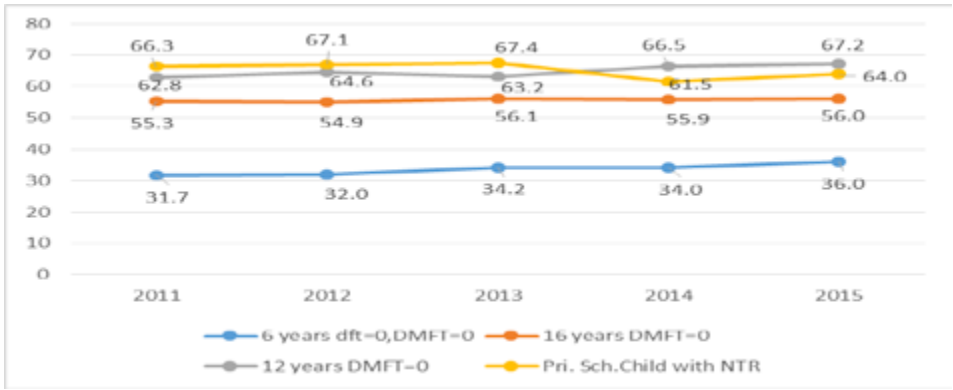
COVERAGE OF SECONDARY SCHOOLCHILDREN RECEIVING PRIMARY ORAL HEALTHCARE, 2011-2015



Source: Health Informatics Centre, MoH

FIGURE 7

IMPACT INDICATORS FOR SCHOOL DENTAL SERVICE, 2011-2015



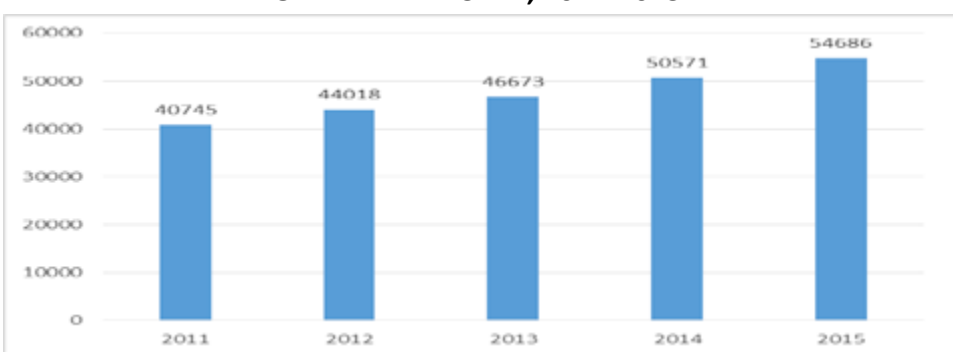
Source: Health Informatics Centre, MoH

An impact indicator for school dental service was also recorded. In Figure 7, showed there was an increase in caries-free for 6, 12 and 16 year-olds. As for No Treatment Required (NTR) among primary schoolchildren, there was a decrease in 2014 but further improved in 2015 at 64.0% .The number of children with special needs receiving primary oral healthcare services has been steadily increasing over the years.

The increase has been mainly due to the initiatives under the National Blue Ocean Strategy 7 (NBOS 7) which prioritizes healthcare to special needs children, the elderly and single mothers. In 2015, a total of 54,686 special needs children received oral healthcare (Figure 8).

FIGURE 8

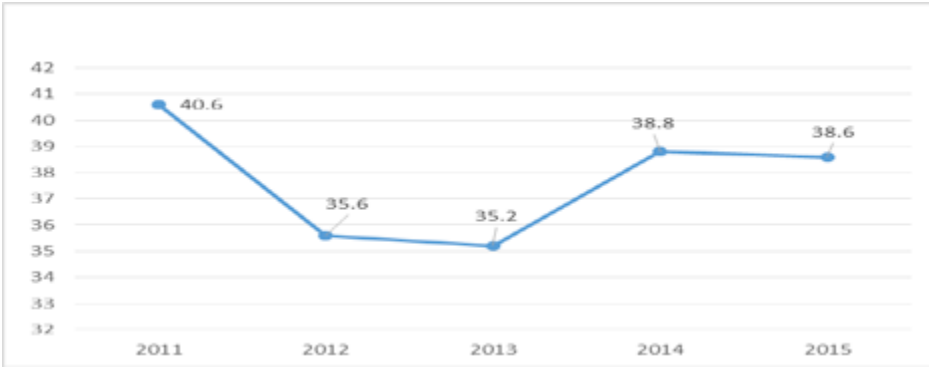
CHILDREN WITH SPECIAL NEEDS RECEIVING PRIMARY ORAL HEALTHCARE, 2011-2015



Source: Health Informatics Centre, MoH

Efforts have been made to increase attendance of antenatal mothers at dental clinics which includes referrals from Health or Maternal & Child Health clinics as part of routine antenatal checkup. However Figure 9 shows a slight decrease in the number of antenatal mothers receiving primary oral healthcare in 2015.

FIGURE 9
COVERAGE OF ANTENATAL MOTHERS, 2011-2015



Source: Health Informatics Centre, MoH

Oral healthcare for adults is provided through various dental facilities and through outreach services which include the Urban Transformation Centre (UTC), Rural Transformation Centre (RTC) and the increasing number of dental clinics providing daily outpatient services.

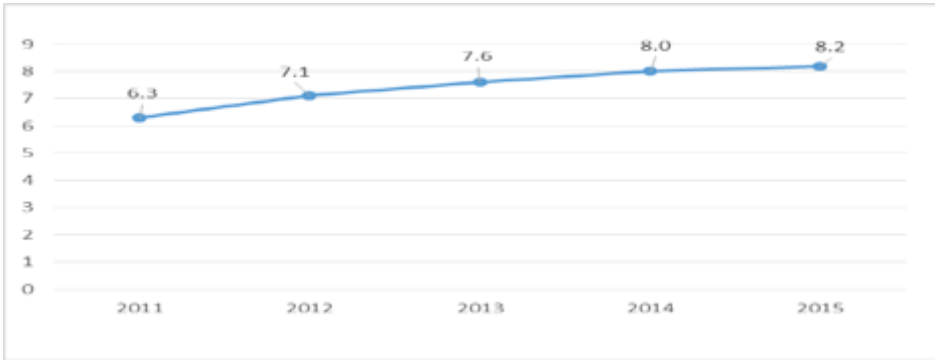
Thus there is an increasing number of adults and elderly receiving primary oral health care in 2015 (Figure 10 and Figure 11).

FIGURE 10
ADULTS POPULATION RECEIVING PRIMARY ORAL HEALTHCARE, 2011-2015

Source: Health Informatics Centre, MoH

FIGURE 11

PERCENTAGE OF ELDERLY POPULATION RECEIVING PRIMARY ORAL HEALTHCARE, 2011-2015



Source: Health Informatics Centre, MoH

SPECIALIST ORAL HEALTHCARE

Strengthening Specialists Oral Healthcare Program

Five new oral healthcare specialist services were undertaken in 15 facilities in 2015 (Table 3).

TABLE 3

NEW ORAL HEALTHCARE SPECIALTY SERVICES ESTABLISHED IN 2015

Specialty	Hospital / Dental Facilities
Oral Surgery & Paediatric Dentistry	• Hospital Shah Alam, Selangor
Special Needs Dentistry	• Hospital Rehabilitasi Cheras, Selangor
Orthodontics	• KP Presint 18 Putrajaya, • KP Kuala Krai, Kelantan • KP Petrajaya, Sarawak • KP Bukit Minyak, Pulau Pinang • KP Tampin, Negeri Sembilan • KP Alor Gajah, Melaka
Periodontics	• KP Presint 18, Putrajaya, • KP Teluk Intan Perak, • KP Jerantut, Pahang • KP Padang Luas, Terengganu • KP Sungai Petani, Kedah

Specialty	Hospital / Dental Facilities
Restorative Dentistry	• KP Presint 18, Putrajaya, • KP Simpang Taiping, Perak • KP Bakri Muar, Johor • KP Tanjung Lalang, Pahang

Source: Oral Health Division, MoH

Monitoring and Evaluation of Specialist Oral Healthcare

The Health Information Management System (HIMS) data from the Health Informatics Centre (HIC) were compiled and analyzed at the Division. The analysis and trends were later presented at the OHD Technical meetings and Specialist meeting mid-yearly. The workload trends of dental specialists from various disciplines are reflected as tabled below (Table 4).

TABLE 4

WORKLOAD OF DENTAL SPECIALIST BY DISCIPLINES, 2015

Specialty	Specialist : No. of patients seen		
	2013	2014	2015
Paediatric Dentistry	1:3,606	1:2,676	1:2,427
Oral and Maxillofacial/ Oral Surgery	1:3,645	1:3,843	1:3,823
Restorative Dentistry	1:1,594	1:1,658	1:1,732
Orthodontics	1:3,850	1:3,689	1: 4,083
Periodontics	1:1,578	1:1,368	1:1,312
Oral Pathology and Oral Medicine	1:828	1:848	1:744

Source: Oral Health Division, MoH

Overall in 2015, there are 215 clinical dental specialists by the various disciplines in the Ministry of Health, Malaysia **(Table 5)**.

TABLE 5

GAZETTED CLINICAL DENTAL SPECIALISTS IN MoH, 2010-2015

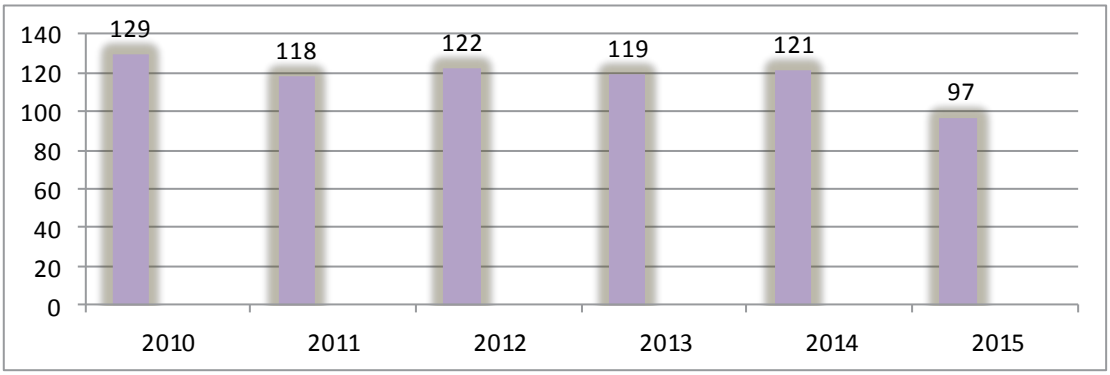
Year / Discipline	2010	2011	2012	2013	2014	2015
Oral Surgery	45	49	51	55	56	60
Orthodontics	32	30	40	46	48	47
Paediatric Dentistry	25	27	29	33	35	39
Periodontics	19	20	21	24	29	34
Oral Pathology/ Medicine	8	9	9	9	10	11
Restorative Dentistry	14	16	17	20	20	20
Special Needs Dentistry	0	0	2	2	3	3
Forensic Dentistry	0	0	1	1	1	1
TOTAL CLINICAL SPECIALIST	**143**	**151**	**170**	**190**	**202**	**215**

(Not Inclusive of specialist undergoing gazettement and contract dental specialist)

Source: Oral Health Division, MoH

FIGURE 12

DENTAL PUBLIC HEALTH OFFICERS IN MoH, 2010 – 2015



Source: Oral Health Division, MoH

In addition, there are 97 Dental Public Health Officers serving in the MoH in 2015 (Figure 12). They have the responsibility to improve and strengthen the overall oral healthcare delivery system, mapping of specialists' services so as to ensure appropriate distribution of existing specialists and also to identify future training needs for the various specialties.

IMAGE 3

ORAL AND MAXILLOFACIAL SURGEONS' MEETING, 2015

Source: Oral Health Division, MoH

IMAGE 4

PERIODONTISTS' MEETING, 2015

Source: Oral Health Division, MoH

IMAGE 5

ORTHODONTISTS' MEETING, 2015

Source: Oral Health Division, MoH

IMAGE 6

PAEDIATRIC DENTAL SPECIALISTS' & SPECIAL NEEDS DENTISTRY MEETING, 2015

Source: Oral Health Division, MoH

IMAGE 7

ORAL MEDICINE AND ORAL PATHOLOGY SPECIALISTS' MEETING, 2015

Source: Oral Health Division, MoH

IMAGE 8

RESTORATIVE DENTAL SPECIALISTS' MEETING, 2015

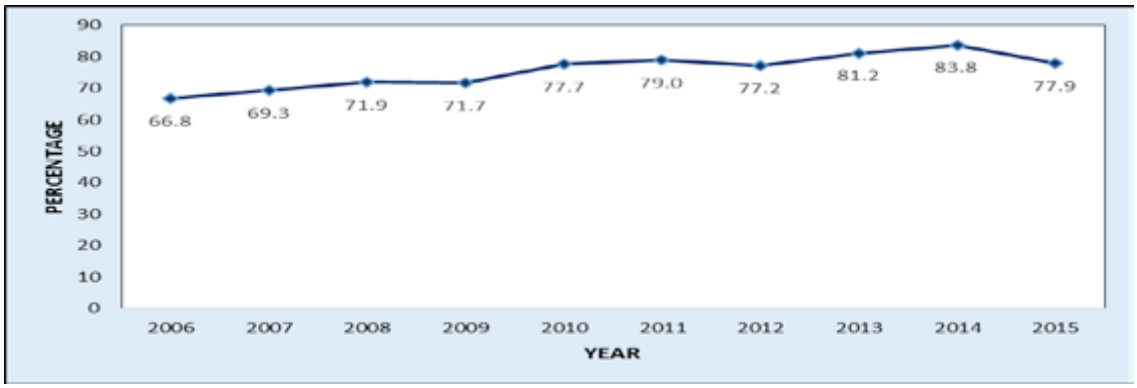
Source: Oral Health Division, MoH

COMMUNITY ORAL HEALTHCARE

WATER FLUORIDATION PROGRAM

- There were a total of 478 Water Treatment Plants (WTP) in Malaysia. All WTPs were fully privatized except for those in Perak, Sabah, Sarawak and Federal Territory Labuan.
- Of 307 WTP (62.0%) which was installed with fluoride feeders, 242 (78.8%) were active while 65 (21.2%) were inactive due to lack of resources to purchase fluoride compound or facing technical problems such as fluoride feeder that require repair or replacement.
- In 2015, an estimate of 76.8% of population received fluoridated water. However fluoridation coverage in Sabah has decreased from 8.1% in 2014 to 6.7% in 2015.
- Less than 50% of water treatment plants in Sarawak, Kelantan, Pahang and Sabah produced fluoridated water.
- 77.9% of readings taken at reticulation points conformed to the recommended range (Figure 13).

FIGURE 13
CONFORMANCE OF FLUORIDE LEVEL IN PUBLIC WATER SUPPLIES TO THE RECOMMENDED RANGE (0.4-0.6PPM), 2006-2015



Source: Oral Health Division, MoH

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

- A total of 432 high-risk *kampung*/estates/communities were visited and 13,901 residents aged 20 years and above were screened for oral lesion. A total of 32,688 participants were given dental health education.
- Of the 200 cases seen by the oral surgeon, 87.5% were having premalignant lesions.
- A total of 61,141 patients were screened in the dental clinics under the opportunistic screening for walk in patients. Among those screened, 464 patients were seen with oral lesion and 282 were referred to Oral Surgeons for further investigation and management. Of these, 139 complied with referral to Oral Surgeons.

LEGISLATION AND ENFORCEMENT

Registration of New Dental Clinic

In 2015, there was total of 135 applications which complied with the Private Healthcare Facilities & Services Act 1998. Recommendations for registration of these dental clinics were made to the Evaluation Application and Registration Committee. Activities of post-registration inspections for compliance of registered dental clinics were also undertaken. Following which monitoring was conducted on dental clinics which did not comply with the registration requirements.

Enforcement Provision in the Dental Bill

A proposal paper for enforcement provision in the Dental Bill was finalized in the following areas:

i. Application for new post; and
ii. Appointment and training of enforcement officers

Dental Bill

In 2015, there were 2 discussions held at legal advisors office and 3 discussions at the Attorney General's office. Memorandum for cabinet was prepared.

Dental Regulations

Dental Regulations draft was completed on 30 June 2014. However, it requires further review to ensure it is in line with the new Dental Act.

Investigation on Complaints

In 2015, a total of 35 enforcement activities were carried out and 31 complaints received. These complaints were referred to respective state enforcement officers for investigation.

Safety and Health Audit in Government Dental Clinics

Safety and health audits for government dental clinics were monitored throughout 2015.

Inspection of Private Dental Clinics

In 2015, 42% of registered dental clinics in all states were inspected.

Meeting of Enforcement Officers

Enforcement Officers meeting were held in February and July 2015. The areas discussed were:

- Cross-border activities
- Implementation of Dental Act
- Illegal practitioners
- Enforcement Report 2015

QUALITY ASSURANCE PROGRAMME (QAP)

Quality Assurance Projects/Studies

In 2015, a total of 45 projects were completed and 34 projects to be continued in 2016. Sarawak had the most number of completed QA projects/studies (13 studies) followed by Johor (12 studies). Many of these studies were presented at various conventions at state and regional level.

Training

EKSA training was organized for new staff and audits were carried out at regular interval by EKSA internal auditors and also by MoH EKSA Auditors. Audit findings were shared to all staff and actions taken for continual improvement.

MS ISO 9001: 2008

In 2015, 541out of 651 (83.1%) dental clinics with primary oral healthcare were ISO-certified. Sarawak is the only state that is having the original district certification approach.

Innovation

In 2015, a total of 45 innovation projects were completed and 34 projects to continue into 2016. Several dental projects had received awards at various levels. Among the top achievers were:

- Safe Needle Remover, Perlis - second place (process category) at *Anugerah Inovasi Peringkat Kebangsaan KKM 2015.*
- Intra Oral Light Device, Penang- first place *at Pertandingan Inovasi Zon Utara 2015 and* Jury's Award (product category) at *Anugerah Inovasi Peringkat Kebangsaan KKM 2015*
- *Water Distiller*, Kelantan- second place at *Pertandingan Inovasi JKN Kelantan 2015*
- Mi'S BITE, Terengganu – Anugerah Gangsa at *Konvensyen Kualiti JKN Terengganu 2015*
- *Enlarge Collection Jar Capacity & Movable Suction Trolley, Sarawak – First place Anugerah Eureka JKN Sarawak*
- The MoH National Innovation Awards 2015 was held at Summit Hotel, USJ Selangor from 8-10 September 2015.
- 25 ICC projects were completed and another 29 projects to be continued into 2016. Several dental ICC projects that had won awards at state and national level

IMAGE 9

ANUGERAH INNOVASI PERINGKAT KEBANGSAAN, 2015

Source: Oral Health Division, MoH

CHALLENGES AND FUTURE DIRECTIONS

As the country develops, the healthcare system also needs to be continually transformed to keep up with the needs and demands of the population. There is a need to further enhance the accessibility to oral healthcare services by increasing the number of dental clinics providing daily outpatient services and also expanding the outreach services by increasing the number of mobile dental clinics serving both the urban and rural areas.

Efforts in community empowerment towards good oral health need to be intensified. Collaboration with relevant stakeholders emphasizing on the common risk factor approach is very much needed to attain behavioural change among the population. In the coming year, the young adults will be given focus as they will be the future generation.

The new Dental Act is expected to be tabled in Parliament in the forthcoming year. As such the regulations need to be completed and presented to the Malaysian Dental Council for approval. Preparation for strengthening enforcement under the new Dental Act also includes application of new posts for enforcement officers and training also has to be done.

There is also an urgent need to manage the influx of new dental graduates. About 1200 new dental graduates are expected to start their compulsory service in the MoH in 2016. In view of the limited number of new posts, it will indeed be a challenge to work out a mechanism to absorb them.

As the overall custodian for oral health of the population, the OHD continuously needs to undertake the responsibility for the development of policies, guidelines and monitoring of outcomes. Governance is also expected to be further strengthened with the gradual conversion to MS ISO 9001:2015 in the forthcoming year.

CHAPTER 8

PHARMACY

INTRODUCTION

The Pharmacy Program is one of the programs under the MoH, which is responsible in ensuring that public gets access to safe, efficacious and quality pharmaceutical products, protecting their interest via enforcement of relevant legislations, and ensuring rational use of medicines by both healthcare providers and patients.

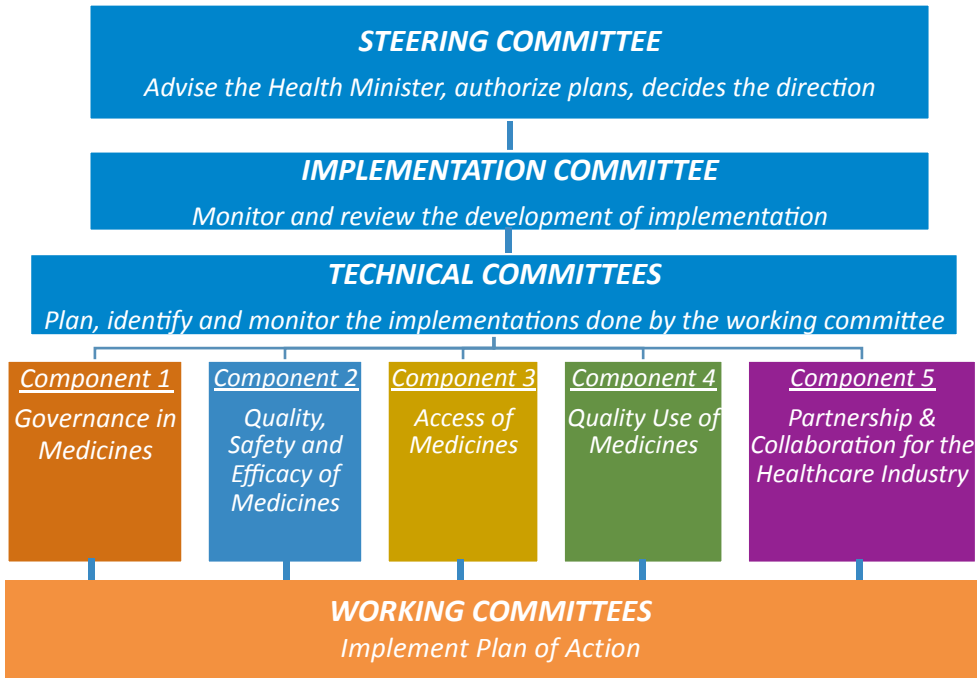
The Pharmaceutical Services Division, as one of the main divisions under this program, carries out this responsibility through three main activities namely Pharmacy Policy & Management, Pharmacy Practice & Development, and Pharmacy Enforcement. The National Pharmaceutical Control Bureau is an agency under The Pharmacy Services Program which is responsible for regulating pharmaceutical products marketed in the country.

MALAYSIAN NATIONAL MEDICINES POLICY (MNMP)

The Malaysian National Medicines Policy (MNMP) is an official document of the Government that defines and prioritizes medium and long term goals of the country's pharmaceutical sector. The MNMP has entered into its second term after a full review of its implementation over the past five years. The main five components of the MNMP are Governance in Medicines, Quality, Safety and Efficacy of Medicines, Access to Medicines, Quality Use of Medicines and Partnership and Collaboration for the Healthcare Industry

The MNMP functions through establishment of committees as shown in Figure 1. The appointed committee members consist of representatives from public and private sector, therefore the MNMP acts as a platform enabling partnership and collaboration between the two sectors.

FIGURE 1
COMMITTEES ESTABLISHED FOR THE MANAGEMENT OF MNMP

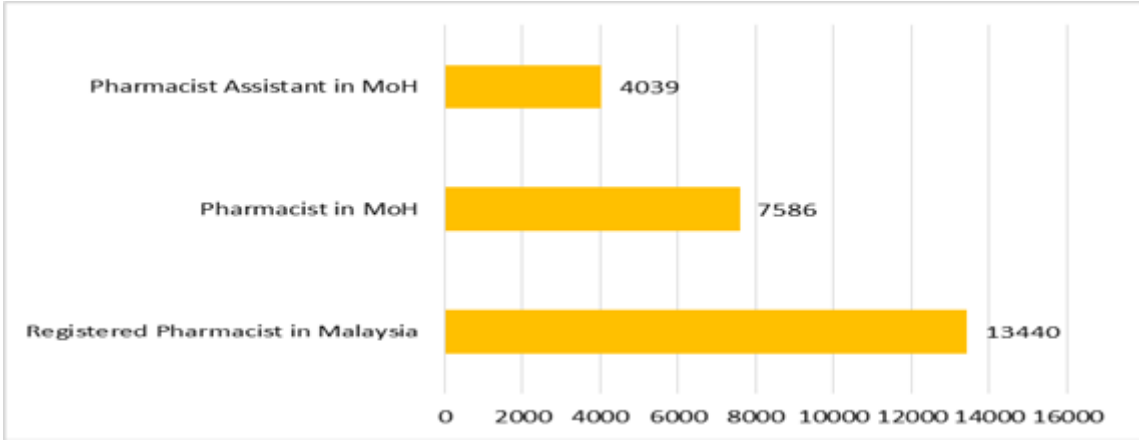


Source: Pharmaceutical Service Division, MoH

STRENGTHENING HUMAN RESOURCE, CAPACITY BUILDING AND QUALITY SYSTEM

Human Resource

FIGURE 2
NUMBER OF REGISTRATIONS BY PHARMACY BOARD OF MALAYSIA 2015

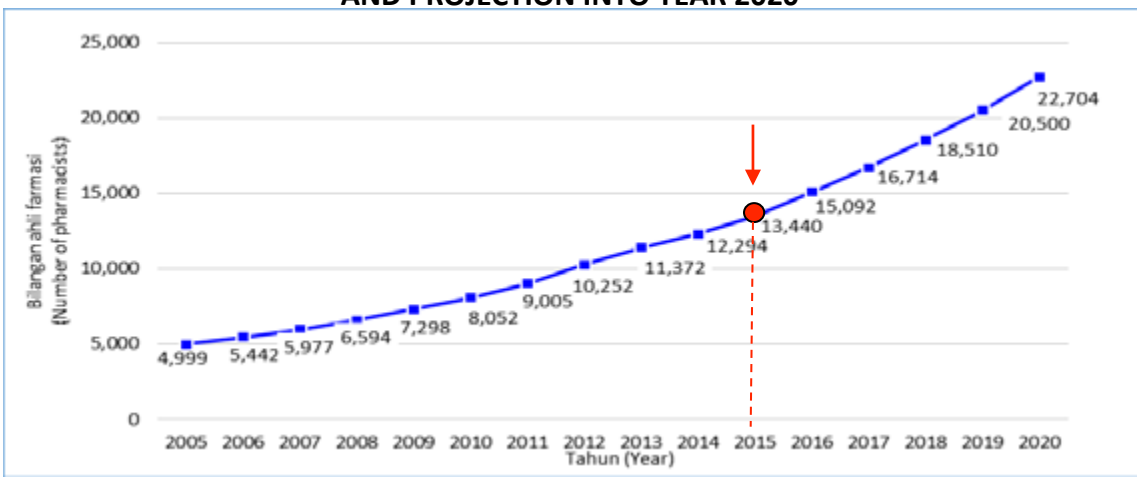


Source: Pharmaceutical Service Division, MoH

The Pharmaceutical Services Division, MoH adopted The Workload Indicator of Staffing Need (WISN) method to strengthen the human resource planning and management. In addition to supplying manpower, capacity building is an essential element to achieve leading performance in pharmacy services to the public. Training and development are provided to pharmacy staff to ensure competency and efficiency.

Until the year 2015, the increase in the number of posts for pharmacists and pharmacy assistants in MoH has been encouraging in order to meet customers' expectations and nation's growing needs.

FIGURE 3
NUMBER OF REGISTERED PHARMACISTS YEAR 2005-2015
AND PROJECTION INTO YEAR 2020



Source: Pharmaceutical Service Division, MoH

Pharmacy Information System and Clinic Pharmacy System (PhIS/CPS)

Pharmacy Information Systems is a comprehensive system that is being designed to meet the needs of pharmaceutical services in either hospital or primary health care settings. This system will improve the efficiency and inventory management of medications, thus ensuring safe and quality use of medicines in MoH facilities. Phase 2 implementation involved 134 hospitals, 128 divisional health office/regional health office, 971 health clinics and 15 state stores where the PhIS and CPS will be implemented according to their respective zones. Forty zones are formed to ensure the management of PhIS and CPS implementation is efficient and shall be completed by December 2016. At 31 December 2015, a total of 452 facilities have been implemented PhIS and CPS.

Activities & Achievements

- **Pharmacy Convention Of Innovation & Creativity 2015**

Pharmacy Convention of Innovation & Creativity 2015 was successfully held on 9-12 August 2015 at The Everly Hotel, Putrajaya with the theme of Innovation Drives Pharmaceutical Dynamics. The convention was officially launched by Honourable Datuk Dr. Noor Hisham Bin Abdullah, Director General of Health. The objectives of this convention are to generate ideas towards the production of innovative and quality projects among pharmacy staffs and nurturing and strengthening innovation and creativity in order to strengthen the pharmaceutical services.

- **National Pharmacist Assistants Conference 2015**

The National Pharmacist Assistant Conference was held from 31 July 2015 until 2 August 2015 at Heritage Hotel, Ipoh. The objectives of this conference are to provide inputs, ideas, information and knowledges for personal and development as a pharmacist career assistant. The theme for this conference was 'Paradigm Shift in Pharmacist Assistant Profession'. The conference involved a total of 169 Pharmacist Assistants from all states and seven speakers.

GOOD GOVERNANCE FOR MEDICINES (GGM)

The GGM is a program developed by the World Health Organization (WHO) and its main focus is to create a corruption-free environment in the pharmaceutical management system in compliance with ethical principles, laws, regulations, policies and procedures. Malaysia has participated in the GGM Program since year 2004 and has officially launched Phase III GGM. The national program of GGM has been implemented since July 2011 during the Inter-Regional Meeting of Phase III Countries until now. GGM has been successfully incorporated into the current procurement process by setting up various committees such as the Specification Committee, Technical Evaluation Committee and Price Evaluation Committee.

IMAGE 1
GUIDELINES FOR PHARMACY PERSONNEL IN DEALING WITH PHARMACEUTICAL

Activities & Achievements

- **Intercountry Meeting For Good Governance For Medicines**

IMAGE 2
INTERCOUNTRY MEETING FOR GOOD GOVERNANCE FOR MEDICINES

Source: Pharmaceutical Service Division, MoH

Inter-country Meeting on GGM organized by the WHO Regional Office for the Eastern Mediterranean specifically for Phase I Countries in the Eastern Mediterranean Region was held from 16 – 19 August 2015 in Amman, Jordan. Malaysia has been invited to share the experience in the implementation of GGM Phase III activities and the GGM training-of-trainers' program as an example country.

The main objectives of the meeting were to review results of national assessments conducted in participating countries and to identify strengths, weaknesses, opportunities and threats and increase the national teams' capacity to Phase II activities.

PROMOTING ADEQUATE, CONTINUOUS AND EQUITABLE ACCESS TO MEDICINES

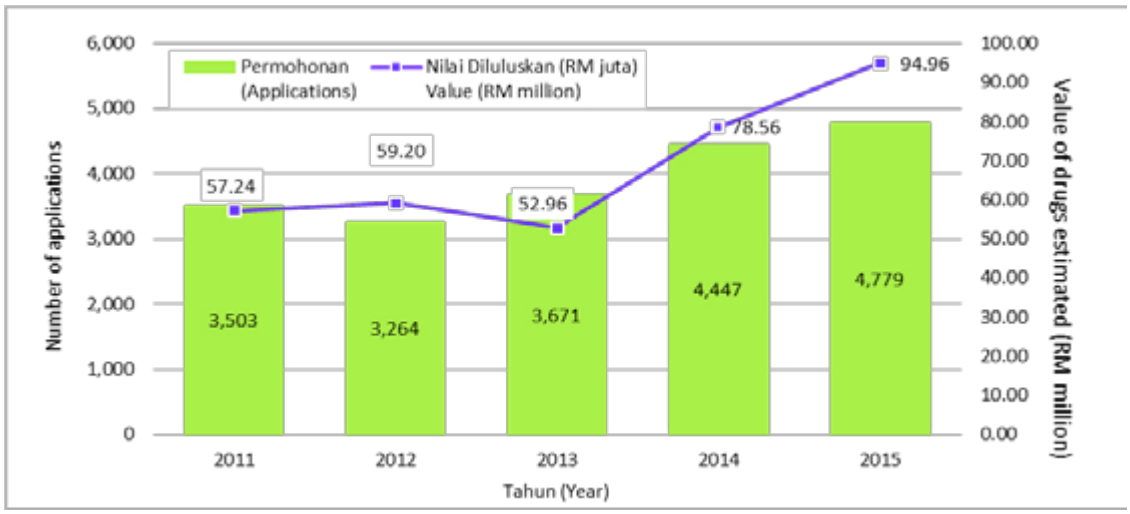
Efficient and integrated medicines management and supply network is one of the important element in ensuring equitable access to quality, safe, effective and affordable medicines to the nations. Pharmaceutical Services Division committed to ensure the availability and affordability of quality health services towards achieving optimal health outcomes through:

- Establishment of fair and transparent medicines selection mechanisms in accordance with the country's health needs by emphasizing clinical effectiveness and cost-effectiveness of treatments.
- Implementation of efficient and effective mechanism of medicines procurement and the supply chain network of quality medicines.
- Optimal utilization of financial resources

- **MoH Drug Formulary**
  MoH Drug Formulary is the official formulary for all institutions, hospitals and health clinics under the purview of MoH. It serves as a guide for health professionals and to the Drug Therapeutic Committee in the selection of drug therapy and development of local institutional formulary at various level of care. This formulary also serves as a mechanism to regulate and controlling drug expenditures in MoH's hospitals, clinics and institution under MoH and at the same time promoting rational use of medicines.

- **Drug Requested Through Special Approval**
  In 2015, a total of 4,779 requests were given special approval from the Director General of Health or Senior Director of Pharmaceutical Services with an approximate value of RM94.96 million. There is an increase of 332 requests compared to 2014 with an approximate value of RM78.56 million.

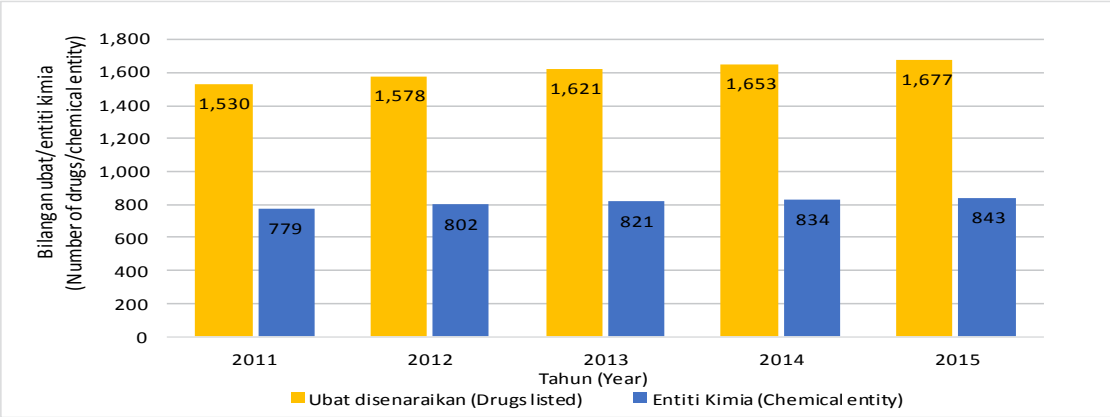
FIGURE 4
APPLICATION OF SPECIAL APPROVAL DRUGS BY DIRECTOR GENERAL OF HEALTH, 2011-2015



Source: Pharmaceutical Service Division, MoH

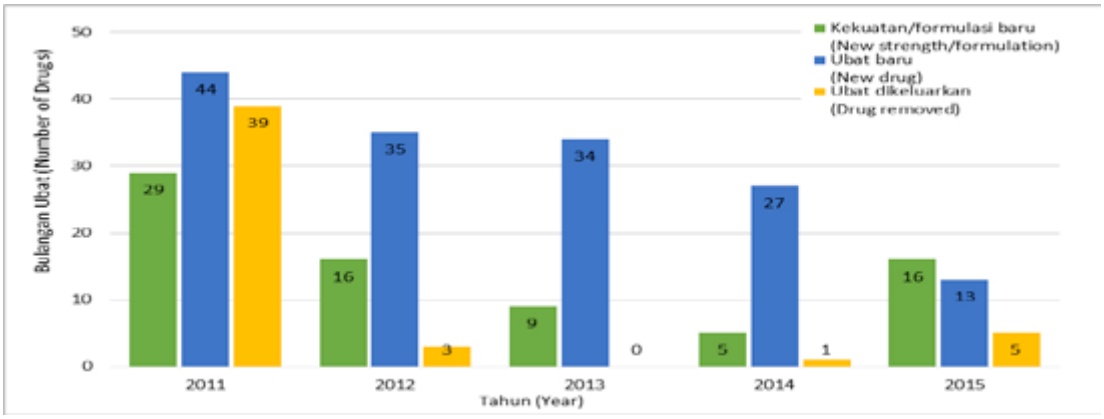
- **MoH Drug Formulary Listings and Updates**
  Formulary and Pharmacoeconomic Section in PSD, MoH acts as the secretariat to the MoH Drug Review Panel Meeting. This section will receive and process the proforma for drug requested to be listed into or deleted from the MoH Drug Formulary. The MoH Drug Formulary is consistently updated three times per year according to the circulars issued after each Drug Review Panel Meeting. In 2015, 29 new drugs were listed into the formulary, including new formulations or strengths, whereas five drugs were deleted from the formulary. There are a total of 1,677 preparations and 843 chemical entity in the MoH Drug Formulary at the end of 2015.

FIGURE 5
DRUG LISTED INTO MoH DRUG FORMULARY, BY CHARACTERISTICS, 2011-2015



Source: Pharmaceutical Service Division, MoH

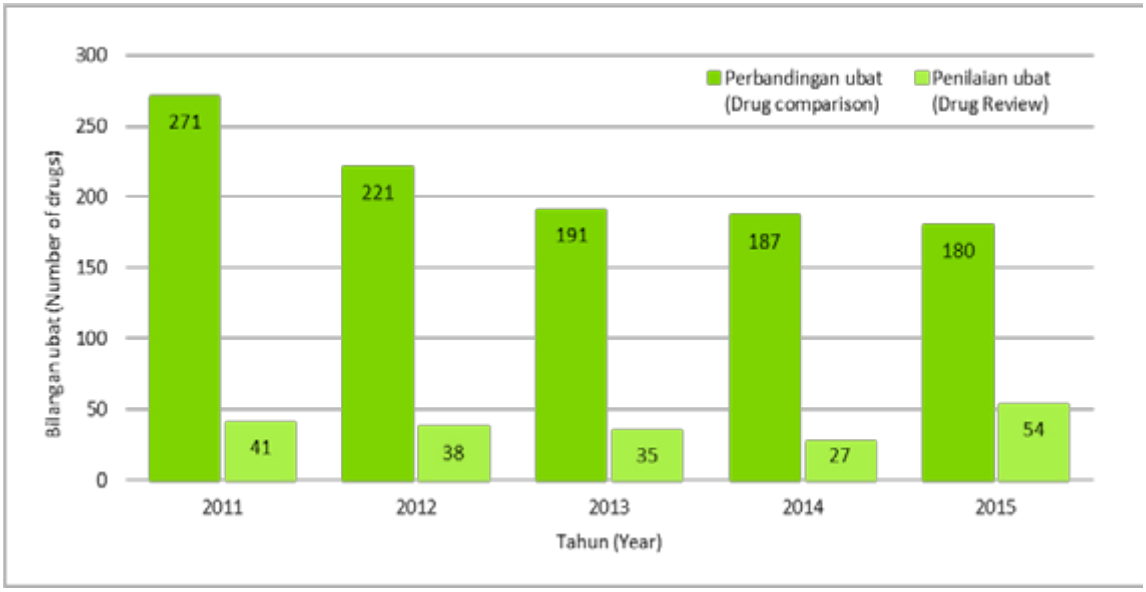
FIGURE 6
DRUG LISTED INTO MoH DRUG FORMULARY, 2011-2015



Source: Pharmaceutical Service Division, MoH

- **Pharmacoeconomic Evaluations**
  Drug evaluations are an important step in making proper and rational formulary decisions. Evidence-based reviews are performed based on efficacy, safety and costs as well as pharmacoeconomics evidence such as clinical potential and cost-effective analysis. For the year 2015, 180 drugs (Proforma B and Proforma D) have been reviewed against alternatives readily available in the formulary and 54 new drugs made a complete evaluation of safety, efficacy and cost-effectiveness (Proforma D).

FIGURE 7
PHARMACOECONOMICS EVALUATION ACTIVITIES, YEAR 2011-2015



Source: Pharmaceutical Service Division, MoH

- **Medicines Price Monitoring**
  Medicines price database have been updated consistently every year. The updated medicines price data collected are summarized in Table 1.

TABLE 1
UPDATE OF MEDICINE PRICES DATABASE

Types of data	Number of data updated	
	2014	2015
Public wholesale price (Local purchase)	2,002	1,700
*Private wholesale price (Controlled medicines)	2,226 / 5,111	2,059 / 4,037
*Private wholesale price (OTC medicines)	1,237 / 2,359	1,160 / 2,114
Recommended Retail Price (RRP) (*Controlled medicines)*	1,462	1,886

Types of data	Number of data updated	
	2014	2015
Recommended Retail Price (RRP) Listed OTC medicines	1,022	1,323
Listed medicines to be labelled	APPL : 179 Contract : 211 Local Purchase: 705	APPL : 179 Contract : 211 Local Purchase: 720

Source: Pharmaceutical Service Division, MoH
** Price data received through survey*

- **Logistic Pharmaceuticals Activities**
  The total cost of medicines procured in 2015 for all MoH hospitals, institutions and health clinics under MoH was RM2, 323 million. This shows a decline of 2.58% in medicines expenditure compared to 2014. The amount of closing stock for medicines in December 2015 was RM439.10 million, which is approximately two months of stock holding.

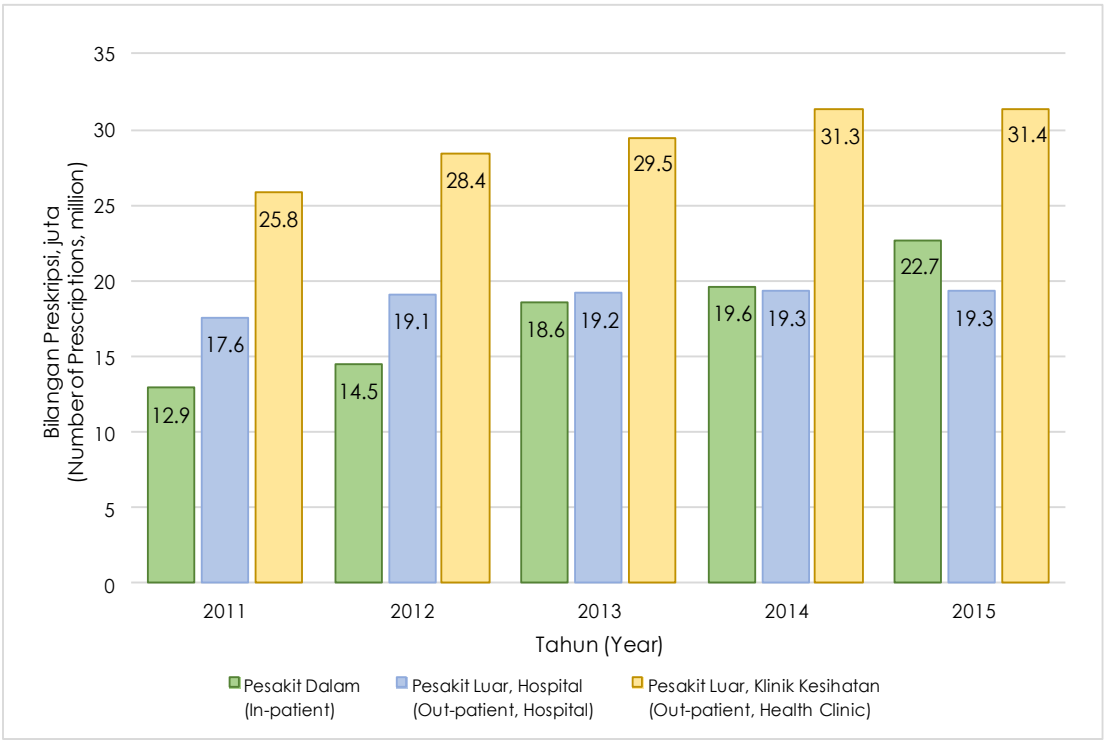
TABLE 2
MEDICINES EXPENDITURE, 2011-2015

Year	Total Expenditure (RM million)	Percentage increment over the previous year (%)
2011	1,767.61	10.09
2012	1,983.51	12.21
2013	2,200.43	10.94
2014	2,384.64	8.37
2015	2,323.12	2.58

Source: Pharmaceutical Service Division, MoH

- **Dispensing of Medicines in MoH Hospitals and Health Clinics**
  The number of prescriptions received at ambulatory and inpatient settings are shown in Figure 8. It shows an increasing trend over the years. This indicates a substantial demand for healthcare in MoH facilities. An increase by 16% is seen for in-patient's prescriptions for the year 2015 as compared with the previous year.

FIGURE 8
MEDICINE DISPENSING SERVICES AT HOSPITALS AND HEALTH CLINICS, 2011-2015

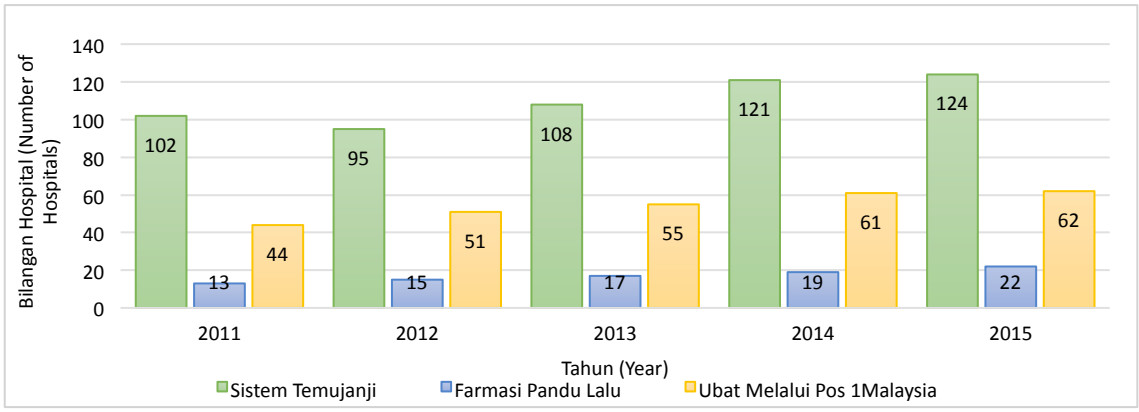


Source: Pharmaceutical Service Division, MoH

- **Value Added Services (VAS) in MoH Hospitals and Health Clinics**

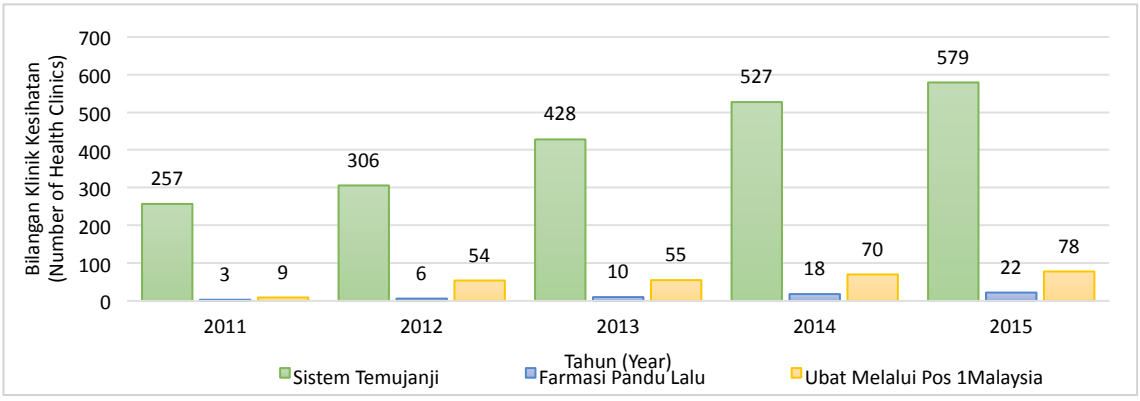
  Value-Added Services are services initiated with the aim to enhance quality and efficiency in medicine delivery system to patients by pharmacy at MoH facilities. Value-Added Services are alternative to conventional medicine supplying service at ambulatory settings. These services are offered to patients who need to obtain subsequent supply of medicines from pharmacy at their convenience. Integrated Drug Delivery System (IDDS), Appointment Systems, Drive-Thru Pharmacy and Medicines Delivery through Post 1Malaysia are Value-Added Services which are widely implemented by pharmacy at MoH facilities.

FIGURE 9
HOSPITALS IMPLEMENTING VALUE ADDED SERVICES (VAS) BY TYPES, 2011-2015



Source: Pharmaceutical Service Division, MoH

FIGURE 10
HEALTH CLINICS IMPLEMENTING VALUE ADDED SERVICES (VAS), BY TYPES, 2011-201



Source: Pharmaceutical Service Division, MoH

Activities & Achievements

- **Medicine Scoring Technical Committee Meeting For Anti-Hypertensive Therapeutic Class Angiotensin Receptor Blockers (ARB) Session 1/2015**

  A Medicine Scoring Technical Committee Meeting for Anti-Hypertensive Therapeutic Class ARB Session 1/2015 was organized at Intan Discussion Room, PSD from 13 January to 5 February 2015. The aim for this meeting is to conduct search and select relevant evidence for ARB.

- **Professor Brian Godman's And Professor Lars Gustaffson's Visit – Addressing Issues On Accessibility And Affordability Of Medicines**

  A consultation and discussion session with World Health Organization (WHO) consultants, Professor Brian Godman and Professor Lars Gustaffson was held on 13 -15 April 2015. The main objectives of this visit were to share knowledge and experience on effective drug selection, management of the formulary, financing and access of medicines.

IMAGE 3
DISCUSSION SESSION WITH THE CONSULTANTS FROM WH

Source: Pharmaceutical Service Division, MoH

- **Closed Door Engagement And Sharing Session Between Professor Jasmine Pwuraoh-Fang From Taiwan With Ministry Of Health And Monash University Malaysia**

  This program was held on 27 October 2015, at PSD, MoH. In this closed door session, Professor Jasmine Pwu Raoh-Fang, former Director of Health Technology Assessment Division for the Centre of Drug Evaluation, Taiwan was invited to PSD to share her knowledge and experience on drug evaluation process and health technology assessment (HTA) in Taiwan.

IMAGE 4
EXPERIENCE SHARING FROM TAIWAN IN DRUG EVALUATION AND HTA

Source: Pharmaceutical Service Division, MoH

- **Health Economics Forum 2015: Access To Medicine By An Evidence-Based Approach**

This forum is jointly organized by the Pharmaceutical Services Division, MoH and the Monash University Malaysia. It was held at the PJ Hilton Hotel, Petaling Jaya on 28–29 October 2015. The theme of the forum this year was "Access to Medicine by an Evidence-Based Approach". This forum brings together leading voices from the government and private sector such as the pharmaceutical industry, practitioners and academia to engage in a discourse on the challenges and implications of this approach.

IMAGE 5
HEALTH ECONOMIC FORUM, 2015

Source: Pharmaceutical Service Division, MoH

Basic Course on Store Management for Pharmacist Assistants, Assistants Administrative Officer and Administrative Assistants

A basic course of store management was organized for pharmacist assistants, assistant administrative officers and administrative assistants. A total of 52 participants had attended this course, at Glory Beach Resort, Port Dickson from 7- 9 September 2015. The main objective of this course was to emphasis on the basic principles of store management among the participants that perform the activities of procurement and store management.

IMAGE 6
PARTICIPANTS OF PHARMACY STORE MANAGEMENT TRAINING

Source: Pharmaceutical Service Division, MoH

ENSURING THE QUALITY, SAFETY AND EFFICACY OF PRODUCTS

The Pharmacy Program is committed in safeguarding public health by monitoring the quality, safety and efficacy of products through regulatory system and enforcement activities on the healthcare products in the market. The regulatory control on prescription items, non-prescription items, traditional products, cosmetics, veterinary and Active Pharmaceutical Ingredients (API) is conducted by the National Pharmaceutical Control Bureau (NPCB) in different phases. The monitoring of healthcare product in the market is carried out by the Pharmacy Enforcement through state enforcement offices since the establishment of the Enforcement Unit on 1 January 1976.

National Pharmaceutical Control Bureau (NPCB)

a) Product Registration

The NPCB is responsible for processing registration applications for new chemical entities (NCE)/ new drugs, biologics, prescription, non-prescription, health supplements, natural as well as veterinary products.

In 2015, a total of 1,220 products were registered out of 1,393 applications comprised of 58.4 % local products and 41.6 % imported products. The cumulative number of registered products up to 2015 is 23,606 products.

TABLE 3
NUMBER OF REGISTERED PRODUCTS, 2012-2015

Category	Year			
	2012	2013	2014	2015
Prescription Products	357	241	235	280
Non-Prescription Products	83	54	52	41
Traditional Products	565	578	590	569
Health Supplements	161	85	128	236
Veterinary Products	45	63	207	94
Total	**1,211**	**1,021**	**1,212**	**1,220**

Source: Pharmaceutical Service Division, MoH

b) Product Post Registration

Monitoring of registered products in the market is carried out continuously to ensure that the registered products in local market maintain the safety, efficacy and quality requirements. In 2015, the Malaysian Adverse Drug Reaction (ADR) Monitoring Program had received a total of 13,675 reports, with an increase about 5 % compared to year 2014.

TABLE 4
NUMBER OF ADVERSE DRUG REACTION (ADR) REPORTS, 2010 – 2015

Year	2010	2011	2012	2013	2014	2015
No. of ADR Reports	7,079	9,385	10,102	11,473	13,001	13,675

Source: Pharmaceutical Service Division, MoH

Market surveillance and handling of product complaints are in place to monitor registered medicinal products and notified cosmetics in Malaysia, ensuring that they comply with the quality and safety standards set by the MoH. A total of 4,045 products were sampled in 2015 under the Market Surveillance for Registered Products and Notified Cosmetics Program. A total of 852 complaints were received in 2015 which mainly involves prescription products. At the end of 2015, 743 complaints were solved.

TABLE 5
NUMBER OF PRODUCTS SAMPLED UNDER THE MARKET SURVEILLANCE FOR REGISTERED PRODUCTS AND NOTIFIED COSMETICS PROGRAM, 2012-2015

Product Category	2012	2013	2014	2015
Prescription	489	579	562	832
Non-Prescription	123	241	153	315
Health Supplements	141	50	77	254
Traditional	690	919	551	889
Cosmetics	1,447	1,903	1,506	1,755
Total	**2,890**	**3,692**	**2,849**	**4,045**

Source: Pharmaceutical Service Division, MoH

TABLE 6
NUMBER OF PRODUCT COMPLAINTS RECEIVED, 2012-2015

Product Category	2012	2013	2014	2015
Prescription	791	786	731	592
Non-Prescription	149	140	234	201
Health Supplements	14	42	20	12
Traditional	10	29	16	6
Cosmetics	12	25	22	41
Total	**976**	**1,022**	**1,023**	**852**

Source: Pharmaceutical Service Division, MoH

c) Licensing and Compliance

Good Manufacturing Practice (GMP) inspections on manufacturer of registered products and notified cosmetics ensure their compliance towards the current GMP requirements while Good Distribution Practice (GDP) inspections ensure adherence of importers and wholesalers to the current GDP requirements. There were 350 GMP inspections conducted in year 2015 **(Table 7)**. Technical guidance and premise plan review were also being implemented.

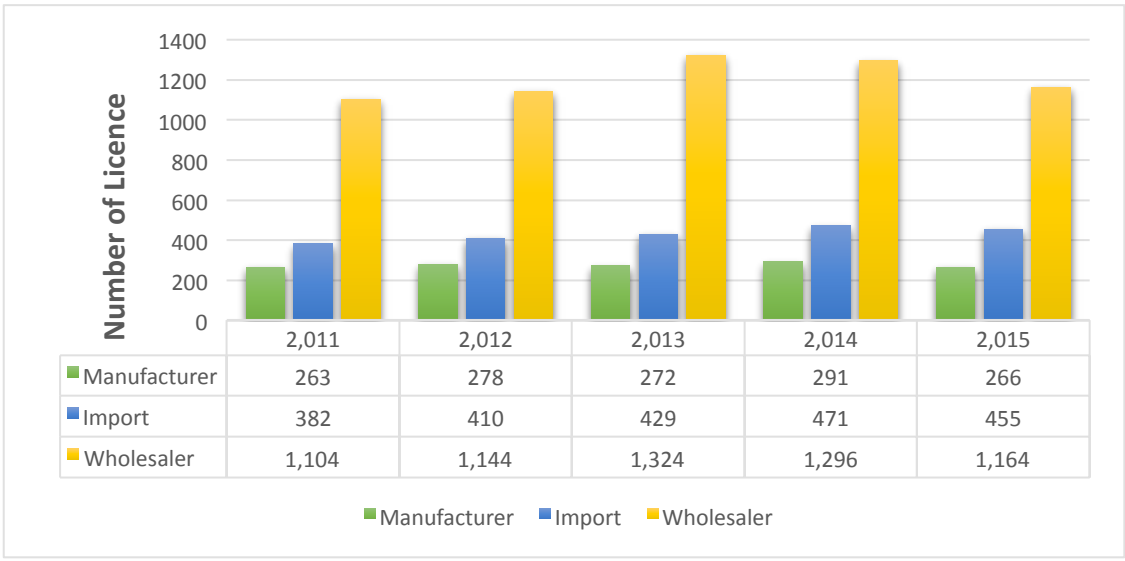
TABLE 7
NUMBER OF PREMISES INSPECTED, 2012-2015

	2012	2013	2014	2015
GMP inspections	299	295	360	350
Premise Plan Review	31	39	76	63
Technical Guidance	163	176	148	200

Source: Pharmaceutical Service Division, MoH

In 2015, 266 manufacturer licenses, 455 import licenses and 1,164 wholesaler licenses were issued.

FIGURE 11
NUMBER OF LICENSES ISSUED, 2011-2015



	2,011	2,012	2,013	2,014	2,015
Manufacturer	263	278	272	291	266
Import	382	410	429	471	455
Wholesaler	1,104	1,144	1,324	1,296	1,164

Source: Pharmaceutical Service Division, MoH

ENFORCEMENT DIVISION

a) Prosecution

As a whole, in 2015, the Pharmacy Enforcement had managed 1,148 case investigations and 1,208 cases were registered for legislative action. Out of the total cases, 1,108 cases were successfully solved with a total fine of RM 3,000,000 and five cases were charged with sentence to prison.

b) Intelligence, Operation and Compliance Audit

The value of items seized through raids and inspection at entry points in 2015 was 27,556,847 which decreased by 30 % from 2014.

TABLE 8
NUMBER OF RAIDING, NUMBER AND VALUE OF ITEMS SEIZED (RM) VIA RAIDING, INSPECTION AND ENTRY POINT, 2013-2015

Year	Number of Raiding	Number of item seized	Value of item seized (RM)
2013	1,297	24,331	43,451,832
2014	1,317	23,786	39,808,069
2015	1,450	31,020	27,556,847

Source: Pharmaceutical Service Division, MoH

c) Advertisement Monitoring

Realizing the utilization of new modus operandi such as the internet for illegal drug sales, transactions and publication of unapproved advertisements, PSD in collaboration with the Malaysian Communications and Multimedia Commission (MCMC) are monitoring this media avenue to block websites that contravene the law, especially overseas websites. Action and investigation will take place on every complaint of advertisement received which is suspected of breaching the Medicine (Advertisement and Sale) Act 1956.

TABLE 9
ADVERTISEMENTS APPROVALS, 2013 – 2015

Year	2013	2014	2015
Total Number of Application	2,562	2,735	2,739
Total Number of Approvals	1,929	2,163	1,936
Fees Collected (RM)	256,200	273,500	273,900

Source: Pharmaceutical Service Division, MoH

Activities & Achievements

National Regulatory Conference 2015

The 5 National Regulatory Conference with the theme "Transformation Towards A New Regulatory Paradigm" was held at One World Hotel, Petaling Jaya from 4-6 August 2015. The 3 days conference was officiated by the Minister of Health Malaysia. A total of 534 participants and speakers from within Malaysia as well as from Brunei, Korea, Singapore, Thailand, and the United States of America attended the conference. The NRC 2015 had the objective of disseminating information on the latest development and challenges in the evolving regulatory landscape, promoting and strengthening smart partnership amongst stakeholders.

National Pharmacy Enforcement Conference 2015

Pharmacy Enforcement Conference was held from 24 -26 November at the Ramada Plaza, Melaka with the theme "Pharmaceuticals Cybercrime: Challenges of a New Era". The conference involves 169 participants from various law enforcement agencies throughout the country. The objectives of the conference were to provide a basic understanding of cybercrime pharmaceuticals to pharmacist enforcement officers and establishing a platform for sharing experiences with other agencies related to the control of pharmaceutical cybercrime.

IMAGE 7

NATIONAL REGULATORY AND PHARMACY ENFORCEMENT CONFERENCE 2015

Source: Pharmaceutical Service Division, MoH

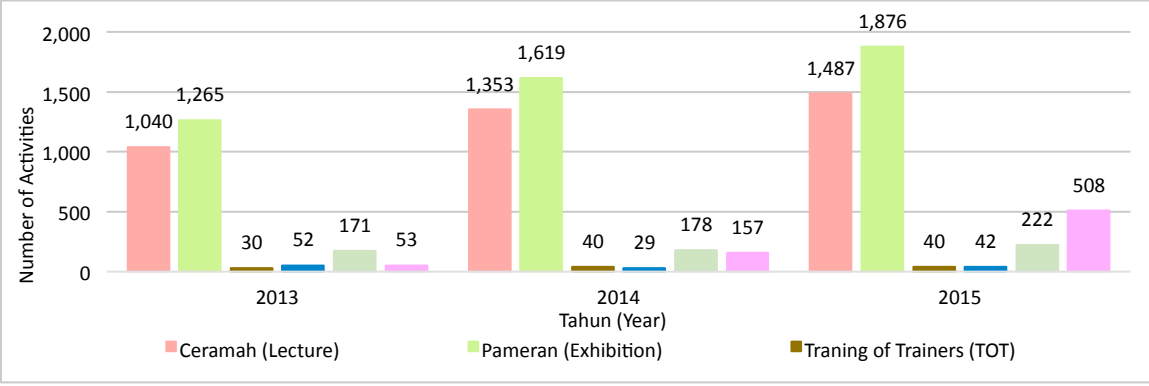
FOSTERING THE QUALITY USE OF MEDICINES

Realizing the importance of quality use of medicines, the pharmacy profession has expand towards the concept of pharmaceutical care where the enhancement of patients' quality of life becomes a priority. Quality use of medicines is a concept that aims to ensure medicines are used judiciously, appropriately, safely and cost-effectively towards promoting optimum health outcomes, be it at the healthcare level or patient utilization stage.

- **Quality Use of Medicines (QUM) Awareness Program**

Pharmacy Program takes initiatives to reach the society by provide understanding about rational use of medicines. In 2015, 1,876 exhibition, 1,487 lectures, 42 radio talks and 222 awareness programs were given widely across the states to increase the society awareness on medication.

FIGURE 12
ACTIVITIES OF QUALITY USED OF MEDICINES 2013-2015

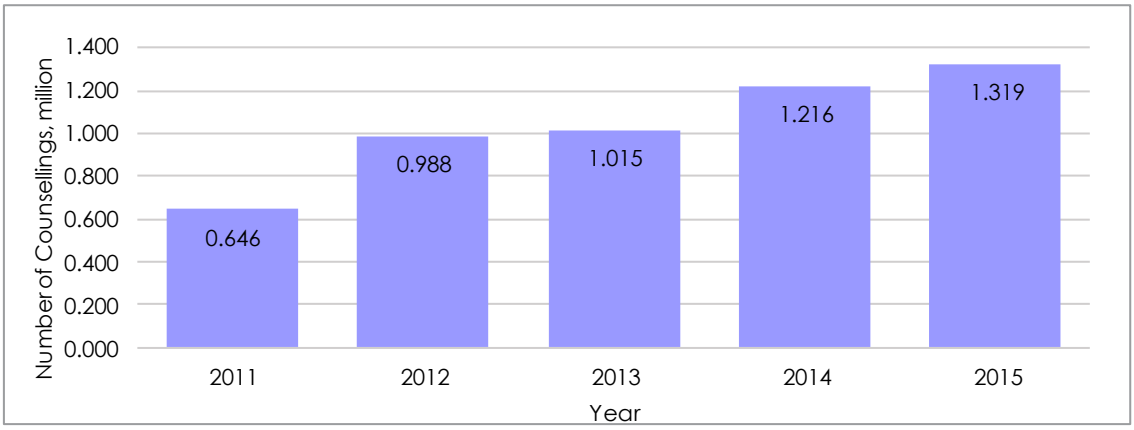


Source: Pharmaceutical Service Division, MoH

- **Medication Counselling**

Medication counselling is one of the important aspects in pharmaceutical care and it is a responsibility of a pharmacist to perform the counselling to patients. Adherence to medications can be attained by increasing patients' understanding towards pharmacotherapy and motivating patients to instil positive perception with regard to their disease and treatment received.

FIGURE 13
TOTAL NUMBER OF COUNSELLINGS FROM YEAR 2011-2015



Source: Pharmaceutical Service Division, MoH

Activities & Achievements

- **Know Your Medicine Campaign**

  The campaign is an initiative to increase consumer awareness of the rational use of medicines, provide consumers with information on different issues related to health and medicines, increase adverse drug reporting through patient education and assist senior citizens in the use of medicines.

IMAGE 8
KNOW YOUR MEDICINE ACTIVITIES ACROSS THE STATES

Source: Pharmaceutical Service Division, MoH

- **Pharmacy Practice Scientific Conference 2015**

  This conference was organized by the PSD, MoH on 8 - 9 June 2015 at Pullman Hotel, Bangsar. The theme of the conference is 'Optimizing Pharmacy Practice: Time for Action'. The conference was attended by 252 participants, from government hospitals, private hospitals, community pharmacies, universities and also the pharmaceutical industry. This conference mainly focus on clinical pharmacy and pharmacy practice, and also address issues pertaining to medication safety, antimicrobial stewardship, pharmacy informatics and patient empowerment.

IMAGE 9
PHARMACY PRACTICE SCIENTIFIC CONFERENCE 2015

Source: Pharmaceutical Service Division, MoH

EMPOWERING PHARMACEUTICAL SECTOR THROUGH COLLABORATION AND PARTNERSHIP

Empowering pharmaceutical relations through partnership and collaboration emphasize on implementation and strengthening of health care system that is essential, practical, coordinated, accessible and affordable. Relevant areas in the healthcare industry are established among various stakeholders at the national and international levels. Collaboration across agencies and linkage with international bodies are essential to drive the pharmaceutical sector towards success.

Activities & Achievements

- **International Meetings and Conferences**

  This Division facilitated meetings and conferences attended by Honourable Pharmacy Senior Director to several foreign countries to further enhance bilateral cooperation in health sector. Among the meetings and conferences attended in the year 2015 were:

i. 8th Asia Regulatory Conference "Advancing Best Practices for Regulatory Review and Submission in Asia" on 3–5 February 2016 at Taipei International Convention Centre, Chinese Taipei.
ii. 22nd ASEAN Consultative Committee for Standards and Quality (ACCSQ) Pharmaceutical Product Working Group (PPWG) Meeting on 9 – 13 March 2015 in Laos.
iii. 4th NPCB – HSA Bilateral Meeting which was held at the Health Sciences Authority, Singapore on 28 July 2015
iv. Technical Consultation Meeting on 'Investing in the Development of New Antibiotics and their Conservation' on 13 November 2015 at WHO, Geneva.
v. 5th Islamic Conference of Organization of Islamic Cooperation (OIC) Health Ministers on 16 – 19 November 2015 in Istanbul, Turkey.

- **Malaysia-Japan Bilateral Meeting**

  As part of the continuing collaboration, both National Pharmaceutical Control Bureau (NPCB) and Medical Devices Agency (PMDA) Japan took the opportunity to have a bilateral meeting right after the first Malaysia—Japan Symposium 2015 held in Kuala Lumpur on 10-11 March 2015. Both agencies discussed in-depth on areas of the future partnership including Post-Market Surveillance (PMS) activities and Good Manufacturing Practice (GMP) joint inspections**.**

IMAGE 10
MALAYSIA-JAPAN BILATERAL MEETING

Source: Pharmaceutical Service Division, MoH

- **NPCB as a WHO Collaborating Centre for Regulatory Control of Pharmaceuticals**

  NPCB welcomes local and international visitors from universities and other government agencies to learn and better understand our work processes. This may indirectly help the process of information exchange and strengthen cooperation between the agencies. Throughout 2015, NPCB received 74 international visitors who visited NPCB either for attachment training, a courtesy visit or an academic visit. This includes visitors from:

  i. Maldives Food and Drug Authority for training on Good Manufacturing Practice
  ii. Cambodia for training on the regulatory control of medicines in Malaysia
  iii. Thailand for study visit focusing on pharmacovigilance system and management system
  iv. ASEAN Core Team for Implementation of ASEAN-WHO Project on 'Support for Implementation of ASEAN Harmonized Requirements for Drug Registration'
  v. Papua New Guinea for training on registration, surveillance, quality control and enforcement activities of medicines in Malaysia
  vi. Tanzania for training in the field of notification, surveillance, quality control and GMP of cosmetic products.
  vii. Myanmar for study visit focusing on registration, surveillance, quality control and ADR monitoring of pharmaceuticals
  viii. Sri Lanka for training in the field of Quality Control testing of pharmaceuticals including maintaining & calibrating laboratory equipment

- **Pharmacy Bill Meeting with Stakeholders**

IMAGE 11
PHARMACY BILL MEETING WITH STAKEHOLDERS

Source: Pharmaceutical Service Division, MoH

The Pharmacy Bill Meeting with the Stakeholders was held on 30 November to 4 December 2015 at the Lexis Hotel, Port Dickson. This engagement aimed at demonstrating PSD's commitment in ensuring the involvement of all stakeholders in the process of drafting the bill. It involved the associations and organizations representing the pharmacists, medical practitioners, dental practitioners, veterinary surgeons, optometrists, chemical industry and consumers.

Activities & Achievements

- **Accreditations And Certifications**

  i. EKSA Certification 2014 by MAMPU
  ii. Non - Organization for Economic Cooperation and Development (OECD) member adhering to Mutual Acceptance of Data (MAD) on Good Laboratory Practice (GLP) 2013
  iii. 5S Certification
  iv. MS ISO/IEC 17025 : 2005 & MS ISO 9001 : 2008
  v. Member of Pharmaceutical Inspection Cooperation Scheme (PIC/S)
  vi. WHO Collaborating Centre for Regulatory Control of Pharmaceuticals

- **8th National QA Convention Awards**

This year, the 8th QA Convention 2015 was held in Johor Bahru from 19 - 21 October 2015 with the theme of Leading Change: Advancing Quality Outcome. Pharmacy program participated in 18 out of 90 entries for oral, poster and market place. Pharmacy program won third place and the Special Jury Award for the Oral QA category.

TABLE 10
ORAL QA AWARDS

Award	Pharmacy	Title
Third Place	Pharmacy Unit, Kota Tinggi Health Clinic	Lowering Frequency Missed Drug Supply at Pharmacy Store Health Clinics in Kota Tinggi
Special Jury Award	Pharmacy Unit, Bandar Mentakab Health Clinic	Towards Zero Pre- Dispensing Error in Pediatrics Prescription In Health Clinics, Temerloh District
	Pharmacy Department, Serdang Hospital	Improving Percentage of Value Added Service (VAS) Utilization Among Outpatients in Hospital Serdang Pharmacy

Source: Pharmaceutical Service Division, MoH

- **National Innovation Awards 2015**
  The Ministry of Health National Innovation Award 2015 which was held on 8-10 September 2015 at the Summit Hotel, Subang Jaya is a way of recognition for the innovations introduced by the MoH staff where it helps to culture creativity and innovation in daily work practiced. 'Warfarin Dosing HTK Android Application' project by the Pharmacy and Supply Unit Tanjung Kara managed to get a medal from the Technology Innovation Category.

SUMMARY

The four main activities which are the Pharmacy Policy and Management, Pharmacy Practice and Development, Pharmacy Enforcement and National Pharmaceutical Control Bureau under the Pharmacy Program were successfully carried out in year 2015. Pharmacy program remains committed to the Malaysian National Medicines Policy to ensure good governance in medicines, provide quality, safety and efficacy medicines to meet health needs of the nation, provide continuous and equitable access to medicines towards achieving optimal health outcomes, to ensure quality use of medicines and ensure partnership and collaboration with the healthcare industry conforms to the best practices and standards pertaining to medicines at all levels.

CHAPTER 9

FOOD

INTRODUCTION

The Food Safety and Quality Program is established to strengthen the activities of planning, implementing, monitoring and evaluating the activities of food safety and quality to protect the public against health hazards and fraud in the storage, preparation, processing, packaging, transportation, sale and consumption of food and facilitate food trade. The mandate is provided under the Food Act 1983 and the relevant regulations.

Strategies and activities are formulated to ensure that an effective food control system is in place and to ensure unsafe food is not placed on the market including for export. This system was established to identify and respond to food safety problems in order to protect human health. This encompasses:

- Formulating, reviewing and updating food legislation
- Delivering effective risk-based inspection and enforcement including food import control
- Surveillance, monitoring and assessment of food supply chain for risk-reduction and/or intervention strategies
- Establishing and strengthening food safety infrastructures including laboratory facilities
- Establishing effective and cooperative partnerships with relevant stakeholders including government agencies, food industry, consumer groups and academia
- Establishing scientific linkages with national and international organizations
- Developing human resource capabilities and competencies
- Educating consumers in making informed food choices

The Food Safety and Quality Program consist of two (2) divisions, the Planning, Policy Development and Codex Standard Division and the Compliance and Industry Development Division, assisted by the Management Unit. There are 10 branches under the two (2) divisions as follows:

a) Planning, Policy Development and Codex Standard Division
   i. Policy and Development Branch
   ii. Standard and Codex Branch
   iii. Laboratory Branch

iv. Surveillance Branch
v. Communication and Consumer Branch

b) Compliance and Industry Development Division
i. Domestic Compliance Branch
ii. Domestic Industry Branch
iii. Pre-Market Approval Branch
iv. Import Branch
v. Export Branch

ACTIVITIES AND ACHIEVEMENTS

PLANNING, POLICY DEVELOPMENT AND CODEX STANDARD DIVISION

- **13th National Food Safety and Nutrition Council Meeting**

The National Food Safety and Nutrition Council is a forum for strengthening food safety at all levels of the food supply chain and ensuring optimum level of nutrition is achieved for public. The council and all stakeholders related to food safety and nutrition annually were discussed various matters pertaining food safety and nutrition. The 13th National Food Safety and Nutrition Council Meeting was held on 14 December 2015 at the MoH and was chaired by the Honourable Minister of Health.

IMAGE 1
13TH NATIONAL FOOD SAFETY AND NUTRITION COUNCIL MEETING

Source: Food Safety & Quality Division, MoH

IMAGE 2
THE MINISTER OF HEALTH CHAIRED THE MEETING

Source: Food Safety & Quality Division, MoH

- **Food Safety and Quality Program Innovation Competition 2015**

The Food Safety and Quality Program Innovation Competition 2015 was held on 8 December 2015 at the Food Safety and Quality Division. The assessment was based on reports, briefings and demonstrations which involved officers from the State Health Department, District Health Office, Food Quality and Safety Laboratories and the Food Section, Public Health Laboratories.

IMAGE 3
INNOVATION COMPETITION 2015

Source: Food Safety & Quality Division, MoH

IMAGE 4
DEMONSTRATION OF INNOVATION PROJECT

Source: Food Safety & Quality Division, MoH

- **National Food Premises Award Ceremony 2015**

The National Food Premises Award Ceremony 2015 was held on 25 November 2015 at *Hentian Rehat dan Rawat* (R&R) Dengkil (South Entrance). The ceremony was officially launched by the Honourable Minister of Health.

IMAGE 5
NATIONAL FOOD PREMISES AWARD CEREMONY, 2015

Source: Food Safety & Quality Division, MoH

IMAGE 6
THE WINNERS OF NATIONAL FOOD PREMISE AWARD CEREMONY, 2015

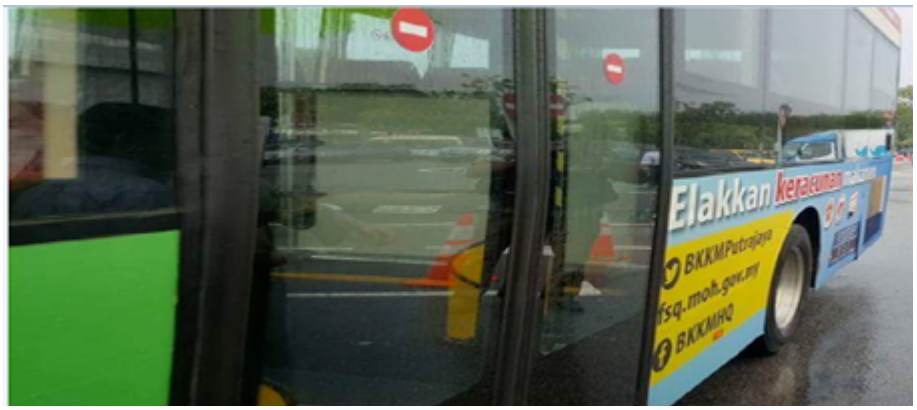
Source: Food Safety & Quality Division, MoH

Promotional campaigns of *Bersih, Selamat dan Sihat* (BeSS) Recognition Scheme and *Lihat, Hidu, Rasa* using bus and taxi panels were also launched during the award ceremony.

IMAGE 7
FOOD SAFETY PROMOTION ON TAXI PANELS

Source: Food Safety & Quality Division, MoH

IMAGE 8
FOOD SAFETY PROMOTION ON BUS PANELS



Source: Food Safety & Quality Division, MoH

Launching World Health Day 2015

The Food Safety and Quality Program in collaboration with the Melaka State Health Department and the Health Education Division organized the National World Health Day 2015 with the Food Safety theme 'From Farm to Plate' at AEON Bandaraya, Melaka on 6-7 April 2015.

Activities undertaken were as follows:

1. Launching of *Bersih, Selamat dan Sihat* (BeSS) Recognition Scheme
2. Cooking demonstration
3. Food Safety Exhibition
4. Food stalls and related government agencies booths

IMAGE 9
WORLD HEALTH DAY 2015

Source: Food Safety & Quality Division, MoH

IMAGE 10
LAUNCHING OF *BERSIH, SELAMAT DAN SIHAT* RECOGNITION SCHEME

Source: Food Safety & Quality Division, MoH

24th Session of the Codex Committee for Fats and Oils

At the international level, Malaysia has continued to play an active role by contributing significantly to the development of food safety and quality standards in Codex. Codex Alimentarius Commission (CAC), established in 1963, is the Joint Food Standards Program of the Food and Agricultural Organisation (FAO) and the WHO. CAC plays a key role internationally in the area of food standards, with its dual mandates of protecting the health of consumers and ensuring fair practices in the food trade.

Malaysia's involvement in Codex has been of great benefit in maintaining the interest of the country and its food trade. Malaysia through the MoH has successfully hosted and chaired the 24th Session of the Codex Committee on Fats and Oils in Melaka from 9 - 13 February 2015. As the host and Chairperson of the Codex Committee on Fats and Oils, Malaysia's role is to ensure that all relevant issues on fats and oils are discussed based on Codex procedures and ensure any proposed draft standard is adopted by CAC as Codex Standard.

IMAGE 11
OFFICIAL OPENING OF THE 24TH SESSION OF THE CODEX COMMITTEE FOR FATS AND OILS

Source: Food Safety & Quality Division, MoH

IMAGE 12
24TH SESSION OF THE CODEX COMMITTEE FOR FATS AND OILS

Source: Food Safety & Quality Division, MoH

Malaysia once again was selected as the Codex Member Elected on a Geographic Basis for Asia for the term 2015 – 2017 since the last appointment of Malaysia for the same post for the term 1991 - 1995.

IMAGE 13
CODEX MEMBER ELECTED ON A GEOGRAPHIC BASIS FOR ASIA

Source: Food Safety & Quality Division, MoH

ASEAN Risk Assessment Centre for Food Safety (ARAC)

At the ASEAN level, Malaysia plays an active role as the host country and the Secretariat of the ASEAN Risk Assessment Centre for Food Safety (ARAC) which is located at the Food Safety and Quality Program. ARAC is one of the most important milestones in the application of an integrated food safety risk assessment mechanism by pooling and utilizing scientific expertise across ASEAN to provide independent scientific opinion in facilitating the development of common ASEAN position on food safety issues.

The recognition of the establishment of ARAC has been reflected in the Chairman's statement of the 27th ASEAN Summit held in Kuala Lumpur on 21 November 2015 in the implementation of integrated food safety risk assessment in ASEAN.

The Workshop on Operational Procedures for ASEAN Risk Assessment Centre for Food Safety (ARAC) was held from 24 - 26 March 2015 in Kuala Lumpur in cooperation with the ASEAN Secretariat and ASEAN Regional Integration Support by the European Union (ARISE).

IMAGE 14
WORKSHOP ON OPERATIONAL PROCEDURES FOR ASEAN RISK ASSESSMENT CENTRE FOR FOOD SAFETY (ARAC)

Source: Food Safety & Quality Division, MoH

COMPLIANCE AND INDUSTRY DEVELOPMENT DIVISION

Operasi Premis Makanan Bersih 2015

Since July 2013, the MoH has enhanced the enforcement on cleanliness of food premises jointly with the local authorities and other related agencies through *Operasi Premis Makanan Bersih* throughout the country. This is to ensure that food premises operators always maintain the cleanliness of their food premises and practice good hygiene at all times.

In 2015, a total of 20 *Operasi Premis Makanan Bersih* was carried out involving inspection of 13,494 food premises throughout the country. Through these operations, a total of 560 food premises (4.1%) had been temporarily closed under Section 11 of the Food Act 1983 and 2,059 notices ordering appearance in court under Section 32B of the Food Act 1983 were issued to food operators who failed to comply with certain provisions under the Food Hygiene Regulations 2009. In addition, a total of 403 compounds were issued by the local authorities under their respective by-laws.

TABLE 1
***OPERASI PREMIS BERSIH* 2015**

No. of Food Premises Inspected	No. of Food Premises Closed Under Section 11, Food Act 1983	No. of Notices Issued Under Section 32B, Food Act 1983	No. of Compounds Issued by Local Authorities
13,494	560	2,059	403

Source: Food Safety & Quality Division, MoH

The MoH is also working with the Department of Local Government, Ministry of Urban Wellbeing, Housing and Local Government (KPKT), local authorities and the Halal Hub Division, Department of Islamic Development Malaysia (JAKIM) through the Blue Ocean Strategy approach in coordinating food pemises inspection activity. The intention of this cooperation is to create a single line of action to prevent overlapping inspections by various agencies on any particular food premises outlet in achieving the same objective of ensuring hygiene of food premises outlets.

Enforcement of Regulations on Water -Vending Machines

The MoH has carried out enforcement on Regulation 360C(3), Food Regulations 1985 regarding standard of machine-vended water and Regulation 55, Food Hygiene Regulations 2009 on hygiene and maintenance of water-vending machines. In 2015, 630 water- vending machines were inspected and 786 water samples were taken from these water- vending machines. As a result of this inspection and sampling, 22 water-vending machines were seized and detained for not complying with the related requirements under the Food Act 1983 and its regulations.

TABLE 2
ENFORCEMENT ON WATER-VENDING MACHINES

No. Inspected	No. of water samples taken	No seized and detained
630	786	22

Source: Food Safety & Quality Division, MoH

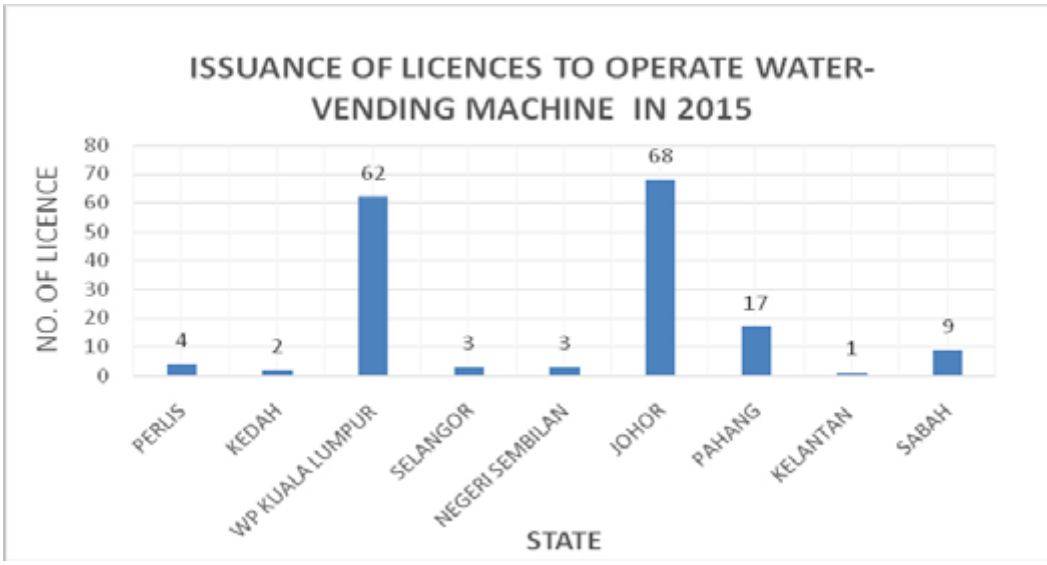
Licensing of Water Vending Machines

Water vending machine is a vending machine that will dispense water automatically when coins or tokens are inserted or by any other means. The water in the water vending machine must have undergone treatments such as filteration, distillation, reverse osmosis, ionization and disinfection depending on the type of machine in the market. Under the provisions of Regulation 360C, Food Regulations 1985 gazetted on

28 September 2012, requires that all water vending machines must be licenced before they are used for the purpose of trade or business.

Water vending machine licensing activities involved verifying the machine and sampling of the water from the water vending machine. In 2015, a total of 169 Licences to Operate Water-Vending Machine were issued. The list of licence holders is available at http://fsq.moh.gov.my.

FIGURE 1
ISSUANCE OF WATER VENDING MACHINE LICENCES IN 2015



Source: Food Safety & Quality Division, MoH

Sustainable Supplier Development Programme (SSDP)

Sustainable Supplier Development Program (SSDP) was introduced in Malaysia on 15 January 2013 as a pilot project as an outcome of the collaboration between Ministry of Industry and International Trade Malaysia (MITI), the United Nations Industrial Development Organization (UNIDO) and AEON CO.

The objectives of this program are to improve food safety along the food supply chain, strengthen trading activities locally and internationally, increase capacity of local food technologist and promote public-private partnership.

Through this approach, cooperation has been forged with the hypermarkets, the SMEs manufacturers, public agencies and public universities. In 2015, a total of 11 SMEs manufacturers and 11 public universities students were involved in this program. Significant success has been achieved when all the SMEs manufacturers implemented Food Safety Assurance Programs at their respective plants. A total of four (4) out of six (6) final year students who had joined this program had been offered jobs and five (5) other students are third year students.

Through this platform, companies had successfully secured funding from government agencies such as Malaysian Palm Oil Board and the Department of Agricultures, which amounted to more than RM3 million in grants.

Food Safety Assurance Program

In order to assist the SMEs to implement the Food Safety Assurance Program, the MoH had introduced the *Makanan Selamat Tanggungjawab Industri* (MeSTI) Certification which was launched on 7 March 2013. In 2015, a total of 2401 food manufacturing premises have been issued the MeSTI certification and the numbers are expected to continue to increase due to promotional activities as well as enforcement under the Food Hygiene Regulations 2009.

IMAGE 16
PROMOTION OF MeSTI AT HIGHWAYS

Source: Food Safety & Quality Division, MoH

IMAGE 17
PROMOTION OF MeSTI AT SUPERMARKETS

Source: Food Safety & Quality Division, MoH

In 2015, the Food Safety and Quality program had successfully published the Directory of MesTI Certified Food Industry Enterpreneurs 2015 Edition. This is a continuation of the Directory published in 2013 and 2014. This directory indirectly assists the entrepreneurs to build and expand their market linkages between entrepreneurs and consumers, distributors, marketing agents, hypermarkets, external agencies and others, whether nationally or globally. This is seen to have a positive impact in boosting local entrepreneurs globally and spawned successful entrepreneurs of quality.

IMAGE 18
DIRECTORY OF MeSTI CERTIFIED FOOD INDUSTRY ENTERPRENEURS EDITION 2015

Source: Food Safety & Quality Division, MoH

Food Import Control

Monitoring of food import consignments is strenghthen through the Food Safety Information System of Malaysia (FoSIM). In 2015, out of the 98,813 consignments inspected, 11,904 (11.2%) consignments have been sampled where 107 samples (0.96%) had violated the Food Regulations 1985. Based on the past five (5) years data of food import control, the percentage of contravention of food import samples ranged 1.1% – 2.0%.

TABLE 3
DATA OF FOOD IMPORT CONTROL 2015

No. of Consignments Inspected	No. of Consignments Sampled	No. of Samples Contravention
98,813	11,904	107

Source: Food Safety & Quality Division, MoH

Food Export Control

Food export control involves the official control activities which carried out in accordance with the requirements of the importing countries. The Food Safety and Quality Program, has been appointed by the European Union (EU) as the Competent Authority (CA) to assure that the requirements set by the EU are fulfilled along the production chain of fish and fishery products exported to the EU.

In 2015, the Shrimp Export Control System to the United States was developed in collaboration with several stakeholders to avoid detention on all exported shrimp products from Malaysia by the United States.

WAY FORWARD

The Food Safety and Quality Program is committed to ensure food safety and uphold the nation's integrity in food safety and quality through shared responsibility and accountability on the basis of effective tripartite management system towards Vision 2020.

CHAPTER 10

POLICY AND INTERNATIONAL RELATIONS

INTRODUCTION

The Policy and International Relations Division is responsible for the formulation of non-clinical policies for the nation's health sector. The Division also coordinates matters related to the Cabinet, acts as the focal point for the Ministry with respect to international relations and responsible for promoting the local healthcare industry as well as being the Delivery Management Office (DMO) for Healthcare National Key Economic Area (Healthcare NKEA). This Division is also the designated national focal point for the World Health Organization (WHO).

Activities are carried out by three Sections of the Division namely:

(a) Policy and International Relations Section;
(b) Health Industry and Secretariat Section; and
(c) Delivery Management Office, Healthcare NKEA.

ACTIVITIES AND ACHIEVEMENT

Cabinet Related Matters

In 2015, this Division prepared and coordinated 11 Cabinet Notes and 30 Memorandums for tabling at the Cabinet Meeting. This Division also provided inputs and facilitated the preparation of 79 comments on Memorandums received from other ministries as well as 16 feedbacks to decisions made by the Cabinet throughout the year 2015.

MoH High Level Meetings

The Division also serves as the secretariat for 3 high level meetings in the Ministry. In 2015, 27 Post-Cabinet Meetings, 4 Management Meetings and 9 Special Management Meetings were held.

Healthcare NKEA Steering Committee Meeting

The Division through Delivery Management Office (DMO) and PEMANDU continued to closely monitor the progress of implementation of Entry Point Projects (EPPs) through a total of 4 Healthcare NKEA Steering Committee Meetings conducted in 2015. Apart from solving issues related to implementation of projects, the committee also discussed and endorsed new projects.

International Relations

- **World Health Organization (WHO)**

Throughout 2015, the Division coordinated placements of 8 WHO fellows in various institutions in Malaysia. In addition, the Division also coordinated and processed applications from 173 participants and 4 advisors comprising Malaysian professionals to attend 122 meetings/workshops/study visits overseas under WHO sponsorship. The Division also coordinated the participation of MoH delegation in WHO annual meetings:

(i) 21st WHO PBAC, 21 - 23 January 2015, Geneva, Switzerland.
(ii) 136th Session of WHO Executive Board, 26 January - 3 February 2015, Geneva, Switzerland.
(iii) 68th World Health Assembly (WHA), 18 – 26 May 2015, Geneva, Switzerland.
(iv) 66th Session of the World Health Organization (WHO) Regional Committee for the Western Pacific, 12 - 16 October 2015, Guam, United States of America.

- **Other International Bodies**

In the 2015, The Division coordinated MoH's participation in various meetings, amongst others, as follows:

(i) Reap, Cambodia80th ASEAN Coordinating Committee on Services (CCS), 12 - 16 January 2015, Siem.
(ii) APEC First Senior Officials Meeting (SOM), 26 January – 7 February 2015, Clark, Philippines.
(iii) 81st ASEAN Coordinating Committee on Services (CCS), 5 - 8 May 2015, Kuala Lumpur, Malaysia.
(iv) Commonwealth Health Ministers Meeting, 17 May 2015, Geneva.
(v) Meeting of the Ministers of Health of the Non Aligned Movement (NAM), 19 May 2015, Geneva.
(vi) APEC Roundtable on Mental Health, 25 August 2015, National Center for Mental Health, Manila, Philippines.
(vii) APEC Second Senior Officials Meeting (SOM), 26 – 31 August 2015, Cebu, Philippines.
(viii) 10th Senior Officials Meeting On Health Development (10th SOMHD) and Related Meetings, 14 - 17 September 2015, Da Lat, Lam Dong Province, Viet Nam.

(ix) 81st ASEAN Coordinating Committee on Services (CCS), 28 September – 2 October 2015, Kuala Lumpur, Malaysia.

(x) Fifth Islamic Conference of Organisation of Islamic Cooperation (OIC) Health Ministers, 17 - 19 October 2015, Istanbul, Turkey.

- **Bilateral Program**

  In the 2015, the Division coordinated bilateral meetings between MoH's High Level Officers with other countries during various meetings, amongst others, as follows:

  (i) 27th Commonwealth Health Ministers' Meeting, 17 May 2015, Harvard Health Leaders' Ministerial Roundtable.

  (ii) 2nd EAT Stockholm Food Forum 2015, 1-2 June 2015, Stockholm, Sweden.

  (iii) Visit of KDYMM Al-Wathiqu Billah Sultan Mizan Zainal Abidin Ibni Almarhum Sultan Mahmud Al-Muktafi Billah Shah to Blood Plasma Fractionation Plant, Bangkok, Thailand, 31 July 2015.

  (iv) 2nd Global Health Security Agenda (GHSA) High Level Meeting, 7-9 September 2015, Seoul, Korea.

  (v) 9th Annual Meeting of the New Champions 2015, 9-11 September 2015, Dalian, China.

  (vi) Bilateral Meeting with Minister of State Health Singapore, 13 October 2015, Guam, United States of America.

  (vii) Bilateral Meeting with Minister of Health Brunei Darussalam, 13 October 2015, Guam United States of America.

  (viii) The Preparatory Meeting for Global Fund's Fifth Coluntary Replenishment 2017 – 2019 dan Conference on Universal Health Coverage in the New Development Era, 16-17 December 2015, Tokyo, Japan.

  (ix) 3rd Bilateral Meeting on Cooperation in Traditional Indian Medicine between the Government of Malaysia and India, 21-23 December 2015, New Delhi, India.

- **Working Visit/ Mission/ Conference**

  (i) Ministerial Meeting on Universal Health Coverage, 10-11 February 2015, Singapore.

  (j) HIV Co-Infection with Viral Hepatitis: Implications for Screening and Treatment in Asia Conference, 28 February- 2 March 2015, Singapore.

  (ii) The 2nd Eat Stockholm Food Forum 2015, Stockholm, Sweden, 1-2 June 2015 and Working visit to United Kingdom, 3-5 June 2015.

(iii) Wilton Park Ministerial meeting on 'Malaria Elimination in Asia Pacific and Southern Africa: Political Leadership and Sustained Financing', 30 September - 2 October 2015. London, United Kingdom.

(iv) Working visit to Ministry of Public Health, 30 November - 2 December 2015, Bangkok, Thailand.

- **Courtesy Call**

  This Division facilitated courtesy call upon Honourable Minister of Health, Honourable Deputy Minister, Secretary General and Director General of Health Malaysia. Among the courtesy call in the year 2015 were:

  (i) Courtesy call upon Honourable Minister of Health Malaysia by Edison T.Liu, President and Chief Executive Officer of the Jackson Laboratory in Bar Harbor, MA, United States, 19 March 2015.

  (ii) Courtesy call upon Director General of Health Malaysia by Mr Zee Yoong Kang, Chief Executive Officer Singapore Health Promotion Board, 1 April 2015.

  (iii) Courtesy call upon Director General of Health Malaysia by Ministry of Health Singapore, 8 April 2015.

  (iv) Courtesy call upon Director General of Health Malaysia by Prof. Sarath Lekamwasam, Faculty of Medicine, University of Ruhana, India, 30 June 2015.

  (v) Courtesy call upon Honourable Minister of Health Malaysia by Ambassador of Czech Republic, 28 September 2015.

  (vi) Courtesy call upon Director General of Health Malaysia by Victoria State Government Australia, 5 October 2015.

  (vii) Courtesy call upon Secretary General of Health Malaysia by Health and Family Planning Commission of China's Zhejiang Province, 5 October 2015.

  (viii) Courtesy call upon Honourable Minister of Health Malaysia by representative from Royal College of Physicians, London, 6 October 2015.

  (ix) Courtesy call upon Secretary General of Health Malaysia by Ambassador Republic of Korea, 28 October 2015.

  (x) Courtesy call upon Honourable Deputy Minister of Health Malaysia by HE Dr. Mohammad Salim Al Olama, Undersecretary of Ministry of Health UAE, 9 November 2015.

- **Study Visit to MoH**

  This Division also coordinated study visits by foreign officials to the Ministry of Health Malaysia as follows:

TABLE 1

STUDY VISIT TO MoH MALAYSIA BY FOREIGN OFFICIALS 2015

No.	Countries	Total Visitors
1	Australia	5
2	Bangladesh	15
3	Cambodia	15
4	China	25
5	Filipina	41
6	Hong Kong	2
7	Indonesia	192
8	Kuwait	5
9	Mongolia	5
10	Myanmar	20
11	Netherlands	20
12	Papua New Guinea	5
13	Republik Czech	15
14	Singapura	15
15	Sudan	13
16	Tanzania	20
17	Thailand	15
18	Timor Leste	73
19	Uganda	5
20	United Kingdom	5
21	United States of America	25
TOTAL		**536**

Source: Policy and International Relations Division, MoH

Introductory Health Economics Course

This Division organised an Introductory Health Economics course for MoH administrative officers from 7-9 September 2015 at Avillion Admiral Cove, Port Dickson. The course was officiated by Secretary General MoH and attended by 23 administrative officers. The course is aimed at introducing health economic concepts and the application of analytical tools that are commonly used in decision making with regards to resource allocation, economic evaluation in the health sector as well as

LEAN healthcare. The participants also visited Port Dickson Hospital (PDH), and they were given a briefing on general and financial management of PDH. They also visited the hospital facilities, including traditional and complementary medicine centre, haemodialysis unit, pharmacy unit, trauma and emergency department as well as chemotherapy centre.

IMAGE 1

INTRODUCTORY HEALTH ECONOMICS COURSE 2015

Source: Policy and International Relations Division, MoH

IMAGE 2

A VISIT TO PORT DICKSON HOSPITAL

Source: Policy and International Relations Division, MoH

Promotion and Development of the Healthcare Industry

The Division works closely with other government agencies and the private sector to promote and develop the local healthcare industry. These government agencies includes the Ministry of International Trade and Industry (MITI) and its agencies i.e. Malaysian External Trade Development Corporation (MATRADE) and Malaysian Industrial Development Authority (MIDA); Ministry of Tourism and its agency i.e. Malaysian Tourism Promotion Board (Tourism Malaysia) as well as the Performance Management and Delivery Unit (PEMANDU) of the Prime Minister's Department.

Besides that, the Division also has close collaboration with industry organisations in the private sector, namely the Association of Private Hospitals of Malaysia (APHM), Malaysian Society for Quality in Health (MSQH), Malaysian Organisation of Pharmaceutical Industries (MOPI), Pharmaceutical Association of Malaysia (PhAMA), Malaysian Medical Device Association (MMDA) and Association of Malaysia Medical Industries (AMMI).

- **Healthcare Services**
  - **(i) Organizing Incoming Buying Mission in conjunction with APHM International Healthcare Exhibition 2015 on 15 – 16 June 2015 at Kuala Lumpur Convention Centre**

    In collaboration with MATRADE, the Division had organized the Incoming Buying Mission (IBM) on 15 – 16 June 2015. 22 delegates from 19 companies from 10 countries had participated. A total of 268 business meetings between 49 buyers from Thailand and 15 local companies were held. Trade deals worth an estimated RM39.627m (USD10.71M) for gloves, medical disposables, pharmaceuticals, antiseptics and disinfectants were concluded.

IMAGE 3
APHM INTERNATIONAL HEALTHCARE EXHIBITION 2015

Source: Policy and International Relations Division, MoH

(ii) Participating in Expo Milano from 6 – 7 October 2015 in Milan, Italy.

Malaysia joined the Milan Expo 2015 which lasted for six (6) months from 1 May until 31 October 2015 in Milan, Italy. During the period, the Ministry was given the opportunity to participate in the Malaysia Pavilion on 6 -7 October 2015, and was represented by the Division of Policy and International Relations and the Traditional and Complementary Medicine (T&CM). The main objective was to introduce the diversity of traditional and complementary treatments that were available in the country to the world as well as to promote healthcare industry and medical tourism in Malaysia. Activities undertaken during the event included the demonstration of Traditional Malay Massage and promotion of health screening packages.

IMAGE 4
MILAN EXPO 2015

Corporate video that gave an overview of traditional and Complementary medicine in Malaysia

Source: Policy and International Relations Division, MoH

IMAGE 5

TRADITIONAL MALAY MASSAGE SESSION

Source: Policy and International Relations Division, MoH

- **Pharmaceutical**

  (i) Off-Take Agreement Program

  The Off-Take Agreement (OTA) is one of the Government's initiatives to help local manufacturers in developing a vibrant pharmaceutical and medical devices industry in Malaysia. The program is to provide additional incentive for the local manufacturing of new pharmaceutical and medical devices products for exports and to encourage new investments. This Division received and coordinated OTA applications from pharmaceutical Entry Point Project (EPP) companies. Kotra Pharma, a Malaysian Pharmaceutical EPP Status Company signed the OTA agreement in 2013 and 2015 for several of its pharmaceutical products.

  (ii) Export Growth of Pharmaceutical Products

  This Division has been entrusted to monitor the Export Growth of Pharmaceutical Products which has been identified as one of the Minister of Health KPI'S for 2015. A total pharmaceutical export of RM627.8 millions was registered in 2015 compared with RM610.7 millions in 2014.

CONCLUSION

Throughout the year of 2015, the activities of the Policy and International Relations Division were carried out as planned. This Division will continue its role as a focal point of the Ministry in various areas for which it is responsible and will strive to achieve targets that have been set out in its yearly work plan.

CHAPTER 11

INTERNAL AUDIT DAN INTEGRITY

INTRODUCTION

A crucial part of an organization's corporate governance is its internal audit function. Recognizing this, the Ministry of Finance has stipulated that in every Ministry there should be the establishment of an internal audit function together with its roles and responsibilities as defined in Treasury Circular 1 *Pekeliling Perbendaharaan* (1PP) PS 3.1 and PS 3.2.

ACTIVITIES AND ACHIEVEMENTS

In line with the entrusted position of internal audit to primarily provide assurance on internal controls; compliance to statutory laws, regulations and directives; and consulting services to mitigate risks, the Internal Audit Division (IAD) has carried out financial management audits at selected Responsibility Centers (RCs) and rated them accordingly to determine whether revenue, expenditure, assets and liabilities have been managed accordingly. Fifty-six percent (56%) of the selected RCs audited were rated 4 stars (very good) and the remaining forty-four percent (44%) of the RCs visited managed a score of 3 stars (good).

Besides financial management audits, IAD has also carried out performance audits on selected program/activities to evaluate whether the program/activities implemented have achieved their objectives. A total of 12 performance audits were carried out and eight (8) of them were related to procurement as this formed the most potential risk area exposed to mismanagement. Material issues raised from IAD's audits were tabled at the quarterly Audit Committee meetings chaired by the Secretary General of MoH. Issues raised have been addressed and resolved by the relevant parties concerned. Corrective and preventive measures have been put in place to strengthen internal controls and where appropriate, issues that were related to mismanagement were subsequently followed up by the Integrity Unit; and punitive actions taken against those concerned.

SUMMARY

With the support of various level of management in MoH and the RCs visited, IAD has succeeded in carrying out its roles and responsibilities as entrusted in 1PP. All efforts undertaken by every individual in MoH to rectify and improve shortcomings in processes and procedures; and upheld governance has helped to strengthen the public service delivery system in the healthcare sector.

CHAPTER 12

DEVELOPMENT

INTRODUCTION

Development Expenditure Performance for 2015

The Development Division of the Ministry of Health (MoH) is the custodian of the Ministry's Development Expenditure (DE). In 2015, the initial DE allocation that was approved for the Ministry was RM1.597 billion. However, after the warrants restrictions (*Waran Sekatan*) approved by the Ministry of Finance, the DE allocation is then reduced to RM1.350 billion. At year-end 2015, MoH's Development Expenditure performance is 99.47% of the adjusted DE allocation or equivalent to RM1.342 Billion. The breakdown of Expenditure versus Allocations by *Butiran Peruntukan* (BP) is as shown in Table 1.

TABLE 1
MoH'S EXPENDITURE PERFORMANCE 2015

PROJECT	ALLOCATION (RM)	EXPENDITURE (RM)	%
BP 100 – TRAINING	**84,597,091**	**83,486,375**	**98.69%**
101 *Development of New College*	*25,270,700*	*25,195,471*	*99.70%*
104 *Outsourcing*	*697,700*	*686,300*	*98.37%*
105 *In-Service Training*	*58,628,691*	*57,604,604*	*98.25%*
BP 200 – PUBLIC HEALTH	**146,894,435**	**145,680,336**	**99.17%**
201 *Public Health Services - Rural Areas*	*57,946,282*	*57,946,282*	*100.00%*
202 *BAKAS*	*13,068,396*	*12,861,428*	*98.42%*
203 *Public Health Services - Urban Areas*	*70,779,757*	*69,776,502*	*98.58%*
204 *Mobile Clinic*	*5,100,000*	*5,096,124*	*99.92%*
BP 300 – UPGRADING OF HOSPITAL FACILITIES	**259,381,536**	**259,381,536**	**100.00%**
BP 400 – NEW HOSPITALS	**187,536,911**	**183,896,278**	**98.06%**
BP 500 – RESEARCH & DEVELOPMENT (R&D)	**35,657,201**	**35,293,868**	**98.98%**
BP 600 – UPGRADING & MAINTENANCE	**149,801,493**	**149,766,214**	**99.98%**
BP 700 – LAND ACQUISITION & MAINTENANCE	**31,191,423**	**30,665,312**	**98.31%**
BP 800 – INFO. & COMMUNICATION TECHNOLOGY (ICT)	**36,714,871**	**36,714,871**	**100.00%**
BP 900 – QUARTERS MAINTENANCE	**130,169,901**	**129,935,115**	**99.82%**
BP 900 – STAFF FACILITIES	**16,147,875**	**16,076,857**	**99.56%**
901 *Quarters fo Rural Areas*	*98,410*	*30,436*	*30.93%*
902 *Quarters fo Urban Areas*	*10,942,000*	*10,938,971*	*99.97%*

PROJECT	ALLOCATION (RM)	EXPENDITURE (RM)	%
904 *Office of the State Health*	*5,107,465*	*5,107,450*	*100.00***%**
BP 1000 – PROMOTION	**2,000,000**	**2,000,000**	**100.00%**
BP 1100 – EQUIPMENT & VEHICLES	**249,909,762**	**249,909,761**	**100.00%**
BP 9400 – NKEA	**20,000,000**	**20,000,000**	**100.00%**
TOTAL	**1,350,002,500**	**1,342,806,523**	**99.47%**

Source: Development Division, MoH

Projects Implementation

The Development Division is responsible for the identification of program and projects that are to be implemented under each particular Rolling Plan for the 10th Malaysia Plan. For the 4th Rolling Plan in the year 2015, the Ministry was approved 98 new programs and projects by the Economic Planning Unit (EPU), which comprised of 76 physical projects and 22 non-physical projects. For the 67 physical projects, 46 projects were assigned to Malaysian Public Work Department (JKR) for implementation, 7 projects to JKR Sabah, 5 projects to JKR Sarawak and 40 projects to the Engineering Services Division.

Before a physical project goes through the acquisition process (either by way of open tender, or restricted tender, or direct negotiation), the Preliminary Detailed Abstract (PDA) of the project will be prepared by the Implementing Agency. The PDA is basically an estimation of the project cost based on the size and functional unit of buildings, using cost indicators of similar projects. This is to ensure that the project cost is within the budget allocations approved by Economic Planning Unit (EPU). If the PDA exceeds the budget allocations, approval from EPU is required for the increase in cost.

When a project has been completed, the total project cost need to be reflected on the As Tendered Detailed Abstract (ATDA) document. If the ATDA costing exceeds the PDA cost, again EPU's approval is needed, before the project account can be closed.

The Development Division is responsible for vetting through the PDA and ATDA submissions from the Implementing Agencies, and giving the necessary approval, where relevant. This is done through a PDA/ATDA Meeting, chaired by the Senior Under-Secretary. In 2015, the PDA/ATDA Meeting is held monthly, and a total of 74 PDA and ATDA submissions were approved out of 83 received, which is equivalent to 89% approvals.

To ensure that the implementation expenditure of a programme/project is value for money, the government has decided that all projects worth RM50 million and above must undergo a Value Management process. The implementation of Value Management (VM) serves to identify, provide options and produce components and costs that do not contribute to the value of a service, system and project without compromising the objectives and functions specified. The VM process involves all stakeholders to evaluate and find alternatives with optimum costs without compromising the objectives, functions and quality of the project. In this regard, for the year 2015, six (6) projects were identified to undergo the VM process. The projects are *Pembinaan Blok Tambahan Hospital Seri Manjung, Perak* (RM60,000,000.00); *Cadangan Pembinaan Bangunan Baru Makmal Patologi Hospital Sultanah Aminah, Johor Bahru* (RM54,100,000.00); *Hospital Parit Buntar, Perak* (RM149,200,000.00); *Hospital Tanjung Karang* (RM269,000,000.00); *Tambahan Blok Baru Hospital Putrajaya* (RM415,200,000.00); and *Naiktaraf Hospital Papar, Sabah (RM98,000,000.00).*

With respect to Contract Management, for the physical projects that are implemented by the Engineering Services Division MoH, the Development Division is responsible for the issuance of the Letter of Acceptance or *Surat Setuju Terima* (SST), as well as the management of the contractual documents.

In 2015, the Development Division had managed and issued SST for 3 projects in Hospital Tawau Sabah, Hospital Sultanah Nurzahirah, Kuala Terengganu and Hospital Kuala Krai, Kelantan. Apart from that, 10 Contract documents were coordinated and signed.

The Development Division is also responsible to coordinate, manage and monitor physical projects that are implemented under the "Public-Private Partnership" (PPP) initiative, led by UKAS. In 2015, there were two on-going projects as follows:

TABLE 2
PUBLIC-PRIVATE PARTERSHIP PROJECTS 2015

	Project	Method of Implementation
i.	Women and Child Hospital, Kuala Lumpur	Built-Lease-Maintain-Transfer (BLMT)
ii.	Kompleks Institut Penyelidikan Kesihatan Bersepadu (IPKB)	Land Swap

Source: Development Division, MoH

Project Monitoring

Under the directive, *Arahan No.1, 2010* issued by the Implementation and Coordination Unit (ICU) of Prime Minister's Department (JPM), it is mandatory that all physical projects implementation are monitored through a committee named *Jawatankuasa Tindakan Pembangunan Kementerian* (JTPK) formed at the Ministry level and chaired by the Secretary General. The Development Division is Secretariat to the Committee and its members include representatives from the Ministry of Finance, the Economic Planning Unit, the Implementation Coordination Unit, the Implementing Agencies, as well as the various Divisions under the MoH. It is also mandatory that the JTPK meeting must be convened every month to discuss on projects progress, projects issues, and all other matters related to projects implementation.

An important mechanism for project monitoring that is considered effective is through project site visits. For MoH, this involves visits by MoH'S High-Level Management, particularly the Minister of Health. It is mandated that the Minister of Health must visit at least one project per month, while the Secretary General must visit at least 3 projects per month, and these visits form part of the KPI's of the Minister and respectively, that are diligently monitored by ICU, JPM. The Development Division is responsible to coordinate and manage the visits by the Minister and Secretary General. In 2015, the Minister and the Secretary General visited 25 and 41 projects nationwide, respectively.

Apart from site visits coordination, the Division also conducts site visits on its own, together with the respective Implementing Agencies. The Division's KPI is set for at least 80 projects site visits per year. For the year 2015, staffs of the Monitoring Unit, Development Division, conducted a total of 83 sites visits. From time to time, the Monitoring Unit also managed and coordinated Work Camp Sessions as requested by ICU, as well as project-focused visits as requested by EPU and the Ministry of Finance.

Project Completion and Hand Over

When a project is successfully completed, and upon issuance of the Certificate of Practical Completion (CPC) by the Implementing Agency, a Meeting On Documents Checking Before Project Hand Over is convened, involving the contractor, the consultants, the Implementing Agency, the client as well as representatives from the Engineering Services Division and the Development Division. The purpose of the meeting is to go through the Checklist on the documentations that must be made available upon project hand over, and other related matters. When the checklist is successfully complied and signed off by all parties concerned, a recommendation will

be made to the Secretary General for project hand over. Subsequently, mobilization of resources and operations of the facility will follow.

In 2015, a total of 15 physical projects were successfully completed and handed over to MoH for utilization and operations of the facilities.

Project Outcome Evaluation

The ICU, through its Circular Letter No.1/2012: Guidelines on the Implementation of Project Outcome Evaluation has mandated that all development projects/facilities that are completed and have begun operation between 1 to 5 years, are eligible to undergo project outcome evaluation. The objectives of the outcome evaluation process are, to evaluate the effectiveness of programs/projects to the target group; to develop corrective actions in overcoming issues relating to unachievable desired outcomes; to secure the interest of the target groups and to ensure that they are not being marginalised by the development programs; and to assist management in making balanced decisions.

Project Outcome Evaluation forms part of the KPI of the Secretary General that is monitored by the central agencies. The Development Division is responsible to coordinate the outcome evaluation reports of projects implemented in the Ministry, which are submitted from all states. In 2015, the Division received a total of 16 projects for the outcome evaluation process.

Out of the 16 projects, 5 best project outcome evaluation reports were selected to be presented at the national level committee, *Jawatankuasa Penilaian Outcome Kebangsaan* (JKPO), chaired by ICU. Members of the committee include representatives from EPU, the Ministry of Finance, and the National Audit Department, among others. In the final assessment, all the 5 project outcome evaluation reports from MoH received marks of 85% and above, and categorised as "Significantly Exceed Target". In terms of the overall performance among the 24 ministries, MoH is awarded 2nd placing, with total marks of 91.4%.

Planning and Land Use Management Committee

The Development Division manages land and building acquisitions according to the Land Acquisition Act 1960, the Treasury Circular Letter No.1/2003 and the revised Treasury Circular Letter No.11/2007, for the purpose of development of health facilities. The acquisition process is conducted through a Planning and Land Use Management Committee or *Jawatankuasa Pengurusan dan Pemantauan Tanah* (JPPT) chaired by the Ministry's Secretary General. The committee members include both the

Deputy Secretary General, the 3 Deputy Directors General, representatives from the Federal Land Commission Department and the relevant Divisions in the Ministry. The Land Unit of the Development Division is the Secretariat to the Committee.

All land acquisitions throughout the whole country, for the purpose of the MoH's facilities development must go through the JPPT for approval. In 2015, a total of 6 JPPT meetings were convened, with a total of 105 papers were presented and discussed for considerations.

Training Session / Workshop

The Development Division also conducts training sessions and workshops for the benefit of officers involved in the development of health facilities, all over the country. There are 2 main courses organized by the Development Division annually, which is the Program/Project Outcome Evaluation Workshop, and the Land Acquisition and Management Course.

In 2015, the Program / Project Outcome Evaluation Workshop was conducted 2 times, i.e. 7 - 8 April 2015 and 20 - 22 April 2015. The Land Acquisition and Management training were held on the 21 - 23 May 2015. Participants from health facilities throughout the country attended and benefitted from the training session / workshop.

MINISTRY OF HEALTH
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