

# ANNUAL REPORT

MINISTRY OF  
HEALTH MALAYSIA

# 2016



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# **ANNUAL REPORT**

MINISTRY OF HEALTH MALAYSIA

# **2016**



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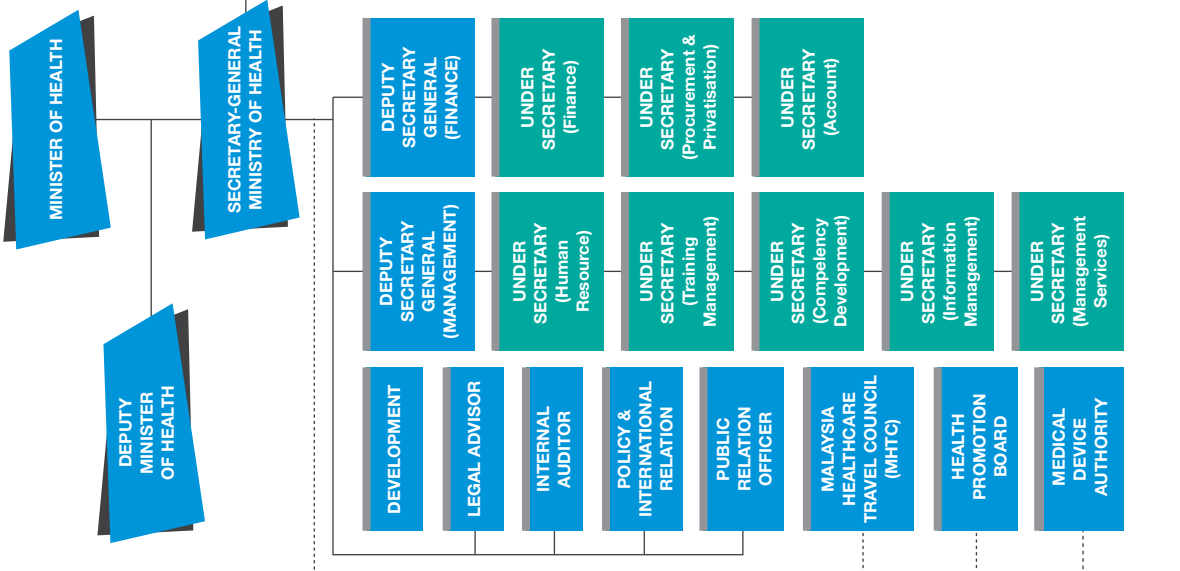
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# ORGANISATION CHART MINISTRY OF HEALTH, MALAYSIA



# 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**

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## **HEALTH STATUS**

## INTRODUCTION

Malaysia is a vibrant and dynamic country enjoying continued economic growth and political stability since its independence 59 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

The population of Malaysia in 2016 was 31.66 million with an annual population growth rate 2015 to 2016 of 1.52 per cent. The total population in 2016 increased by 0.47 million as compared to 31.19 million recorded in 2015. The geographical distribution of population showed that Selangor had the highest population of 6.30 million, while Federal Territory of Putrajaya recorded the lowest population of 0.08 million (**Table 1**). Federal Territory of Labuan recorded the highest annual population growth rate of 2.84 per cent, while Federal Territory of Putrajaya recorded the lowest annual growth rate of 0.36 per cent.

**Table 1**  
**Population and Annual Population Growth Rate by State, Malaysia 2015 to 2016**

No	State	Population ('000)		Annual Population Growth Rate 2015/2016 (%)
		2015	2016 <sup>e</sup>	
1.	Perlis	248.5	251.0	1.01
2.	Kedah	2,096.5	2,120.7	1.15
3.	Pulau Pinang	1,698.1	1,719.3	1.25
4.	Perak	2,466.9	2,483.0	0.65
5.	Selangor	6,178.0	6,298.4	1.95
6.	FT Kuala Lumpur	1,780.4	1,787.2	0.38
7.	FT Putrajaya	83.0	83.3	0.36
8.	Negeri Sembilan	1,088.8	1,099.7	1.00
9.	Melaka	889.0	901.7	1.43
10.	Johor	3,610.3	3,655.1	1.24
11.	Pahang	1,607.9	1,628.1	1.26
12.	Terengganu	1,161.0	1,183.9	1.97
13.	Kelantan	1,760.6	1,797.20	2.08
14.	Sabah	3,720.5	3,813.2	2.49
15.	FT Labuan	95.1	97.8	2.84
16.	Sarawak	2,701.5	2,741.0	1.46
<b>MALAYSIA</b>		<b>31,186.1</b>	<b>31,660.7</b>	<b>1.52</b>

Notes:

1. Current population estimates 2015 and 2016
2. The added total may differ due to rounding.
3. FT = Federal Territory
4. <sup>e</sup> - estimated

Source: Department of Statistics, Malaysia ([www.statistics.gov.my/PopulationQuickInfo](http://www.statistics.gov.my/PopulationQuickInfo))

Overall, Malaysia is predominantly urban, with 74.8 per cent of the total population living in urban areas, and 25.2 per cent of the population living in the rural areas (**Table 2**). In 2016, the economically-productive population which consists of population aged 15 to 64 years was 22.0 million or 69.4 per cent of the total population, while the economically dependent (age below 15 years and 65 years and above) was 9.7 million or 30.6 per cent of the total population.

**Table 2**  
**Statistics Related to Population, 2016<sup>e</sup>**

No	Population	Number ('000)	% of Total Population
1.	Male	16,362.5	51.7
2.	Female	15,298.2	48.3
3.	Urban	23,694.7	74.8
4.	Rural	7,966.0	25.2
5.	Economically-productive (age 15-64 years)	21,983.3	69.4
6.	Economically-dependent: <ul style="list-style-type: none"> <li>• age below 15, and</li> <li>• above 64 years</li> </ul>	7,763.3 1,914.1	24.5 6.1

Notes:

1. Current population estimates 2016.

2. The added total may differ due to rounding.

3. <sup>e</sup> - estimated

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

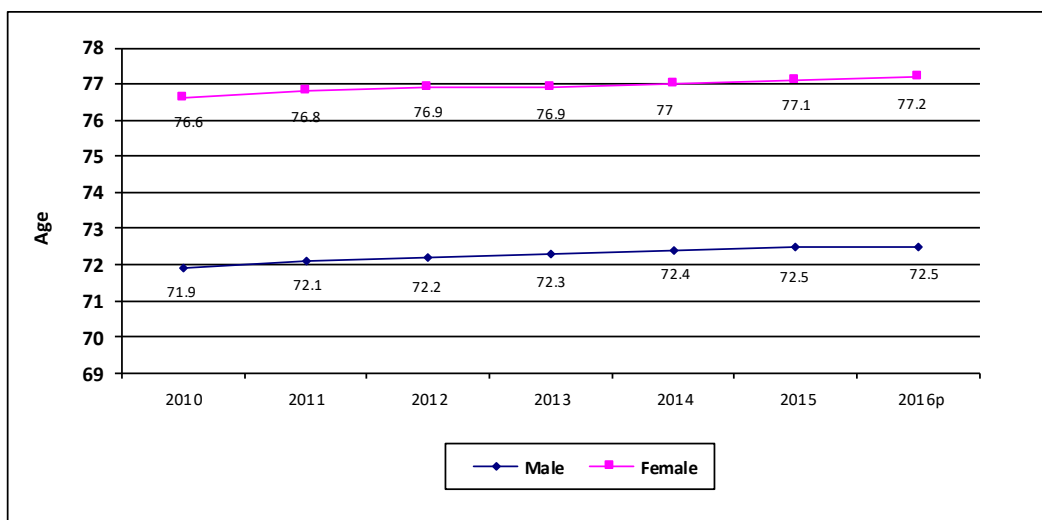
## HEALTH STATUS

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 2016 data has increased to 72.5 years for male and 77.2 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 to 2016**



Note:

1. p = Preliminary figures

Source: Department of Statistics, Malaysia

## MORTALITY

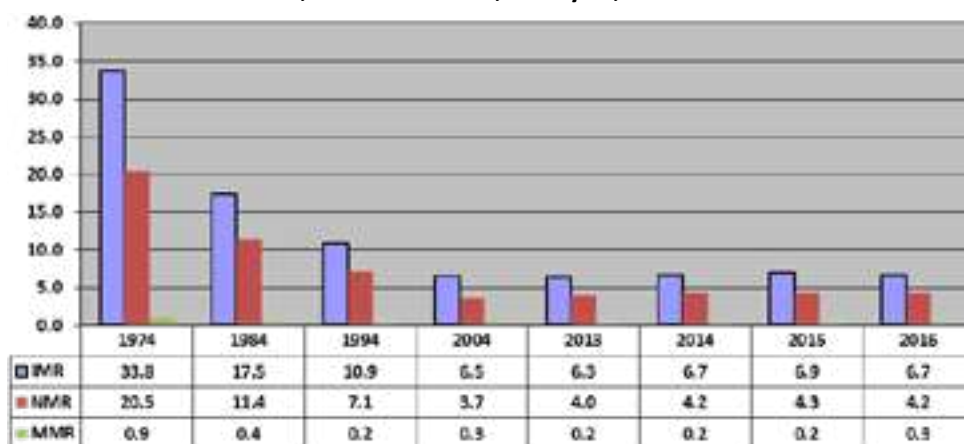
Mortality data provides a useful endpoint for measuring health. These data provide a comprehensive picture of the health of the community, since it covers every individual. Many different types of measures are used to provide views of health from differing perspectives.

For the past 42 years (1974-2016), 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 0.3 in 2016. 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 Ministry of Health Malaysia (MoH).

IMR per 1,000 live births had improved from 33.8 in 1974 to 6.7 in 2016. 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 to 2016**



Source: Vital Statistics, Malaysia, 2017, Department of Statistics, Malaysia

The trend for the other mortality rates remains relatively the same from 2010 to 2016 (**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 to 2016**

No	Indicator	2010	2011	2012	2013	2014	2015	2016
1.	Crude Death Rate (per 1,000 population)	4.6	4.7	4.7	4.7	4.9	5.0	5.1
2.	Maternal Mortality Ratio (per 100,000 live births)	26.1	26.2	23.2	21.4	22.3	23.8	29.1
3.	Infant Mortality Rate (per 1,000 live births)	6.7	6.5	6.2	6.3	6.7	6.9	6.7
4.	Neonatal Mortality Rate (per 1,000 live births)	4.3	4.2	4.0	4.0	4.2	4.3	4.2
5.	Under Five Mortality Rate (per 1,000 live births)	8.4	8.0	7.6	7.9	8.3	8.4	8.1
6.	Toddler Mortality Rate (per 1,000 population aged 1-4 years)	0.4	0.4	0.4	0.4	0.4	0.4	0.4
7.	Stillbirth Rate (per 1,000 births)	4.5	4.5	4.3	4.3	4.3	4.4	5.2
8.	Perinatal Mortality Rate (per 1,000 births)	7.7	7.6	7.3	7.3	7.4	7.7	8.3

Source: Vital Statistics, Malaysia, 2017, Department of Statistics, Malaysia

## 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.

Hospitalisation 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 to 2016, the number of admissions in MoH Hospitals increased 56.6 per cent to 2,497,117 in 2016 from that of 1,594,175 in 2001. The 10 principal causes of hospitalization in the MoH Hospitals for 2016 are shown in **Table 4**. The diseases were regrouped to groupings based on the International Statistical Classification of Disease 10<sup>th</sup> Revision (ICD10). In 2016 “Pregnancy, childbirth and the puerperium” (23.07 per cent) was the top cause of admissions in MoH hospitals followed by “Diseases of the respiratory system” (12.80 per cent).

**Table 4**  
**10 Principal Causes of Hospitalisation in MoH Hospitals, 2016<sup>P</sup>**

No	Principal Causes	% to total discharges
1.	Pregnancy, childbirth and the puerperium	23.07
2	Diseases of the respiratory system	12.80
3	Certain infectious and parasitic diseases	8.74
4.	Certain conditions originating in the perinatal period	8.67
5.	Injury, poisoning and certain other consequences of external causes	7.66
6.	Diseases of the circulatory system	7.50
7.	Diseases of the digestive system	4.58
8.	Diseases of the genitourinary system	4.29
9.	Neoplasms	4.17
10.	Factors influencing health status and contact with health services	3.24

*Note: Based on ICD10 3-digit code grouping*

*Source: Health Facts 2017, Health Informatics Centre, MoH*

The number of deaths (for all causes) in MoH Hospitals for the period of 2001-2016 increased 70.1 per cent from 32,751 in 2001 to 55,697 in 2016. 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 Organisation (WHO). “Diseases of the circulatory system” was the top cause of death in MoH hospitals recorded in 2016 (22.62 per cent), followed by “Diseases of the respiratory system” (21.65 per cent) and “Certain infectious and parasitic diseases” (13.30 per cent). The 10 principal causes of deaths in the MoH Hospitals for 2016 are as shown in **Table 5**.

**Table 5**  
**10 Principal Causes of Death\* In MoH Hospitals, 2016**

No	Principal Causes	Percentage to total deaths
1.	Diseases of the circulatory system	22.62
2.	Diseases of the respiratory system	21.65
3.	Certain infectious and parasitic diseases	13.30
4.	Neoplasms	12.61
5.	Diseases of the genitourinary system	4.65
6.	Diseases of the digestive system	4.56
7.	External causes of morbidity and mortality	4.50
8.	Certain conditions originating in the perinatal period	2.56
9.	Endocrine, nutritional and metabolic diseases	2.39
10.	Diseases of the nervous system	1.65

Note: \*based on underlying causes of death  
Based on ICD10 3-digit code grouping

Source: Health Facts, 2017, Health Informatics Centre, MoH

## HEALTH FACILITIES AND FACILITY UTILISATION

In 2016, there were 969 Health Clinics, 1,803 Community Clinics and 91 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 2016, there were 357 1Malaysia Clinics that provide immediate healthcare to population.

As for hospitals, there were 135 government MoH hospitals and 9 Special Medical Institutions with total beds of 37,293 and 4,702 beds respectively. Overall Bed Occupancy Rate (BOR) for MoH hospitals and Institutions in 2016 was 70.13 per cent (Table 6).

**Table 6**  
**Health Facilities by Type, Total Bed Complements and BOR 2012 to 2016**

No	Facility	2012	2013	2014	2015	2016
1.	Number of MoH Hospital	132	132	133	134	135
2.	Number of Special Medical Institution	8	9	9	9	9
3.	Total Beds (Official)	38,978	39,728	40,260	41,389	41,995
4.	Bed Occupancy Rate (per cent) <sup>1</sup>	72.13	71.02	71.79	71.06	70.13
5.	Number of Health Clinics	919	934	956	958	969
6.	Number of Community Clinics	1,831	1,821	1,810	1,808	1,803
7.	Number of Maternal and Child Health Clinics	106	105	105	103	91
8.	Number of 1Malaysia Clinics	178	254	307	334	357

Note: <sup>1</sup> refers to beds complement and BOR in MoH Hospitals and Special Medical Institutions

Source: Health Informatics Centre, MoH







# **CHAPTER 2**

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## **MANAGEMENT**

## INTRODUCTION

The Management Programme 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 objective of this programme is to facilitate and support the achievement of the MoH policy and objectives by supporting the other programmes 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

The Human Resources Division (HRD) is responsible for managing matters related to human resources and organizational structure of the Ministry of Health, Malaysia (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 MoH direction and accomplishment of the MoH mission and vision.

### POST AND PERSONNEL

As of 31 December 2016, a total of 255,469 (95.4 per cent) of 267,865 posts in MoH had been filled. **Table 1** below indicates the breakdown of the posts and personnel according to the service group.

**Table 1**  
**Status of Posts in MoH as of 31 December 2016**

No	Service Group	Post	Filled	Vacant	Filled (%)
1.	Specialist	5,216	4806	411	92.1
2.	Management & Professional	59,425	57,133	2,408	96.1
3.	Paramedic & Auxiliary	137,720	133,285	6,173	96.8
4.	Common User & Support	70,720	65,051	6,883	92.0
<b>TOTAL</b>		<b>267,865</b>	<b>255,469</b>	<b>15,464</b>	<b>95.4</b>

Source: Human Resources Division, MoH

Overall, there were 36,404 registered doctors working with MoH, encompasses of 4,525 Medical Specialist, 21,900 Medical Officer (MO) and 9,979 House Officer (HO). Total numbers for all the other health cadres as tabulated in **Table 2**

**Table 2**  
**Number of Personnel for The 5 Main Schemes in MoH, 2016**

No	Health Cadres	Total
1.	Doctors	36,404
2.	Dentist	4,494
3.	Pharmacist	7,947
4.	Nurses	64,641
5.	AMO	13,357

*Source: Human Resources Division, MoH*

## **ORGANIZATIONAL STRUCTURE ESTABLISHMENT**

In line with the Government aspiration to improve health services delivery system, the organizational structure of the division should be strengthened in order to meet demands of the current environment. In April 2015, the Public Sector Downsizing Policy was introduced and suggested a reformed organizational structure and establishments to be implemented as one of the initiatives to capitalize services and deliverable under stretched resources. A total of 1,895 posts were traded off in order to make a total of 1,891 posts available mainly to serve the need of the three (3) critical schemes; the medical, dental and pharmacy together with selected schemes from the medical support group in year 2016. Thus, with the reductions of 1,193 posts from 2015, the total population size for 2016 is 267,865.

## **SUSTAINABILITY OF GOVERNMENTS HEALTHCARE SERVICES**

Becoming a developed nation requires the Government or particularly 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 MoH has recognized the strengthened workforce organization and human resource as one of the support pillars. In concurrent with the current policy and responsibilities, a number of critical positions comprising of 517 Medical Officers, 485 Dental Officers and 889 posts for support services namely the Medical Assistants, Environmental Health Assistant and Health Attendant were created in 2016 by adopting the tradeoff mechanism. The newly created positions were then being redeployed to facilities according to priority and urgency.

## **SCHEME, REMUNERATION AND EMPLOYEE RELATIONS**

In order to attract and retain the 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 for instance allowances and benefits, service of schemes,

establishment and emplacement as well as service matters. Among incentives that were approved for the year include:

- i. *Bayaran Insentif Penempatan Pakar Perubatan/ Pergigian Di Sabah dan Sarawak (BIPP)* – effective from 1 July 2016;
- ii. Re-assessing of the Rural Category for *Elaun Khas Mengikut Lokasi Tahap Kesusahan (EKMLTK)* – effective from 1 December 2016; and
- iii. *Bayaran Insentif Pos Basik (BIPB)* for Advance Diploma Holder – effective from 1 August 2016.

## MANAGEMENT OF SCHEMES

Rationalization of Schemes of Service following the *Pekeliling Perkhidmatan Bilangan 1 Tahun 2016* involved all the 97 schemes in MoH. Service schemes with less than 4 layers of grade were adjusted to 4 layers of grade. Whereas, appointment grade 17 was adjusted to grade 19 and grade 27 to 29. Besides, 5 schemes were given exchange of appointment option to suit their qualifications. The Government has also introduced Grade UD/UG56 (between Grade 54 and Jusa C) in order to overcome issues of specialist doctors leaving the public service and delays in promotion.

## MANAGEMENT OF PROMOTION

Promotions are an essential aspect of Human Resource Management in producing outstanding and highly motivated officers Government also recognized staff contributions through better career pathway and benefits. Details of promotion exercises conducted in 2016 are as follows:

**Table 3**  
**Number of Officers in Promotion Exercises, 2016**

Category	Superscale Grade/Special Grade	Management & Professional Group	Paramedic And Auxiliary & Current User And Support	Total
No. of Officers	250	11,973	7,972	20,195

*Source: Human Resources Division, MoH*

## HUMAN RESOURCE MANAGEMENT INFORMATION SYSTEM (HRMIS)

HRMIS is a crucial instrument 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 2016, six (6) criteria were outlined as HRMIS's Key Performance Indicator (KPI) for the Secretary-General's KPI. The deployment of this KPI caused a significant update of information in HRMIS. Following this initiative, MoH had successfully achieved 97.49 percent which is rated as Significantly Exceed Target for KSU's KPI.

## ISSUES AND CHALLENGES

### PUBLIC SECTOR DOWNSIZING POLICY AND OPTIMIZATION OF HUMAN RESOURCES

The freezing of permanent posts is likely due to the government exercised on Public Sector Downsizing Policy. This policy was introduced to ensure that government agencies will be able to implement necessary measures in order to optimize current resources in public sector. As such, HRD will strive its best to serve the healthcare needs of the people and continue to utilize available resources efficiently. Despite Public Sector Downsizing Policy, the ministry would apply to Public Service Department (PSD) for creation of new post should the country's financial ability permit in order to cope with the pressing healthcare needs.

## ACHIEVEMENTS

Throughout 2016, HRD managed to achieve outstanding performance, such as:

- Introduction of new policy pertaining to appointment of Medical Officer Grade UD41, Dental Officer Grade UG41 and Pharmacist Grade UF41 on contract basis on 1 December 2016. With current constraints, contract appointment is the only solution to enable officers to complete training/ compulsory service as required by respective acts and regulations and then obtain their license to practise later.
- Enhancement of current work process using system automation
  - a. Emplacement process for 3 main schemes (Medical Officer, Dental Officer and Pharmacist) via online system (e-Housemen, e-Dentist and e-Pharmacist). This successful collaboration is delivered through the concerted effort using National Blue Ocean Strategy (NBOS) with Public Service Commission
  - b. Promotion exercise for 3 schemes (Career Pathway) (Grade 44-54) via in-house *e-naik Pangkat* system (10,000 application/year) which is more practical, productive as well as cost effective.
  - c. Improvement of allowances and benefits/remunerations in order to retain healthcare personnel in public service.

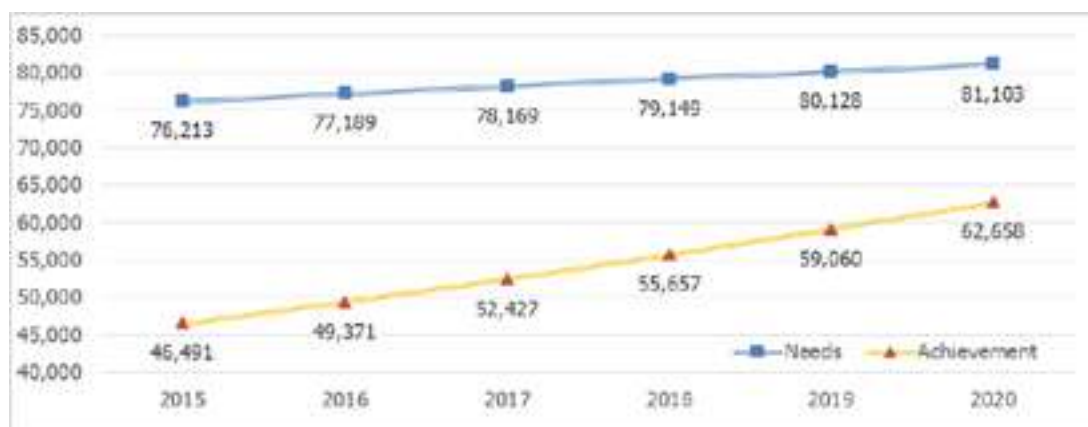
## TRAINING MANAGEMENT DIVISION

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

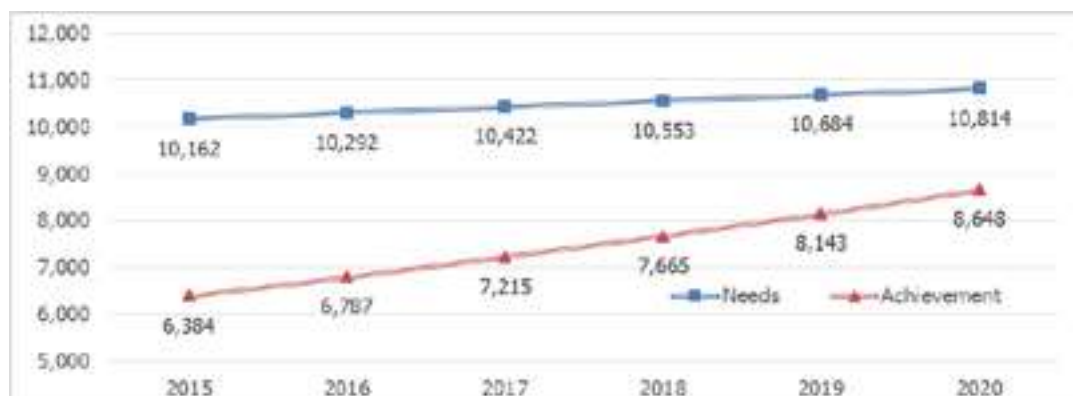
In accordance to demand and supply of Medical Officers, Dentists and Pharmacists, for any increased numbers of Medical Officers, Dentists and Pharmacists in the reference year, there still a shortage to fulfill for country's needs (norms). However, the gap of demand and supply of these professions became smaller when Public University and Private Higher Education Institution enlarge their training capacity. **Figure 1,2** and **3** show the current needs and the projection of Medical Officers, Dentist and Pharmacist with the Pharmacist updates through Business Licensing Electronic Support System (BLESS).

**Figure 1**  
**Current Needs and Supply of Medical Officer with Projection**  
**Using Ratio of 1: 400 to Populations**



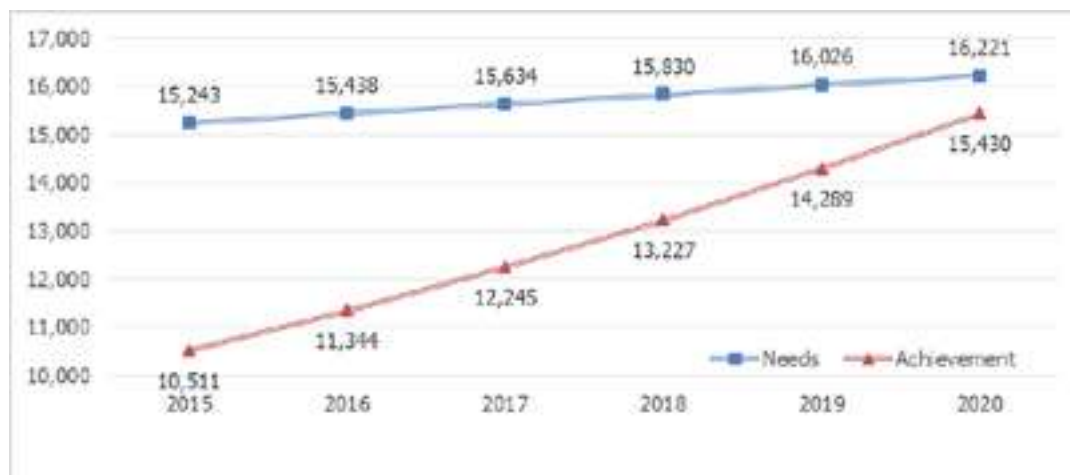
Source: Human Resources Division, MoH

**Figure 2**  
**Current Needs and Supply of Dentist with Projection Using Ratio of 1: 3,000 to Populations**



Source: Human Resources Division, MoH

**Figure 3**  
**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 2016, except for the Outsourcing Program, Master Program for Medical Officers and Sub Specialty as compared to 2015. Intakes by category are as shown in **Table 4**.

**Table 4**  
**Intake by Type of Training**

No	Type of Training	2015	2016
1.	Pre Service Training in MOH Training Institution	6,718	5568
2.	Pre Service Training in Outsourcing Program	-	15
3.	Advanced Diploma and Post Basic Training	4,499	3,901
4.	Master program (Medical Officer)	772	890
5.	Sub Specialty (Medical Officer)	153	154
6.	Master Program (Other Discipline)/ Philosophy Doctors	12	9
7.	Short Period Courses in service training	200	147

Source: Human Resources Division, MoH

Note: Outsourcing refer to training in the Private Training Institution



## PRE-SERVICE TRAINING

In The Year 2016, 5,568 trainee have registered to undergo a pre service training in the Ministry of Health Training Institutions (ILKMM) while there were 15 trainees has been sent for Outsourcing program in the private training institution (ILS). The number of trainees in ILKMM in 2016 dropped by 17.1 per cent compared with 6,718 trainees in 2015. A breakdown of the number of trainees who have registered for the Training services by discipline conducted in ILKMM for the year 2016 are as in **Table 5**.

**Table 5**  
**The Intake of Pre-Service Training, 2014 to 2015**

No	Discipline	2015	2016
1.	Diploma in Nursing	3,247	2,274
2.	Diploma in Medical Assistant	1,630	1,557
3.	Diploma in Pharmacy Assistant	213	215
4.	Diploma in Environmental Health	326	329
5.	Diploma in Medical Laboratory Technology	228	178
6.	Diploma in Radiography & Radiotherapy	69	89
7.	Diploma in Dental Nursing	61	99
8.	Diploma in Dental Technology	88	82
9.	Diploma in Occupational Therapy	98	95
10.	Diploma in Physiotherapy	90	91
11.	Certificate in Community Health Nurses	86	0
12.	Certificate in Dental Surgery Assistant	354	392
13.	Certificates in Public Health Assistant	228	167
<b>TOTAL</b>		<b>6,718</b>	<b>5,568</b>

Source: Training Management Division, MoH

Note: 15 trainee of pre-service training sent for Outsourcing program

## ADVANCED DIPLOMA AND TRAINING SPECIALIZATION (POST-BASIC)

In the year 2016, 3,373 members of Allied Health Sciences (ASKB) from MoH and 528 health personnel from private health Institutions attended the Advanced Diploma Program and Specialization Course (Post-Basic) in 36 different areas in ILKMM all over the country, as shown in **Table 6**. Number of Allied Health Sciences undergo the Advanced Diploma program and Specialization Course in the year 2016 with 3,901 participants have shown a decreased of 14 per cent compared to the previous year at 4,449 participants. The most popular program with the highest demand is Advanced Diploma in Midwifery with 962 participants (at the rate of 25 per cent) and followed by Emergency Care Specialization Courses with 395 participants (at a rate of 11 per cent).



**Table 6**  
**Intake of Advanced Diploma and Specialization Courses (Post Basic), 2015 to 2016**

No	Discipline	2015	2016
1.	Advanced Diploma In Midwifery	1,149	962
2.	Advanced Diploma In Intensive Care	130	118
3.	Advanced Diploma In Nursing Perioperative	138	104
4.	Advanced Diploma In Health Cardiovascular	111	107
5.	Advanced Diploma In Nursing Oncology	0	50
6.	Advanced Diploma In Gerontology Care	11	19
7.	Advanced Diploma In Cytology	14	0
8.	Advanced Diploma In Medical Imaging (Breast)	16	11
9.	Advanced Diploma In Hematology	23	0
10.	Advanced Diploma In Palliative	20	18
11.	Advanced Diploma In Emergency Care	534	395
12.	Renal Care	382	358
13.	Public Health Nursing	321	327
14.	Pediatric Care	246	241
15.	Health Personnel Management	35	0
16.	Orthopedic Care	247	206
17.	Neonate Care	186	140
18.	Diabetic Management	147	142
19.	Psychiatric Nursing	67	61
20.	Infection Control	143	154
21.	Ophthalmic Care	61	58
22.	Primary Health Care	57	52
23.	Nursing of Paranesthesia	150	104
24.	Nursing of Neurosciences	48	48
25.	Nursing of Otorhinolaryngology	40	39
26.	Sports Medicine	25	0
27.	Gastrointestinal Endoscopy	51	54
28.	Investigation and Prosecution Law	16	12
29.	Rehabilitation Treatment	39	46
30.	Orthodontic Treatment	26	0
31.	Anesthesia (Sabah & Sarawak Only.)	6	14
32.	HIV/AIDS Counselling	14	15
33.	Pediatric Dental Care	0	25
34.	Preparation Of Sterile Pharmaceuticals	18	10
35.	Clinical Neurophysiology	12	0
36.	Forensic	16	11
<b>TOTAL</b>		<b>4,499</b>	<b>3,901</b>

Source: Training Management Division, MoH

## MASTER PROGRAM FOR MEDICAL OFFICER AND SUB SPECIALIZATION

In 2009, Public Service Department (JPA) had delegate the authority to the MOH for approval of 'paid study leave' for a long-term course such as Masters and Doctorate. In return, MOH had shorten the processing time and rose the efficiency in managing the grant of study leave to the staff. A number of 890 medical officers granted a scholarship by the Federal Government for undergoing a Masters of medicine in various fields for the year 2016, as shown in **Table 7** below. The number of Medical Officers granted with scholarship increased by 18.3% in 2016 compared to 2015 with 772 Medical Officers.

**Table 7**  
**Intake of Medical Officers for Master Program, 2015 to 2016**

No	Discipline	2015	2016
1.	Anesthesiology	100	102
2.	Public Health/Community	67	67
3.	Clinical Oncology	11	11
4.	Neurosurgery	11	12
5.	Obstetrics & Gynecology	41	39
6.	Ophthalmology	32	55
7.	Orthopedics	56	68
8.	Otorhinolaryngology	0	34
9.	Pathology	83	76
10.	Pediatrics	20	41
11.	Internal Medicine	68	58
12.	Emergency Medicine	67	59
13.	Family Medicine	53	65
14.	Nuclear Medicine	6	4
15.	Rehabilitation	0	10
16.	Sports Medicine	8	3
17.	Transfusion Medicine	0	6
18.	Plastic Surgery	5	9
19.	Psychiatry	38	48
20.	Radiology	50	65
21.	General Surgery	44	47
22.	Pediatric Surgery	7	8
23.	Forensic	5	3
<b>TOTAL</b>		<b>772</b>	<b>890</b>

Source: Training Management Division, MoH

In the year 2016, 154 Medical Specialist granted a Federal Government Scholarship for under Sub-Specialty training in various fields of medicine, as shown in **table 8**.

**Table 8**  
**Intake of Sub Specialty Training for Medical Specialists, 2015 to 2016**

No	Discipline	2015	2016
1.	Medical	57	53
2.	Surgery	15	7
3.	Pediatric	15	17
4.	Obstetrics & Gynecology	11	10
5.	Psychiatry	3	3
6.	Anesthesiology	5	12
7.	Orthopedic	15	15
8.	Otorhinolaryngology	9	9
9.	Ophthalmology	8	8
10.	Radiology	8	6
11.	Forensic	n. a	n. a
12.	Pathology	3	3
13.	Emergency Medicine	1	2
14.	Rehabilitation Medicine	3	n. a
15.	Nuclear Medicine	n. a	n. a
16.	Family Medicine	n. a	n. a
17.	Public Health	n. a	9
<b>TOTAL</b>		<b>153</b>	<b>154</b>

Source: Training Management Division, MoH

## MASTER'S AND DOCTORATE

In the year 2016, 94 MoH's officers from various health service scheme has been offered a scholarship to further their studies at the Master's level while the others nine (9) officers in Ph.D. level in areas related to the health sector. The number of scholarships offered in 2016 recorded a slight decreased compared to 2015. Most of the undergraduate scholarships are offered to Dental Officers (44 officers) and Pharmacy (27 officers) while the rest are offered to other health Profession in MoH.

## SHORT-TERM (IN SERVICES) COURSES

MoH's staff are encouraged to apply and attend short-term (in Services) courses, funded by developments provisions in the Eleventh Malaysia Plan (11MP). In the year 2016, 147 MoH's staff attended short-term (in service) courses abroad compared to 200 in the year 2015.

## **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 2016, four (4) programs are being upgraded to Advanced Diploma, namely Pediatric Care Program, Tomography, Nephrology Nursing and Neurosciences Care. In addition, a new program developed, namely Advanced Diploma in Respiratory Care. Training Management Division also developing 11 Pre-Service Program using Outcome-Based Education approach and expected to be implemented in year 2018 for Diploma in Nursing, Diploma in Medical & Health Science, Diploma in Medical Laboratory Technology, Diploma in Physiotherapy, Diploma in Occupational Therapy, Diploma in Pharmacy, Diploma in Environmental Health, Diploma in Dental Therapy, Diploma in Dental Technology, Diploma in Medical Imaging and Diploma in Radiotherapy.

## **TUTOR DEVELOPMENT**

In December 2016, 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 Training Management Division. 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.

## **EXAMINATION AND CERTIFICATION**

In the year 2016, Examination and Certification unit has implemented an assessment and accreditation through the final semester examination results for the intake of Pre-Service Training and Post Basic Program. As per conclusion, the overall achievement of final semester examination is high and excellent for both programs. In addition to the major task of conducting the examination from the beginning to the presentation of results, this unit also has implemented three (3) series of courses in Items Construction for MoH Training Institution's Tutors who were involved in managing the examination with its main objective, to provide a continuous input with skills in the process of item's preparation. This is important to determine the quality and liability of examination are at a high level.

## **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 HQ to excel in their functions. MSD comprises of three (3) 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 Digitization Services; and
- iii. Development and Advisory Services.

**Human Resource Management Unit**

Human Resource Management Unit is responsible in managing all service related matters for staff within the Ministry's HQ, which consist of various categories of positions as summarized in **Table 9**.

**Table 9**  
**No. of Personnel in Various Categories of Positions, Year 2016**

No	Category of Position	No. of Personnel
1.	Administrative	3
2.	Top Management	77
3.	Professional & Management	1,693
4.	Support Group	2,083
5.	Contract of/for Service	18
6.	Part Time	310
7.	Training Pool ( <i>Simpanan Latihan</i> )	2,950
8.	Pool	76
<b>Total</b>		<b>7,210</b>

Source: Management Services Division, MoH

The core function of this unit is to provide effective and efficient personnel management services. Among the services provided are preparation of *Kew-8* documentations, appointment and service confirmation, processing pension applications, record keeping for personnel's government service book and others as shown in **Table 10**.

**Table 10**  
**Personnel Management Activities, Year 2016**

No	Activity	Performance
1.	Prepare and records Kew-8	14,732 cases
2.	Records service related matters in Government Service Books	27,608 records
3.	Process <ul style="list-style-type: none"> <li>- appointment confirmation</li> <li>- service confirmation</li> <li>- pension status conferment</li> </ul>	492 applications
4.	Process retirements (compulsory/optional/derivative)	89 retirees
5.	Process loan application (computer/housing/vehicle)	<ul style="list-style-type: none"> <li>- 71 applications for computer loans</li> <li>- 14 applications for housing loans</li> <li>- 2 applications for vehicle loans</li> </ul>
6.	Process Winter Clothing Allowance and Ceremonial Attire Allowance application	<ul style="list-style-type: none"> <li>- 53 applications for Winter Clothing Allowance</li> <li>- 79 applications for Ceremonial Attire Allowance</li> </ul>
7.	Process promotion	536 applications
8.	Prepare Guarantee Letter	5 applications
9.	Process disciplinary cases	5 cases

*Source: Management Services Division, MoH*

This unit also has been appointed as the Human Resource Development Panel which convenes periodically to discuss various issues pertaining to service matters such as annual salary increments and conferment of the Excellent Service Awards. For 2016, the panel has undertaken activities as summarized in **Table 11**.

**Table 11**  
**Summary of Activities for Human Resources Development Panel, Year 2016**

No	Activity	Performance
1.	Approve and confer annual salary increment for employees who have submitted their Annual Performance Appraisal Forms	6,653 conferment of annual salary increment The meeting was convened on 18 February 2016.
2.	Select and confer the Excellent Service Awards to top performing personnel	576 personnel have been selected. The meeting was convened on 18 February 2016

Source: Management Services Division, MoH

In line with the Government's vision to modernize 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 numerous information related to human resource management and MoH was selected as one of the pioneer agencies to use this system. Thus, this unit is responsible to ensure that HRMIS was implemented effectively in the Ministry's HQ. The achievements of Key Performance Indicators in HRMIS have been summarized as in **Table 12**.

**Table 12**  
**HRMIS - Key Performance Indicators and Performance, As Of 31 December 2016**

No	HRMIS Key Performance Indicators	Performance as of 31 December 2016 (%)
1.	Post Data	99.61
2.	Purification Data	98.92
3.	SKT	97.30
4.	LNPT	98.33
5.	Asset Declaration	89.17
6.	Leave	99.39

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 - Malaysian Commercialisation Year - National Intellectual Property Award	1 submission 5 submissions 2 submissions (Gold and Bronze medal)
3.	Exhibitions / Talks: - KL Converge! - Presentations of Special Key Performance Indicator in conjunction with Malaysia Commercialisation Year 2016 (MCY 2016)	1 project participation 3 projects participation
4.	Commercialisation Innovation Workshop	Convened one workshop
5.	Innovation Event	Awarded 27 winners of Innovation Awards, KIK Conventions and QA Conventions
6.	Public Sector Innovation Hub (HISA) report	4 reports
7.	Star Rating Evaluation (SSR)	Evaluation conducted for the year 2017

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 14**.

**Table 14**  
**Summary of Protocol Management Activities and Achievements**

No.	Activity	Achievements
1.	Selection of Medical Representatives for the Hajj Season	250 Medical Representatives were selected



No.	Activity	Achievements
2.	Event Management	Consulted on/Coordinated 54 events such as: Launching of National Immunization Week, Mock Cheque Presentation Ceremony for CT Simulator by DYMM Raja Zarith Sofiah Almarhum Sultan Idris Shah

Source: Management Services Division, MoH

### Images 1 Protocol Management Activities



Mock Cheque Presentation Ceremony for CT Simulator by DYMM Raja Zarith Sofiah Almarhum Sultan Idris Shah

Source: Management Services Division, MoH



National Immunization Week Year 2016

### Psychology Counseling 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 and activities conducted in year of 2016 as listed in **Table 15 and 16**

**Table 15  
Counselling Cases in 2016**

No	CASES IN 2016	CASES
1.	Multi Referral Cases	11
2.	Exit Policy Intervention (individual counselling)	7
3.	Group Counselling	15

Source: Management Services Division, MoH

**Table 16**  
**Psychology Counselling Programs in Year 2016**

No	Program	Number Of Series	Number Of Participants
1.	Briefing Implementation of Service Circular 7/2015: Implementation an Exit Policy for Civil Servant	2	153
2.	Mentoring Program	1	48
3.	Pre-AKRAB Course (Public Service Peer Program)	1	27
4.	Intervention program in Exit Policy for MoH HQ's staffs (screening, intervention and observation process)	1	13
5.	Staffs Intervention & Development Programs (for Exit Policy staffs)	3	102
6.	Accreditation training on Excel Character Indicator ( <i>Indikator Perwatakan Unggul</i> ) for Psychology Officers	1	43
7.	Basic Neuro Linguistic Programme Practitioner for AKRAB Members	1	35
8.	Psychological First Aid course for AKRAB Members	1	29
9.	Workshop Certified on STIFin Personality Biometric Test for Psychology Officer	1	26
10.	Training The Trainers Financial Education and management for Psychology Officers	2	74
11.	Parenting Workshop for staffs	1	154
12.	Emotional Management Programs	2	126
13.	Lifelong Learning Program Management Division	3	386

Source: Management Services Division, MoH

### Administration Management Unit

The Administration Management Unit is in charge of administration matters in the Ministry's HQ. These include general administration, vehicles management, consolidated HQ's punch card reports, Monthly Assembly, National Day Celebration coordination, Nurseries Management as well as Block E7 Cafeteria Management. The activities and achievements pertaining to this unit for the year 2016 are as in **Table 17**.

**Table 17**  
**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	73 official cars for JUSA/Special Grade; and 195 replacements of leased official vehicles, which lease had expired

No	Activity	Achievement
3.	Conduct Monthly Assembly	8 Assemblies were held
4.	Officiate and Coordinate National Day Celebration	7 activities/events were held
5.	Nurseries Management	2 meetings were held 130 applications were processed
6.	E7 Cafeteria Management	4 meetings were held 12 cleanliness inspections were done

Source: Management Services Division, MoH

## Images 2 Monthly Assembly



Monthly Assembly for the month of August 2016



Monthly Assembly for the month of September 2016

Source: Management Services Division, MoH

## Record Management Unit

The Record Management Unit is responsible in managing records at the Ministry of Health including managing records management programme, managing the correspondences and registry, monitoring the implementation of Document Digital Management System (DDMS) and managing personnel files. The achievements of this Unit are as in **Table 18**.

**Table 18**  
**Summary of Records Management Unit Activities and Achievements**

No	Activity	Achievement
1.	<b>Document Digital Management System (DDMS)</b> Provides expert consultation of records classification and files coding for DDMS implementation	<ul style="list-style-type: none"> <li>- Classification draft for Perak Health Department and 3 hospitals towards Digital Document Management System (DDMS)</li> <li>- Usage and implementation monitoring of Document Digital Management System (DDMS) for 37 departments in the Ministry of Health headquarter</li> </ul>

No	Activity	Achievement
2.	<b>Managing Personnel Files</b> <ul style="list-style-type: none"> <li>- Managing personnel files for Human Resources Division</li> <li>- Managing registration personnel files for Human Resources Division</li> </ul>	<ul style="list-style-type: none"> <li>- 81,265 files</li> <li>- 13,539 files</li> </ul>
3.	<b>Records Management Programme</b> Provides activities that support integrated record management such as training, consultancy services and inspection to ensure the good practices of records management is apply at all levels of creation, use, maintenance and disposal of records in ministry	<ul style="list-style-type: none"> <li>- Organized three (2) courses for records management a year.</li> <li>- Consultations for 37 departments in the Ministry of Health headquarter on managing files and correspondence.</li> <li>- Monitoring, planning and implementing record disposal programs in the Ministry:               <ul style="list-style-type: none"> <li>• 21,497 files for records destruction</li> <li>• 481 files was transferred to National Archives of Malaysia</li> </ul> </li> </ul>
4.	<b>Managing Correspondence Registry</b> <ul style="list-style-type: none"> <li>- Receive, sort and distribute of mails;               <ul style="list-style-type: none"> <li>• Domestic mail;</li> <li>• Registered mail;</li> <li>• Express mail; and</li> <li>• Despatched mail</li> <li>• Parcel</li> </ul> </li> <li>- Posting of mails and parcels               <ul style="list-style-type: none"> <li>• Domestic mail;</li> <li>• Registered mail;</li> <li>• Air mail; and</li> <li>• Parcel</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- 175,437 mails;               <ul style="list-style-type: none"> <li>• 106,396 mails;</li> <li>• 14,677 mails;</li> <li>• 51,490 mails;</li> <li>• 2,860 mails; and</li> <li>• 7 parcels</li> </ul> </li> <li>- 100,901 mails;               <ul style="list-style-type: none"> <li>• 90,770 mails;</li> <li>• 9,765 mails;</li> <li>• 31 mails; and</li> <li>• 335 parcels</li> </ul> </li> </ul>

Source: Management Services Division, MoH

## Finance Unit

The Finance 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 Programme whereby a total of RM1.4 billion has been allocated under operating budget. The performance-based expenditures for the financial year ending 31 December 2016 (including Accounts Payable Period) is 99.75 per cent (**Table 19**).

**Table 19**  
**Total Allocations and Expenditures by Activity under Management Programme for The**  
**Financial Year Ending 31 December 2016**

Activity	Allocation (RM)	Expenditure (RM)
HQ Management	525,808,455.69	524,916,173.41
Human Resources	13,850,000.00	12,691,417.23
Finance	369,515,514.92	367,202,598.58
Training	554,808,957.64	556,719,267.04
Information Technology	36,719,128.49	35,945,880.38
Competency Development	3,924,510.00	3,389,084.22
<b>TOTAL</b>	<b>1,504,626,566.74</b>	<b>1,500,864,420.86</b>

Source: Management Services Division, MoH

As a Responsibility Centre which is known as PTJ1, MSD has the role in receiving and distributing the allocation warrants for all other PTJs under its jurisdiction. In the year 2016, a total of 302 warrants were received and 616 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 responsibilities also include collecting and accounting the revenues for the HQ. In the year 2016, a total of RM16.22 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 20**  
**Summary of Official and Personal Applications for Overseas Travel, 2016**

No	Activity	Achievement
1.	Official Overseas Travel Applications	1,198 approvals
2.	Personal Overseas Travel Applications	2,337 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 2016 is as in **Table 21**.

**Table 21**  
**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	2016 - 3 Maintenance Meetings were held 2016 - 2,250 Complaints and defects were fixed  Maintenance Company appointed; and Security Company appointed
2.	Premises and Space Rental	2016 - 70 office space rental applications were processed; 2016 - 3 residential rental applications were processed
3.	Registration of Asset at MSD	2016 - Harta Modal: 21 Units; and ABR : 16 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 Protective Security System in the Ministry of Health (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 Ministry of Health. 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 2016 is as in **Table 22**.

**Table 22**  
**Summary of Activities and Achievements of Security Unit**

No	Activity	Achievement
1.	MoH Headquarters Security Committee Meeting	Convened two meeting. (06.06.2016 & 18.11.2016)
2.	Protective Security Special Award by the Chief Government Security Office of the Prime Minister's Department	Awarded 5 Stars
3.	Protective Security Course	3 series of course were held.
4.	Basic Auxiliary Police Course	1 course was held – 53 members have successfully completed the course at PULAPOL Ayer Hitam, Negeri Sembilan.
5.	Fire Safety and Emergency Course	2 series was held
6.	Building Evacuation Drill	1 series was held

Source: Management Services Division, MoH

**Image 3**  
**Photos of Security Unit's Activities and Achievements**



Source: Management Services Division, MoH



## **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 2016 were as follows:

### **ENHANCE AND STRENGTHEN ICT INFRASTRUCTURE**

#### **ISO 9001:2008 CERTIFICATION**

IMD managed to retain ISO 9001:2008 Certification for the second year in a row through a Surveillance Audit by SIRIM on 30 July 2015. IMD also surpassed Oversight Audit Revision 1 by SIRIM QAS on 15 to 16 June 2016.

#### **PROVISION OF ICT NETWORK SYSTEM**

A total of 2835 facilities were linked to online 1 Gov\*net than 2919 facilities in the previous year. This is because there are some facilities that terminated due to several factors, including lower consumption and switching facilities. Of this, a total of 576 facilities have shared online facility which has had close 1 Gov\*Net online.

### **ENHANCING SYSTEMS, APPLICATIONS AND DATABASE**

#### **HIS@KKM EXPANSION**

To enhance the function of the *Sistem Pengurusan Pesakit* (SPP), SPP Version 3.1 is implemented in three hospitals namely Hospital Bentong, Hospital Tuanku Jaafar and Hospital Raja Perempuan Zainab II, SPP upgraded to Version 3.5. This improvement involves adding new functions to support work processes in hospitals, especially involving clinical and payment collection. Development module Clinical Documentation (CD), Operating Theater Management System (OTMS), Laboratory Information System (LIS) and Central Sterile Supply Services Information System (CenSSIS) is also being developed to strengthen and complete the SPP, owned by the MoH (HIS@KKM).

#### **TELEPRIMARY CARE AND ORAL HEALTH CLINICAL INFORMATION SYSTEM (TPC – OHCIS)**

Development TPC-OHCIS still continued for eight (8) health facilities in which consist of five (5) health facilities have both a health clinic and dental clinic in the building, two (2) dental clinics (stand-alone) and one (1) health clinic (stand-alone) has been identified as a pilot clinic TPC-OHCIS been equipped with hardware and equipment for TPC-OHCIS. All of these facilities have been successful in connecting to the PDSA. PDSA will act as the centralization of information for the TPC-OHCIS. A total of 460 users have been created. However, the construction of the TPC -



OHCIS been delayed for 6 months resulted in a system not yet ready to be tested received by users.

## PHARMACY INFORMATION SYSTEM (PHIS) AND CLINIC PHARMACY SYSTEM (CPS)

The overall performance of PhIS and the CPS projects are 100%, with a total of 1118 facilities Go Live. A total of 142 hospitals and health institutions, 8 Medical Store/Office of Pharmacy Affairs, 105 Health/Health District and 863 health clinics have successfully implemented with PhIS and CPS MoH. However, there are 145 facilities suspended the implementation of PhIS and CPS MoH because of the issue of the availability of infrastructure at the facility.

## DEVELOPMENT OF INTERNAL APPLICATIONS FOR MoH

In 2016, there are six in-house application was developed, namely QAP *Penjagaan Kesihatan Primer*, *Sistem Talian Berhenti Merokok ( MQUIT )* Phase 1, Survey Private Health Sector Clinic, Integration SIMKA - TPC OCHIS, *Sistem Maklumat Penguatkuasaan Kesihatan Awam (PHEIS)* Phase 2 and MobileApp MyFacilities.

A total of seven existing applications has been improved namely *Sistem Pengurusan Belanjawan (SPB)*, *eNaik Pangkat*, *Pemulihan Kanak-kanak Kekurangan Zat Makanan (PPKZM)*, Dental Practitioners' Information Management System (DPIMS), Health Integrated Data Application (HiDATA), Optometry Practitioners Information Management System (OPTIMS) dan System eBilling.

## IMPLEMENTING CHANGE MANAGEMENT AND ICT CULTIVATION AMONG MoH EMPLOYEES

### BPM BULLETIN

The BPM Bulletin content is focused on news and ICT information to provide knowledge for all MoH staffs. In 2016, BPM has published 1 bulletin which focuses on Information Technology Strategic Plan of the Ministry of Health (2016 to 2020).

Image 4  
BPM Bulletin, 2016



Source: Informatics Management Division, MoH

## **MoH STEERING COMMITTEE**

The Steering Committee meeting was chaired by the Chief Secretary and the Director General of Health. In 2016, the Secretariat of the Steering Committee ICT (*JP ICT*) has been implemented the General Circular No. MoH. 1 2016 Code of Conduct for ICT Projects in the MoH.

## **MoH ICT OFFICERS MEETING**

The ICT Officers Meeting is conducted annually nationwide and organized by IMD and involved with ICT Officers in MoH Headquarters, the Health Department, Hospital, Institutions and Colleges. The ICT Officers Meeting Serie 1/2016 was held on June 10, 2016 and the Serie 2/2016 was held on 1 December, 2016 which was attended by 120 Officers of from grade F41 and above. The aim of this meeting is for knowledge sharing related to current issues on ICT and also to have a dialogue session with the Secretary ogf IMD on the current ICT development.

The IMD 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 IT progress that being provided.

## **CONCLUSION**

In conclusion, the main objective of the Management Programme is to enable the achievement of MoH's vision and mission by giving support services such as human resource development, general administration, financial management, information system management, and ICT infrastructure development. In the future, continuous improvement and innovations will be implemented in order to enhance the effectiveness and efficiency of the service delivery system in MoH.



# **CHAPTER 3**

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## **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 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 programmes 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 2016, a total of RM22.87billion allocated to MoH whereby a portion of RM21.50billion was for Operating Budget (B42) and RM1.36billion for Development Budget (P42).

### Performance of Operating Budget for 2016

MoH total operating expenditure in 2016 was RM21.42billion (99.6 per cent) of the total allocated (RM21.50billion) for the Ministry's Operating Budget. The highest operating budget allocation was for medical programme with the amount of RM13.20billion (61 per cent). Operating Budget according to program is shown in **Table 1**.

**Table 1**  
**Allocation and Expenditure of Operating Budget in 2016, According to Programme**

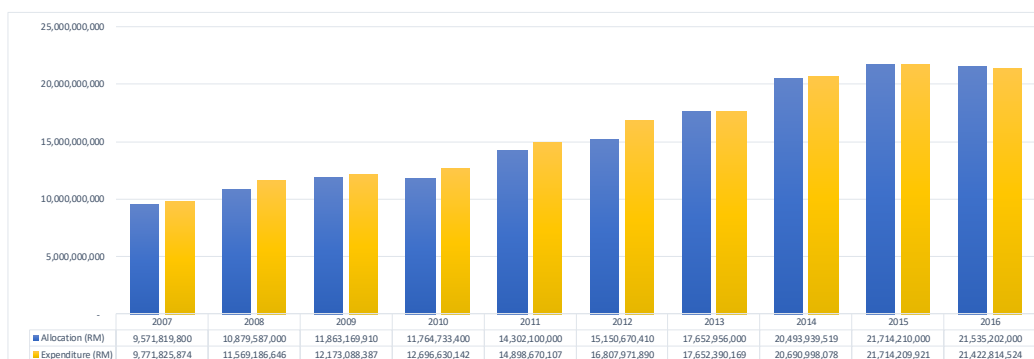
Programme	Allocation (RM)	Expenditure (RM)
Management	1,675,992,861.00	1,660,943,343.98
Public Health	4,901,982,016.00	4,887,567,845.75
Medical	13,201,159,561.00	13,164,237,048.93
Research and Technical Support	432,848,768.00	399,367,998.70
Oral Health	865,427,474.00	864,634,687.81
Pharmaceutical Services	239,033,695.00	236,015,655.41
Food Safety & Quality	98,593,362.00	96,715,634.00
Malaysia Health & Promotion Board	3,582,595.00	3,582,595.00
Medical Device Authority	4,600,000.00	4,600,000.00
Specific Programme	84,036,268.00	78,332,069.51
New Policy	17,445,400.00	16,346,109.58
One-Off	10,500,000.00	10,471,535.46
<b>Total</b>	<b>21,533,202,000.00</b>	<b>21,422,814,524.13</b>

Source: Finance Division, MoH

### Overall Performance of Operating Expenditure from 2007 to 2016

A total of RM21.5billion have been allocate for MoH's Operating Budget in 2016 and it was RM214.59million lesser compared to the RM21.71billion allocated for operating budget in 2015. Nevertheless, Operating Budget allocation for MoH have increase gradually for the past five (5) years from RM9.57billion in 2007 to RM21.50billion in 2016. Other than that, operating expenditure also increase from RM9.77billion (2007) to RM21.42billion (2016). **Figure 1** shows the overall performance of Operating Budget from 2007 to 2016.

**Figure 1**  
**Overall Performance of Operating Budget from 2007 to 2016**



Source: Finance Division, MoH

### Performance of Development Expenditure for 2016

The total allocation for MoH's Development Budget for 2016 was RM1.38billion and the Ministry have used RM1.32billion or 95.82 per cent of total allocated budget (**Table 2**). In

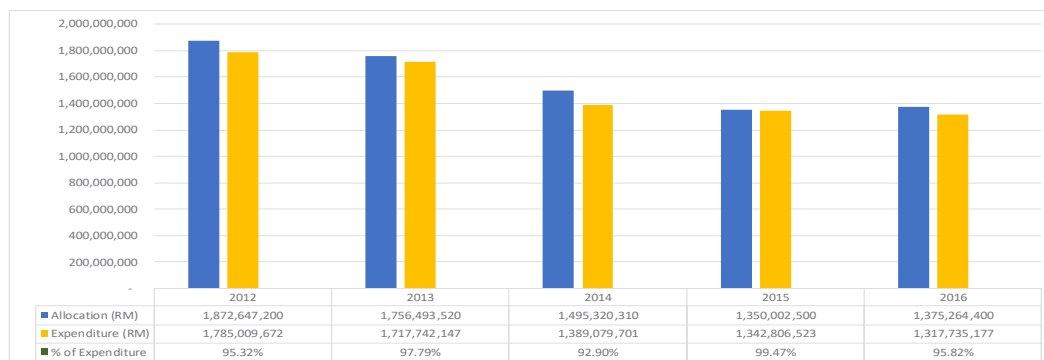
general, the Development Expenditure performance for MoH for the past five (5) years has been more than 90 per cent every year (Figure 2).

**Table 2**  
**Development Budget Allocation and Expenditure by Project Details**

Project Detail	Title	Allocation (RM)	Expenditure (RM)	%
00100	TRAINING	99,431,702	78,502,487	78.95
00101	Development of New Colleges	17,528,000	14,760,756	84.21
00102	Upgrading of Training Projects	0	0	0.00
00104	Outsourcing	254,250	254,250	100.00
00105	In-service Training	81,649,452	63,448,201	77.71
00200	PUBLIC HEALTH	131,294,915	120,728,431	91.95
00201	Rural Health Services	66,505,958	58,994,722	88.71
00202	BAKAS	0	0	0.00
00203	Urban Health Services	64,788,957	61,733,708	95.28
00204	Mobile Clinic	0	0	0.00
00300	HOSPITAL FACILITIES	176,227,799	170,742,273	96.89
00400	HOSPITAL	202,501,123	201,888,520	99.70
00500	RESEARCH & DEVELOPMENT	36,395,170	36,001,168	98.92
00600	UPGRADE, RENOVATION & REPAIR	162,613,662	154,978,955	95.35
00700	LAND PROCUREMENT & MAINTENANCE	9,102,843	8,618,597	94.68
00800	ICT FACILITIES	49,113,897	45,678,786	93.01
00900	MOH QUARTERS MAINTENANCE	100,000	74,188	74.19
00900	STAFF FACILITIES	13,952,098	13,050,872	93.54
00901	Rural Quarters Facilities	1,009,623	937,437	92.85
00902	Urban Quarters Facilities	10,648,906	10,242,720	96.19
00904	Health Offices	2,293,569	1,870,715	81.56
01000	HEALTH PROMOTION	0	0	0.00
01100	EQUIPMENT & VEHICLES	494,531,191	487,470,902	98.57
94000	NATIONAL KEY ECONOMIC AREA (NKEA)	0	0	0.00
<b>Total</b>		<b>1,375,264,400</b>	<b>1,317,735,177</b>	<b>95.82</b>

Source: Finance Division, MoH

**Figure 2**  
**Overall Performance of Development Budget, 2012 to 2016**



Source: Finance Division, MoH

## REVENUES MANAGEMENT

### Revenues

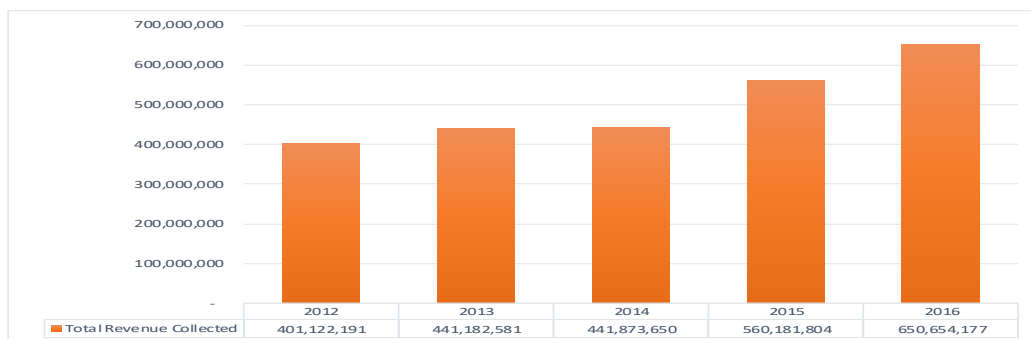
MoH total revenue collection in 2016 was RM650.7million, an increase of RM90.47million or 13 per cent compared to RM560.18million collected in 2015 (Refer **Table 3**). Meanwhile, the total revenues from 2012 until 2016 are as in **Figure 3**.

**Table 3**  
**Revenues by Classification, 2016**

Code	Revenue Classification	Amount (RM)
71000	License, Registration Fees & Permits	14,944,215.12
72000	Services & Service Chargers	440,096,890.39
73000	Sales of Goods	2,725,220.30
74000	Rental	36,503,778.52
75000	Interest & Return of Investment	73,089.50
76000	Fines & Penalties	41,650,013.11
78000	Oil & Gas Activities	880.00
80000	Miscellaneous	114,648,369.38
90000	Revenues from Federal Territories	11,720.65
<b>Total</b>		<b>650,654,176.97</b>

Source: Finance Division, MoH

**Figure 3**  
**Revenues from 2012 to 2016**



Source: Finance Division, MoH

### Outstanding Revenues

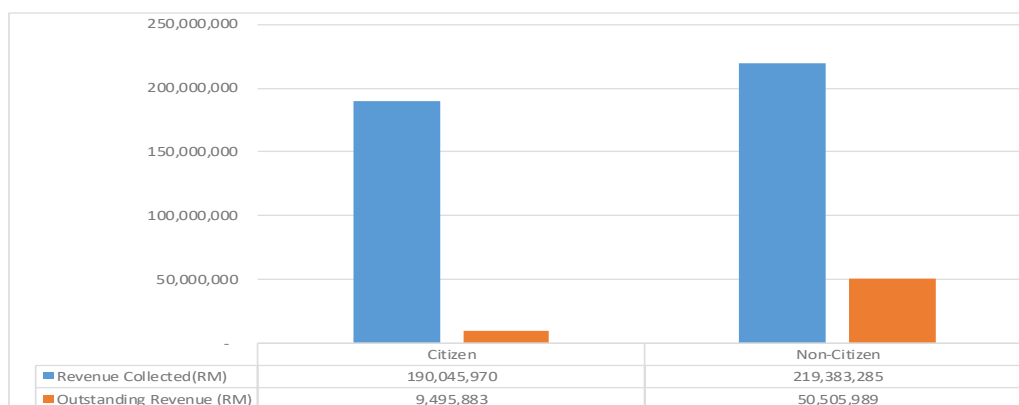
The total outstanding revenues for 2016 was RM72.81 millions whereby RM60 million or 82.4 per cent of the amount was of medical fees. Other outstanding revenues are unpaid loan, fine and penalties, canteen rents, etc.

### Revenue and Outstanding Revenue for Heal 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 charge according to the Fees (Medical) Order 1982 and Fees (Medical) (Full Paying Patient) Order 2007.

Record shows that revenue collected in 2016 under Fees Act from non-citizens accounted of 54 per cent (RM218.38million) from the total collection of RM409.43 as compared to the RM190.05million (46 per cent) collected fees from citizens (**Figure 4**).

**Figure 4**  
**Revenue and Outstanding Revenue under Fees Act 1951**



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 AIDS AND SUBSIDIES

### FINANCIAL ASSISTANCE TO NGOs

There are three (3) types of financial assistance offered by MoH to NGOs, which are:

#### 1. Assistance for Health-Related Activities

In period of 5 years (2012 to 2016), 152 NGOs have received financial aid to support health related programmes in communities like *gotong-royong*, awareness campaigns, health talks and other related activities to patients. In 2016 alone, a total of RM2.51million has been distributed by MoH to 47 NGOs to conduct various beneficial programmes for the communities (**Table 4**)

**Table 4**  
Number of NGOs and Amount of Financial Aid Received for Health Related Activities from 2012 to 2016

Year	2012	2013	2014	2015	2016
Number of NGOs	25	16	23	41	47
Total Amount of Financial Aid Given (RM)	4,250,020	708,682	3,298,212	3,672,045	2,510,010

Source: Finance Division, MoH

#### 2. Haemodialysis Treatment Subsidy

Haemodialysis Treatment Subsidy is to help poor patients who are undergoing dialysis due to chronic kidney failure in NGO Haemodialysis Centres, with a subsidy of RM 50.00 for each treatment and RM 18.50 subsidy for erythropoietin injection. Each patient received an average of RM 890.50 of subsidy per month. In 2016, 2,942 MOH patients have received the subsidy through 62 NGOs that amounted to RM132.26million (**Table 5**).

**Table 5**  
**Number of Recipients of Haemodialysis Treatment Subsidy in 2016**

YEAR	*NUMBER OF PATIENTS	NO. OF NGOS & DIALYSIS CENTRE	HAEMODIALYSIS SUBSIDY (RM)	ERYTHROPOIETIN INJECTION (RM)
2012	3,192	57 NGO (114 Dialysis Centres)	21,562,114.00	9,608,987.00
2013	3,160	57 NGO (114 Dialysis Centres)	22,341,373.00	9,265,510.00
2014	2,854	57 NGO (114 Dialysis Centres)	18,630,123.00	5,326,097.50
2015	2,944	57 NGO (114 Dialysis Centres)	18,261,454.00	4,528,319.50
2016	2,942	57 NGO (114 Dialysis Centres)	18,165,350.00	4,527,324.50
<b>TOTAL</b>			<b>98,960,414.00</b>	<b>33,301,238.50</b>
<b>GRAND TOTAL</b>			<b>132,261,652.50</b>	

\*Number of active patients until year-end  
Source: Finance Division, MoH

### 3. Capital Grant Assistance to NGOs Haemodialysis Centre

Financial assistance in the form of 'capital grant' given to NGOs that manage haemodialysis centres that enabled them to buy new dialysis machine for treatment of patients with last stage kidney problem. In 2016, RM224,305.00 was granted to NGOs under this programme.

### MEDICAL ASSISTANCE FUND

Other than financial aids channel to community through NGOs, MoH also ease the burden of patients that need financial assistance by paying fully or a certain portions of their treatment, medical equipment, and rehabilitation equipment or medications costs not provided by government hospital through Medical Assistance Fund. From 2012 to 2016, 27,732 applications with a total amount of RM196.78millions of funds approved under this programme (Table 6).

**Table 6**  
**Number of Approval and Amounts Approved under the Medical Assistance Fund from 2012 to 2016**

TAHUN	BIL. KELULUSAN	AMAUN KELULUSAN (RM)
2012	5,389	33,227,523.28
2013	5,182	30,129,142.76
2014	6,245	48,070,707.78
2015	5,338	41,433,520.15
2016	5,518	43,919,832.16
<b>JUMLAH</b>	<b>27,672</b>	<b>196,780,726.13</b>

Source: Finance Division, MOH

## PROCUREMENT AND PRIVATISATION DIVISION

Procurement and Privatisation Division is responsible for managing the procurement, privatisation, asset and store management for the Ministry. The Division is responsible in ensuring all MoH's procurement of supplies and services is the best, transparent, fair, most economical and cost-effective. In addition, all of the privatization programs are implemented in line with the National Privatization Policy and is closely monitored and constantly improved in terms of standards, efficiency and quality of services provided to the public. The Division also manage the stores, inventories and assets of MoH in compliance to the related rules and regulations.

### ACTIVITIES AND ACHIEVEMENTS

#### PROCUREMENT PERFORMANCE

The value of procurement through tender at the MoH in 2016 is RM2,916,603,039.56 which includes procurement of pharmaceutical, medical equipment, services, ICT and vehicles. The procurement of MoH by category in year 2016 managed by the Procurement and Privatisation Division as shown in **Table 7**.

**Table 7**  
**Procurement of MoH in 2016**

No	Category	Procurement (RM)
1	Pharmaceutical	1,571,205,207.87
2	Medical Equipment	268,634,525.31
3	Services	622,792,426.38
4	ICT	220,691,380.00
5	Vehicles	233,279,500.00
<b>TOTAL</b>		<b>2,916,603,039.56</b>

Source: Procurement and Privatisation Division, MoH

#### IMPLEMENTATION EPEROLEHAN SYSTEM (eP)

The Government electronic procurement system known as the "ePerolehan System (eP)" enable the Government agencies to perform online procurement for supplies and services in accordance with relevant Treasury guideline, 1 *Pekeliling Perbendaharaan* (1PP) - PK 5: *Perolehan Secara Elektronik*. Government agencies with eP enabled, have been instructed to implement eP and ensure that at least 75 per cent of annual procurement of supplies and services (not including consultancy services) are transacted through the eP system.

In 2016, MoH has managed to achieve over 84 per cent of the government procurement through the eP system involving 675,380 transactions amounting to RM5,054,962,499.00.

## **ASSET MANAGEMENT**

Procurement and Privatisation Division is also responsible for asset management in MoH pursuant to the regulation in force. MoH total assets in 2016 is 2,556,800 items with a procurement value of RM10,644,504,829.00. Each asset must be registered within two (2) weeks in the Asset Management Monitoring System (SPPA) from the date of confirmation of acceptance.

## **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**

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## **PUBLIC HEALTH**

## INTRODUCTION

The Public Health Programme 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 Programme 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.

### OFFICE OF DEPUTY DIRECTOR GENERAL OF HEALTH (PUBLIC HEALTH)

#### POLICY AND DEVELOPMENT OF THE PUBLIC HEALTH SERVICE

One of the core activities of the Public Health Development Division is to provide direction and policy requirements related to the formulation of policy development activities of the Public Health Service. This is to ensure thus policy compatible with the current situation and in line with the direction and goals of MoH in general.

In 2016, four Public Health Program Policy Executive Committee Meetings were successfully held in which 25 Policy and Notification Papers were presented (**Table 1**) and only ten (10) policy papers were approved (**Table 2**). Policy Papers which involve other Programmes 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, 2016**

No	Division	No. of Policy Paper	No. of Notification Paper	Total
1.	Division of Disease Control	3	8	11
2.	Division of Family Health Development	2	0	2
3.	Division of Nutrition	0	3	3
4.	Division of Health Education	0	0	0
5.	Office of the Deputy Director General of Health (Public Health)	2	3	5
6.	Institute for Public Health	1	0	1
7.	Institutes for Health Systems Research	1	0	1
8.	District Health Office of Batang Padang	1	0	1
9.	Division Health Office of Serian	1	0	1
<b>Total</b>		<b>11</b>	<b>14</b>	<b>25</b>

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

**Table 2**  
**Public Health Policy Papers Approved, 2016**

No	Title	Division	Date of Approval
1.	<b><u>Policy Paper 1/2016</u></b> <b><i>Cadangan Keceragaman Pemindahan Kuasa kepada Pembantu Kesihatan Awam di Bawah Akta Pemusnah Serangga Pembawa Penyakit 1975</i></b> By: <i>Encik Ideris Mohamed, Ketua Unit Inspektorat dan Perundangan Pejabat Timbalan Ketua Pengarah Kesihatan (Kesihatan Awam) KKM</i>	Office of the Deputy Director General of Health (Public Health)	No. 1/2016 @ 11 February 2016
2.	<b><u>Policy Paper 2/2016</u></b> <b><i>Cadangan Perubahan Bentuk Pakaian Vest Bagi Pegawai Penguatkuasa Kesihatan Awam</i></b> By: <i>Encik Ideris Mohamed, Ketua Unit Inspektorat dan Perundangan Pejabat Timbalan Ketua Pengarah Kesihatan (Kesihatan Awam)</i>	Office of the Deputy Director General of Health (Public Health)	No. 2/2016 @ 11 February 2016
3.	<b><u>Policy Paper 3/2016</u></b> <b><i>Pemeriksaan Perubatan bagi Anggota Kawalan Vektor, Kementerian Kesihatan Malaysia</i></b> By : <i>Dr. Priya Ragunath, Pakar Perubatan Kesihatan Awam, Sektor KPAS, Bahagian Kawalan Penyakit, KKM</i>	Division of Disease Control	No. 3/2015@ 24 May 2016
4.	<b><u>Policy Paper 4/2016</u></b> <b>National Strategic Plan for Cancer Control Programme (NSPCCP) 2016- 2020</b> By: <i>Dr. Nor Saleha Ibrahim Tamin, Pakar Perubatan Kesihatan Awam, Unit kanser, Bahagian Kawalan Penyakit, KKM</i>	Division of Disease Control	No. 4/2016@ 24 May 2016
5	<b><u>Policy Paper 5/2016</u></b> <b><i>Cadangan Pewujudan Pejabat Kesihatan Bahagian Serian</i></b> By: <i>Dr. Nur Fatimah Oh Abdullah, Pegawai Kesihatan Bahagian Samarahan, Sarawak</i>	District Health Office Samarahan Sarawak	No. 5/2016@ 30 August 2016
6.	<b><u>Policy Paper 6/2016</u></b> <b><i>Cadangan Pewujudan Pejabat Kesihatan Daerah Muar</i></b> By: <i>Dr. Raja Mohd Azim bin Raja Haron, Pegawai Kesihatan Daerah Batang Padang, Perak</i>	District Health Office Batang Padang, Perak	No. 6/2016@ 30 August 2016
7.	<b><u>Policy Paper 7/2016</u></b> <b><i>Deraf Pelan Tindakan Perkhidmatan Kesihatan Lelaki</i></b> <b><i>Kementerian Kesihatan Malaysia</i></b> By: <i>Dr. Zakiah Mohd Said, Pakar Perubatan Kesihatan Awam, Cawangan Kesihatan Keluarga, Bahagian Pembangunan Kesihatan Keluarga</i>	Family Health Development Division	No.7/2016@ 30 August 2016

No	Title	Division	Date of Approval
8.	<b>Policy Paper 8/2016</b> <b>Deraf Garis Panduan Rawatan Tiamin di Pusat Tahanan</b> By: <i>Dr. Nazrila Hairizan Nasir, Pakar Perubatan Keluarga, Klinik Kesihatan Presint 9, Putrajaya</i>	Family Health Development Division	No 8/2016@ 30 August 2016
9.	<b>Policy Paper 9/2016</b> <b>Steno Reach Certificate Course (SRCC)</b> By: <i>Dr Nur Liana Binti Ab Majid, Pegawai Perubatan, Institut Kesihatan Umum</i>	Institute of Public Health	No. 9/2016@ 11 November 2016
10.	<b>Policy Paper 10/2016</b> <b>National Strategic Plan for Viral Hepatitis, 2017 - 2030</b> Oleh: <i>Dr. Rohani Jahis, Ketua Sektor VPD &amp; FWBD, Bahagian Kawalan Penyakit</i>	Division of Disease Control	No. 9/2016@ 11 November 2016

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

Other than that, the Public Health Programme 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 programme'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 2016, two Public Health Programme Technical Meetings with State Health Deputy Directors (Public Health) were successfully carried out. Papers/technical updates presented during these meetings are in **Table 3**.

**Table 3**  
**Papers Presented during the Public Health Programme Technical Meetings with State Health Deputy Directors (Public Health), 2016**

Meeting	Title of Presentations	Presenter
<b>No. 1/2016</b> <b>(25-27 January, 2016)</b> <b>Port Dickson, Negeri Sembilan</b>	1. Direction of Disease Control Activity 2016.	Disease Control Divison, MoH
	2. Direction of Family Health Development Activity 2016.	Family Health Development Divison, MoH
	3. Direction of Nutrition Activity 2016.	Nutrition Divison, MoH
	4. Direction of Health Education Activity 2016.	Health Education Divison, MoH
	5. Saving Steps for 2016	Public Health Programme



Meeting	Title of Presentations	Presenter
<b>No. 2/2015 (5 August 2016 ) Putrajaya</b>	1. Public Health KPI Programme Achievement	Public Health Programme
	2. Malaysian Health Data Warehouse (MYHDW) dan My-Harmony Project	Health Informatics Centre, Planning Division

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

As for the Public Health Programme Technical Meeting with the District Health Officers, in 2016 only one session was successfully held in Johor Bharu, and jointly organized with the Johor Health Department. A total of 130 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 Programme Technical Meeting with District Health Officers, 2016**

Date	Presentations
<b>17 to 20 July 2016</b>	Public Health Physician- Profession, Career Pathway & Challenges -Office of the Deputy Director General of Health (Public Health)
	Update on Primary Care Section, Family Health Development Division -Family Health Development Division, MoH
	Best Practise by Johor Health Department-Johor Health Department
	Technical Update: Report On Investigation Of Deaths Cluster In Cure And Care Rehab Centre (CCRC) Gambang, Kuantan - December 2015- Pahang Health Department
	Public Health KPI Programme Achievement 2015 & 2016 KPI Indicators - Office of the Deputy Director General of Health (Public Health)

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

## QUALITY

Continuous Quality Initiative is another important programme in Public Health Policy & Service Section. Main activities pertaining quality in Public Healthcare were monitored, such as National Indicator Approach (NIA) and Key Performance Indicator (KPI) for Deputy Director General of Health (Public Health) and KPI for District Health Officer MoH. **Table 5** and **6** below are the indicators for NIA, KPI for Deputy Director General of Health (Public Health) and the achievements for 2016.

**Table 5**  
**NIA Performance of Public Health, 2016.**

No	Indicator	Standard	Achievement
<b>Monitored Annually</b>			
1.	Rejection Rate of X-ray Film (per cent)	< 2.5	0.84per cent
2.	Lab Turn Around Time (LTAT)	> 95per cent	99.5per cent
3.	Per Cent Of Asthmatic Patients Received Appropriate Management Of Asthma At Health Clinics	Beat own standards	66.4per cent

No	Indicator	Standard	Achievement
<b>Monitored Annually</b>			
4.	Per Cent Of Clients Perceived The Service Provided As Client Friendly	Beat own standards	95per cent
5.	per cent of visual defect cases detected among standard 1 school children (per cent)	> 5per cent	5.9per cent
6.	Malarial Death	0 death	2
7.	HbA1C level – Proportion of T2DM patients with HbA1C level <6.5per cent	≥ 30per cent	26.9per cent
<b>Monitored 6-monthly</b>			
8.	Sputum conversion rate	90per cent	71.1per cent
9.	Dengue outbreak control index (per cent)	100per cent	90.6per cent
10.	Dengue notification time Index (per cent)	100	89.8per cent
11.	Incidence rate of needle stick injury per 1000 health care workers within MoH	0	5.63
12.	Incidence rate of severe Neonatal jaundice(NNJ)	< 50 per 10000 estimated life birth	44.8
13.	Percentage of anaemic pregnant mother (haemoglobin less than 11gm per cent at 36 weeks gestation).	10per cent	7per cent

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

**Table 6**  
**Deputy Director General of Health (Public Health) KPI Performance, 2016**

No	Indicator	Standard	Achievement
1.	Elderly residing at institution (registered or not registered with welfare department) screened for health status at least once a year and given appropriate intervention	90per cent	88.9per cent
2.	Percentage of measles immunization coverage for children aged 1 to 2 years	≥ 95per cent	95.72per cent
3.	Tuberculosis: Number of high risk persons screened for TB	≥ 250,000	151per cent
4.	Tuberculosis: Cure Rate	Citizen : >80per cent	83per cent
		Noncitizen: ≥60per cent	6per cent
5.	Number of work place setting implementing KOSPEN	100	146
6.	Percentage of workers under KOSPEN at work place screened for NCD Risk Factors	≥ 50per cent	52.64per cent
7.	New HIV notification rates per 100,000 populations.	≤ 11.0	11.0
8.	Number of Health Clinics with New Set of Primary Health Care Team.	48	48
9.	Percentage of smokers who quit after getting services at the Quitting Smoking Clinic.	≥20per cent	27.44per cent
10.	Percent of children increased weight in Recovery Program for Malnutrition children.	≥ 45per cent	50.2per cent

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

## ORANG ASLI HEALTH SERVICES

MoH 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.

The main approach MoH in health care delivery for Orang Asli community is to increase the accessibility of health services for the community as a whole including Orang Asli community that live in the rural area. Several initiatives have been implemented such as:

- a) Flying Doctor Service (PDU) has been offered starting 3 April 2013 for four (4) years. PDU allowed medical and health services delivered to Orang Asli communities in rural areas of Gua Musang (Kelantan), Ipoh (Perak) and Cameron Highlands (Pahang). The service, which covers 63 Orang Asli villages with a total population of 7,032 people. During the 2016 service, PDU also has brought out 22 emergency cases from there.
- b) The supply of four (4) of 4 Wheel Drive Ambulance for Peninsular Malaysia Orang Asli Service in November 2014 which aims to enable the transfer of Orang Asli patients who require further treatment immediately from rural to the nearest hospital. Ambulances were sent to the Lipis district and Cameron Highlands (Pahang), Gua Musang (Kelantan) and Hulu Perak (Perak).

In 2016, a total of 628,868 Orang Asli reported using a variety health services in Peninsular Malaysia (**Table 7**)

**Table 7**  
**Orang Asli Health Services Attendees, 2016**

No	Service	Number
1	Outpatient	265,197
2	Antenatal	42,633
3	Postnatal	4,667
4	Family Planning	87,989
5	Children's Health	124,391
6	Home Visits	103,991
<b>TOTAL</b>		<b>628,868</b>

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

## PUBLIC HEALTH PROFESSION DEVELOPMENT

The Public Health Profession Development Section is responsible for the development of policy in the Public Health Programme, the activities as follow:

- a) Public Health Specialty Services
- b) Development of Public Health Professions
- c) Training and Continuous Professional Development (CPD)
- d) Usage Monitoring of Public Health Training Facilities

## PUBLIC HEALTH SPECIALTY SERVICES

Since 2008, the four years master programme for Master in Public Health (MPH) was replaced by MPH+DrPH (Doctorate in Public Health) Training Programme. There are five (5) universities that offer the program namely University of Malaya (UM), University of Science Malaysia (USM), University Kebangsaan Malaysia (UKM), University Malaysia Sarawak (UNIMAS) and University Putra Malaysia (UPM). In 2016, the total number of Public Health Specialist in MoH is 406.

## TRAINING AND CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

In 2016, a total of 6183 courses were conducted throughout the country with the expenses of RM14, 125,992.60 and RM276,570.82 for local and overseas training respectively (**Table 8**).

**Table 8**  
In-Service Training Achievement, 2016

	Achievement			
	Year 2015		Year 2016	
	No. of Course Attended	Expenditure (RM)	No. of Course Attended	Expenditure (RM)
Overseas	19	284,772.00	14	276,570.82
Local	4842	14,566,032.16	6183	14,125,992.60

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

**Figure 1**  
Achievement of MoH Staff Attended Training, for at Least 7 Days a Year, 2016



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

## **GLOBAL HEALTH (GH)**

The GH was officially established in 2016 with the aim to institutionalize and to mainstream the discipline of Global Health into the works of Public Health Development Section. Our mission statement: “Dedicated to the development and negotiation of global health policies, resolutions, and guidelines that ensure health equity, through the practice of health diplomacy and establishment of strategic partnership.”

Organized into three (3) sectors, our objectives are laid out as follows:

### **i. Sector of Global Health Policy & Governance**

To develop, translate and monitor policies, resolutions and global health guidelines which are coherent with both domestic and international health policies and practices, via Malaysia’s entry to global health governing bodies in the world

### **ii. Sector of Health Equity**

To ensure the importance and centrality of health sector in the development of national and global policies in non-health areas which give an impact to the global health system, through the advocacy and advancement of Health-in-all Policies.

### **iii. Sector of Strategic Partnership**

To create and enforce the collaboration between MoH and other global health entities which are in tandem with the fundamental principles of MoH which prioritize integration for an efficient and effective service delivery to all parties and stakeholders, via the practice of international health diplomacy.

### **• Implementation Of Who Programme Budget (PB) 2016 to 2017**

The Global PB 2016 to 2017 was approved at the 66<sup>th</sup> World Health Assembly in May 2013. A sum of 28 projects was proposed for this biennium and closely monitors by GHS and WHO Country Office. In 24<sup>th</sup> February 2016, the GHS has organized a meeting chaired by the Deputy Director General of Health (Public Health). The objective of this meeting was to meet with all the respective focal points of upcoming Programme Budget 2018 to 2019 and a half-day briefing on various aspects of the implementation process of the WHO PB activities

### **• 68<sup>th</sup> World Health Assembly (WHA) In Geneva**

The 68<sup>th</sup> World Health Assembly was held on 18 to 26 May 2015 in Palais de Nations, Geneva, Switzerland. The Malaysia delegation was headed by the Minister of Health Malaysia, accompanied by the Director General of Health Malaysia. The first time in the history of WHA, Malaysia has given opportunity to organize four side events during WHA. The theme for the first even was “Dengue-reframing the dialogue” which was attended by delegates from 4 regions of WHO (Western Pacific, South East Asia, European, America). In this event, the Minister of Health Malaysia was elected as the Vice President of the WHA. The second side event was focus on Cancer Control and Prevention with the support from Union of International Cancer Control (UICC) and becomes the starting point of a global lobby to push this cancer’s agenda to WHA in 2017. Another two side events are Patient Safety and Childhood Obesity.

- **Official Attachment of MoH Officers at Who Headquarters (HQ)**

Malaysia has sent the 3<sup>rd</sup> cohort of MoH officers for this 2 week attachment programme between MoH and WHO HQ. The officers were selected from Global Health Unit, Disease Control Division (Vector Borne Disease Sector), Medical Development Division (Infection Control Unit and Patient Safety Unit) and Family Health Division.

The third cohort of MoH officers was involved under the official attachment programme between MoH and WHO Headquarters via the Training Management Division, MoH, This pioneer project consists of a 2-week attachment whereby 4 officers from MoH had been selected namely from Global Health Unit, Disease Control Division (Vector Borne Disease Sector), Medical Development Division (Infection Control Unit and Patient Safety Unit) and Family Health Division. Three WHO's unit from Gender Equity and Human Right, Patient Safety, Neglected Tropical Disease were benefited from this exercise and provided positive feedback for future attachment.

- **The 2<sup>nd</sup> Global Health Diplomacy Workshop**

The Global Health Diplomacy Workshop was held on the 22 to 24 November 2016. The workshop involved with various stakeholders from international organizations and also other government agencies. The workshop provides a platform for the exchange of ideas and intellectual discourse regarding global health issues in health sector, system and services. The outcomes from the discussion were published in The Global Health Governance and Policy Workshop's Book, in which can be used as references to the government and other stakeholders to augment international cooperation and to ensure that global health policy will be of benefit to all.

- **67<sup>th</sup> Western Pacific Regional Committee Meeting**

The Western Pacific Regional Committee Meeting is an annual event held in October. The meeting was held in WHO Regional Office for the Western Pacific in Manila, Philippines from 10 to 14 October 2016. A total of 34 Member States and areas attended this year's meeting. The main technical items on the agenda were (i) Dengue, (ii) Malaria, (iii) Environmental Health, (iv) Sustainable Development Goals (SDGs) and (v) Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED).

- **11<sup>th</sup> ASEAN Senior Officials Meeting on Health Development (SOMHD) Meeting**

The SOMHD meeting which is held annually was attended by the Ministry of Health Malaysia delegation. This meeting had primarily discussed on the draft work plans for the various ASEAN Health Clusters 1, 2, 3 and 4, whereby these work programmes for 2016 to 2020 were taken note of at the meeting.

- **ASEAN Health Cluster 2**

The ASEAN Health Cluster 2 was held on 15 to 16 July 2016, chaired by the Deputy Director General of Health (Public Health). The second meeting held in November 2016 was chaired by the Country Coordinator of ASEAN Health Cluster 2. The recommendations from the first ASEAN Health Cluster 2 was presented at the 11th ASEAN SOMHD meeting in Brunei.

- **20th Brunei-Indonesia-Malaysia-Singapore-Thailand (BIMST) International Public Health Conference In Singapore**

The 20th BIMST International Public Health Conference was held on 13 to 14th October 2016 in Singapore. The theme for this conference was One Health. There was good participation from all five member states BIMST.

## **DISEASE CONTROL DIVISION**

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 programmes for example, The National TB Control Programme (1961), Malaria Eradication Programme (1967) and the National Leprosy Control Programme (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 Programme together with other Vector Borne Diseases Programme under the Vector Borne Diseases Control Programme. 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 programme had gone through several evolution processes and has expanded dramatically. This transformation established the Disease Control Disease 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. Other objectives are:

- 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; and
- 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 programmes 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. All activities are implemented at the Ministry, State and District levels. A Key Performance Indicators (KPI) achievement in 2016 for the Division is as shown in **Table 9**.

**Table 9**  
**Disease Control KPI Achievements, 2016**

No	Indicator	Target	MoH KPI	DG KPI	DDG (PH) KPI
1.	New HIV notification rate per 100,000 population.	11.0 cases per 100,000	11.0 cases per 100,000		
2.	Cure Rate TB – is proportion of similar cohort who is pulmonary TB smear positive who are cured.	i. Local ≥ 80per cent ii. Foreigner ≥ 60per cent	i. Local 82per cent ii. Foreigner 61per cent		
3.	Stop smoking rate - No of client stop smoking in 6 months after went to stop smoking treatment.	≥ 20%		27.4%	
4.	No of TB screening done on high risk population.	≥ 250,000		151%	
5.	No of case of indigenous malaria.	i. Peninsula Malaysia: 0 cases ii. Sabah & Sarawak : ≥ 50per cent reduction compare to previous year			i. Peninsula Malaysia: 211 cases ii. Sabah: 61per cent reduction Sarawak : 100per cent reduction
6.	Percentage of Diabetes Mellitus Type 2 patient who achieved HbA1c level less than 6.5per cent.	24%			22.7%

Source: Disease Control Division, MoH

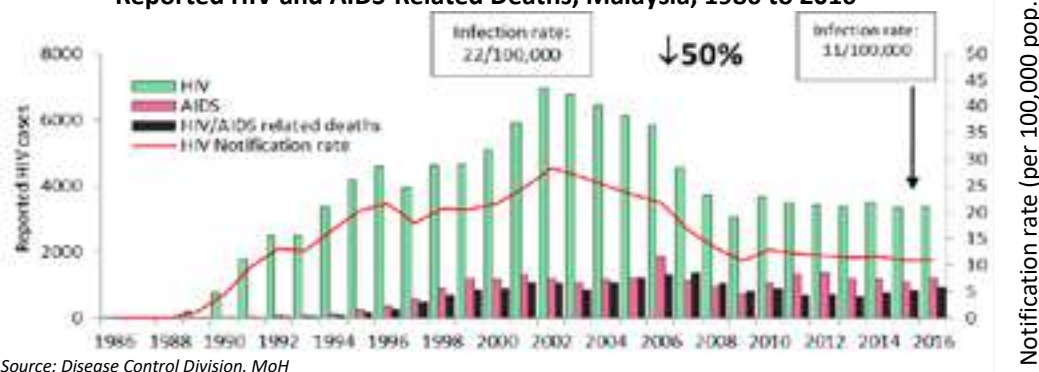
## HIV AND AIDS

### • Epidemic Overview

The annual number of reported new HIV cases by MoH has been on a steady decline from a peak of 6,978 in 2002 (**Figure 2**). In 2016, there were 3,397 new HIV cases reported to the Ministry of Health, approximately more than halve of what was reported in 2002. The notification rate of HIV also continues to experience a decrease from 28.4 in 2002 to 23.4 in 2005, and to 11.0 cases per 100,000 populations in 2016.



**Figure 2**  
**Reported HIV and AIDS-Related Deaths, Malaysia, 1986 to 2016**



**Table 10**  
**Number of New HIV Cases, AIDS Cases and HIV/AIDS Related Death 1986 to 2016**

Disease	1986 to 2015	2016	Total
HIV	108,519	3,397	111,916
AIDS	22,495	1,222	23,717
HIV/AIDS related death	17,916	911	18,827

Source: Disease Control Division, MoH

**Table 11**  
**Number of New HIV Cases by Age Group 1986 to 2016**

Age group	1986-2015	2016	Total
< 13	1,131	15	1,146
13-19	1,564	103	1,667
20-29	34,363	1,356	35,719
30-39	44,593	1,060	45,653
40-49	17,690	555	18,245
> 50	4,819	308	5,127
No document	977	0	977

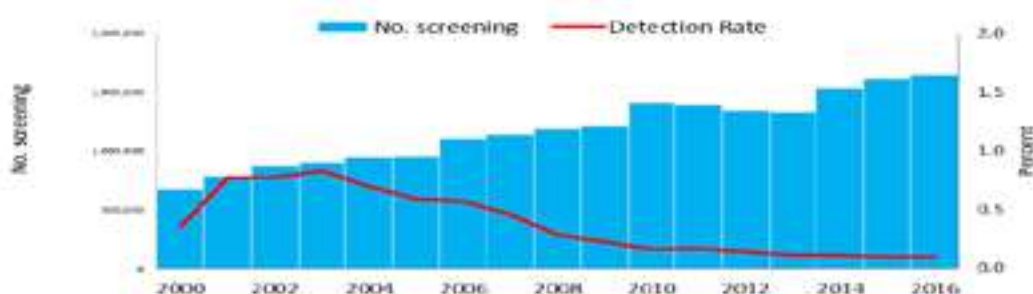
Source: Disease Control Division, MoH

- **HIV Screening**

Over the past five years, an average of 1.3 million HIV screening was conducted. In 2016 about 1,649,727 men and women had received HIV test and counselling and know the result, out of which 1,892 (0.12 per cent) were HIV positive. Despite maintaining surveillance programme and intensified screening activities, the detection rate of HIV is decreasing. This figure is compatible with the declining trend of HIV reported cases through the surveillance system. This data is also validated the reduction in HIV cases in the country as estimated through estimation and projection exercise. Based on surveillance data and screening activities, it was clearly shown that the cases in this country are still confined within the key

populations and that the prevalence among relatively low risk population as demonstrated through screening programmes (including antenatal, premarital and blood donor screening programmes) are still low between 0.02 per cent to 0.11 per cent as shown below (Figure 3).

**Figure 3**  
**Number of HIV Screening and Case Detection Rate, 2009 to 2016**



Source: Disease Control Division, MoH

- Prevention Of HIV Transmission Through Harm Reduction**

In October 2005, Malaysia implemented harm reduction programme for the first time started with Opiate Substitution Therapy (OST), later in February 2006 Needle Syringe Exchange Programme (NSEP) follow suit. OST is provided at both government and private health facilities while NSEP is mainly provided at NGO outreach points. Significant progress was shown as increasing sites and clients over the last few years. As of end 2016, both OST and NSEP have reached at least 151,526 (89 per cent) persons out of estimated 170,000 PWID. Integrated Bio-Behavioral Survey (IBBS) 2012 to 2014 revealed a significant decline of HIV prevalence among PWID. The survey also found that more than 90 per cent used clean needles at last injection (97.5 per cent in 2012, 92.8 per cent in 2014).

- Prevention Of Hiv Transmission Through Sexual Contact**

In addressing sexual transmission of HIV, coverage of interventions has improved through promoting positive prevention, promoting behavioural change communication among Most-At-Risk Populations (MARPs) and vulnerable populations, provision of sexual reproductive health (SRH) education and other essential SRH services, implementation of programmes for prevention of HIV to partners, encouraging HIV testing through voluntary testing and counselling, promoting awareness of HIV and STIs through information, education and communication and peer-lead intervention.

- Prevention Of Mother To Child Transmission (PMTCT)**

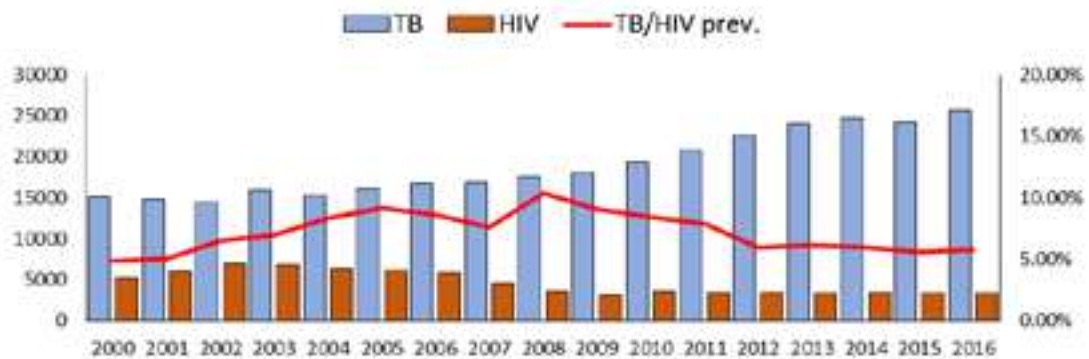
PMTCT programme became the country's key program where screening among antenatal mother was implemented country wide in 1998. Aiming at preventing vertical transmission, all HIV positive mothers were given free ARV and HIV-exposed infants given ARV prophylaxis. To further interrupt vertical transmission, HIV-exposed infants were also given free replacement feeding up to 2 years of age. Beginning 2011 the government adopted treatment option B+ for HIV infected mothers. For more than a decade, above 95 per cent pregnant mothers in Malaysia were tested for HIV with seroconversion rate maintained at average of 0.06 per cent. In 2016, about 96.3 per cent (285) of HIV infected pregnant

women had received ART to prevent MTCT and 99.6 per cent (238) HIV-exposed infants delivered were given ART prophylaxis. As much as 99.6 per cent infants delivered in 2016 had virological test done within 2 months of birth. The overall vertical transmission rates fall below 2 per cent since 2011 and achieved the lowest rate at 0.86 per cent in 2016. The country is in high hope to eliminate vertical transmission of HIV by 2018.

- **HIV/TB Co-infection**

In facing the HIV situation, Malaysia also experienced HIV/TB co-infection. The estimation number of HIV/TB co-infections reported nationwide is about 8 per cent of total HIV cases. To curb this HIV/TB co-infection, the government started Isoniazid prophylaxis (IPT) in 2010. Since the implementation of IPT, more than 8,000 people were given IPT nationwide.

**Figure 4**  
**TB/HIV Prevalence in Malaysia, 2000 to 2016**



Source: Disease Control Division, MoH

## VACCINE PREVENTABLE DISEASE AND FOOD & WATERBORNE DISEASE CONTROL

- **Poliomyelitis**

Malaysia has declared polio free in October 2000. Malaysia uses inactivated polio vaccine (IPV) in its National Immunisation Programme since 2010. However trivalent oral poliovaccine (tOPV) is being used for booster vaccination for 7-year-old until 2015, when the Global Commission for Certification of Eradication of Poliomyelitis made declaration of successful worldwide eradication of wild polio virus type 2 (WPV2) and countries to discontinue the use of tOPV. The remaining tOPV vaccines in the country were destroyed centrally at Institute of Medical Research in 2016. Concurrently, a national laboratory polio virus isolates survey was carried out to ensure no WPV2 or vaccine derived polio virus 2 (VDPV2) in any laboratories in Malaysia. All remaining WPV2 isolates should be destroyed to eliminate the potential risk of accidental release and infection. Only WHO designated laboratories can keep the WPV2, should country wishes to retain the virus.

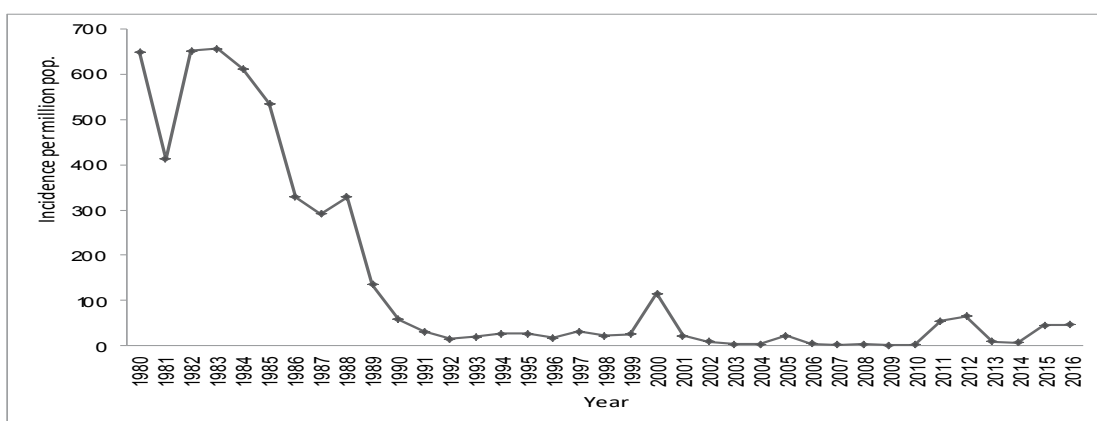
The acute flaccid paralysis (AFP) surveillance has successfully achieved the non-polio AFP rate of 1.9 per 100,000 populations of less than 15 years old in 2016. This was an achievement as it was above the target set by World Health Organisation (WHO) of 1 in 100,000 populations of less than 15 years old. However, the quality of AFP surveillance performance was not satisfactory, in particular the rate of non-polio enterovirus isolated. In

AFP surveillance system, a total of 7 quality indicators were set with specific set targets. In 2016, six indicators achieved the stated targets; however, one indicator did not achieve the set targets. The indicator not achieved is “rate of non-polio enterovirus isolation”.

- **Measles**

In 2016, 1,587 cases were reported with an incidence rate of 5.14 per 100,000 populations, compared with 1,318 cases (incidence rate of 4.32/100,000) in 2015, as shown in **Figure 5**. About 31.4 per cent of the cases were never vaccinated and another 29.6 per cent were not eligible for measles vaccination (i.e. less than 1 year old).

**Figure 5**  
**Measles Incidence Rate per 1,000,000 Populations, Malaysia, 1980 to 2016**



Source: Disease Control Division, MoH

- **Hepatitis B**

The increase notification of Hepatitis B since 2012 was contributed largely by greater awareness among medical practitioners to screen and notify viral hepatitis cases, including cases detected from established programme e.g. harm reduction programme and blood donation programme. The notification rate of Hepatitis B in 2016 was 12.59 per 100,000 populations, slightly lower compared to 12.65 in 2015. The number of cases among Malaysian born after 1989 (the year of initiation on Hepatitis B vaccination for children) was 557 in 2016 compared to 313 cases in 2015. Most of the hepatitis patients (99.1 per cent) aged 18 years old and above. In 2011, Malaysia was certified by WHO to have successfully met the Hepatitis B control program target. The verification of this achievement was through seroprevalence of Hepatitis B among the vaccinated cohorts, which was 0.3 per cent; much lower than the target set by WHO which is less than 1 per cent.

- **Other Vaccine Preventable Diseases**

The incidence rates of diphtheria and tetanus have been less than 1/100,000 for the past 20 years. In 2016, a surge in number of diphtheria cases (31 cases) with 5 deaths was reported as compared to only 4 cases and one (1) death in 2015. A total of three (3) diphtheria clusters among household members was reported in Melaka, Kedah and Negeri Sembilan. Most cases were partially or non-immunized persons. No epidemiological link between

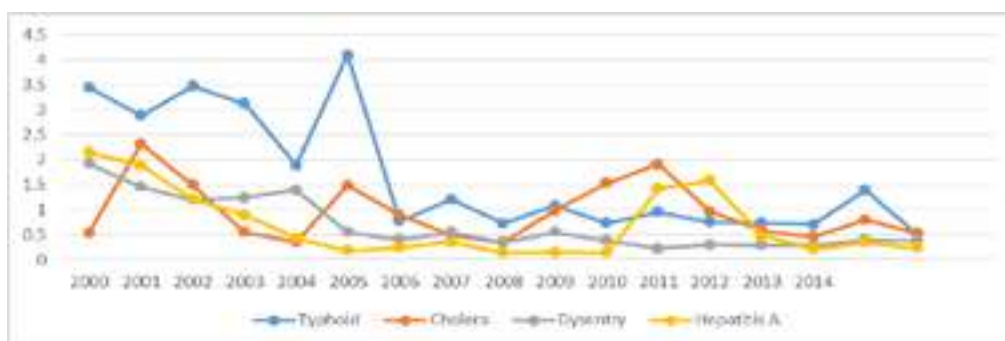
clusters was observed. In preparation of future diphtheria outbreaks, stockpile of Diphtheria antitoxins (DAT) are located in 7 major hospitals based on zoning.

- **Food And Waterborne Disease Control (FWBD)**

Occurrence of FWBD namely typhoid, cholera, dysentery, Hepatitis A and Food Poisoning should be notified to the nearest health authorities by registered medical practitioners mandated under the Prevention and Control of Communicable Disease Act 1988. Epidemiological and other relevant investigations and verification will be carried out by the District Health Offices. FWBD cases are then registered based on predetermined diagnostic criteria. The occurrence of two or more cases except for cholera (one case) will trigger an alert of whether a cluster or an outbreak of FWBD. Investigations determine the epidemiological linkages between cases. Preventive and control activities are carried out to contain the diseases. **Figure 6** indicates the incidence rates of FWBD monitored by FWBD unit, Disease Control Division, MoH.

The incidence rate of food poisoning per 100,000 populations has increased in 2016 to 56.62 from 47.34 in 2015. This figure has exceeded the 5-year median rates for food poisoning which is 49.79 per 100,000 populations. The total episode of food poisoning has increased to 526 episodes as compared to 409 episodes in 2015 (an increase of 28.6 per cent). The total episodes of food poisoning involving schools has also increased to 257 episodes in 2016 as compared to 153 episodes in 2015 (an increase of 68 per cent). Food poisoning in schools accounted for 49 per cent in 2016, compared to just 37.4 per cent in 2015.

**Figure 6**  
**Cholera, Typhoid, Hepatitis A and Dysentery Incidence Rate, Malaysia, 2000 to 2014**



Source: Disease Control Division, MoH

Food poisoning associated with 1 Malaysia Milk Program (PS1M) has markedly reduced from 96 episodes in 2011 to 10 episodes in 2016, a reduction of 89.6 per cent. Continuous monitoring of PS1M along the supply chain and supplier's compliance to Standard Operating Procedures set by MoH and Ministry of Education has significantly improved the management of PS1M.

## ZOONOSIS

The notifiable zoonotic diseases under Prevention and Control of Infectious Diseases (PCID) Act 1988 include Ebola, Leptospirosis, Nipah, Plague and Rabies. Avian Influenza infection is one of the zoonotic diseases which are notifiable under the PCID Act deemed as ‘any life-threatening microbial infections’. Brucellosis was made an administrative notifiable disease on 6 September 2012. Zoonosis Sector also manage non-zoonotic diseases which are Hand Foot and Mouth Diseases (HFMD).

- **Ebola, Plague, Nipah, Rabies And Avian Influenza**

There is no human case of Ebola, Nipah, Plague, Avian Influenza and Rabies reported in 2016.

- **Leptospirosis**

For 2016, there were 5,285 cases of Leptospirosis recorded in CDCIS e-Notifikasi system reflecting an incidence rate of 17.12 per 100,000 populations. 66 percent of the leptospirosis cases recorded were men and 49 per cent were among the age group between 25 to 60 years. In 2016, there were 52 deaths reported (case fatality rate of 1per cent) and it was 33 per cent lower compared to last year (78 deaths). There were also 24 leptospirosis outbreaks reported for 2016 (**Table 12**).

**Table 12**  
**Leptospirosis Cases, Deaths and Outbreaks by States in Malaysia, 2016**

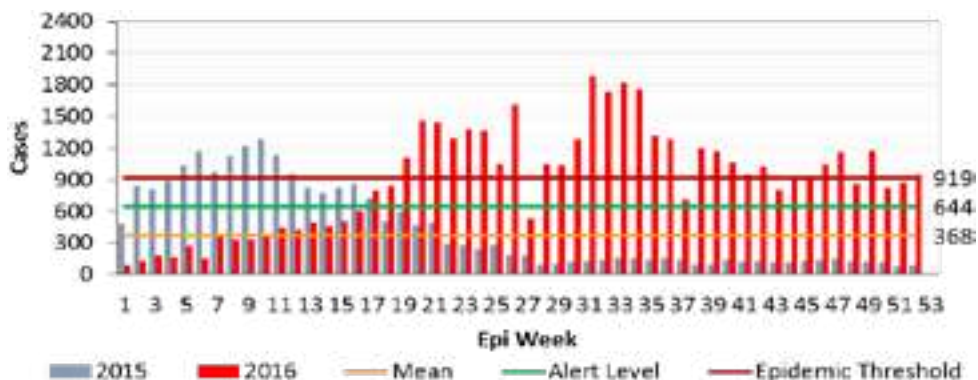
State	Male	Female	Total	Deaths	Outbreaks
Johor	146	61	207	7	0
Kedah	292	118	410	4	0
Kelantan	512	351	863	5	2
Melaka	142	85	227	6	2
Negeri Sembilan	124	45	169	2	2
Pahang	168	71	239	3	0
Perak	221	119	340	1	1
Perlis	5	6	11	0	0
Pulau Pinang	30	12	42	2	0
Sabah	118	56	174	9	1
Sarawak	617	227	844	3	4
Selangor	558	289	847	8	7
Terengganu	434	257	691	2	2
FT Kuala Lumpur	117	62	179	0	3
FT Labuan	20	22	42	0	0
<b>Total</b>	<b>3,504</b>	<b>1,781</b>	<b>5,285</b>	<b>52</b>	<b>24</b>

Source: Disease Control Division, MoH

- **Hand Foot and Mouth Disease (HFMD)**

In 2016, there were 47,008 cases of HFMD recorded from CDCIS e-notifikasi system. The cases reported in 2016 were two (2) times more than 2015 (22,587). However, there was no death reported in 2016 compared to one (1) death in 2015.

**Figure 7**  
**Trend of HFMD in Malaysia, 2015 and 2016**



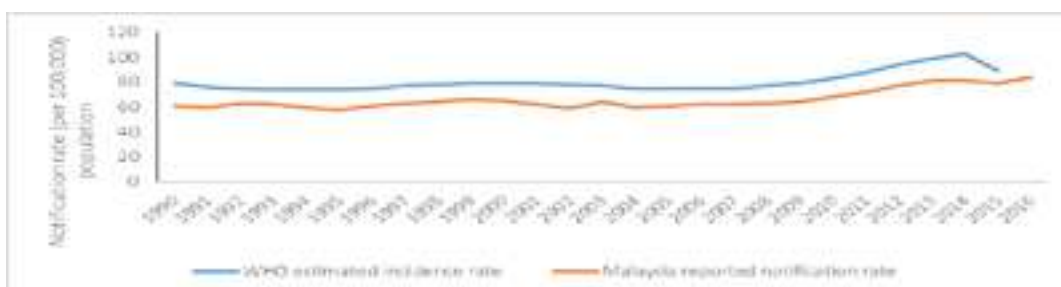
Source: Disease Control Division, MoH

In 2016, the predominant circulating HFMD strain in Peninsular Malaysia was Coxsackie A16 (57per cent). For Sabah and Sarawak, the predominant circulating HFMD strain was also Coxsackie A16 which comprising 50per cent and 55per cent each respectively.

- **Tuberculosis & Leprosy**

The National Tuberculosis Control Programme (NTBCP) was launched in 1961, with the main aim to control and reduce Tuberculosis burden in Malaysia. The BCG Vaccination programme was introduced in the country in the same year. Since the NTBCP implementation in 1961, the number of reported TB cases had successfully reduced from 350 cases per 100,000 populations to less than 100 per 100,000 in the 1980s. However, since then, reported TB cases have remained unchanged in between 60 to 68 per 100,000 populations. It was noted that the reported TB cases had shown increment from 2010 to 2016. In 2016, number of notified TB cases was 25,739 cases (NR 83.4 per 100,000 populations), increment 6 per cent compared to 24,220 cases (NR 79.4 per 100,000 populations) in 2015 (**Figure 8**).

**Figure 8**  
**Tuberculosis Notification Rate, Malaysia, 2000 to 2016**



Source: Disease Control Division, MoH



- **Disease Surveillance**

Of the 25,739 TB cases notified in 2016, about 23,625 (91.79 per cent) were new cases, 1,380 (5.36 per cent) relapse cases, 577 (2.24 per cent) treatment after default cases, 81 (0.31 per cent) treatment after failure case and 76 (0.3 per cent) unknown case. Of this 25,739 cases, 15,906 (62 per cent) were pulmonary TB smear positive cases, 5484 (21.4 per cent) pulmonary TB smear negative/smear not done/ not known cases, 3,463 (13.5 per cent) were extra-pulmonary TB cases and 810 (3.1 per cent) were pulmonary TB and extra-pulmonary TB cases.

- **TB Cases by States**

Sabah contributed the highest number of TB cases i.e. 4,953 cases (19.2 per cent) followed by Selangor 4,930 cases (19.2 per cent), Sarawak 2,857 cases (11.1 per cent), Johor 2,325 cases (9.0 per cent), Federal Territory of Kuala Lumpur 1,903 cases (7.4 per cent), Perak 1,666 cases (6.5 per cent), Penang 1,385 cases (5.4 per cent), Kedah 1,283 cases (5.0 per cent), Kelantan 1,254 cases (4.9 per cent), Pahang 936 cases (3.6 per cent), Terengganu 769 cases (3.0 per cent), Negeri Sembilan 641 cases (2.5 per cent), Malacca 571 cases (2.2 per cent), Perlis 133 cases (0.5 per cent) and Federal Territory of Labuan 133 cases (0.5 per cent).

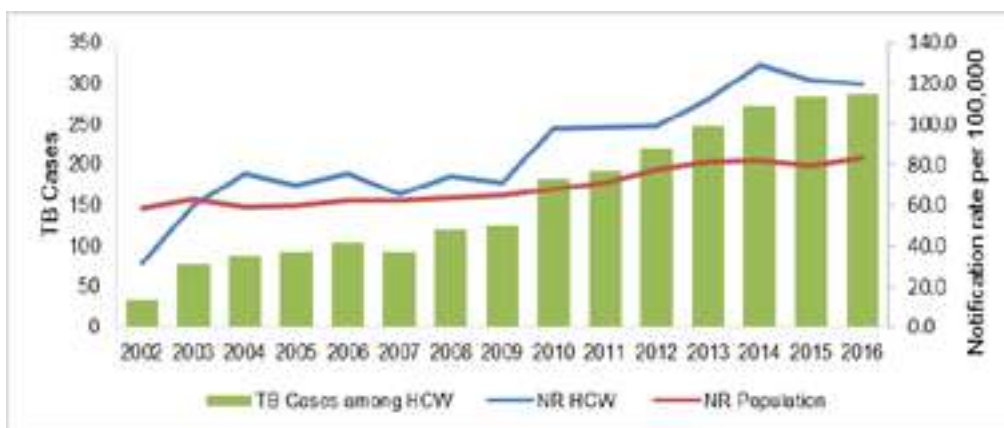
- **TB/HIV**

Total of 22,993 (89.3 per cent) among notified TB cases underwent HIV screening. Of these 22,993 cases, 1498 cases (6.5 per cent) were HIV positive (1,333 pre-diagnosis and 165 post-diagnosis).

- **Tb Among MoH Workers (HCW)**

TB cases among Ministry of Health worker for 2016 were 287 cases compared to 284 cases in 2015. NR of TB among HCW had slightly decreased from 119.6 per 100,000 HCWs in 2016 to 121.5 per 100,000 HCWs in 2015.

**Figure 9**  
**Notification Rate per 100,000 (NR) and Cases of TB among HCW, 2002 to 2016**



Source: TB/ Leprosy Sector, Disease Control Division



- **Multi Drug Resistant TB (MDR-TB)**

There were 70 cases of MDR-TB notified in the year 2016. Proportion of MDRTB cases were 0.3 per cent of all TB cases in 2016.

- **NTBCP Activities**

BCG immunization aim was to prevent severe TB disease during childhood especially TB meningitis and miliary TB. BCG coverage was above 98 per cent since year 2000 onwards with achievement of 98.3 per cent for 2016

### **i) Screening of TB Symptomatic 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. For 2016, about 571,576 patients (1858 per 100,000 populations) were screened for symptoms of TB and 15,754 patients (new and relapse cases) had positive AFB direct smear examination.

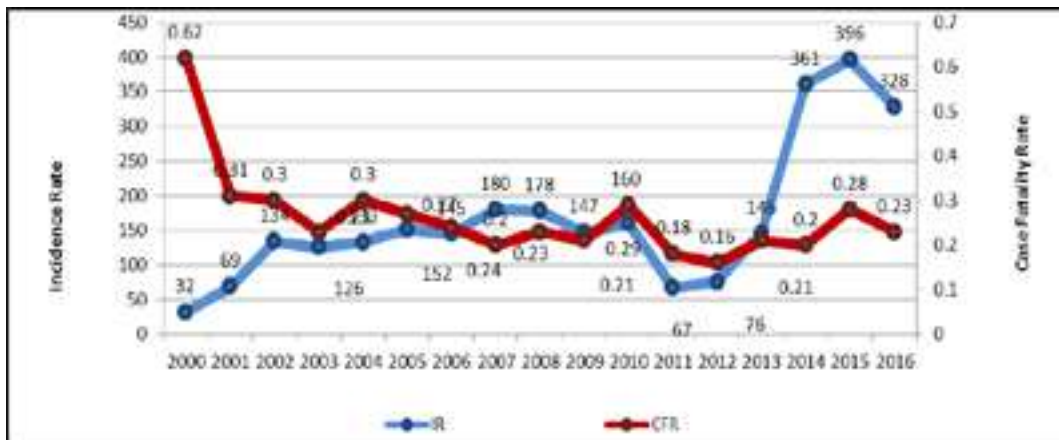
## **VECTOR BORNE DISEASE**

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. To strengthen the existing dengue surveillance and monitoring, web based dengue data management (e-dengue) is used to monitor the data cases, laboratory result, control activities, vector index, outbreak localities, health education and enforcement activities every day. For other vector borne diseases such as Malaria, Filariasis, Typhus, Chikungunya and Japanese Encephalitis are monitored through web base surveillance system (vekpro-online) and monitored weekly. There is also surveillance at the international points of entry for plague by monitoring flea index and yellow fever by monitoring the ovitrap index.

- **Dengue Fever Control**

Dengue fever is one of the significant public health problems in Malaysia, as it has generally been increasing in the recent years. In 2016, a total of 101,357 cases and 237 deaths were reported, which was a reduction of 16.1 per cent in Dengue cases and 29.5 per cent in Dengue deaths compared to the year 2015. The incidence rate for Dengue cases in the year 2016 was 328 cases per 100,000 populations (**Figure 10**). The five respective States that showed the highest Incidence Rate (IR) of Dengue cases (per 100,000 populations) were Selangor (869), WP Kuala Lumpur & Putrajaya (462), Kelantan (354), Johor (296), Melaka (263).

**Figure 10**  
**Dengue Incidence Rate and Case Fatality Rate, Malaysia, 2000 to 2016**



Source: Disease Control Division, MoH

The Case Fatality Rate (CFR) in 2016 was 0.23 per cent, a slight reduction compared to the previous year which reported as 0.28 per cent. In parallel with the number of reported dengue cases, Selangor contributed the highest number with 78 deaths; followed by Negeri Sembilan with 26 deaths, Johor 23 deaths, WPKL & Putrajaya 22 deaths, Terengganu 20 deaths, Pulau Pinang 12 deaths, Kelantan and Pahang each with 11 deaths, Perak 10 deaths, Melaka 7 deaths and Sarawak 7 deaths, Kedah 5 deaths, Perlis 3 deaths, Sabah 2 deaths while Labuan did not report any death. The number of premises inspected decreased by 33 per cent but the number of premises positive with *Aedes* breeding increased by 9 per cent compared to the previous year.

- **Malaria Control**

In 2016, there are 2,302 malaria cases in Malaysia, an increase of 9 cases (0.4 per cent) compared to 2,311 reported cases in 2015. The highest number of cases are reported in Sarawak with 1,064 cases (46 per cent), followed by Sabah 717 cases (31 per cent), Perak with 184 cases (8 per cent), Kelantan with 111 cases (5 per cent) and the remaining 226 cases are reported in other states in Peninsular Malaysia. Malaria incidence rate has decreased from 7.6 per 100,000 populations in 2015 to 7.5 per 100,000 in 2016. There were 2 malaria mortalities reported in 2016, which showed a reduction of 75 per cent compared to 8 mortalities in 2015. Malaria cases fatality rate has been less than 0.5 per cent since 2006

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

A total of 271 positive microfilaria cases were reported in 2016 showing an increase number of cases 89 (48.9 per cent) compared to the year 2015. Prevalence rate of filariasis was 0.8 per 100,000 populations in 2016. There were 86 cases (31.7 per cent) among foreign workers from filariasis endemic countries (India 57 per cent, Nepal 21 per cent, Myanmar 13 per cent and Indonesia 7 per cent) and 185 cases (68.5 per cent) were local cases (Sabah 85 per cent, Sarawak 11 per cent, Terengganu 3 per cent and Johor 1 per cent). The predominant parasite species for local cases were *Brugia malayi* (subperiodic) 97.3 per cent and *Brugia malayi* (periodic) 2.7 per cent. The predominant parasite species for foreign workers were *Wuchereria bancrofti* 90.6 per cent, *Brugia malayi* (subperiodic) 5.8 per cent

and *Brugia malayi* (periodic) 3.4 per cent. In 2016 there were total of 159,600 night blood slides taken with 271 positive slides (0.17 per cent) compared to 182 positive slides (0.13 per cent) from 144,278 night blood slides in 2015.

Since LFEP started in Malaysia in year 2002 with the objective to bring microfilaria rate less than 1/1,000 population for all areas in the country. At this rate, the transmission of LF is considered as interrupted. In Malaysia, there are 127 endemic Red Implementation Unit (IU) with microfilaria positivity rate of greater than 1per cent involving 8 states (Kedah, Perak, Johor, Pahang, Terengganu, Kelantan, Sabah and Sarawak). In year 2016, total of 122 red IUs (96 per cent) has successfully bring down the microfilaria rate less than 1/1,000 population. Remaining 5 Red IUs (Mendमित, Sundar, Lawas, Bangkalalak and Tangkarason) are schedule to conduct enhanced MDA and Mini-TAS (Transmission Assessment Survey) in 2017.

- **Japanese Encephalitis Control Programme**

In 2016, there were 49 reported Japanese Encephalitis (JE) cases in Malaysia, an increase of 13 cases (36.1 per cent) as compared to 36 cases in 2015. Sabah reported the highest number of cases 18 (36.7 per cent), followed by Sarawak with 14 cases (28.5 per cent), Perak 5 cases (10.2 per cent), Kedah and Negeri Sembilan 3 cases (6.1 per cent), Pulau Pinang 2 cases (4 per cent) and 1 case each reported in Terengganu, Kuala Lumpur, and Pahang. All cases reported were sporadic and there was no outbreak incidence in 2016. Three (3) deaths reported one each in Kedah, Sabah and Kuala Lumpur with case fatality rate of 6.12 per cent. The incidence rate (IR) of JE increased from 0.12 per 100,000 populations in 2015 to 0.15 in 2016. Most JE cases reported were among locals 42 cases (85.7 per cent) and 7 cases (14.2 per cent) were among the foreigners.

- **Chikungunya Control**

There was slight increase in Chikungunya cases in 2016 with 12 cases reported compared to 3 cases in 2015. The incidence rate (IR) of Chikungunya was 0.03 per 100,000 populations. Cases were reported in Negeri Sembilan (9) cases and one (1) case reported in Perlis, Penang and Selangor. There was no outbreak of Chikungunya reported in 2016.

## **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, Disease Control Division already started to formulate Malaysia Strategic Workplan for Emerging Diseases and Public Health Emergencies (MySED II (2017 to 2021), to ensure regional and global health security to maintain its generic approach in preparedness and response for all hazards.

- **Travel Advisory**

The International Health Sector prepares and reviews the Travel Advisory information uploaded in the MoH's MyHEALTH Portal especially the list of countries at risk of yellow fever transmission as updated by the World Health Organization and the list of the approved Yellow fever vaccination centre. The portal also provides information on Zika Virus, MERS-CoV, H7N9 and Ebola. In addition, the International Health Sector provides technical advice to the public on Travel Health enquiries through MyHEALTH Portal from time to time.

- **Monitoring of International Points Entry**

Public health activities that are routinely conducted at the Malaysia's International Entry Points include Communicable Diseases Control, Surveillance, Assessment and Response, Public Health Emergency Preparedness, Monitoring 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**

In 2016, a total of 32,090 travellers from countries with risk of yellow fever transmission were screened at Malaysia's International Entry Points. A total of 31,923 (99.5 per cent) had valid international certificate for vaccination against yellow fever, whilst 135 (0.42 per cent) travellers were quarantined and 26 (0.07 per cent) travellers were put on health surveillance.

- **Pilgrim's Health**

From the year 2011 to 2016, an average of 22,248 Malaysian pilgrims has registered for Hajj to the Holy Land, Mecca. The pilgrims would be in the Holy Land for an average of 40 to 45 days. For every hajj season, there will be a medical team from the MoH whom is responsible to ensure that the pilgrims remain healthy and are able to perform their hajj. The number one most common cause of patients' attendance to the outpatient clinics was chest diseases, which accounted for 79.1 per cent to 88.5 per cent compared to other causes. This might be probably influenced by the weather in Mecca. Musculoskeletal problems were the second most common presenting complaint at the outpatient clinics due to the age of the pilgrims and the nature of the hajj activities however in 2016 the second most common cause of patient's attendance is Ear, Nose and Throat Diseases. Cardiovascular diseases resided at number five of the most common cause of patients' attendance to the outpatient clinics which provided evidence to the effective medical screening conducted prior to departure which ranged from 1.9 per cent to 3.0 per cent.

- **Foreign Workers' Medical Examination**

Total number of foreign workers screened ranged from 935,043 to 1,361,229 over a period of six years (2011 to 2016). From this screening, averages of 2.9 per cent 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, tumours and psychiatric disorders). Among the workers, communicable diseases were the predominant causes of this

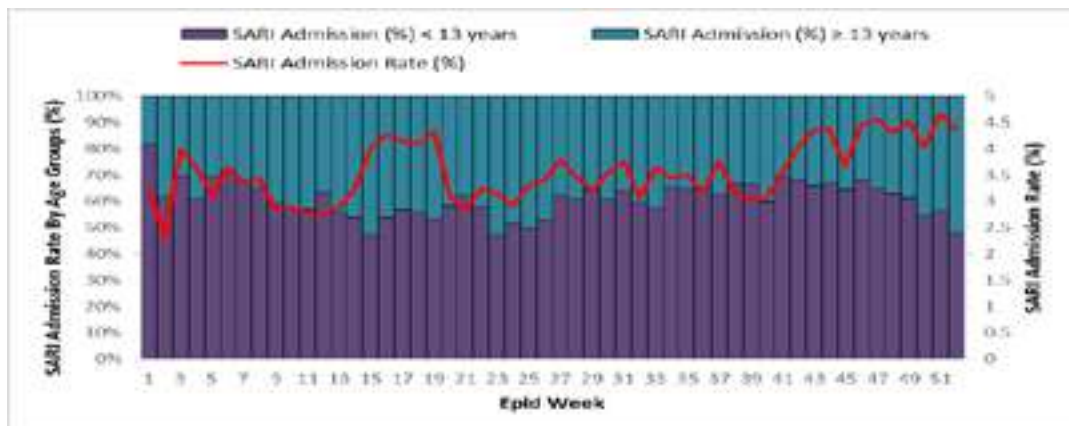
unsuitability status. Over a period of six years (2011 to 2016), the trend for communicable diseases was increasing before it started to decrease in 2013 onwards. This rate had decreased tremendously from 36,745 workers in 2012 with communicable diseases to 14,046 workers in 2016, which was a 61.2 per cent 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 per cent 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 comparison to temperate regions, Malaysia being a tropical country does not show seasonal variations in the occurrence of influenza. In 2016, the baseline activity for influenza-like illness (ILI) consultation rate, range between 1.70 per cent to 4.36 per cent and the peak activity was recorded in 45<sup>th</sup> Epidemiological Week (EW) of 2016. Whereas, for severe acute respiratory infection (SARI) admission rate, the rate range between 2.32 per cent to 4.66 per cent with the peak activity recorded in 52<sup>th</sup> EW of 2016.

**Figure 11**  
**sARI and ILI Activity In Malaysia by Epid Week, 2016**



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

- **Event Based Surveillance (EBS)**

Rumour surveillance is one of an important tool within EBS for enhanced surveillance in the detection outbreak or unusual events and to respond to it. Any event is screened using the Event Screening Risk Assessment (ESRA) tool and coded as red (all events/news that need to be verified by relevant sectors within 72 hours of receiving it from the Disease Surveillance Sector), yellow (all news that will be circulated/shared with relevant sectors with the intention to increase their alertness) or green. In 2016, a total of 1,056 news was recorded by rumour surveillance system. Among these news, 203 (19.2 per cent) news coded as green and 853 (80.8 per cent) news were coded as yellow. There was no news coded as red.

- **Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Surveillance**

The surveillance for MERS-CoV was initiated since November 2012. In 2016, there were 850 notified patients under investigation (PUI) for MERS, 677 (79.6 per cent) PUI notifications for umrah pilgrimage and 173 (20.4 per cent) PUI notifications for Hajj pilgrimage. All the 850 notifications tested negative for Middle East Respiratory Syndrome Coronavirus (MERS-CoV). There were more females (485) notified as PUI MERS compared to male (365). Majority of the PUI were aged 61 years to 70 years followed by 51 years to 60 years.

- **Ebola Virus Disease (EVD) Surveillance**

The Ebola Virus Disease (EVD) outbreak in West Africa that started in March 2014 ended successfully in March 2016, when World Health Organization (WHO) officially announced the cessation of the Public Health Emergency of International Concern (PHEIC) alert. During this outbreak, there were a total of 28,616 confirmed, probable and suspected cases with 11,310 deaths that were reported from the affected countries; i.e. mainly in Guinea, Liberia and Sierra Leone.

## OUTBREAK AND DISASTER MANAGEMENT

- **Activation of Operations Room in 2014 for Specific Outbreak and Incident**

The National Crisis Preparedness and Response Centre (CPRC) Operations Room for Specific Outbreak and Incident operates at Level 6, Block E10, Parcel E, Precinct 1, Putrajaya, monitored by the Outbreak and Disaster Management Sector. In 2016, CPRC had been activated three times. The main events were diphtheria outbreak, Zika outbreak and Hospital Sultan Aminah (HSA), Johor Bharu fire incident.

**Table 13**  
**National CPRC Activation, 2016**

No	Events	Date		
		Activation	Deactivation	Duration
1	Diphtheria Outbreak	22 July 2016	17 August 2016	27 days
2	Zika Outbreak	9 Sept 2016	Till end of 2016, Still on going	-
3	HSA JB fire incident	25 Oct 2016	3 November 2016	10 days

Source: Disease Control Division, MoH

- **National Mass Casualty Incident (MCI) Operation Room**

In 2016, CPRC also monitor the mass casualty incidents (MCI). For this year, the operations room for MCI was activated once in 2016 due to HAS JB fire incident.

- **Surveillance On-Call System and E- Wabak Incident Report**

Surveillance On-Call System monitors all disease outbreaks, Mass Casualty Incidents (MCI), Chemical-Biological-Radiological-Nuclear explosive (CBRNe) incidents and environmental disaster at the Ministry of Health Malaysia Level. In 2016, a total of 2,335 infectious disease incidents/outbreaks were reported to the E-Wabak system.

## 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.

From its beginning in October 2010 with 100 KOSPEN localities involving three states namely Johor, Malacca and Negeri Sembilan, KOSPEN has now expanded to 2,829 Department of Social Development (*Jabatan Kemajuan Masyarakat* or KEMAS) villages and 89 neighbourhoods. A total of 12, 843 volunteers have been trained (**Table 14**) and 31,434 adults (18 years and above) have been screened for NCD risk factors

**Table 14**  
**Number of Volunteers Trained for KOSPEN**

Category	No. of Volunteers Trained
KOSPEN KEMAS	12,345
KOSPEN neighbourhoods	498
<b>Total</b>	<b>12,843</b>

Source: Disease Control Division, MoH

**Table 15**  
**Environmental/Social Changes Achievements of KOSPEN, 2016**

Targets	per cent of localities achieved targets
50per cent of official functions served sugar separate from hot drinks	28.9
50per cent of official functions served fruits in every menu	44.1
50per cent of official functions served vegetables in main menu	38.5
Each locality must have at least one (1) 10,000 walking track	33.4
Each locality must have at least one (1) weekly held physical activities	14.1
Each locality must have one self-BMI assessment corner	6.3
All no smoking gazetted areas under PPKHT 2004 has No Smoking signage	30.5

Source: Disease Control Division, MoH

## CANCER

The National Cancer Control Programme 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 Strategic Plan for Cancer Control Program (NSPCCP) 2016



to 2020. NSPCCP 2016 to 2020 was presented and endorsed at the Director General Special Meeting in June 2016. The aim of the NSPCCP 2016 to 2020 is to reduce the negative impact of cancer by decreasing the morbidity, mortality and to improve the quality of life of cancer patients and their families.

## **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 (FCTC).

- **Prevalence Of Smoking In Malaysia**

The prevalence of smoking among Malaysians aged 15 and above in 2015 was 22.8 per cent which translates to 5 million people. There is a slight reduction with the prevalence measured in 2011, which was 23.1 per cent. Smoking is dominant among males with the current smoking prevalence of 43.0 per cent, compared to female prevalence of 1.4 per cent. While the prevalence may have reduced slightly for males, from 43.9 per cent in 2011 to 43.0 per cent in 2015, the opposite was seen among females with a rise in prevalence of current smoking from 1.0 per cent in 2011 to 1.4 per cent in 2015. Overall, the prevalence of smoking peaked at the age group 35 - 39 years old (29.7 per cent).

## **COMMUNITY MENTAL HEALTH**

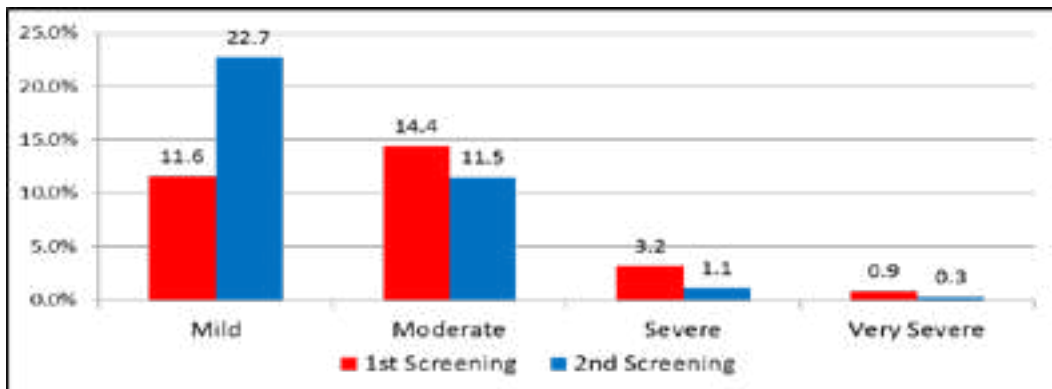
The objectives of the mental health program are to promote healthy mind among the population through healthy lifestyle and coping skills, to reduce prevalence of mental and behavioural disorders of high risk groups through screening and early intervention programmes at the primary healthcare (PHC) level, 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 Schools**

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 expanded further to 200 schools in 2013. In 2016, a total of 2,343 secondary schools implemented the program. There was 8.99 per cent (25,030) decreased the participation of screening in 2016 (253,196) as compared to 2015 (278,226). A total of 2,343 counsellors, one from each school, were trained using the Healthy Mind Module.

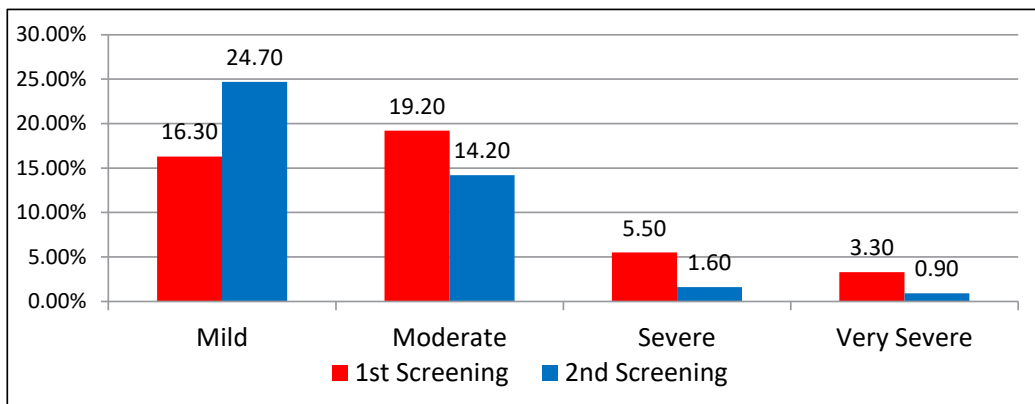


**Figure 12**  
**Percentage of Depression Among School Students, 2016**



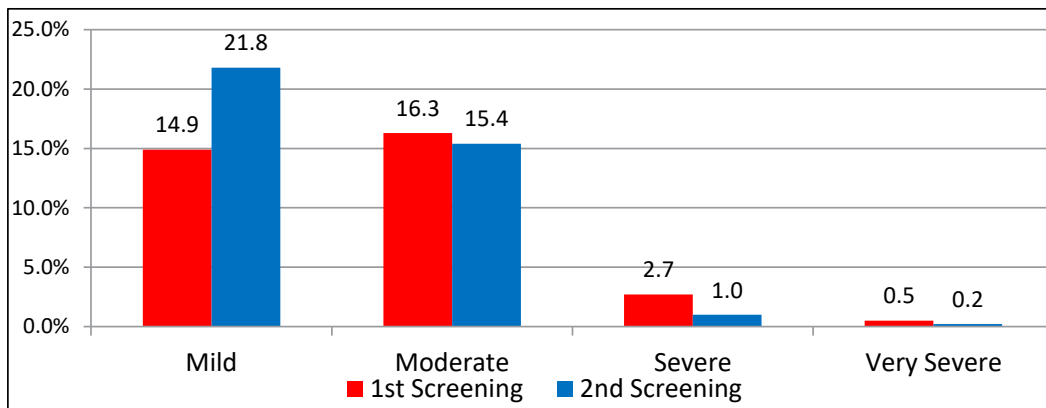
Source: Disease Control Division, MoH

**Figure 13**  
**Percentage of Anxiety among School Students, 2016**



Source: Disease Control Division, MoH

**Figure 14**  
**Percentage of Stress among School Students, 2016**



Source: Disease Control Division, MoH

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

The Healthy Mind Program was implemented as a pilot project from 2008 till 2016 at 920 Health Clinics throughout Malaysia. The objective of the program was to promote mental health screening among the community. This screening is to assess the mental health status as well as to identify stress, anxiety and depression within the community. The program helps to empower the community to handle stress effectively through instilling mental health skills and relaxation techniques. A total of 311,327 participants were screened in 2016 and 6,899 (2.22 per cent) cases were detected to have mental health problems and were referred to a Family Medicine Specialist (FMS)/Medical Officers. There was 8.9 per cent (25,680) increased the participation of screening in 2016 (311,327) as compared to participation in 2015 (285,647).

## **OCCUPATIONAL AND ENVIRONMENTAL HEALTH (OEH)**

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

There were a total of 1,587 cases of sharps injuries were notified from 1 January 2015 until 15 January 2016. The number of cases reported this year showed an increase of 15.3 per cent compared with 1,376 cases in 2015.

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

The total number cases of accidents and injuries (not including sharp injuries), reported among healthcare workers in 2016 were 886 cases, a 12.2 per cent increase from 2015. Majority of the injuries occurred on the road with 369 cases (41.6 per cent) followed with 117 cases (13.2 per cent) in the ward, 48 (5.4 per cent) cases in the operation theatre and in the health clinic 47 cases (5.3 per cent). Motor vehicle accidents contributed to 365 cases (40.12 per cent) of injuries among the health care workers followed by 111 cases (12.5 per cent) due to splash by blood or body fluids. There were also 108 cases (12.2 per cent) of falls or slips.

- **Surveillance of Pesticide & Chemical Poisoning**

In 2016, there were 242 poisoning cases notified as compared to 163 cases in 2015. Majority of the cases were reported from Perak with 165 cases (68.1 per cent), followed by Pulau Pinang with 26 cases (10.7 per cent), Kelantan with 18 cases (7.4 per cent) and Selangor with 16 cases (6.6 per cent). From the total of 242 cases, there were 133 (55.0 per cent) pesticide poisoning cases and 109 (45.0 per cent) chemical poisoning cases.

- **Surveillance of Occupational Lung Diseases**

They were 154 cases of occupational lung diseases notified in 2016 compared to 198 in year 2015. Majority of the cases reported were Tuberculosis with 149 cases (96.0 per cent), followed by Allergic Asthma with 2 cases (1.6 per cent), allergic alveolitis with 2 cases and pneumoconiosis with 1 case (0.8 per cent). The numbers of occupational lung disease cases among healthcare workers have been increasing over the past 5 years.

- **Surveillance of Occupational Skin Diseases**

In 2016, a total of 78 cases of occupational skin diseases were notified. The majority of cases are occupational irritant with 28 cases (35.9 per cent) and allergic contact dermatitis with also 28 cases (35.9 per cent), followed by 18 cases (23.1 per cent) of irritant contact dermatitis and other occupational skin disease with 2 cases (2.6 per cent).

- **Surveillance of Occupational Noise-Induced Hearing Loss**

In 2016, there were 21 cases of Occupational Noise Induced Hearing Loss reported as compared to 36 cases in 2015. Most of the cases are not using or not consistent using Personal Protective Equipment (PPE) during their duty.

- **Screening of Tuberculosis among High-Risk (HR) Healthcare Workers (HCW)**

In 2016, there were 196,139 HCW categorised under the high-risk (HR) groups, of which 30,244 (15.4 per cent) have been screened across the country through this program (**Table 16**). From that total, 1023 (3.4 per cent) HCW screened showed positive results for Mantoux test. As many as 6 HCW (0.6 per cent) were identified positive for TB.

**Table 16**  
**TB Screening among HR-HCW, 2016**

No. of High-risk HCW	196,139
No. of Screened HCW	30,244
Total Positive Mantoux	1023
Total Positive TB	6
Positive Mantoux Rate	338.2 per 10,000 HCW
Positive TB Rate	1.98 per 10,000 HCW

*Source: Disease Control Division, MoH*

## ENVIRONMENTAL HEALTH

- **Temporary Detention Depot**

There are 14 Temporary Detention Depots throughout the country, which only thirteen 13 were in operation for 2016. Health activities at the depot include environmental health inspection of the depot and medical treatment. From the total of 13 depots examined, 8 (61.5 per cent) were found to have a high density of occupants (exceeding the capacity and congested). Overall, only 4 depots complied with all the environmental health standards. There were no depots that failed to meet all the environmental health components.

- **National Service Training Camps (NSTC) Risk Assessment and Disease Monitoring**

Total of 80 National Service Training Camps (NSTC) were operational in 2016. MoH implemented several healthcare services to ensure the health of the trainees while in the camps. The services comprised of health risk assessments of the camps, medical services and health education on HIV/AIDS. The health inspection of the NSTC is a routine activity to ensure the sanitation and hygiene of these premises. A total of 119 health risk assessments were conducted in 2016.

- **Natural Disaster - Haze**

Malaysia was hit by 2 episode of haze in 2016. First episode was from 22 - 24 April 2016 (week 16 and week 17). Two continuous air quality monitoring stations (CAQM) were recorded unhealthy API (>100) with the highest reading API (114) at Pelabuhan Kelang and API (148) at Miri. Second episode was from 27 to 30 August 2016 (week 34 and week 35). Three CAQM were recorded unhealthy API (>100) with the highest reading API (103) at Pasir Gudang, Nilai with API (123) and followed by Shah Alam with API (103). MoH has monitored haze related diseases such as conjunctivitis, asthma and upper respiratory tract infection (URTI). Health advisory on haze was uploaded to MoH website. Three ply masks were distributed to the patient's and high risk populations who attended the affected clinic by haze.

- **Natural Disaster - Flood**

Malaysia was hit by 3 episodes of flood in 2016. A total of 221715 flood victims in were transferred to 1960 evacuation centres during the flood. MoH had mobilised 3673 teams (1775 medical teams and 1898 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 centres. None of health's facilities have been affected by flood in 2016. No deaths were reported due to the floods.

## **FAMILY HEALTH DEVELOPMENT DIVISION**

### **PRIMARY HEALTH CARE POLICY DEVELOPMENT**

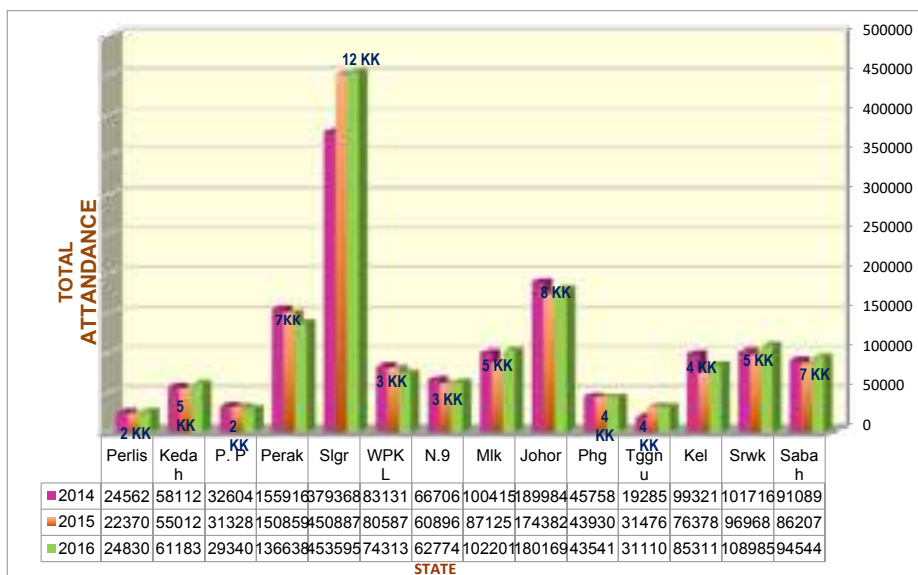
#### **FAMILY DOCTOR CONCEPT (FDC)**

The expansion of FDC clinics has been widespread throughout the country with current total clinics of 164 implementing FDC. Forty-eight (48) chosen clinics are being monitored each year as an indicator under *Pelan Transformasi Perkhidmatan Kesihatan* (PTPK). Several clinics has done the client and staff satisfactory survey and a positive response received from both clients (get to see the same doctor) and staff (good rapport with patients). Extensive promotional activities in the community prior implementation of FDC is crucial in order to get the community understanding and participation. Community registration using *Daftar Populasi Doktor Keluarga* is still ongoing and proved to be more challenging in urban area.

#### **EXTENDED HOURS SERVICE**

A vigilance monitoring of attendance in the extended hours services continue in 71 health clinics. 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 15**  
**Extended Hours Attendance by State in Malaysia, 2014 to 2016**



Source: Family Health Development Division, MoH

### HEALTH CLINIC ADVISORY PANEL (PPKK)

There are increasing numbers of new PPKK in 2016 with the current newly appointed members of 13, who will be serving as PPKK from 1 April 2016 to 30 June 2019. These nominations were approved by Minister of Health's office. A sum of RM4.125 million budgets for 825 PPKK were allocated for PPKK activities in which each PPKK received RM5,000 each.

### NATIONAL SERVICE TRAINING PROGRAM (PLKN)

For 2016, The Transformation PLKN Module 2.0 which incorporates skills training has been implemented only once this year to 21158 trainees in 80 PLKN camps in from 26 Mac 2016 to 26 Mei 2016. One camp which is Setia Ikhlas Camp, Selangor has been closed due to hygiene issues.

### MOBILE HEALTH SERVICES

Mobile health service is an expanded program to gear universal health coverage especially to the population in remote areas and marginalized groups. As shown in Table 1 below, in 2016, there were 233 mobile teams providing such health services, which comprise of 20 teams for 1Malaysia Mobile Health Clinic (*Klinik Bergerak 1Malaysia-KB1M*) which using customized vehicles such as boats or buses, functioning as on site clinics led by doctors.

Meanwhile 213 teams are using 4-wheel drives and small boats and through flying doctor services.

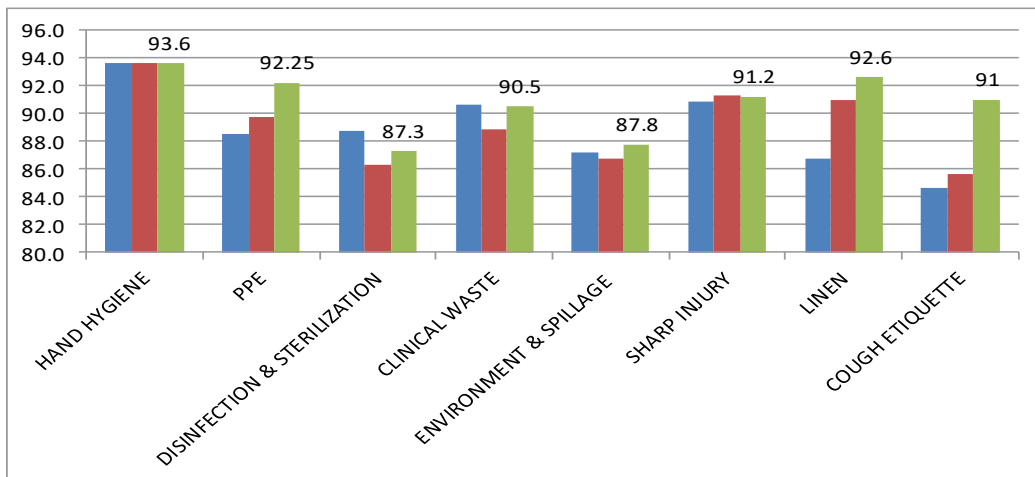
Ministry of Health received another two customized KB1M buses last year, one for PKB Sri Aman, Sarawak and one for PKK Keningau, Sabah under mobile CTC program , NBOS 8, Ministry of Finance to cater health needs for rural population in Sabah and Sarawak.

The achievement for mobile health services has increasing trend from 362,550 in 2011 to 491,778 in 2016 due to increased number of vehicles and localities covered.

## INFECTION CONTROL

Since implementation of standard precautions started in 2012, almost 100% of the primary healthcare facilities had been audited. High compliance rate of more than 90 per cent was in hand hygiene, clinical waste, cough etiquette, PPE, management of sharp injuries and linen. Disinfection & sterilization showed the lowest compliance rate of 87.3per cent, as shown below.

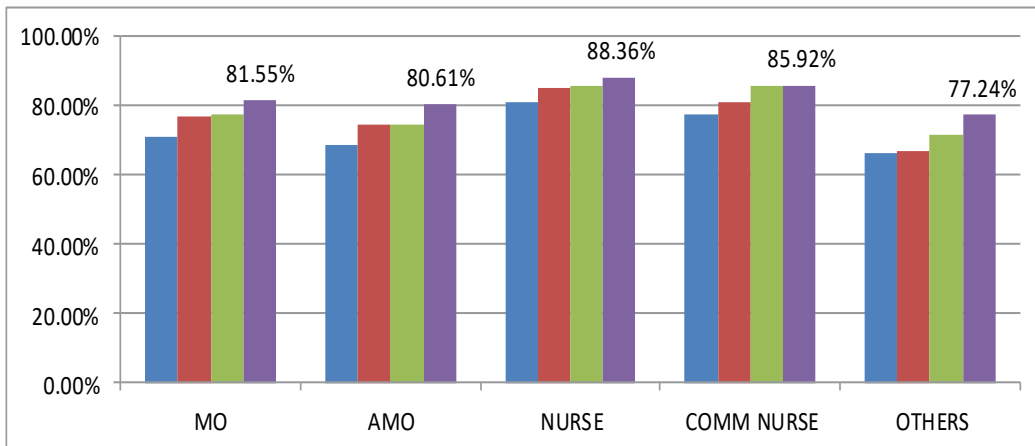
**Figure 16**  
**Audit Findings of Standard Precaution Implementation in Primary Healthcare, 2016**



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 88.4 per cent while other staff categories has the lowest compliance rate of 77.2 per cent, as shown below.

**Figure 17**  
**Hand Hygiene Compliance Rate among Healthcare Worker**



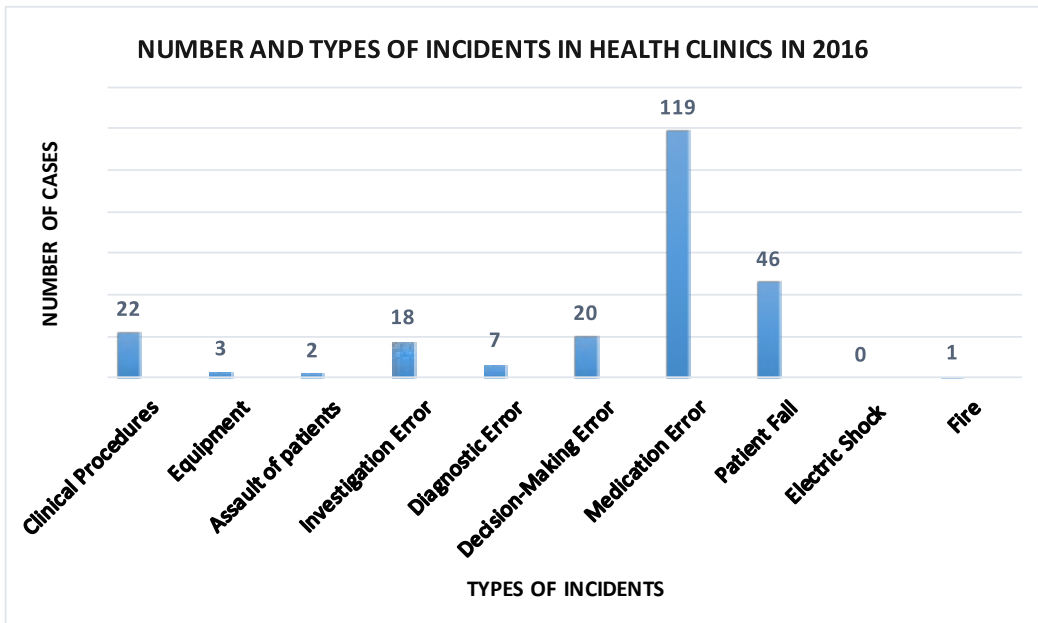
Source: Family Health Development Division, MoH

### **MALAYSIAN PATIENT SAFETY GOALS (MPSG) AND INCIDENT REPORTING AND LEARNING SYSTEM**

Starting from 1 June 2013, all healthcare facilities in Malaysia (hospitals and clinic /public and private sectors) are required to implement, monitor and report their performance annually, online, through 'e-goals patient safety' at Patient Safety Council Malaysia website. The four goals that applicable to primary healthcare facilities are; implementing clinical governance and incident reporting, ensuring medication safety and reducing patient falls. In 2013, only 29.5 per cent of the clinics reported their performances and the number had increased to 38.0 per cent in 2014, 99.6per cent in 2015 and 91.9 per cent in 2016 respectively.

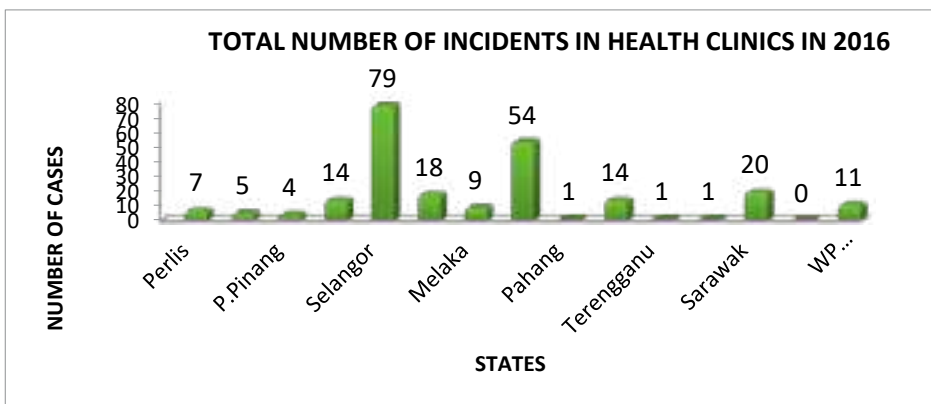
Incident Reporting and Learning System is an important component of Malaysian Patient Safety Goals. It refers to the processes and technology involved in the standardization, formatting, communication, feedback, analysis learning, response and dissemination of lessons learned from reported events.

**Figure 18**  
**Number and Types of Incidents in Health Clinics 2016**



Source: Family Health Development Division, MoH

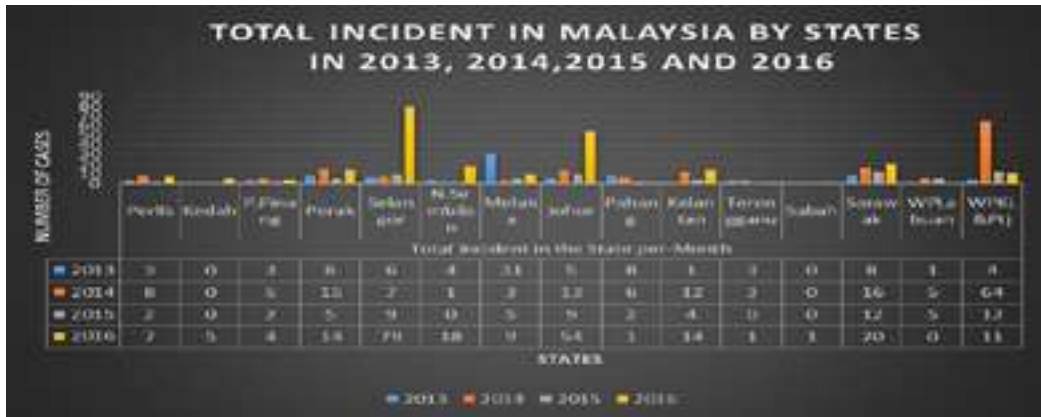
**Figure 19**  
**Total Number of Incidents in Health Clinics 2016**



Source: Family Health Development Division, MoH



**Figure 20**  
**Total Incidents in Malaysia by States 2013 to 2016**



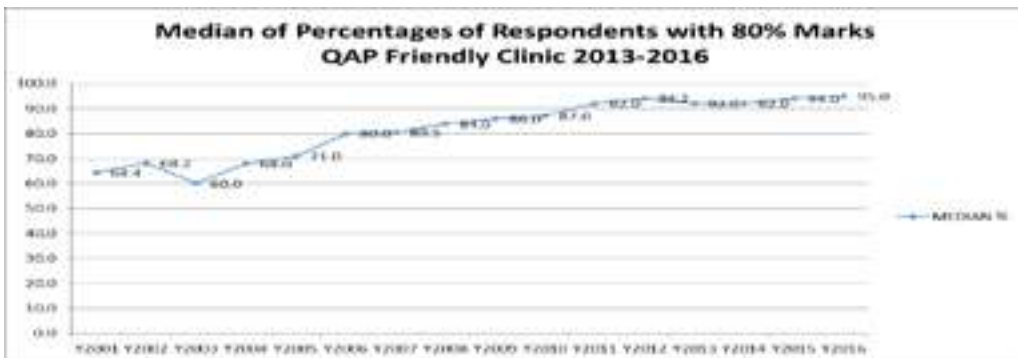
Source: Family Health Development Division, MoH

**QAP CLIENT FRIENDLY CLINIC AND QAP APPROPRIATE MANAGEMENT OF ASTHMA**

2016 has witnessed a major progress in the implementation of QAP for Client Friendly Clinic and Appropriate Management of Asthma. For almost 3 years since the discontinuation of the former QAP Web-Based Recording System in 2013, the survey records were documented solely on papers and analysed manually. In 2016, a newly designed QAP Web-Based Reporting System has been developed. Series of trainings on the use of the newly designed system were conducted between June and November 2016 at national level and state level, before and after the launching of the system in early October 2016.

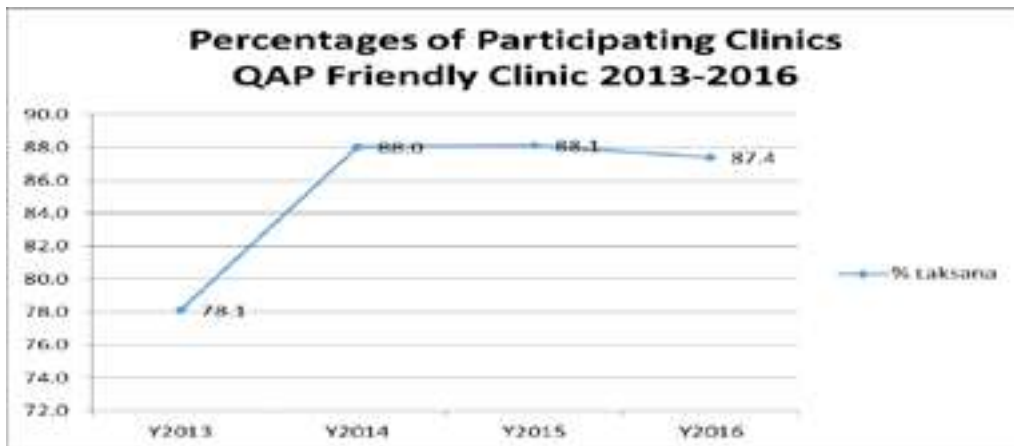
National QAP Friendly Clinic (QAP Klinik Kawanku) has shown usual progress by 1 per cent from 94 per cent to 95 per cent in the median of the percentages of respondents with 80% marks, however with slight decrease in the percentage of nation-wide participating clinics from 88.1% to 87.4%. (Figure 21 and 22)

**Figure 21**  
**QAP Client Friendly Clinic’s Medians of Percentages of Respondents with 80% Marks from 2001 to 2016.**



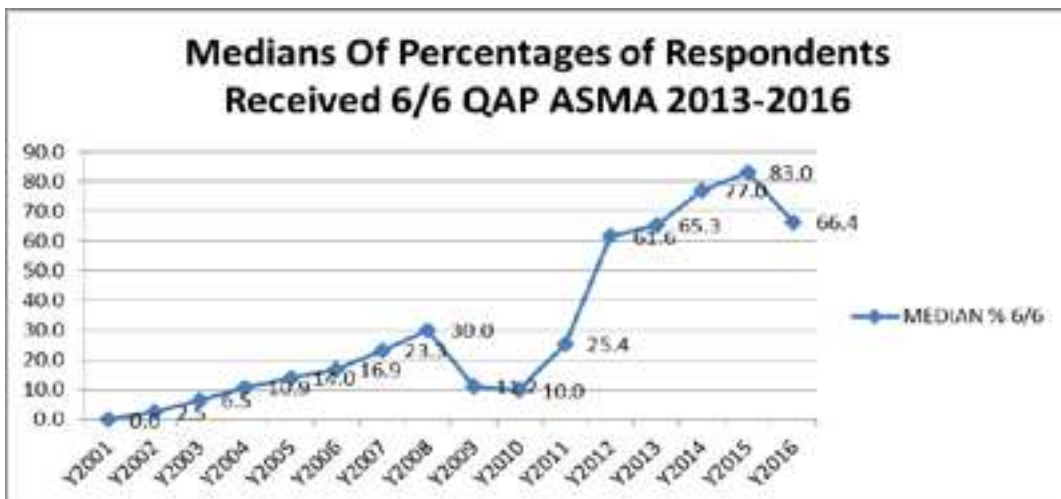
Source: Family Health Development Division, MoH

**Figure 22**  
**QAP Friendly Clinic's Percentages of Nation-Wide Participating Clinics from 2013 to 2016.**



Source: Family Health Development Division, MoH

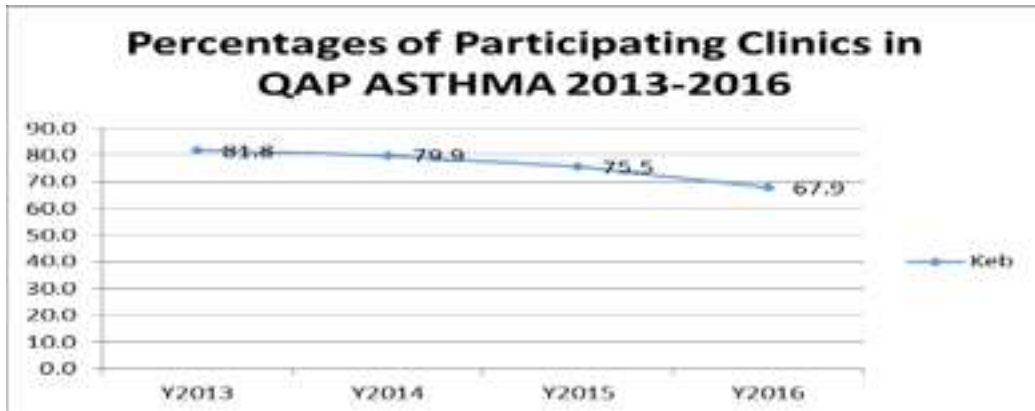
**Figure 23**  
**QAP Asthma's Median of the Percentages of Respondents with 6/6 Marks**



Source: Family Health Development Division, MoH

National QAP Appropriate Management of Asthma, on the other hand, show a significant decrease in both median of the percentages of respondents with 6/6 marks from 83 per cent to 50 per cent and percentage of nation-wide participating clinics from 75.5 per cent to 67.9 per cent (**Figure 24**).

**Figure 24**  
**QAP Asthma's Percentages of Nation-Wide Participating Clinics from 2013 To 2016**



Source: Family Health Development Division, MoH

Notably, there are three issues to be acknowledged as contributors to the significant decreases in percentages of participating clinics of both indicators and National QAP Asthma's performance. Firstly, significant increases in new health clinics opened and upgraded from Community Clinics (*Klinik Desa*) especially in Sabah and Sarawak from 2013 to 2015 have slightly increased the denominators of eligible participating clinics for both indicators. Secondly, the third quarter of the year 2016 was a transition period from the total manual work process to the using of newly designed QAP Web Based Recording System. Despite of the series of Training of Trainers sessions conducted at national level, some states had difficulties in organizing echo-training sessions at their levels especially when the sessions had to be done late in the year. Therefore, there were few states not able to fully make use of the system. Thirdly, inadequate training for new staff with regards to management of Asthma as well as implementation of quality assurance study contributes to the decrease in median of the percentages of respondents with 6/6 marks.

### PRIMARY EMERGENCY MEDICAL CARE

During 2016, emergency health services continued to focus on providing quality care at primary health facilities. 100 per cent response was recorded for emergency cases attended to during office hours. The target for emergency response after office hours was set at 95 per cent and the achieved rate increased from 99.6 per cent in 2015 to 99.7 per cent in 2016. Budget was obtained under *Dasar Baru* 2016 to expand the Emergency Alert System (EAS), which is a computerised system that can monitor the time taken to respond to emergency cases after office hours. With this budget, an additional 234 EAS were installed in the health clinics and community health clinics. Currently, 533 clinics have been connected with this system. In 2016, 20,328 cases were attended through this system and the cases seen within 15 minutes increased from 94.3 per cent in 2015 to 96.3 per cent.

Ambulances are deployed for inter-facility patient transfer or respond to calls from the nearest Medical Emergency Coordinating Centre. In 2016, out of a total 862 ambulances at primary health facilities, 679 (79 per cent) were in good condition, 82 (10 per cent) ambulances deemed faulty and the remaining ambulances were categorised as Beyond

Economic Repair or in the process of being declared BER. Terengganu recorded the largest proportion of ambulances declared BER (16 out of 48). Ninety (90) ambulances were procured and distributed to the health clinics between September 2015 and July 2016 and an additional 17 ambulances were also sent to Kelantan in December 2016. Majority of these ambulances replaced those which were condemned and Beyond Economical Repair (BER).

Training in the management of emergency cases was conducted for the community nurses in Kuala Terengganu and Sandakan. Every state conducted at least one training programme for the ambulance drivers. A technical meeting to discuss issues related to improving emergency services at primary health facilities was held on 27th October 2016 with the state primer officers, emergency physicians and state assistant medical officers.

## PRIMARY HEALTH CARE INFORMATICS

### 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 Ministry of Health Malaysia. 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 per cent of primary care facilities.

**Table 17**  
**Transaction Summary (2010 to 2016)**

Transaction type	2016	2015	2014	2013	2012	2011	2010
Total no. of new patients registered	633,410	540,947	708,487	685,399	749,116	860,415	808,785
Total no. of visits	6,638,760	6,925,753	7,224,046	660,6017	635,6628	611,5264	470,2686
Total no. of medical records (Careplan)	5,689,326	3,290,237	2,474,012	2,332,243	2,043,262	1,390, 212	881,162

Source: Source of Data is from TPC Database.

### DEVELOPMENT OF THE TELEPRIMARY CARE-ORAL HEALTH CLINICAL INFORMATION SYSTEM (TPC-OHCIS)

The decision to assimilate the two existing systems of TPC and OHCIS resulted in a collaborative project between MOH and MIMOS which kicked off in December 2014. The project was funded by a research grant allocated by MOSTI. By middle of 2016 the development phase was completed. The application subsequently underwent a few cycles

of vigorous user acceptance testing. Activities of Provisional and Final Acceptance Tests will be conducted in the first half of 2017. The new system is expected to be in full production by middle of 2017 and will be piloted in Seremban district, Negeri Sembilan.

## OTHER PRIMARY CARE ICT INITIATIVES

The use of HiData system was implemented at all the K1M clinic by August 2016. This is specifically a data entry system for digital collection of clinical patient data. It is an interim system developed to cater to the need of timely data collection until the rollout of TPC-OHCIS

## CLINICAL SUPPORT SERVICES

### HUMAN RESOURCE DEVELOPMENT IN PRIMARY HEALTH CARE

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 the health clinics has increased slightly compared to 2015 as shown in **Table 18**. However, this number is still inadequate to address the population health needs in primary care. Out of 967 health clinics in 2016, the percentage of health clinics with doctor was 26.7 per cent for Family Medicine Specialist and 82.7 per cent, for Medical & Health Officer (**Table 19**).

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 the FRACGP training as a parallel pathway for Family Medicine Specialist training program. The program was conducted by the Academy of Family Physician of Malaysia (AFPM). The total number of medical officers enrolled was 273 in year 2016.

**Table 18**  
**Status of Post Filled by Category (2014 To 2016)**

No	Category	2014	2015	2016
1.	Family Medicine Specialist	250 (107%)	281 (124%)	307 (102%)
2.	Medical and Health Officer	3430 (83.5%)	3643 (98.5%)	4929 (110%)
3.	Pharmacist	1644 (75.5%)	1846 (84.8%)	2149 (98.9%)
4.	Assistant Medical Officer	3758 (81.3%)	4294 (90.0%)	4374 (92%)
5.	Nurse	10,007 (80.1%)	10,943 (87.4%)	11,122 (94.02%)
6.	Pharmacist Assistant	1954 (95.3%)	1950 (95.0%)	2016 (98.3%)

No	Category	2014	2015	2016
7.	Medical Lab Technologist	1777 (88.4)	1856 (92.4%)	1896(92.9%)
8.	Radiographer	404 (94.2%)	410 (95.3%)	399 (92.79%)
9.	Community Health Nurse	14315 (94.1%)	13837 (90.8%)	13,853 (97.2%)
10.	Medical Social Worker*	-	20 (95.2%)	20 (95.2%)
11.	Occupational Therapist*	-	215 (81.4%)	215 (81.4%)
12.	Dietitian*	-	60 (92.0%)	59(91%)
13.	Physiotherapist*	-	308 (86.8%)	332(93%)
14.	Optometrist*	-	1(100%)	1(100%)

\*Additional category monitored under Primary Care in 2015.

Source: Family Health Development Division, MOH

**Table 19**  
**Status of Posts Filled by Healthcare Professionals' in 967 Health Clinics (KK) In 2016.**

No	Healthcare Professionals' in Health Clinics (KK)	No. of Health Clinic & Percentage
1.	KK with Family Medicine Specialist	258 (26.7)
2.	KK with Medical and Health Officer	799 (82.7)
3.	KK with Pharmacist (1 post)	645 (66.8)
4.	KK with Pharmacist (more than 2 posts)	451 (46.7)
5.	KK with Pharmacist Assistant	757 (78.4)
6.	KK without Pharmacist & Pharmacist Assistant	197 (20.4)
7.	KK with Radiographer	195 (20.2)
8.	KK with Medical Lab Technologist	805 (83.0)
9.	KK with Dietitian	59 (6.2)
10.	KK with Physiotherapist	211 (22.0)
11.	KK with Occupational Therapist	168 (17.5)
12.	KK with Medical Social Worker	21 (2.18)

Source: Family Health Development Division, MOH

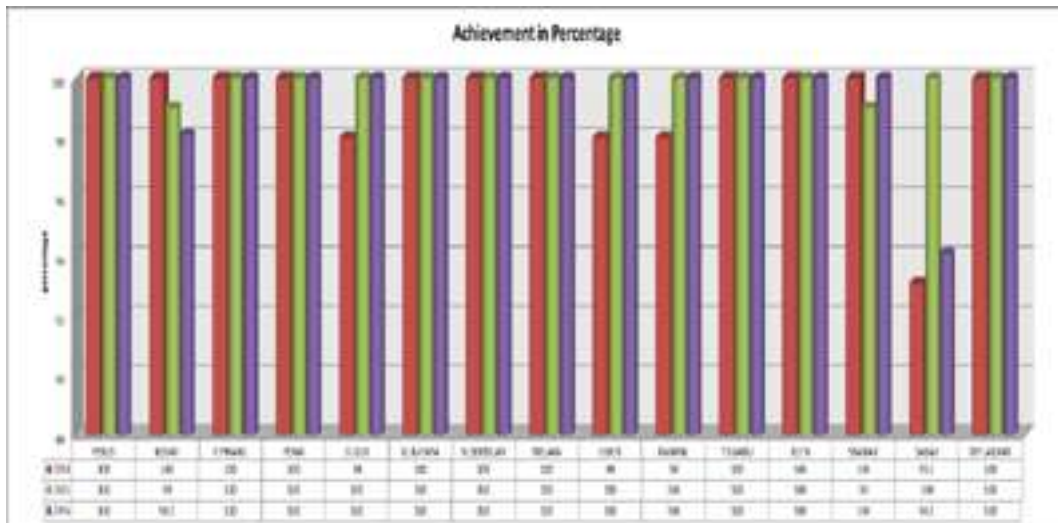
## LABORATORY SERVICES

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. FHDD and the Department of Standards Malaysia had jointly developed a standard quality guideline for the use of public primary care laboratories. With this in place, laboratories that are unable to achieve the MS ISO 15189 standard can obtain the minimum standard that is required to ensure quality of their pathology service.

Another ongoing quality initiative is the lab turnaround time (LTAT) for Full Blood Count (FBC). In 2016, the 607 participating facilities had achieved nearly 100 per cent compliance as illustrated in **Figure 25**. In addition, the newly identified indicator of serum bilirubin

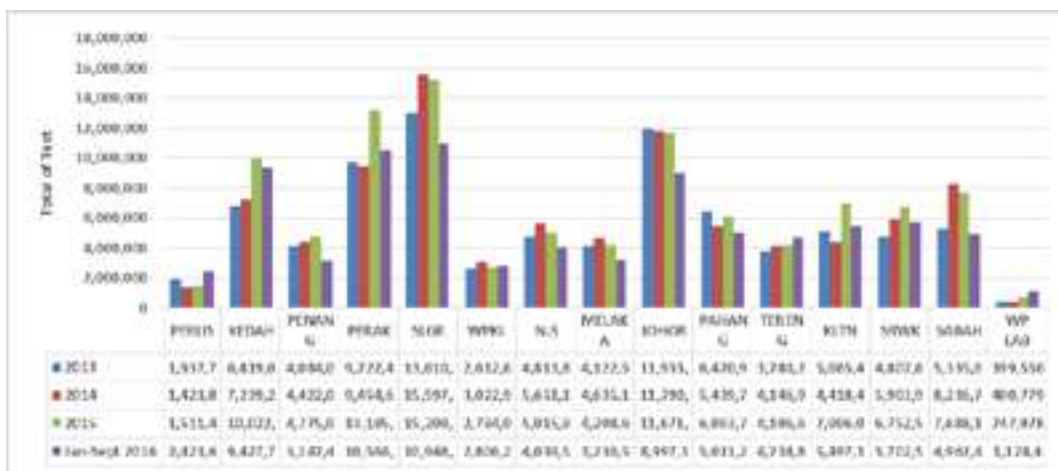
capillary for LTAT had also achieved 100 per cent. The number of Medical Laboratory Technologist in Primary Care Clinics had increased slightly (2.1 per cent) to 1896, as compared to 1856 in 2015. Similarly, there was an increase in the number of laboratory tests requested in the first nine months of 2016 compared to the same period in 2015 (**Figure 26**).

**Figure 25**  
**QAP of Laboratory Services in Primary Care (2014-2016)**



Source: Family Health Development Division, MOH

**Figure 26**  
**Workload of Laboratory Services in Primary Care (2013 - 2015 and Jan - Sept 2016)**



Source: Family Health Development Division, MOH

## RADIOLOGY SERVICES

The national performance for quality assurance program in Radiology Services had achieved the set target of less than 2.5 per cent. The Percentage of Film Rejection had declined from



0.95 per cent in 2015 to 0.84 per cent as indicated in **Table 20**. 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 28 (2015) to 41 clinics (see **Table 21**). In addition, another 34 units will be procured under the Medical Equipment Enhancement Tenure (MEET) project for the next three years. The Health Clinic with Radiology Services had increased by 4.28 per cent from 187 (2015) to 195 clinics. Similar trend was also observed in the workload whereby the number of x-ray examination had increased by 10.88 per cent from 805,122 (2015) to 892,750 (Figure 27).

**Table 20**  
**QAP of Radiology Services in Primary Care (2014 to 2016)**

Parameter	Year		
	2014	2015	2016
Total No. of KK participating	182 / 182 (100 %)	187 / 187(100 %)	195/195(100%)
No. of KK achieve standard	177 / 182 (97.25 %)	183 / 187(97.86%)	193/195(98.97%)
Total Percentage of Reject Film	1.11 % (standard<2.5%)	0.95 % (standard<2.5%)	0.84% (standard<2.5%)

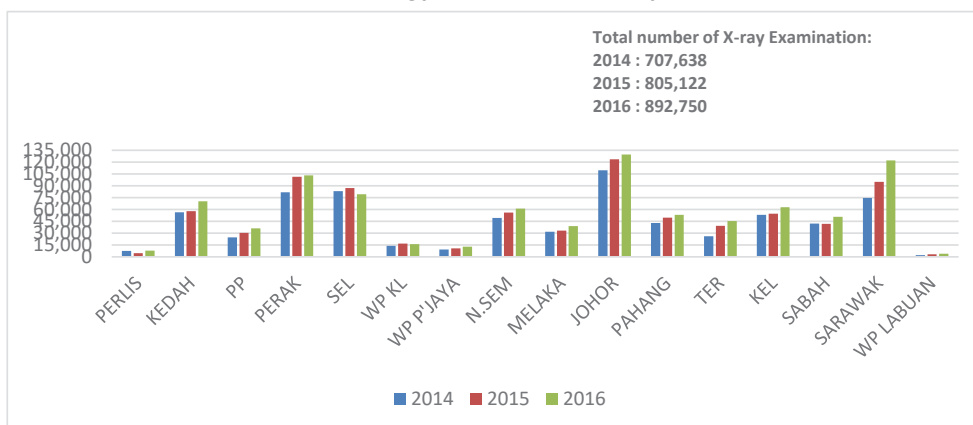
Source: Family Health Development Division, MoH

**Table 21**  
**Number of Facilities with CR System (2014 to 2016)**

Year \ Equipment	Conventional System	Computerized Radiography System	Total
2014	175	7	<b>182</b>
2015	159	28	<b>187</b>
2016	154	41	<b>195</b>

Source: Family Health Development Division, MoH

**Figure 27**  
**Workload of Radiology Services in Primary Care (2014 to 2016)**



Source: Family Health Development Division, MoH

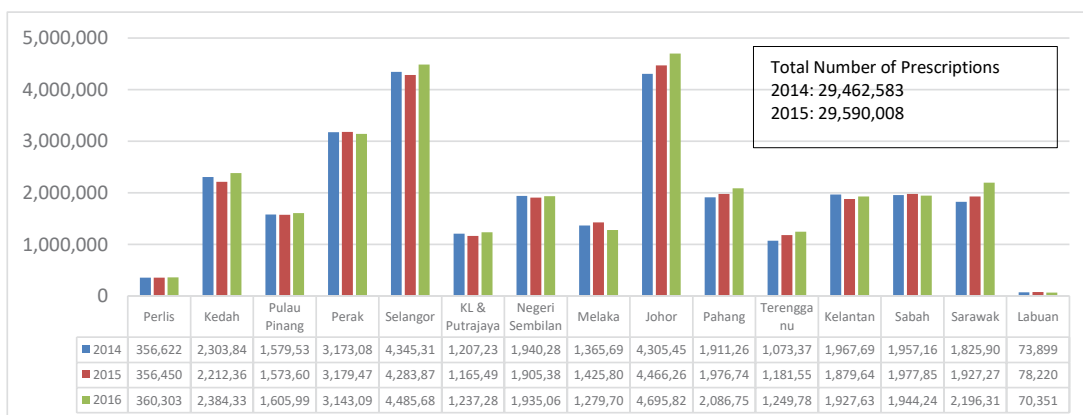


## PHARMACY SERVICES

A total of 863 health clinics (89.3 per cent) were rolled out with the Clinic Pharmacy Information system (CPS) in 2016. This system aims to monitor and integrate drug supply activities within the Ministry of Health facilities, improve efficiency in inventory management as well as to ensure that the use of medicines at each individual level are of good quality, safe and effective.

The number of health clinics with deployment of pharmacy staff had increased to a total of 765 clinics (79.1 per cent) in 2016, an additional of 14 health clinics with pharmacy staff as compared to the previous year. The number of patient counselled had also increased by 7.9 per cent. In addition, there was also an increase of 4.15 per cent, from 229,590,008 to 30,872,392 in the number of prescriptions received at the pharmacy counter in 2016 as compared to 2015.

**Figure 28**  
Number of Prescriptions Received at the Pharmacy Counter, 2014 to 2016



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) in public primary clinics. In 2016, the e-tender and e-bidding process was carried out and the first batch of 1662 Gap equipment consisting of 25 categories were supplied to 424 facilities beginning October 2016.

## INFRASTRUCTURE DEVELOPMENT

The number of primary health care facilities has increased in line with continuous effort to improve health care accessibility and equity to the population. In 2016, there were 3223 static clinics (3207 static clinics in 2015) and 233 mobile health clinics (239 mobile health clinics comprised of 213 mobile health teams (land -169 teams, water - 32 teams and air - 12 teams) and 20 teams operating 11 1Malaysia mobile clinics (KB1M) (seven buses and four

boats). There were also a total of 52 development projects for primary health care facilities under RMK-11, Rolling Plan One which consisted of 49 health clinics and three quarters.

Clinic Support Services [*Perkhidmatan Sokongan Klinik (PSK)*], a new initiative in outsourcing the maintenance of health clinics was implemented in 1<sup>st</sup> July 2015, with a total of 165 clinics was expanded with additional of seven health clinics in 2016 (KK Batu Kawa, KK Petrajaya, KK Sg Asap, KK Belaga, KK Bintulu, KK Presint 18 Putrajaya and KK Kuala Lumpur).

The Medical Brief of Requirement (MBOR) prepared for RMK-9 projects was completed reviewed in 2016 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 MBOR will be used as reference for new clinics that will be developed under RMK-11 projects. Meanwhile the standard design for each type of clinics has also being identified. For RMK-11, the standard design for Type 2 and 3 is in being finalised, 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.

In 2016, of the 25 projects presented during the Ministry level Outcome Assessment Workshop, 14 were primary health care facilities, comprising ten (10) health clinics and four (4) community clinics. Of the five (5) projects chosen to be presented at the central level Outcome Assessment Committee, three (3) primary health care facility projects, namely, Type 3 Tumpat Health Clinic with Quarters, Type 2 Putrajaya Presint 18 Health Clinic and Linggiu Community Clinic scoring 90.6 per cent, 90.0 and 91.7 per cent, respectively.

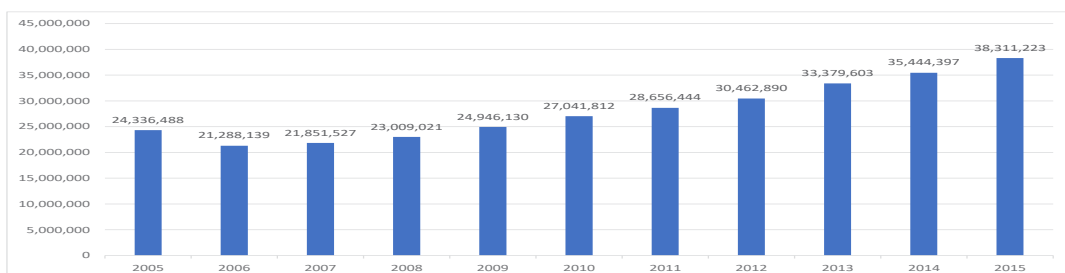
## PRIMARY MEDICAL CARE SECTOR

Primary Medical Care Sector is responsible for ensuring medical services delivered at the health clinic are integrated throughout the components of health promotion, disease control, and emergency services. This sector also in cooperating with various divisions in the Ministry of Health such as Disease Control Division in the execution and monitoring the quality of the clinical program conducted at health clinics.

### Outpatient Attendance

Outpatient attendance in health clinics by year increasing every year since 2008 (**Figure 29**). In 2014, the outpatient attendance increased by 6 per cent, while for 2015, an increment of outpatient attendance rise by 8 per cent.

**Figure 29**  
**Outpatient Attendance in Health Clinics, 2005 to 2015**



Source: Health Informatic Center, MoH

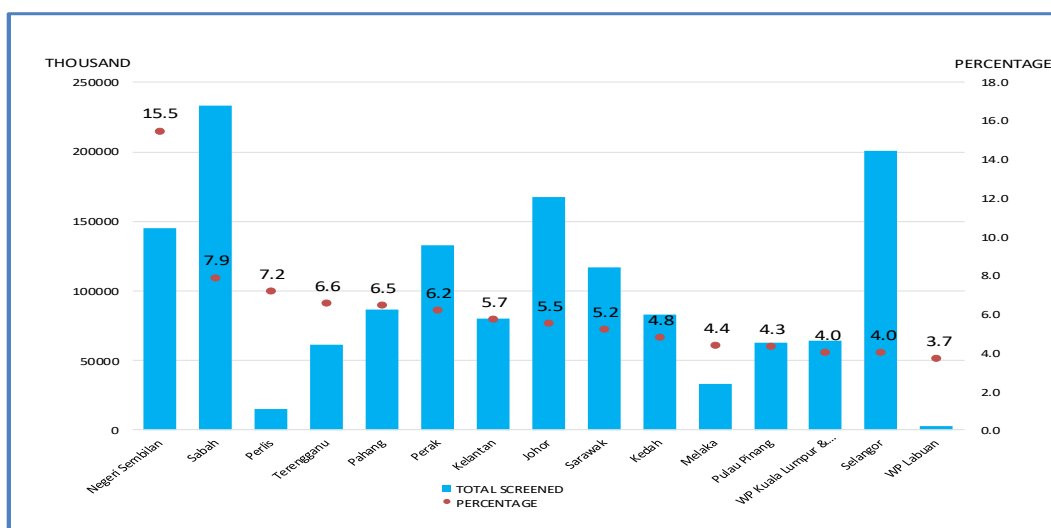
## Integrated Health Screening

Integrated Health Services was introduced in 2008 with aims to provide comprehensive health services and reduce the burden of disease. The achievement of the integration between the health screening and health risk intervention components measures the effectiveness of the Integrated Health Services approach. Health screening is conducted using a screening form - Health Status Screening Form (*Borang Saringan Status Kesehatan*, BSSK) for specific age groups which includes youths aged between 10 and 19 years old, adult men and women between 20 to 59 years and elderly aged 60 years and above.

The screening was expanded to the population in the health clinic's operational area. Thus 5 per cent of each age group population had been targeted to be screened. Each health clinic was responsible for screening 5 per cent of their adolescent population, 5 per cent of their male adults, 5 per cent of their female adults and 5 per cent of their elderly. The target for each state was set based on the population of the year 2015.

The health screening is not limited to the health clinic only. The service can also be carried out during health activities in the community. In 2016 a total of 1,483,532 clients have been screened, and this represents 5.8 per cent of the estimated total population of 25,770,700 Malaysian in 2015, aged 10 years and above, and it has achieved the set target of 5 per cent. Nine states that achieved the target of 5 per cent of the population screened as shown in **Figure 30** were Negeri Sembilan, Sabah, Perlis, Terengganu, Pahang, Perak, Kelantan, Johor, and Sarawak.

**Figure 30**  
Integrated Screening Achievement According to the Number of Actual Screening



Source: BSSK Screening, Family Health Development Division, MoH, 2016.

From those who were screened, a total of 75,828 people (41 per cent) were found to have at least one health risk. The three main risks detected among them were overweight (14 per cent), physical inactivity (11 per cent) and poor diet (7 per cent). For those with risks; health risk interventions have been carried out. Promotion of a healthy lifestyle and health

education were the commonest health risk interventions carried out, followed by health advice and counselling.

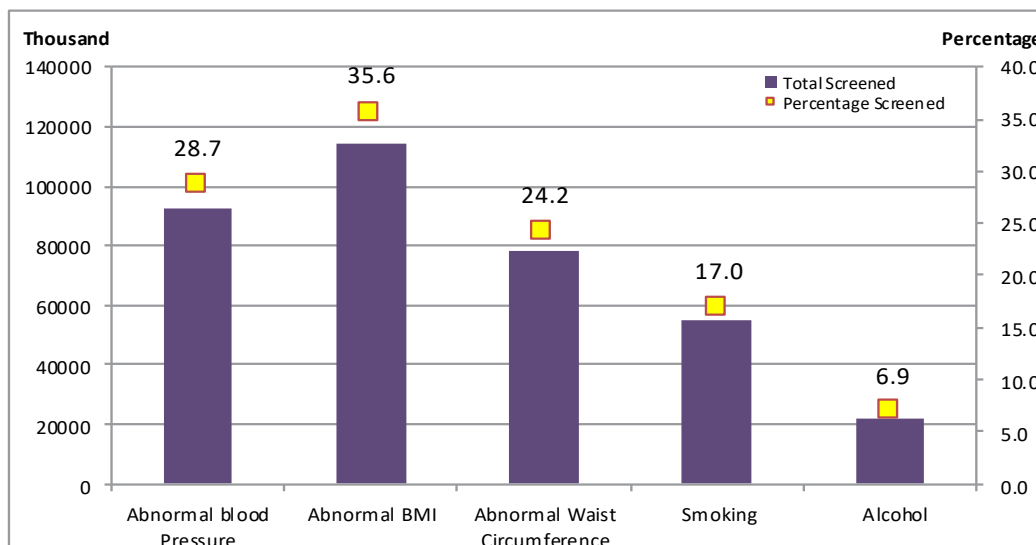
### Self-Examination (Self-Monitoring) Services in Health Clinics

This service was introduced in 2009 by providing tools for clients in health clinics for assessing their health by self-measuring their blood pressure, body mass index, and waist circumference. In addition, screening of smoking status and alcohol consumption of the clients were also provided.

In 2016, the service was offered by 771 health clinics across the country. A total of 321,658 clients had carried out self-examination in the clinics. The majority of them (59 per cent) were adults between 20 to 59 years old. The number of users has increased compared to 238,170 clients in 2015. The examination is also often carried out by clients with chronic diseases while waiting to get treatment at health clinics.

From the self-examination done in health clinics, it was found that 36 per cent of clients had abnormal BMI, 28 per cent had abnormal blood pressure, 24 per cent had abnormal waist circumference, 17 per cent were smokers and 7 per cent consumed alcohol, as shown in **Figure 31**.

**Figure 31**  
Percentage of Detected Health Risk during Self-Examination in Health Clinic



Source: Self Screening, Family Health Development Division, MoH, 2016.

### Quit Smoking Services in Health Clinic

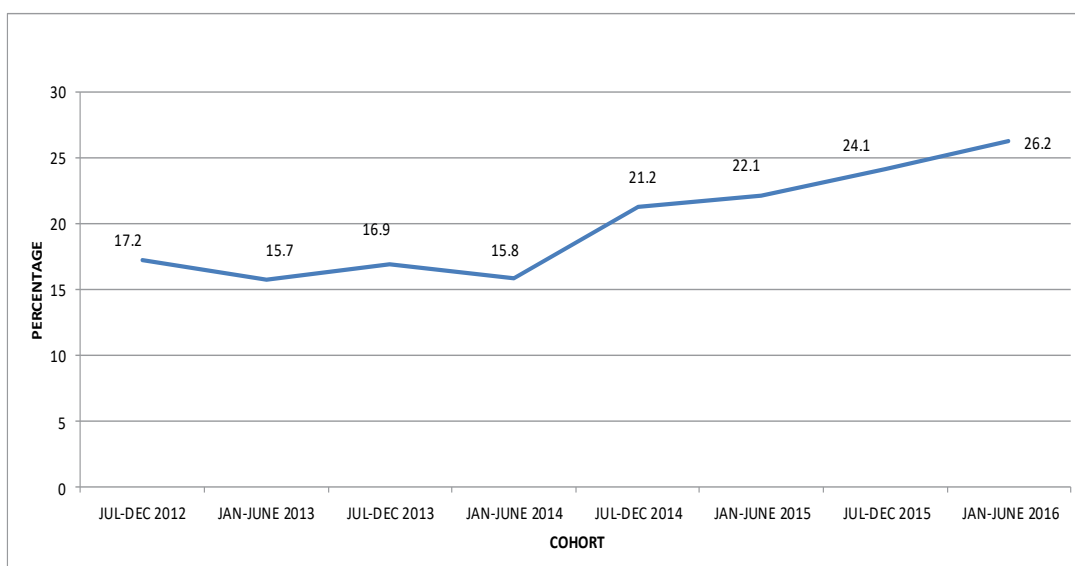
Quit Smoking Service has been developed in the clinic since 2000. This service requires trained personnel (whether of Family Physicians, Medical Officer, pharmacists, medical

assistants, nurses) and equipped with the appropriate equipment. Client of Quit Smoking Services was referred from outpatient services of the health clinic.

At the beginning of the establishment of Quit Smoking Service, the only services provided were counseling and treatment known as 'Nicotine Replacement Therapy'. Varenicline was introduced in health clinics. From 2000 to 2010, the numbers of active health clinic run smoking cessation services are 326 clinics and had increased to 507 by 2016. Efforts will be continued to improve the quality and expand the service nationwide.

In 2016, a total of 9,570 clients has enrolled in the smoking cessation services in health clinics. The rate of smoking cessation for clients registered at the health clinic was targeted by 20 per cent. Out of 3,947 registered clients from July to December 2015, a total of 951 (24.1 per cent) people has successfully quit smoking on Jan - June 2016. For the cohort, Jan - June 2016 a total of 4835 registered a total of 1265 clients (26.2 per cent) successfully quit in July - December 2016. The valuation of the cohort from July to December 2016, will be completed in June 2017. The trend of quit rate in health clinics is shown in **Figure 32**.

**Figure 32**  
**Trends in Achievement Rate Quit Smoking Clinic, Cohort 2012 to 2016**



Source: Family Health Development Division, MoH, 2016

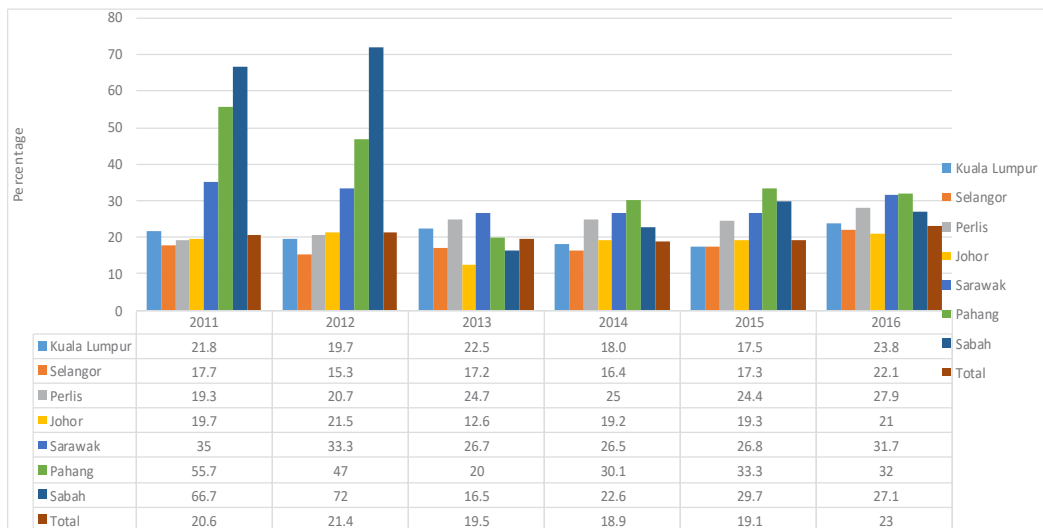
## CONTROL OF NON-COMMUNICABLE DISEASES IN PRIMARY HEALTH CARE

### Diabetes Mellitus

The quality of care for diabetes patient at health facilities Ministry of Health indicated by the percentage of patients with HbA1c levels whether less or equal to 6.5 per cent. Data sources for this indicator are obtained from the system Teleprimary Care (TPC) in 7 states. The target for this indicator is at least 30 per cent of patients with diabetes have HbA1c levels of regulation less or equal to 6.5 per cent.

In 2016, a total of 286,407 cases of diabetes were registered into the system TPC. Out of a total of 286,407, only 67,992 (23.7 per cent) patients have performed the HbA1c test, which is only 41,041 (60.4 per cent) HbA1c results are recorded in the system TPC. Data was analyzed from 85 clinics with the TPC system. **Figure 33** shows that the control status of diabetes varies by states but is highly influenced by the quality of HbA1c data that were entered into the system TPC. There was a slightly increased in the rate of diabetes control (HbA1c) of 18.9 per cent (2014), 19.1 per cent (2015) to 23.0 per cent (2016).

**Figure 33**  
**Status of Diabetes Control in Health Clinic from TPC Data, the year 2011 to 2016**



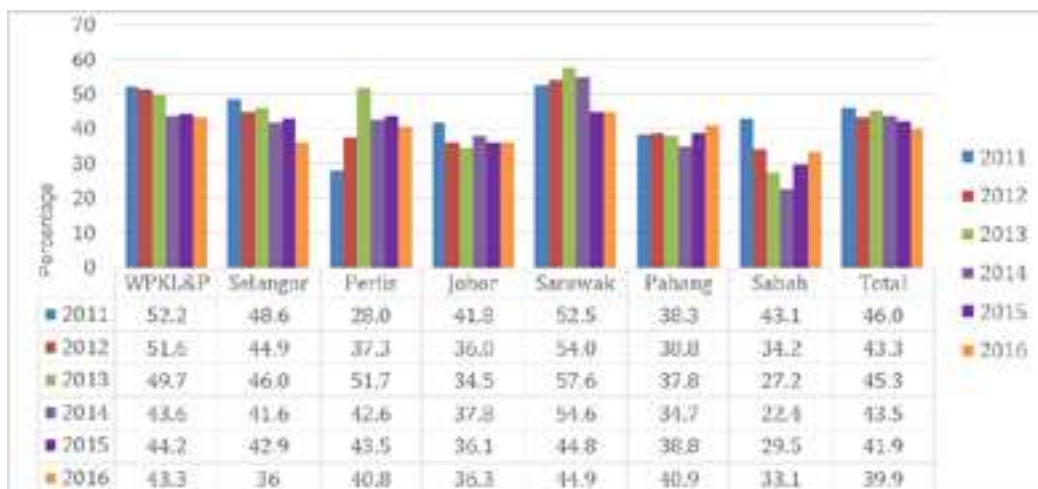
Source: Unit Pusat Infomatik, Bahagian Pembangunan Kesihatan Keluarga, KKM, 2016

## Hypertension

Hypertension is also one of the main burdens of NCDs in health clinics. The quality of care shown by the percentage of patient with controlled hypertension which is blood pressure less than 140/90 mmHg. The target is at least 50 per cent of hypertensive patients in health clinics are well controlled.

Only 66,589 cases of hypertension from 68,366 (97.4 per cent) cases filled HPT blood pressure levels in the system TPC. A total of 26,582 (39.9 per cent) had blood pressure <140/90. As shown in **Figure 34**, only 39.9 per cent of patients with controlled hypertension in 2016 compared to 41.9 per cent in 2015. As hypertension control data, this analysis is limited by the completeness of the data entered into the system TPC.

**Figure 34**  
**Status Control Hypertension Patients Health Clinic Based Data TPC, Year 2011 to 2016**



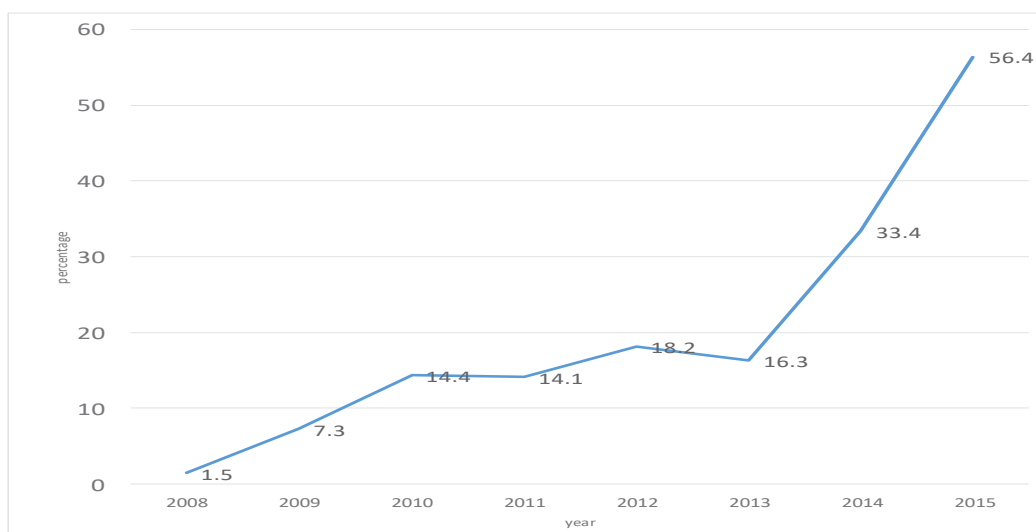
Source: Information System Center, Family Health Development Division, MoH, 2016

## COMMUNICABLE DISEASES MANAGEMENT IN PRIMARY HEALTH CARE

### Vector Borne Diseases

The rate of Dengue notification from health clinics, targeted at 30 per cent, had increased to 56.4 per cent in 2015 as compared to 33.4 per cent in 2014, as shown in **Figure 35**.

**Figure 35**  
**Percentage of Dengue Notification in Health Clinics, 2008 to 2015**



Source: Disease Control Division, MoH, 2016.

## Management of HIV

HIV management in primary health care includes health education, screening, antiretroviral therapy, opportunistic infection screening and treatment that required long-term follow-up.

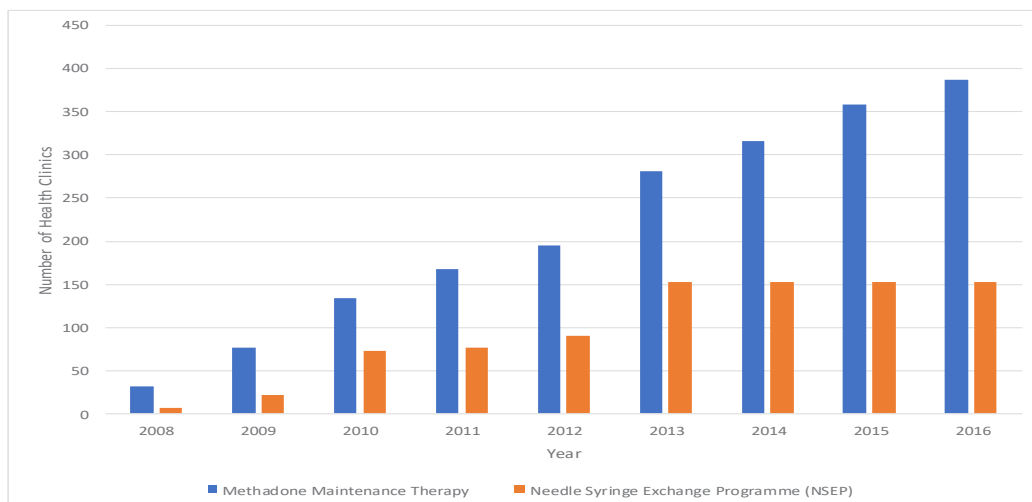
The screening program comprises of anonymous screening, premarital screening, and antenatal screening. In 2016, 139,044 premarital screening and 22,354 anonymous screening were done. 97.36 per cent of Tuberculosis infected patients were screened for HIV.

Anti-Retroviral therapy (ARV) for HIV patients at the health clinics was started in 2000, managed by trained Family Medicine Specialist (FMS). In 2016, 267 FMS were trained by Infectious Disease Specialists in designated hospitals and 262 (98 per cent) of them had initiated ARV treatment. Currently, a cumulative total of 7,035 patients had received ARV treatment in the year 2016 as compared to 4,450 in the year 2015.

## Harm Reduction Programme

Methadone Maintenance Therapy (MMT) and Needle Syringe Exchange Programme (NSEP) were started in health clinics in 2005 and 2008 respectively. In 2016, 387 health clinics provided MMT with 1,305 new patients registered and a retention rate of 71.4 per cent. The Needle Syringe Exchange Programme (NSEP) was implemented at 152 health clinics and with 2,645 registered patients. The number of participating clinics has not yet reached the target yet due to lack of promotion among the target groups as well as the lack of trained staff.

**Figure 36**  
**Total number of Health clinic with Needle Syringe Exchange Programme (NSEP)**



Source: HIV/AIDS Sector, Control Disease Division, MoH, 2016

## Mental Health Services in Primary Care (Health Clinics)

Mental health is one of the main components of health. Mental health services have been integrated into the primary health care services since the end of 1990. Services include promotion of well-being, prevention of mental disorders, mental health screening, treatment and rehabilitation of people affected by mental disorders.



Promotional activities had been carried out as part of the Healthy Lifestyle Campaign. Screening for mental health disorders had been carried out as part of the integrated health screening in the health clinics, using a standardized screening form, BSSK (Borang Saringan Status Kesihatan), for adolescent, adult and elderly. Healthy Mind Services are also being carried in health clinics to screen for stress, anxiety, and depression. Sixteen (16) health clinics provided psychosocial rehabilitation for people affected by mental disorders.

### Mental Health Screening

For the year 2016, a total of 1,483,532 of outpatient attendance had been screened for risk of mental health problems using the BSSK screening format. Out of this, 21,948 (1.5 per cent) were identified to have a risk of mental health problems (**Table 22**). The elderly had the highest proportion of those detected at risk for mental health problems.

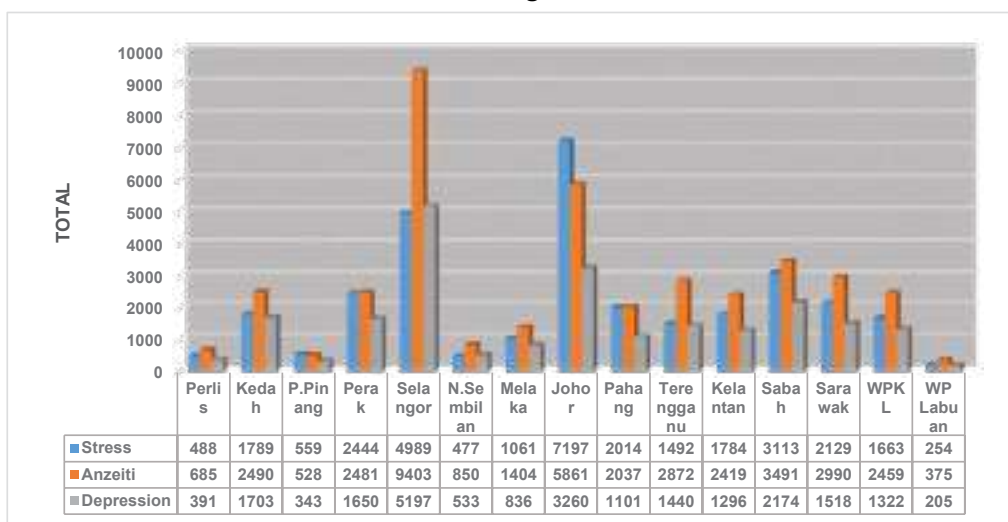
**Table 22**  
Number of People Screened and Percentage of Mental Health Risks by Age Group, 2016

Age Group	Total Screened	Total Clients with Mental Health Risks	Percentage (%)
Adolescent	412571	5036	1.2
Male Adult	380137	4417	1.2
Female Adult	444527	5985	1.4
Elderly	246297	6510	2.6
<b>TOTAL</b>	<b>1483532</b>	<b>21948</b>	<b>1.5</b>

Source: BSSK Screening, Family Health Development Division, MoH.

A total of 310720 has been screened using DASS (Depression Anxiety Stress Scales). Out of this, 28521 (9.2.0 per cent) have Stress 40345 (12.9 per cent) have Anxiety, and 22969 (7.4 per cent) have Depression.

**Figure 37**  
Mental Health Screening in then Health Clinic, 2016



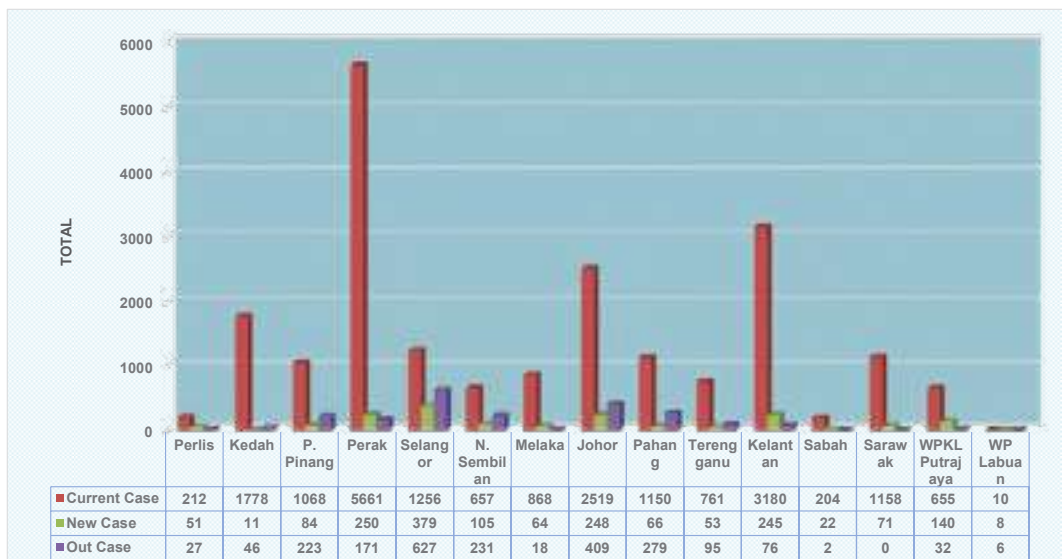
Source: Family Health Development Division, MoH

### Treatment of Stable Mental Health Patients in Health Clinics

For the year 2016, a total of 21137 cases received treatment at health clinics. Out of this, 8.5 per cent (1797) were new cases.

Stable cases that were on follow-up in health clinics were given pharmacological treatment, counselling and in selected health clinics, psychosocial rehabilitation. Their compliance to treatment was monitored to prevent relapses and in 2016, the defaulter rate of 6.2 per cent (1303 cases) was noted, within the WHO standard of not more than 10 per cent.

**Figure 38**  
**Cases of Mental Health Patients in Health Clinics**



Source: Family Health Development Division, MoH

### Psychosocial Rehabilitation Centre in Health Clinics

There were 16 psychosocial rehabilitation centers established in health clinics. The main objective of these centers is to assist mentally ill patients to understand and control their illness, to achieve an optimal level of function and to integrate them back into the community. A total of 207 clients attended rehabilitation at these centers.

With the recent Mental Health Act 2001 and Mental Health Regulation 2010 taking effect, these psychosocial rehabilitation centres will be upgraded into community mental health centres, run by the psychiatric services monitored by Hospital Development Division, which will provide a more comprehensive services (screening, intervention, treatment and rehabilitation) for people with mental health problems.

### Haemodialysis Service in Health Clinics

Haemodialysis Services is a service provided at the hospital. However, this service is required also in the clinic to expand the access of this service in the rural areas. Starting in 2013, the Ministry of Health held a service at a health clinic in stages according to local needs and based on the capabilities of the available resources. The choice of location is based on

several factors including the distance of the location to the existing haemodialysis services in private hospitals or dialysis centers, and the number of patients who require a local public haemodialysis. The unit operates using the existing health personnel from the nearby hospital.

**Table 23**  
**List of Health Clinics that Provides Haemodialysis Services**

Year	Health Clinics with dialysis services
2013	Klinik Kesihatan Simpang Renggam, Johor Klinik Kesihatan Kodiang, Kedah
2014	Klinik Kesihatan Song, Sarawak Klinik Kesihatan Sungai Lembing, Pahang Klinik Kesihatan Mahligai, Bachok
2015	Klinik Kesihatan Debak , Betong, Sarawak
2016	Klinik Kesihatan Bestari Jaya, Selangor Klinik Kesihatan Bandar Mas, Johor Klinik Kesihatan Chiku 3, Kelantan Klinik Kesihatan Batu Niah, Miri, Sarawak Klinik Kesihatan Tatau, Bintulu, Sarawak

Source: Family Health Development Division, MoH

### **1Malaysia Clinics (*Klinik 1Malaysia*)**

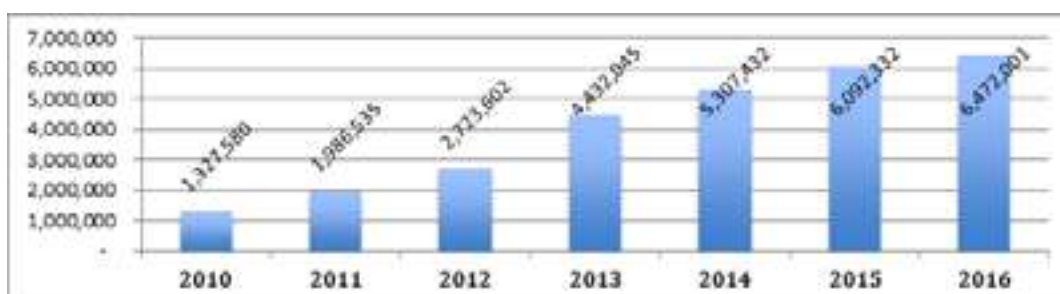
The establishment of *Klinik 1Malaysia* is aimed at improving the accessibility of primary healthcare to the urban poor. A total of 30 new *Klinik 1Malaysia* were opened in 2016. Due to an ongoing freeze of new posts since 2015, these were operated by the deployment of existing staff.

In 2016 also saw the establishment of *Klinik 1Malaysia* within an existing Klinik Desa premise at localities that have undergone urbanization. This would help reduce its long-term operational cost and allows for effective utilization and sharing of resources. However, their operation remains separate as both serve different

A total of 360 K1M operates in 2016 with 16 K1M located at UTC and 7 K1M in RTC. Throughout the year, the focus has been made to enhance management of Chronic Non-Communicable Disease (NCD) at *Klinik 1Malaysia*. A total of 74 *Klinik 1Malaysia* now offers such treatment. Placement of Medical Officers has been expanded to include 102 *Klinik 1Malaysia* nationwide. Out of these, 40 of them have a permanent post while the rest are posted on a rotational basis from neighbouring health clinics.

With these improvements, the number of clients receiving treatment at *Klinik 1Malaysia* increased to over 6.4 million.

**Figure 39**  
**Yearly Klinik 1Malaysia Attendance Trend from 2010 to 2015**



Source: Family Health Development Division, MoH

**Table 24**  
**Total Registered Diabetes and Hypertension in K1M, 2015 to 2016**

No	State	Existing DM Cases (end 2015)	New DM Cases In 2016	Total DM Cases Jan – Dec 2016	Existing HT Cases (end 2015)	New HT Cases In 2016	Total HT Cases Jan – Dec 2016
1.	Perlis	99	2	101	383	10	393
2.	Kedah	2	0	2	12	0	12
3.	Penang	124	27	151	246	31	277
4.	Perak	43	0	43	159	2	161
5.	Selangor	72	1	73	74	0	74
6.	WPKL	98	10	108	388	15	403
7.	N. Sembilan	12	0	12	11	0	11
8.	Melaka	6	2	8	192	6	198
9.	Johor	1078	38	1116	1042	35	1077
10.	Pahang	183	10	193	240	9	249
11.	Terengganu	84	1	85	170	3	173
12.	Kelantan	1263	102	1365	2509	166	2675
13.	Sarawak	54	1	55	1215	33	1248
14.	Sabah	362	5	367	1441	21	1462
15.	WP Labuan	0	0	0	47	0	47
<b>Malaysia</b>		<b>3480</b>	<b>199</b>	<b>3679</b>	<b>8129</b>	<b>331</b>	<b>8460</b>

Source: Family Health Development Division, MOH

### Primary Health Care Dietetic Services

Primary Health Dietetic Service has entered its 6th-year service. Started with 11 posts in health care clinics nationwide. Currently, in 2016, 66 dietitians are posted in health care clinic. Total post, vacant and coverage as stated in **Table 25**. In 2014, the first dietitian was posted in Family Health Division. As for now, we have 2 dietitians in this division.

**Table 25**  
**Dietitian post, vacant post and dietetic coverage in Health Care Clinic 2016.**

State	No of dietitian post	Vacant Post	Dietetic coverage (no of clinic)
Perlis	1	1	5
Kedah	4	4	18
Penang	2	2	17
Perak	3	3	13
Selangor	8	8	29
Negeri Sembilan	5	4	18
Malacca	4	4	21
Johor	5	5	21
Pahang	5	3	20
Terengganu	7	7	42
Kelantan	4	4	27
Sabah	4	4	8
Sarawak	4	4	8
WPKL & PJ	10	10	21
<b>Total</b>	<b>66</b>	<b>63</b>	<b>268</b>

Source: Family Health Development Division, MoH

Started with Managing Medical Nutrition Therapy (MNT) for referred case especially non-communicable diseases such as diabetes, hypertension, morbid obesity and dyslipidemia. Now, dietetic scope extended to nutrition support therapy for bedridden patients in domiciliary health care services. The extension of services also involves in managing MNT for disable children in Community Based Rehabilitation Centre. The dietetic workload was increased tremendously more than 500 percent in 6 years. The dietetic workload in 2016 as presented in **Table 26**.

**Table 26**  
**Workload of Primary Health Care Dietetic Services**

No	Program	No Of Session / Visit / Program		No Of Case / Client	
		2015	2016	2015	2016
1.	Outpatient (Individual)	NA	NA	50,990	55,772
2.	Group counselling/ MDT / Health Education Class	3,477	3,594	17,476	19,289
3.	Domiciliary Health Care (PPD)	309	443	589	879
4.	Community Based Rehabilitation (PDK)	50	108	263	482
5.	Other outreach Program	11	67	373	1,389
6.	Health Promotion	279	313	13,157	16,971

Source: Family Health Development Division, MoH

Reduction of HbA1c among diabetes patients receiving MNT within 6 months was a monitor as dietetics' indicator. It was started in 2015 and targeting 60 percent of patients reduced 1 per cent of HbA1c in stipulated period. Quality indicator achievement as in **Table 27**.

**Table 27**  
**Quality indicator for Primary Health Care Dietetic Services 2015 & 2016**

No	Activities	Quality indicator	Target	2015	2016
1.	Patients attendant for dietetic consultation at health care clinic	Percentage of attendance compared to appointment given	≥75%	34,153/47,952 (71.2%)	34,690/50,156 (69.2%)
2.	Reduction of 1% of HbA1c within 6 month post dietetic consultation	Percentage of HbA1c reduction	60%	512/962 (53.2%)	696/1,089 (63.9%)

\*cohort Jan – June 2016

Source: Family Health Development Division, MOH

## MATERNAL HEALTH CARE

Maternal health care essentially monitors the well-being of the mother and baby during pregnancy and continues during intrapartum and postnatal. Malaysia has made great progress in improving maternal health care and services towards MDG 5. In 1990, the antenatal coverage for at least one visit was 78.1 per cent, increased to 98% in 2013, but has slightly reduced to 94.8 per cent in 2016. Between 1990 and 2015, the average antenatal visit per person has improved from 6.6 to 10.8 visits in 2016. However Malaysia is yet to capture data on the coverage of mothers who had at least 4 antenatal visits. The coverage for tetanus toxoid immunization among antenatal mothers was 95 per cent in 2016. Proportion of deliveries conducted by skilled health personnel (safe deliveries) remained high above 98 per cent since 2010.

**Table 28**  
**Maternal health coverage in Malaysia, selected years 1990 to 2016**

	1990	2000	2010	2011	2012	2013	2014	2015	2016p
Estimated No. of Pregnant Mothers	676,382	691,664	587,479	565,072	580,536	592,489	592,489	588,645	584,824
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%	573,631 96.5%	554,721 94.8%
Average Antenatal Visits per Mother	6.6	8.5	10	9.8	10.02	9.9	10.6	10.5	10.8
Tetanus Toxoid Immunisation	414,445 81.7%	449,608 86.8%	432,581 84.6%	451,323 91.8%	466,666 92.44%	461,845 89.6%	478,206 92.8%	476,578 93.1%	466,903 95.0%

	1990	2000	2010	2011	2012	2013	2014	2015	2016p
Coverage (2 <sup>nd</sup> & Booster Dose)									
Total Deliveries	476,196	507,891	439,447	448,886	455,650	453,048	461,220	451,803	461,561
Safe Deliveries	92.8%	96.6%	98.6%	98.6%	98.7%	98.8%	98.9%	99.4%	99.5%
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%	458,893 98.2%

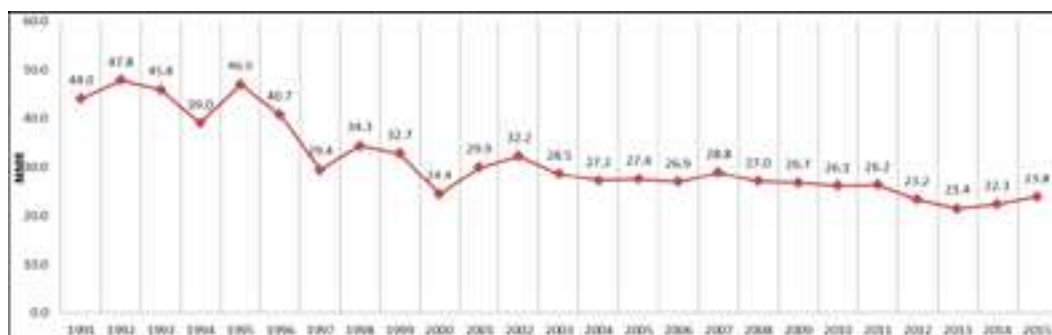
Source: Health Informatics Centre, Ministry of Health Malaysia.

Note: Data for 2016 is preliminary.

## Maternal Death

After year 2000, Malaysia had minuscule reduction of maternal mortality ratio (MMR), and the situation is very challenging for the country to achieve Millennium Development Goal 5. In 2004, MMR was 27.2 per 100,000 live births (LB) but plateaued for the next few years. The MMR began to decline from 2011 on-wards until 21.4 per 100,000 LB in 2013 but began to rise again to 23.8 per 100,000 LB in 2015 (**Figure 40**). The four common causes of maternal deaths in Malaysia were Associated Medical Conditions, Postpartum haemorrhage, pulmonary embolism and Hypertensive Disorders in pregnancy.

**Figure 40**  
**Maternal Mortality Ratio in Malaysia: 1991 to 2015**



Source: Department of Statistics Malaysia. Data for 2015 is preliminary

## Family Planning Services

The Ministry of Health 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 2016 was 115,899 new acceptors. It has reduced compared to the total of 120,738 new acceptors in 2015. However, the number of active users has slightly increased from 331,825 in 2015 to 336,343 in 2016. The most popular contraceptive method used in year 2016 was contraceptive pill (48.1 per cent) followed by progestogen-only injection (37.7 per cent), male condoms (7.7 per cent) and intrauterine device (2.5 per cent).

As one of specific initiatives for safe motherhood among high-risk women, two indicators i.e. practice indicator and quality indicator; were introduced in 2011. It is to accentuate the need for high risk women in optimising 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 as quality indicator. The targets are 80 per cent and 70 per cent, respectively. As for 2016, practice indicator was 80.7% and quality indicator for cohort 2014 was 73.3 per cent.

### **Highlights and the Way Forward**

As the beginning of SDG timeframe approaches, a one-day workshop was conducted in November 2016 to brainstorm the priority areas in maternal health as a preparation for country action plan of SDG. We reflect on the MDG experiences and contemplate the issues that remain relevant in post -2015 era; and continue to implement successful initiatives. Under Goal 3 SDG, the target is to reduce the MMR by two-thirds from the 2010 baseline by 2030, which makes the target for Malaysia from 26.1 per 100,000 LB in 2010 to 8.7 per 100,000 LB in 2030.

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. Two important surveys were conducted by the Institute for Public Health (IKU) in collaboration with FHDD, namely National Health and Morbidity Survey (NHMS) 2015-2016: Maternal and Child Health and Postnatal Depression: Malaysia ASPIRE\* Project.

FHDD has released 3 publications/ printed materials in 2016. Those were Training Manual on Management of Postpartum Haemorrhage (PPH) 2016, *Manual Perkhidmatan Kesihatan Ibu dan Anak bagi Anggota Kejururawatan di Perkhidmatan Kesihatan Awam* and poster on pre-pregnancy care and accessible on FHDD website <http://fh.moh.gov.my/v3/>. A national training on safe motherhood was conducted to health providers in August 2016.

## **CHILD HEALTH SERVICE**

Child health service provided through the health facilities for children aged 0 to 6 years encompasses services ranging from health promotion activities, preventive services, growth and developmental screening for early detection and intervention, treatment and rehabilitation services. In 2016, 76.5 per cent of children aged below 1 year, 46.7 per cent of toddlers between 1 year to 4 years and 22.5 per cent of pre-schoolers (5-6 years) received services from MOH facilities.

### **National Immunisation Programme**

The National Immunisation Programme, a preventive strategy to reduce vaccine preventable diseases has been implemented for more than 60 years. Through this programme Malaysia has been declared as polio-free since 2000 and now aims to eliminate measles. Due to the increase of measles cases among children aged less than 1 year the National Immunisation Schedule was revised. Beginning 1 April 2016, MMR vaccination is given to children at ages 9 months and 12 months. Coverage for MMR is based on number of children receiving immunisation at 12 months of age. Immunisation coverage for the all vaccinations is > 95 per cent (**Table 29**).



**Table 29**  
**National Immunisation Coverage, Malaysia, 2011 to 2016p**

Year	Immunisation Coverage									
	*DPT (3 <sup>rd</sup> dose)		*Polio (3 <sup>rd</sup> dose)		*Hib (3 <sup>rd</sup> dose)		*Hep. B (3 <sup>rd</sup> dose)		**MMR	
	No.	%	No.	%	No.	%	No.	%	No.	%
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	510,349	97.93	508,112	98.62	486,917	93.07
2016p	510,556	97.97	510,556	97.97	510,349	97.93	511,610	98.17	500,799	95.72

Source: Health Informatics Centre, MoH

Denominator – \*Estimated live births

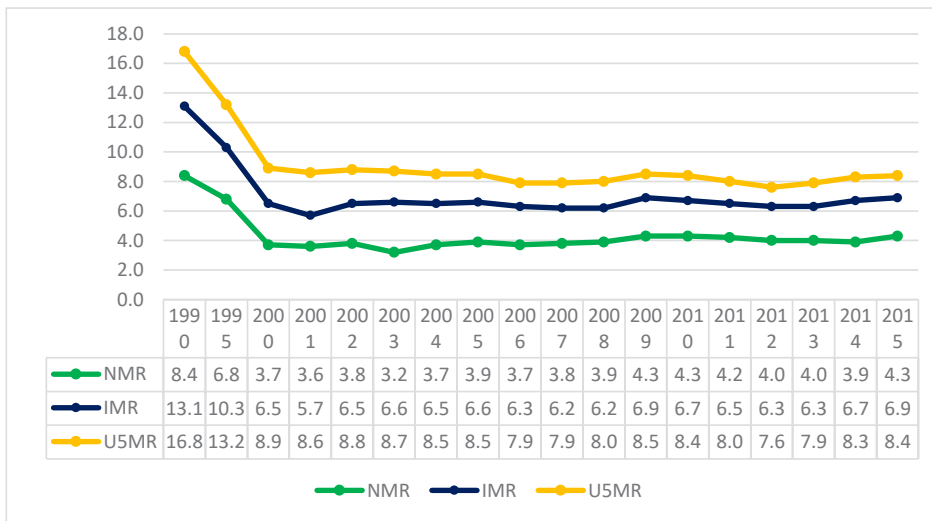
\*\* Data 2016 from Family Health Development Division, Denominator Estimated number of children 1-<2 years

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

Under-5 and Infant Mortality Rates showed a decline by 50% from 1990 to 2000 but despite vigorous efforts by the Ministry of Health to achieve Millennium Development Goal (MDG) target, the rate had reached a plateau over the past 15 years. The year 2016 marks the beginning of Sustainable Development Goals as a continuation of the MDG. The overall target for child health under the SDG (Goal 3) is to end preventable deaths of new born and children less than 5 years by 2030.

Due to the improvement in services and technology in medicine, death due to diseases and conditions previously not treatable can now be averted. However, the definitions of 'preventable' deaths vary across countries, depending on the availability of services. Realising the need to redefine 'preventable' conditions in Malaysia, the Family Health Development Division has taken steps to initiate the development of a standard guideline to classify under 5 deaths into preventable and non-preventable deaths. This will further assist in identifying targeted strategies to reduce overall mortality among children under 5 years.

**Figure 41**  
**Neonatal Mortality Rate (NMR), Infant Mortality Rate (IMR) and Under 5 Mortality Rate (U5MR) Malaysia, 1990 to 2015**



Source: Department of Statistics, Malaysia

## SCHOOL HEALTH SERVICE

The school health service refers to health services being provided to school children during school health team visits to pre-school, primary and secondary schools. The services being provided are health education, health examination and immunisation. In 2016 Thalassaemia screening was introduced as service package for the Form 4 students.

### Service coverage

A total of 2,283,466 pre-school, primary and secondary school children was screened and examined in 2016. The number of school children benefitted from school health services has increased when detection of children with learning disability was introduced in 2013 and this further increased when Thalassaemia screening was introduced in 2016. The breakdown of pre-school and school children served in between 2012 to 2016 is shown in **Table 30**.

**Table 30**  
**School health service population coverage**

	2012	2013	2014	2015	2016
Pre School	416,928	440,885	465,827	459,528	509,006
Standard 1	451,264	442,859	447,624	432,314	466,937
Standard 3		2,456	2,523	3,246	3,186
Standard 6	465,025	460,233	453,667	420,741	446,053

	2012	2013	2014	2015	2016
Form 1	232,705	243,681	226,237	220,789	215,090
Form 3	455,017	445,259	450,243	450,967	437,999
Form 4					208,381
<b>Total Workload</b>	<b>2,020,939</b>	<b>2,0353,73</b>	<b>2,046,121</b>	<b>1,987,585</b>	<b>2,286,652</b>

Source: HMIS, MoH

### Immunisation coverage

The coverage for school immunisation remained high above 95 per cent for many years. The coverage for DT and MR immunisation for standard 1 was 99.2 per cent while ATT coverage for Form 3 has slightly reduced from 99.2 per cent in 2015 to 98.5 per cent in 2016.

### HPV Immunisation

The 2016 marked the 6<sup>th</sup> year of Malaysian school based HPV vaccination program. The performance of HPV vaccination continues to be above the set national target at 95 per cent. Parental acceptance which is monitored by percentage of parents providing written consent for child to be vaccinated in school increased from 98.23 per cent in 2015 to 98.4 per cent in 2016. However the percentage of Form 1 girls receiving first dose vaccination is slightly lower from 2015. This indicates despite of parental approval, the girls may disagree with their parent decision. The completion of second dose reduced slightly from 99.6 per cent in 2015 to 99.2 per cent in 2016.

**Figure 42**  
**HPV vaccination coverage 2012 to 2016**



Source: Family Health Development Division, MoH

### Nutritional status

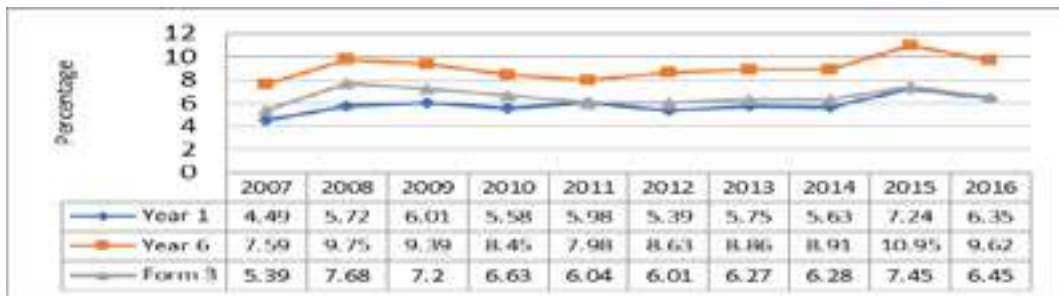
**Figure 43 and 44** described the trends of overweight and obesity among Year 1, Year 6 and Form 3 students between the periods of 2009 to 2016. It was observed that overweight and obesity were highest during Year 6 school year and declined when the students reached Form 3. This is likely due to the growth spurt during adolescent period.

**Figure 43**  
Overweight Trend among School Children by Year of School 2016



Source: HMIS, MoH

**Figure 44**  
Obesity Trend among School Children by Year of School 2016

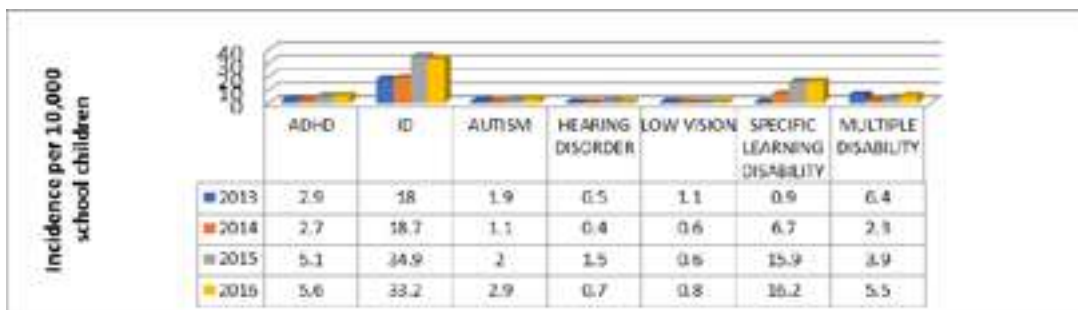


Source: HMIS, MoH

### Learning Disability

The Ministry of Health from year to year continues to support the Ministry of Education in the detection and diagnosis of Year 3 school children suspected to be suffering from Learning Disability. **Figure 45** shows the trend of Learning Disability among school children for the period of 2013 to 2016. A total of 2859 Year 3 school children were diagnosed to have learning disability in 2016. Of these, Intellectual Disability has the highest incidence followed by Specific Learning Disability, Multiple type of Disability and Attention Deficit Hyperactive Disorder.

**Figure 45**  
Types of learning disability among school children in Malaysia from 2013 to 2016

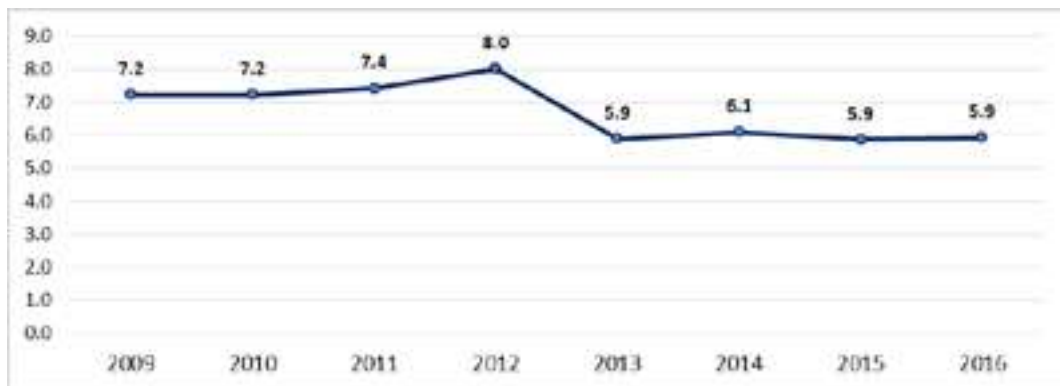


Source: Family Health Development Division, MoH

### School Health Quality Assurance Programme

Detection of visual acuity among standard 1 was selected as one of the indicators for quality assurance programme. In 2013, the visual acuity defect is defined as visual acuity reading using Snellen chart at 6/12 and or worse. A state is considered outlier if their detection performance is below than 5 per cent. Despite of change in definition of visual defect the percentage of standard 1 student detected with visual defect remained above 5 per cent in 2016 (Figure 46).

**Figure 46**  
**Trend of Visual Acuity Defect among Standard 1 School Children: 2009 to 2016**



Source: HMIS, MoH

### Thalassemia Population Screening

In 2016, Thalassaemia screening focuses on Screening Form 4. Thalassaemia screening among pregnant women was discontinued and those pregnant women suspected of Thalassaemia carriers should be managed according to Perinatal Care Manual. Changes in target group was carried out to ensure Form 4 students know their Thalassaemia status before deciding to get married and marry a non-carrier. It is hoped that through the implementation of screening in schools, 95 per cent of Thalassaemia new birth can be reduced by 2050.

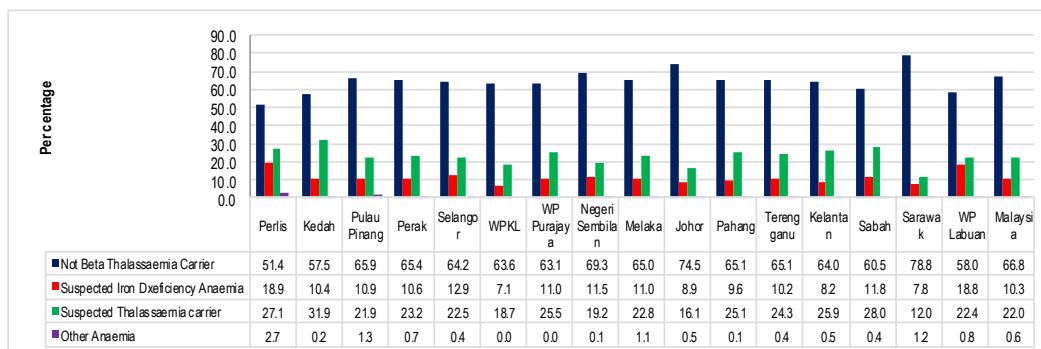
### Launching of School Based Thalassaemia Screening

The School based Thalassaemia Screening was launched by the Honourable Minister of Health on the 11 November 2016 at SJK (C) Jementah in Segamat, Johor.

### School Based Thalassaemia screening

A total of 43,877 (22 per cent) students has been suspected of being Thalassaemia carriers. Another of 21,801 (10.9 per cent) of students in Form 4 were anaemic and 20,538 (94.2 per cent) of them were suspected to suffer from iron deficiency. Perlis has the highest percentage of students who are suspected Thalassaemia carriers and anaemia, while Sarawak shows the lowest percentage. However, Sabah has the most number of students in Form 4 suspected Thalassaemia carrier, which is 8,329 pupils.

**Figure 47**  
**Preliminary Result of School Based Thalassemia Screening amongst Form 4 Students in 2016**



Source: Family Health Development Division, MoH

## ADOLESCENT HEALTH SERVICE

Adolescent Health Programme was established in 1996 as one of the expanded scope of Family Health Development Division (FHDD). This program aims to develop and strengthen health services for the adolescent population.

### Adolescent Health Service Coverage

In 2016, the total adolescent population (10-19 years) is 5,370,000 or 17 per cent of Malaysia's population. A total of 363,948 (6.78 per cent) of the adolescent population were screened (Figure 48).

**Figure 48**  
**Number of Adolescent Population (10-19 years) Screened, Malaysia 2011 to 2016**



Source: Information and Documentation System Unit, MoH (2011-2016)

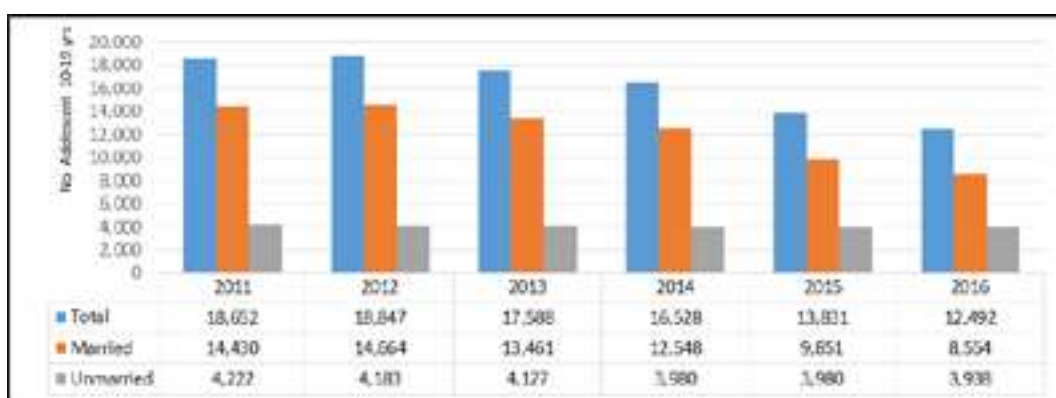
\*\*Preliminary Data 2016

Among those screened, majority had nutrition problems 33,734 (9.3 per cent) followed by risk behaviours 6,670 (1.8 per cent), physical problems 6,396 (1.8 per cent), sexual reproductive health 2,729 (0.7 per cent) and mental health problems 2,239 (0.6 per cent).

## Sexual Reproductive Health

**Figure 49** shows a decreasing trend of new antenatal cases among adolescents registered at government primary health care facilities from 18,652 (2011) to 12,492 (2016). The Age Specific Fertility Rate (ASFR) among adolescent girls 15-19 years has declined from 28/1000 girls (1992) to 12/1000 (2015). This decline reflects the efforts that have been done by various stakeholders in dealing with teenage pregnancy.

**Figure 49**  
**Number of New Antenatal Cases among Adolescents (10-19 years) registered at MOH Primary Health Care Facilities, Malaysia 2011 to 2016**



Source: Family Health Development Division, MoH (2011-2016)

In addressing this issue, Ministry of Health has made various initiatives such as strengthening adolescent friendly health services, capacity building of healthcare providers, increased promotional activities in clinics, schools and communities, presented papers at various platforms/inter agency meetings 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 social determinants through inter-agency collaboration.

### **Program Generasiku Sayang**

Ministry of Health launched the ‘Generasiku Sayang’ Programme (GKS) in 2015 which was officiated by DYMM Raja Zarith Sofiah Binti Almarhum Sultan Idris Shah. This initiative is to create awareness and commitment among the public and relevant agencies to work together in addressing the issue of teenage pregnancy. Currently, the state of Johor and Kelantan have established the ‘Pusat Generasiku Sayang’, while the state of Sarawak developed ‘One Stop Teenage Pregnancy Committee’ (OSTPC). Sabah and Pulau Pinang integrate the GKS concept in existing institutions under the Social Welfare Department and private NGO.

### **Networking with other agencies and NGOs**

MOH has established a National Technical Committee on Adolescent Health chaired by Deputy Director General Public Health to monitor implementation of the National

Adolescent Health Policy and Plan of Action 2016 to 2020 (NAHPOA). This committee comprise of various agencies and convene twice a year.

### **Human Resource and Training**

In 2016, a national training on “Understanding and Shaping Adolescents Towards Excellence” and six zonal trainings on “Adolescent Friendly Health Services for Primary Healthcare Providers” were conducted. A total of 500 health care providers were trained comprising of family medicine specialists, medical doctors, nurses, paramedics, dieticians, health education officers and counsellors.

### **Promotion and Publications**

In 2016, the FHDD and Malaysian Communication and Multimedia Commission (MCMC) conducted a video competition with the theme “Empowering Digital Youth On Healthy Lifestyle”. A total of 379 videos were received across the country involving 877 adolescents. From the 379 videos, 43 per cent were on Physical Activity & Healthy Eating, 31.4 per cent on Mental Health, 22.4 per cent on High Risk Behaviour and 2.9 per cent on Sexual Reproductive Health. Several IEC materials were developed and distributed to all states.

## **WAY FORWARD**

Various stakeholders and agencies must work together in addressing the adolescent issues as well as tackling the social determinants that affect health of adolescents holistically, comprehensively and effectively through intersectoral collaboration.

**Image 1**  
**Adolescent Health Services Activities**



*Source: Family Health Development Division, MoH*

## **ADULT HEALTH SERVICE**

### **Health Screening At Primary Health Care**

Adult health services has taken a turning point in 2009 where it has now include health risk screening for earlier detection of diseases and health risk factor/s, where earlier treatment and intervention for reduction of health risk can be initiated. Every health clinic has implemented health risk screening service, whereby the target of individuals screened was set at 5 percent of all total adult population. For those already on treatments, appropriate treatment for current illness and preventive care is also instituted in attempt to minimize future health decline.



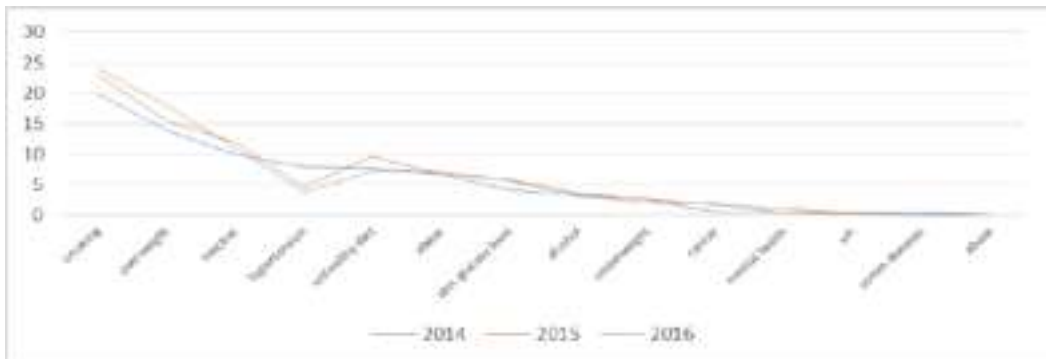
**Figure 50** shows the health risk screening coverage for men and women from 2014 to 2016. **Figure 51 and 52** describe the health risks detected in men and women respectively for the past 3 years.

**Figure 50**  
**Health Risk Screening Coverage For Men and Women from 2014 to 2016**



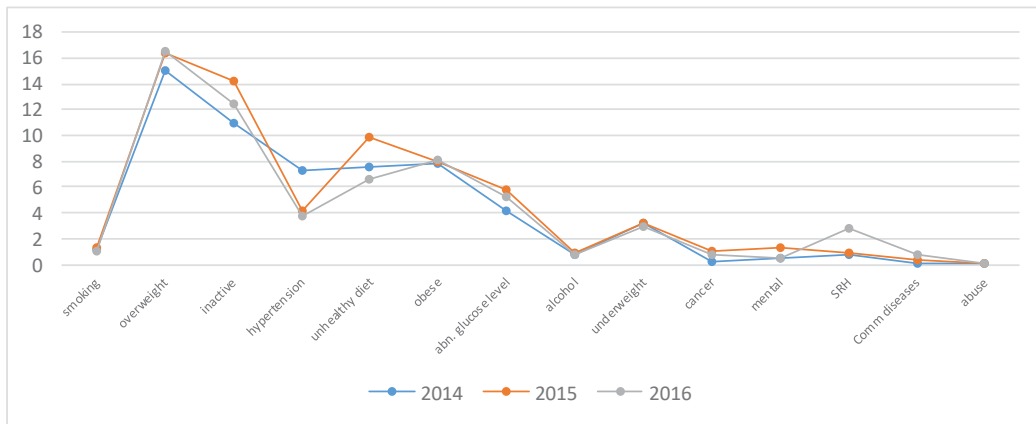
Source: Family Health Development Division, MoH

**Figure 51**  
**The Health Risk Detected in Men, 2014 to 2016**



Source: Family Health Development Division, MoH

**Figure 52**  
**The Health Risk Detected in Women, 2014 to 2016**



Source: Family Health Development Division, MoH

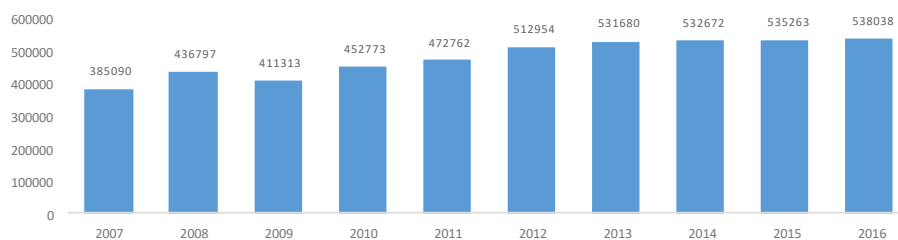
Despite the improvement in numbers of individuals screened, the number of men screened is consistently lower than the women and those with health risks have risen in the past 3 years.

### National Pap smears Screening Program

Cervical cancer screening is available in almost all public health clinics. It is an opportunistic screening and offered to all sexually active women between the age of 20 and 65 years. The coverage set for 2016 was 40 per cent of women screened for cervical cancer of the total number of women between 20 to 65 years.

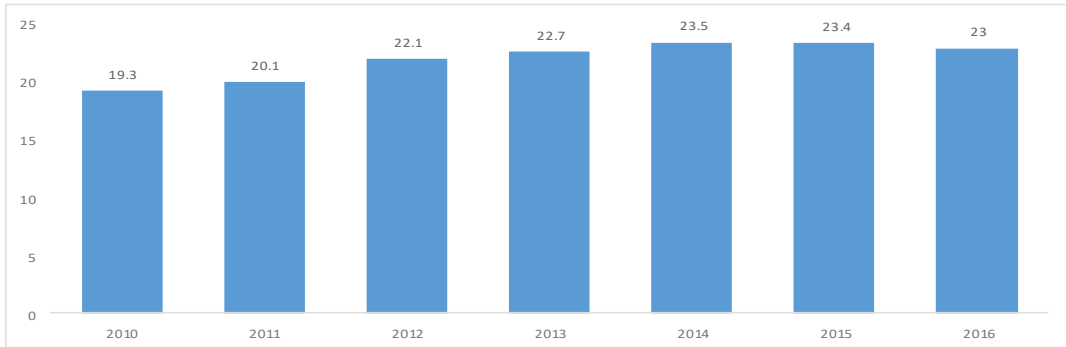
The number of Pap smear slides collected shows a steady increasing trend from 531,680 in 2013 to 538,038 in 2016 as shown in **Figure 53**. However, there was a slight decrease in percentage of screening coverage from 23.4 per cent in 2015 to 23.0 per cent in 2016 (**Figure 54**). There is an increased coverage for women aged 50 to 65 years from 23.5 per cent (2015) to 23.9 per cent (2016). The percentage of unsatisfactory slides remains below targeted level, 1.32 per cent in 2016 (Target < 2.5 per cent).

**Figure 53**  
**Number of Pap Smear Slides Taken 2007 to 2016**



Source: Health Informatics Centre, MoH

**Figure 54**  
**Pap Smear Coverage for 2010 to 2016**



Source: Health Informatic Center, MoH, 2016

Numerator: Number of slide taken

Denominator: No. of eligible women for the age group

In 2015, a new quality indicator was introduced, i.e. ‘percentage of absent endocervical cells for Pap smear slides’ with the target <20 per cent. There was slight improvement in the percentage of absent of endocervical cells for Pap smear slide with 23.35 per cent of the reported Pap smear slides in 2016 as compared to 23.47 per cent in 2015.

The overall positive detection rate in 2016 was 0.94 per cent. Positive smears include Low Grade Squamous Intraepithelial Lesion (LGSIL), Atypical Squamous Cells (ASCUS), High Grade Squamous Intraepithelial Lesion (HGSIL), Atypical Glandular Cells (AGC), Endocervical Adenoma in-situ (AIS) and Carcinoma. The break-ups for each classification are LGSIL - 33.8 per cent, ASCUS - 40.8 per cent, HGSIL -16.4 per cent, AIS 1.65 per cent, Adeno CA - 3.2 per cent and SCC - 1.6 per cent.

### **Breast Cancer Prevention Programme**

Ministry of Health Malaysia had started the Breast Health Awareness Campaign in 1995 to encourage women to perform breast self-examination (BSE). However, in 2009, this campaign has emphasized on clinical breast examination (CBE) as a modality for early detection of breast cancer among general women population, where all health providers are to examine female clients attending the clinics, as part of other screening and health services, while BSE is continuously promoted and recommended for raising awareness and empower women to take responsibility for their own health.

The percentage of CBE done among clients aged 20 years and above has increased from 24.6 per cent in 2015 to 25.8 per cent in 2016. There were 0.22 per cent of cases where abnormality was detected and referred for further investigation.

In 2012, MOH health clinics act as an entry point for identifying high risk women and referred to nearest facilities that provide mammography (MMG). It adopts an integrated approach which involves MOH, LPPKN (through Mammogram Subsidy Program) and other relevant agencies to facilitate mammogram screening among high risk women. High risks women are women aged 40 and above which fulfil risk criteria. In 2016, number of high risk

women registered (new cases) was 19,916 and 17,082 (85.8 per cent) was referred for mammogram screening and 18,237 (91.6 per cent) of the referred cases undergone MMG and 51 (0.3 per cent) of the women confirmed cancer.

### **Health Screening For Single Mothers (NBOS 7)**

Under NBOS 7, activities for single mothers focus on building resilience of single mothers which include mental health assessment, health risk screening, counselling and stress management.

In 2016, a total of 17,978 single mothers were screened and 87.4 per cent (15,706) was identified to have health risks and 55.2 per cent (8,670) was referred for further management. The most common health risks identified were hypertension 39.2 per cent (6,152), Diabetes 26.2 per cent (4,118) and overweight 14.5 per cent (2,272).

### **Men Health**

According to National Health Morbidity Survey data show a worrying pattern of the morbidity and mortality among Malaysian men in terms of the life expectancy of men and other diseases like cardiovascular disease. In view of this, the FHDD held discussions with related divisions in the MOH as well as Socso, *Kementerian Pembangunan Wanita, Keluarga dan Masyarakat Malaysia* (KPWKM) and universities, to discuss further development and plans to improve men's health in Malaysia.

In view of this, the MoH has developed a short and long term men's health plan of action to the main objective in developing this plan of action is to increase the quality of life and to achieve the gender equity and better health for men. The rationale behind this was mainly the high mortality and morbidity rates among men especially heart diseases, stroke and road traffic injury and gender inequalities in healthcare and the socio-economic implications. This National Plan of Action cuts across all age groups, with 3 broad classifications: below 18 years of age, 18-40 years of age, and above 40 years of age. The National Men's Health Plan of Action aims not only at providing a short-term relief from the socio-economic implications of health inequalities; but a long-term solution as well. Hence, all the activities discussed in this Plan of Action have been further classified into short term and long term with regards to the implementation. The plan of action will be implemented by various agencies involved with men's health.

Apart from that, The Malaysian Men's Health Caring House was developed in collaboration with University Malaya Medical Centre. The clearing house will be the source of information on men's health which include study and research, health information, policies, guidelines and others

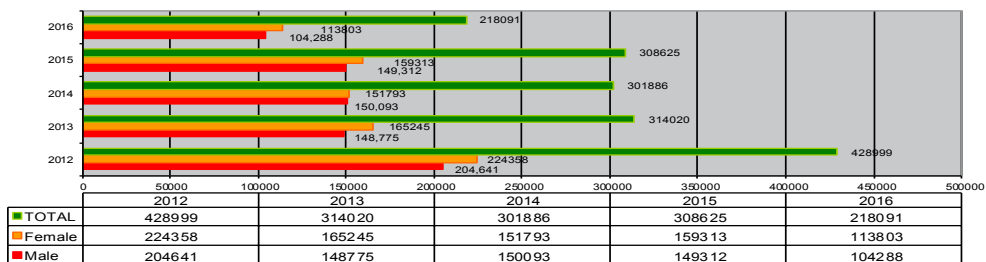
## **HEALTH CARE SERVICES FOR THE ELDERLY**

The health care for the elderly was first introduced by Ministry of Health Malaysia as one of the strategies under the Seventh Malaysian Plan. The National Healthcare Policy for Older Person emphasized the following; "To ensure 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.

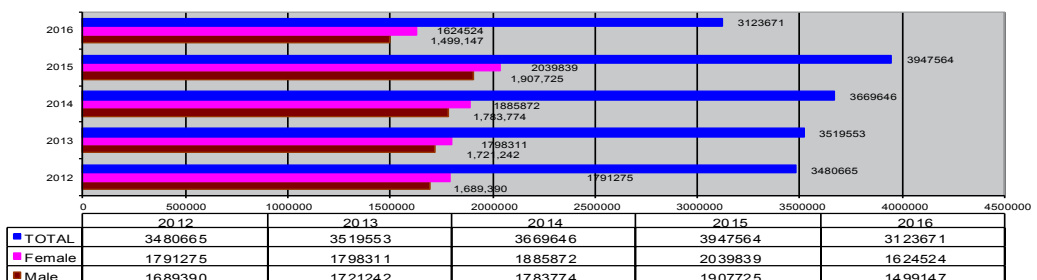
Cumulatively, until December 2016, a total number of 2,162,908 (prelim) elderly was registered with our health clinics. This equals to 78.1 per cent (prelim) of the total elderly population, which is about 2 per cent short from the targeted 80 per cent. The attendance of the elderly to health clinics is as shown in **Figure 55** and **Figure 56**, where Chart 1a shows new cases according to gender, while Chart 1b shows both new and repeated case according to gender. 76.2 per cent (prelim) of those newly registered elderly had been screened using *Borang Saringan Status Kesehatan (BSSK)*. This brings to a total of 8.9 per cent of expected total population of elderly screened. The performance is far above the target set which is 5 per cent of total elderly population annually.

**Figure 55**  
Elderly Attendance at Health Clinics, (New Cases according to Gender), 2012 to 2016.



Source: Reten PKWE 201 A

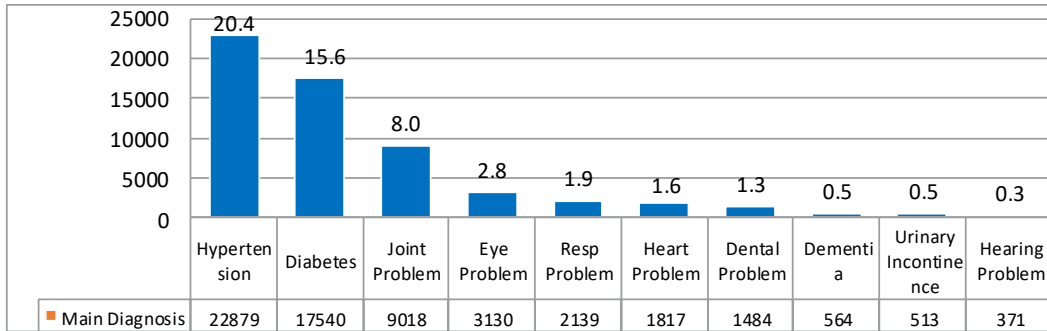
**Figure 56**  
Elderly Attendance at Health Clinics, (New and Repeat Cases According to Gender), 2012 to 2016



Source: Reten PKWE 201 A

Five most common morbidities among the elderly detected during visit to health clinic has remained the same for the past five years, as shown in **Figure 57**.

**Figure 57**  
**Top Ten New Diagnoses among The Elderly Detected during visit to Health Clinics, Jan - Dec 2016.**

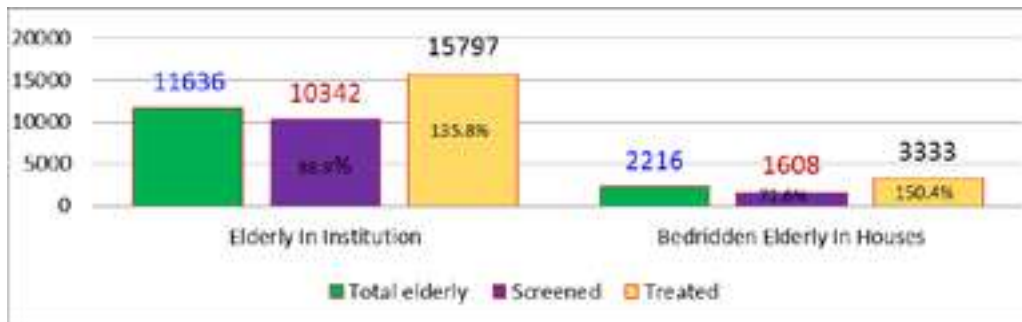


Source: Reten WE 1/2012

As of December 2016, about 30,348 health personnel at primary health care level had been trained on Health Care for the Elderly. About 26,727 health personnel and caregivers from institutions, NGOs, voluntary bodies and other agencies had been trained on Care for the Elderly.

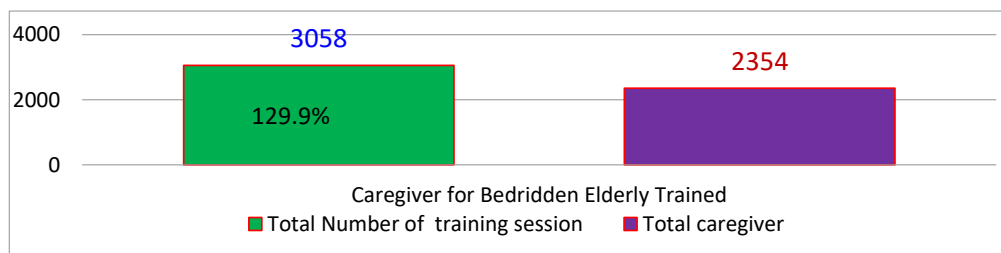
**Figure 58 and Figure 59** shows achievement for the *National Blue Ocean Strategy (NBOS) 7 - "1Malaysia Family Care"* program while **Table 31** shows the achievement for NBOS 10-1Pesara.

**Figure 58**  
**Elderly in Institution and Bedridden Elderly Screened and Treated, Jan-Dec 2016**



Source: Reten NBOS7

**Figure 59**  
**Care Givers for Bedridden Elderly Trained, Jan-Dec 2016**



Source: Reten NBOS7

**Table 31**  
**Achievements for NBOS10: 1Pesara, 2016**

Activities	Achievements
1. Number of health clinics implement R-Lane.	701
2. Number of clients using R-Lane.	1,620,508
3. Number of pensioners using R-Lane.	277,472
4. % of pensioners using R-Lane.	17.1
5. Number of health talks given.	345
6. Number of participants attended the health talks.	2652
7. Number of pensioners attended the health talks.	9943
8. % of pensioners attended the health talks.	26.7

Source: Reten NBOS 10

## PERSONS WITH DISABILITIES (PWD) HEALTH SERVICE

Health care programmes for Persons with Disabilities (PWDs) include early detection of disability among children, care of children with special needs (CWSN) at the health clinics and community level, blindness and low vision rehabilitation programme and prevention and control of deafness, as well as rehabilitation services for adult PWDs. From 1996 to 2005 activities carried out by the unit focused on CWSN. Beginning 2006 the focus shifted to the development of services for adults with disabilities whilst strengthening and improving quality of services for CWSN.

## PROGRAMME PERFORMANCE

### Prevention and Early Detection of Disability in Children

Early detection of disability will provide room for early intervention and thus limit further disability and improve functionality. The performance for early detection of disabilities among children 0-1 years was initially set at 0.1 per cent, however since year 2014 it was increased to 0.12 per cent. Children who were identified with disabilities will be given appropriate treatment, referral and early intervention.

**Table 32**  
**5-Year Trend in the Detection of Disabilities among Children Age 0-1 Years Old**

Year	Estimated Live birth	Denominator 0.1% of estimated Live Birth	No. of CWSN below 1 year detected	Achievement (%)
2012	504,814	505	622	0.12
2013	515,205	515	566	0.12
2014	515,205	618	566	0.11
2015	515,205	618	754	0.15
2016	521,136	521	906	0.17

Source: Family Health Development Division, MOH

### Screening For Autism Spectrum Disorder (ASD)

Screening checklist Modified Checklist for Autism in Toddlers (M-CHAT) for autism was included in the new Child Health Record Book for 1-6 years old children in year 2013 and has been widely implemented throughout Malaysia starting year 2014. Screening for signs of autism is carried out at 18 months and 3 years of age.

For year 2016, a total of 375,025 children were screened for autism and 1,132 (0.30 per cent) were suspected of ASD. The children suspected for ASD were then referred to the respective multidisciplinary team for further evaluation and early intervention.

**Table 33**  
**3-Year Trend of Detection of ASD on Children Aged 18 Months Old, using M-CHAT**

Year	No. Of Children Screened	No. of children suspected ASD (failed M-CHAT)	Percentage of children suspected ASD
2014 (August - December)	119,835	469	<b>0.4</b>
2015	376,526	554	<b>0.15</b>
2016	375,025	1,132	<b>0.3</b>

Source: Family Health Development Division, MoH

Early intervention involves multidisciplinary team from hospital and primary health care (Multidisciplinary team management, MDT), with the support and involvement of the caregivers, school teachers and other related agencies, as well as expended to Community-Based Rehabilitation Centre under the Department of Social Welfare Malaysia.

In July 2016, Ministry of Health has published clinical practice guidelines (CPG) for Management of Autism Spectrum Disorder in Children and Adolescents, in a form of book and quick reference for the healthcare providers.

### Rehabilitation Services

Rehabilitation services in primary health care were initiated in year 1996. The services in selected health clinics were provided by the therapist from the major nearby hospital. Starting on year 2003, Physiotherapist and Occupational Therapist were gradually placed in



health clinics due to the increasing demand of rehabilitation services in the community. The scope includes rehabilitation to the Children with Special Needs and the elderly, as well as psychosocial rehabilitation. Up till now, there are 334 Physiotherapist and 215 Occupational Therapist in 264 primary health clinics all over Malaysia, providing rehabilitation services including outreach services at the institutions, Community Based-Rehabilitation Centres, and schools.

### **Domiciliary Health Care Services**

Domiciliary Health Care Services (DHC) in primary health care was introduced and implemented on July 2014, in line with the transformation health services, where services are to be provided to and near the community, focuses on provision of holistic health care. This service is to ensure continuity of care to patients discharged early, to empower and support caregivers/family members through training, as well as to reduce readmission of patient to hospital through quality care in the community. To this date, a total of 160 health clinics throughout Malaysia are actively delivering this service, run by the basic team (Nurse and Medical Assistant) while supported by the multidisciplinary team.

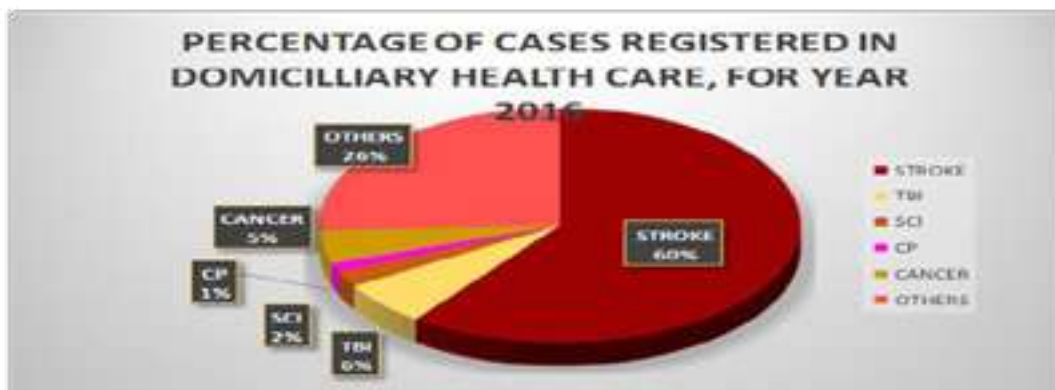
In year 2016, a total number of 3,062 cases were registered for this service. 5 main diagnoses seen in DHC reported as stroke (1,843 cases), traumatic brain injury (188 cases), spinal cord injury (67 cases), cerebral palsy (36 cases), cancer (142 cases) and others (786 cases). Out of these number, 70 per cent of clients were the elderly patient aged 60 years and above. 18,817 visits were done by the Multidisciplinary Team, in which 56,401 clinical care treatment, 8,994 rehabilitation and 11,799 laboratory test were carried out.

**Table 34**  
**The Outcome Indicator for Domiciliary Health Care Programme, 2016**

Outcome Indicator Year 2016	Total Number	Percentage (%)
Readmission to the hospital within duration of DHC services	212	6.9
Complications during the period of services (cases of new pressure sores)	20	0.7
Patient successfully taken over by the caregivers	1,106	39.3
Cases of increasing functionality (increase MBI score)	820	50.9
Repeated cases (cases that are registered again to DHC after the completion of the duration of service)	864	28.2

Source: Family Health Development Division, MoH

**Figure 60**  
**The Outcome Indicator for Domiciliary Health Care Programme, 2016**



Source: Family Health Development Division, MoH

1,106 patients were discharged and successfully taken over by the caregiver, within 3 months' period of service given. In 2016, Domiciliary Health Care was expanded to the scope of palliative and started in the State of Selangor. Seven selected health clinics are to pilot the palliative service for Domiciliary. This palliative element will be expanded gradually. Training to Family Medicines Specialist and basic team were given on June till August 2016 using The Guideline on Chronic Pain Management for Primary Care, Palliative Medicine Books in Malaysia and the Draft Guideline for Palliative in Domiciliary Health Care.

#### **NBOS7 initiative: 1Malaysia Family Care**

Under the NBOS7 initiative, outreach services were provided to person with disabilities (PWDs) attending Community Based Rehabilitation Centre (CBR) run by Social Welfare Department, based on *Manual PDK Ku Sihat*. 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. In 2016, a total number of 508 CBR was visited by the health care personnel.

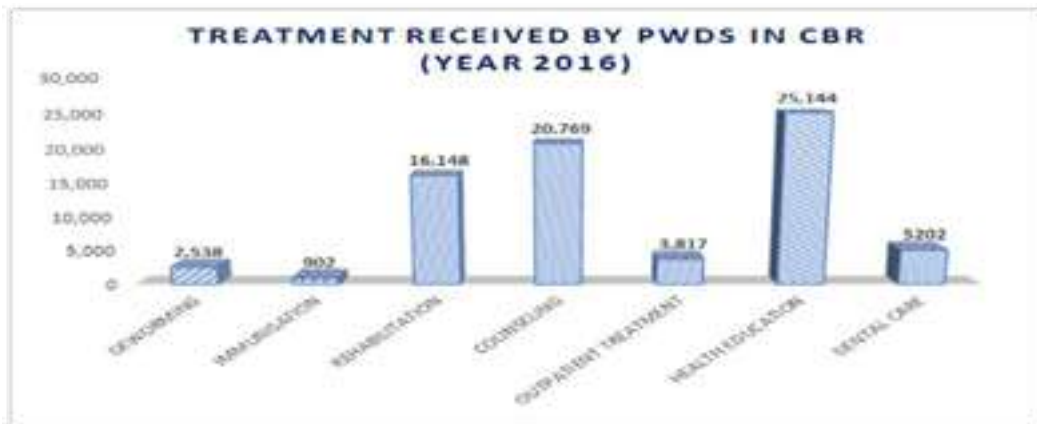
**Table 35**  
**Statistic on Visits to the Community Based Rehabilitation Centre, 2013 to 2016**

Year	No. of CBR visited	No. of PWDs screened for health	No. of PWD receiving treatment
2013	480	16,526	9,833
2014	480	15,847	8,183
2015	501	15,428	5,518
2016	508	17,612	4,371

Source: Family Health Development Division, MoH

A total of 17,612 (96 per cent) out of 18,333 PWDs attending CBR were screened for health status. Of those screened, a total of 1,554 (8.8 per cent) PWDs were found to be obese while, 755 (4.3 per cent) PWDs were detected to be underweight. A total of 16,148 rehabilitation activities (fine motor and gross motor training, activities of daily living skills, vocational training etc) were carried out for the PWDs in CBR. For underweight and obese cases, intervention action includes nutritional advice and exercise in CBR centers were implemented by the dietician and nutritionist.

**Figure 61**  
**Treatment received by PWD in CBR, 2016**



Source: Family Health Development Division, MoH

## NUTRITION DIVISION

Nutrition activities in the Ministry of Health Malaysia have started since in the 1950', as part of Maternal and Child Health Care. In 1974, the post of Nutrition Officer was first created under the Maternal and Child Unit at the headquarters, Ministry of Health. From 1977, the post of Nutrition Officer has evolved and become the key driver to the successful nutrition programmes in the country.

The expansion of the nutrition programmes from a sub-unit under the Maternal and Child Health Care into the Nutrition Branch was established in 1995, under the Family Health Development Division. This Branch was later upgraded into the Nutrition Division in 16 October 2009. The establishment of Nutrition Division is in line with the expansion and broader scope of nutrition programmes which beyond the scope of Family Health Development.

The major scope of nutrition programmes run by the Nutrition Division include nutrition surveillance, rehabilitation, promotion as well as a National Coordinator of Food and Nutrition Programmes by various sectors.

## ACTIVITY 1

### **THE LAUNCH OF THE NATIONAL PLAN OF ACTION FOR NUTRITION OF MALAYSIA (NPANM) III, 2016-2025 AND THE NUTRITION RESEARCH PRIORITIES IN MALAYSIA FOR 11TH MALAYSIA PLAN (2016-2020)**

The National Plan of Action for Nutrition of Malaysia (NPANM) III, 2016-2025 is the framework for action to address food and nutrition challenges in the country and the sequels of the NPANM I (1996-2000) and NPANM II (2006-2015). This Plan is Malaysia's commitment to the Rome Declaration on Nutrition. The NPANM III, 2016-2025 is a 10-year plan to address food and nutrition challenges in the country using trans-and multi-sectoral approaches. The NPANM III, 2016-2025 underlines the importance of nutrition in enhancing population health, preventing and controlling diet-related diseases and strengthening food and nutrition security.

The National Plan of Action for Nutrition of Malaysia (NPANM) III, 2016-2025 was launched by the Minister of Health Malaysia, YB Datuk Seri Dr. S. Subramaniam on 29 November 2016. More than 400 participants had attended the launch from all relevant ministries, agencies, academia, a private and non-government organizations.

In conjunction with this event, the document of Nutrition Research Priorities (NRP) in Malaysia for 11th Malaysia Plan (2016-2020) was also launched. The NRP is developed to ensure that nutrition research carried out in the country is in accordance with the national research priorities and current needs.

#### **Image 2**

#### **Launching of the NPANM III, 2016 to 2025 And The Nutrition Research Priorities in Malaysia for 11th Malaysia Plan (2016 to 2020)**



*Source: Nutrition Division, MoH*

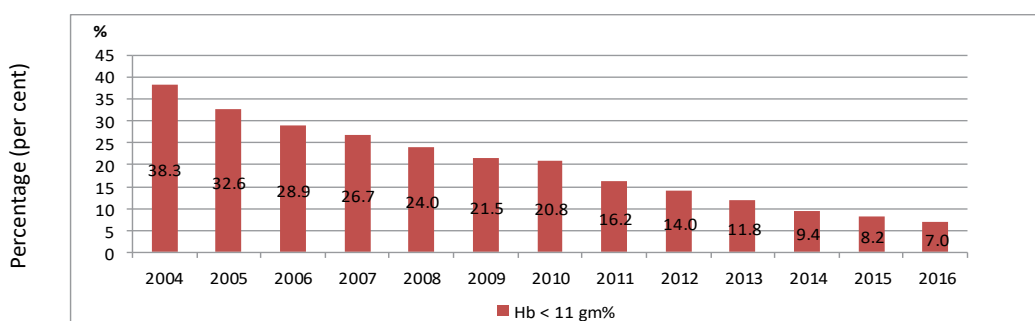
## ACTIVITY 2

### ANAEMIA PREVENTION AND CONTROL PROGRAMME FOR ANTENATAL MOTHERS

Anaemia in pregnancy is often associated with increased fetal and maternal mortality, low birth weight, premature delivery and maternal morbidity. To reduce the risk of anaemia during pregnancy, antenatal mothers are given haematinics with iron (ferrous fumarate), folic acid, vitamin C and B<sub>12</sub> (cobalamin) for either as a prophylactic or treatment of anaemia.

Status of anaemia among antenatal mothers attending government health clinics is routinely monitored based on their haemoglobin level at 36 weeks gestation period. As shown in **Figure 62**, the prevalence of anaemia among antenatal mothers (Hb < 11gm per cent) was 7.0 per cent, a significant reduction as compared to 38.3 per cent in 2004.

**Figure 62**  
**Percentage of Anaemic among Antenatal Mothers (Hb < 11gm Per Cent) Attending Government Health Clinics, 2004 to 2016**



Source: Health Informatics Centre, MoH

## ACTIVITY 3

### BABY FRIENDLY HOSPITAL INITIATIVE (BFHI)

Baby Friendly Hospital Initiative (BFHI) is a global initiative by the World Health Organization (WHO) and United Nations International Children Emergency's Fund (UNICEF) which aim to give baby the best start of life by creating a supportive breastfeeding environment. BFHI was launched in Malaysia in 1992. Malaysia was recognised by WHO as the third country in the world with 100 per cent government hospitals recognised as baby friendly in 1998.

As of December 2016, there were 152 hospitals in Malaysia attained the Baby-Friendly status; as shown in **Table 36**. A total of 24 out of 27 hospitals (89 per cent) re-assessed using the new WHO/UNICEF 2009 global criteria in 2016 had successfully retained their Baby Friendly Hospital status.

**Table 36**  
**Distribution of Baby Friendly Hospitals in Malaysia**

No	Hospitals	Numbers of Hospital
1.	Hospitals under the Ministry of Health	130
2.	Hospitals under the Ministry of Higher Education	3
3.	Hospitals under the Ministry of Defence	3
4.	Private hospitals	16
<b>TOTAL</b>		<b>152</b>

Source: Nutrition Division, MoH

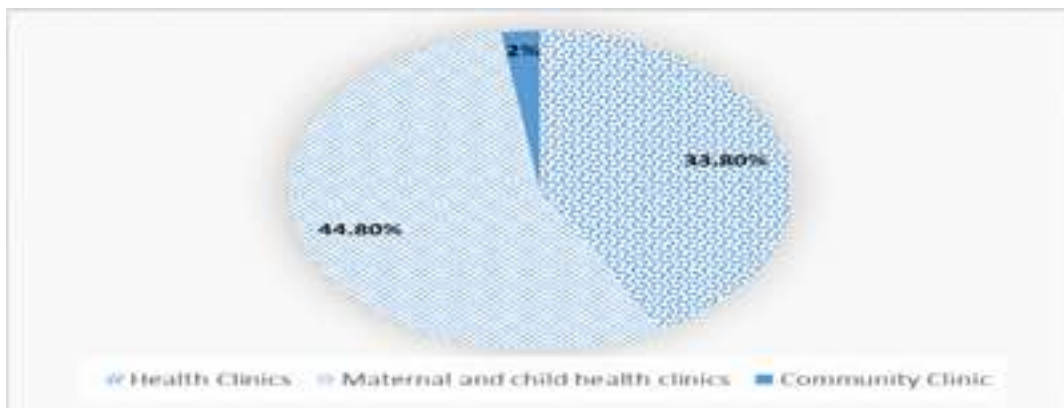
#### ACTIVITY 4

##### **BABY FRIENDLY CLINIC INITIATIVE (BFCI)**

Baby Friendly Clinic Initiative is an initiative that complements the implementation of Baby Friendly Initiative in the hospitals. The objective of BFCI is to provide services and environment that support the breastfeeding practices. One of the main reasons for the implementation is because more than 90 per cent of the antenatal and postnatal services are being carried out at maternal and child health clinics.

In 2016, there were 404 out of 2867 (14.1 per cent) health clinics/maternal and child health clinics/community clinics attained the Baby Friendly Clinic status.

**Figure 63**  
**Percentage of Health Facilities Attained The Baby Friendly Clinic Status**



Source: Nutrition Division, MoH

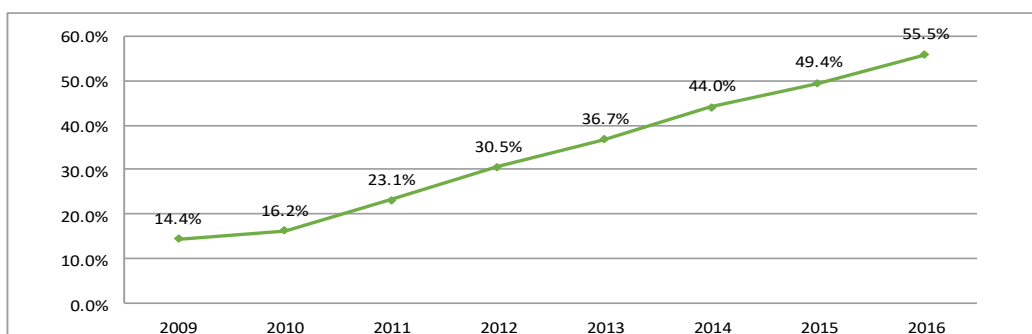
## ACTIVITY 5

### INFANT AND YOUNG CHILD FEEDING

For optimal growth and development of infants and young children in Malaysia, all infants should be breastfed exclusively from birth until six months of age. Complementary foods should be introduced at the age of six months while continuing to breastfeed to two years. Feeding of all infants and young children should be timely, adequate, safe, appropriate and proper.

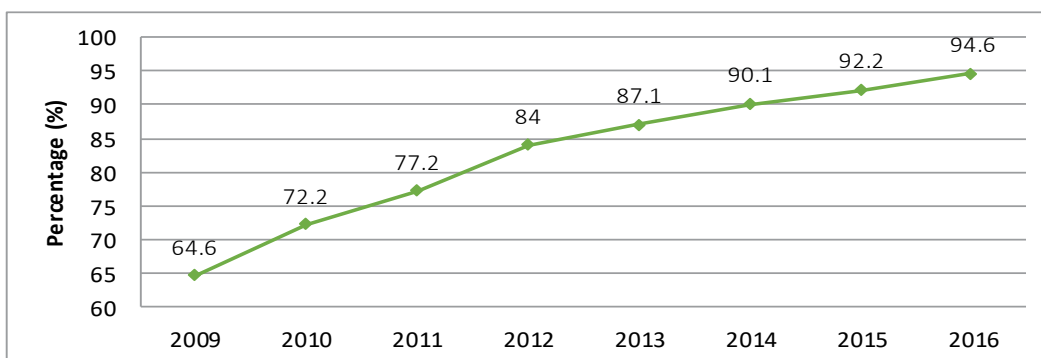
Since 2009, breastfeeding rates in Malaysia have continued to increase (**Figure 64**). Exclusive breastfeeding at 6 months had increased from 14.4 per cent in 2009 to 55.5 per cent in 2016. The timely initiation of complementary feeding in Malaysia at 6 months had increased from 64.6 per cent in 2009 to 94.6 per cent in 2016 (**Figure 65**).

**Figure 64**  
Exclusive Breastfeeding Practices at 6 Months



Source: State Health Department (mean), 2016

**Figure 65**  
Timely Complementary Feeding Practice at 6 Months, 2009 to 2016



Source: State Health Department (mean), 2016

## ACTIVITY 6

### WORLD BREASTFEEDING WEEK 2016

The World Breastfeeding Week is introduced by the World Alliance for Breastfeeding Action (WABA), a global network of individuals and organizations concerned with the protection, promotion and support of breastfeeding worldwide. The thematic World Breastfeeding Week is celebrated since 1992 throughout the world on 1 to 7 August every year to create awareness and encourage breastfeeding among mothers.

In Malaysia, World Breastfeeding Week 2016 was the 24<sup>th</sup> celebration. It was launched by the Honourable Deputy Minister of Health Malaysia on 3 September 2016 at Dewan Budaya, Universiti Sains Malaysia, Pulau Pinang with the theme ***“Breastfeeding a Key to Sustainable Development”***.

Image 3

#### Launching of World Breastfeeding Week 2016 - National Level



Source: Nutrition Division, MoH (2016)

## ACTIVITY 7

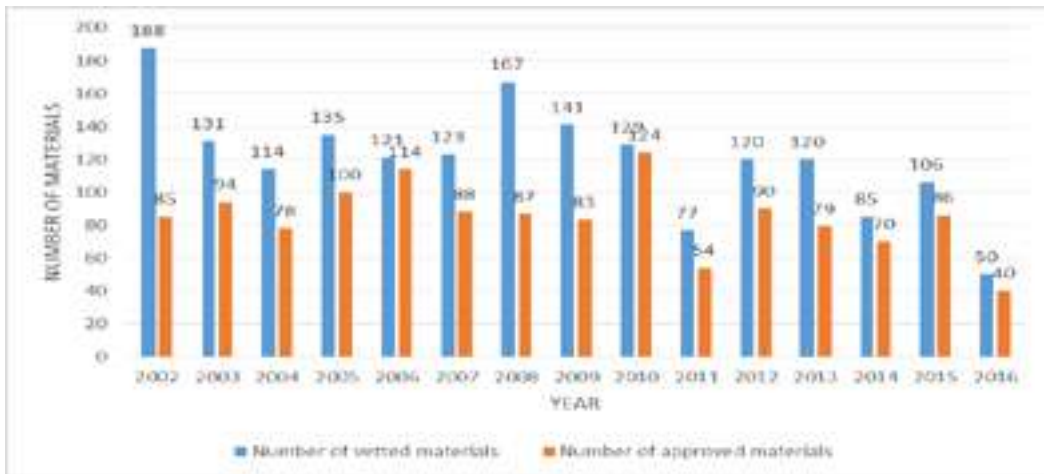
### CODE OF ETHICS FOR THE MARKETING OF INFANT FOODS AND RELATED PRODUCTS

The Vetting Committee on the Code of Ethics for the Marketing of Infant Foods and Related Products is responsible to vet information materials and product labels related to the 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 2016, there were 50 educational materials and product labels related to infant foods and related products vetted by the committee. Out of these, 40 (80 per cent materials were given approval codes (**Figure 66**). In general, there was a reduction on the number of material vetted since 2002.



**Figure 66**  
**Vetting Trends of Educational Materials and Product Labels Related to Breast milk Substitutes and Complementary Foods (2002 to 2016)**



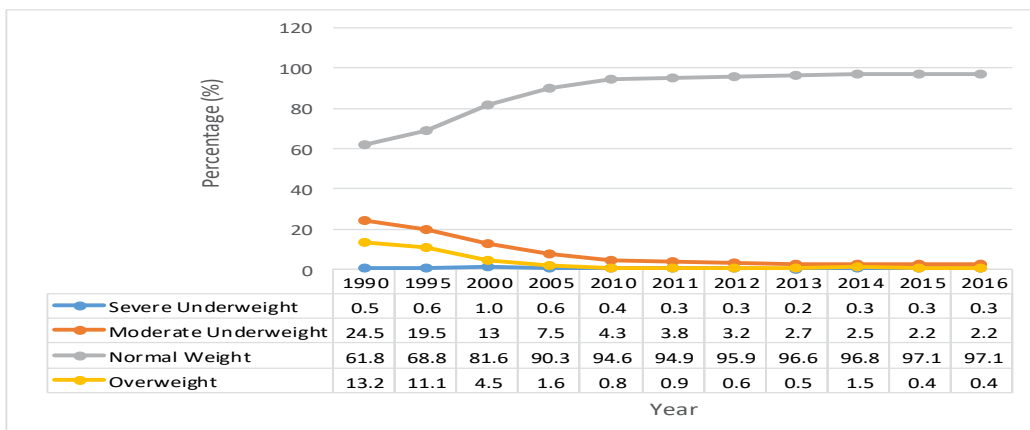
Source: Annual Report of Code of Ethics for Marketing of Infant Food and Related Products' Materials Vetting, 2016

## ACTIVITY 8

### NUTRITIONAL STATUS OF CHILDREN UNDER FIVE YEARS IN MALAYSIA

The Ministry of Health Malaysia monitors the nutritional status of children under five years old through the National Nutrition Surveillance System (NSS) under the Health Management Information System. As shown in **Figure 67**, the nutritional status of children below five years old continues to improve throughout the years. However, in 2016, the percentage of children with normal body weight, moderately underweight, severely underweight and overweight was the same as in the previous year which were 97.1 per cent, 2.2 per cent, 0.3 per cent and 0.4 per cent respectively.

**Figure 67**  
**Nutritional Status of Children Under 5 Years in Malaysia, 1990 to 2016**



Source: Health Informatics Centre, MoH. (2016)

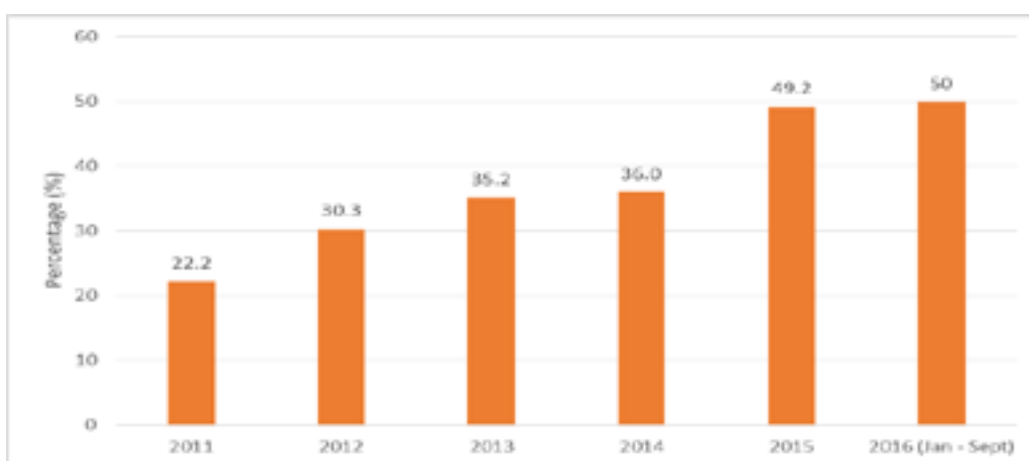
## ACTIVITY 9

### REHABILITATION PROGRAMME FOR MALNOURISHED CHILDREN

Rehabilitation Programme for Malnourished Children is a government's effort to improve the nutritional status of malnourished children aged 6 months to below 6 years among low-income households and poor families. The Rehabilitation Programme for Malnourished Children is also known as the Food Basket Programme.

A total of 3,635 malnourished children from households with monthly income below RM2000 received the food baskets in 2016. Out of these, 50 per cent had successfully increased their body weight. It was a significant increase from 22.2 per cent in 2011.

**Figure 68**  
**Percentage of Malnourished Children with Increased Body Weight, 2011 to 2016**



Source: Health Informatics Center, MoH, (2016)

## ACTIVITY 10

### 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 to prevent diet-related non-communicable diseases. The objectives are to encourage healthy eating habits and provide healthier food options to the meeting participants. The implementation has been extended to other ministries through an official directive from Director-General of Public Service Malaysia on 3 February 2012.

To facilitate the implementation of HFPDM in other ministries, the Nutrition Division organised seminars for the government officers directly involved in managing the meals served during meetings as well as for the caterers serving each ministry. The objective of this seminar was to disseminate knowledge on the principles of healthy meals serving during

meetings. Two briefing sessions to the participants from MoH headquarters and other ministries had been conducted in 22 August 2016.

**Image 4**  
**Activities of Healthy Food Preparation During Meetings**



Sample of food served during meeting



Briefing on HFPDM to other ministries

Source: Nutrition Division, MoH (2016)

## ACTIVITY 11

### MYNUTRIDIARI

MyNutriDiari, a smartphone application which helps public to monitor their calorie intake was officially launched by the Honourable Minister of Health Malaysia on 18 February 2015. The development of this app is in line with ministry aspiration to create a calorie conscious society among Malaysians. The main objective of this app is to enhance the knowledge of the public on healthy eating using the latest medium of social communication. As of December 2016, there were 31,973 downloaders of this app.

**Image 5**  
**Launching of MyNutriDiari, 2016**



Source: Nutrition Division, MoH



MyNutriDiari Apps

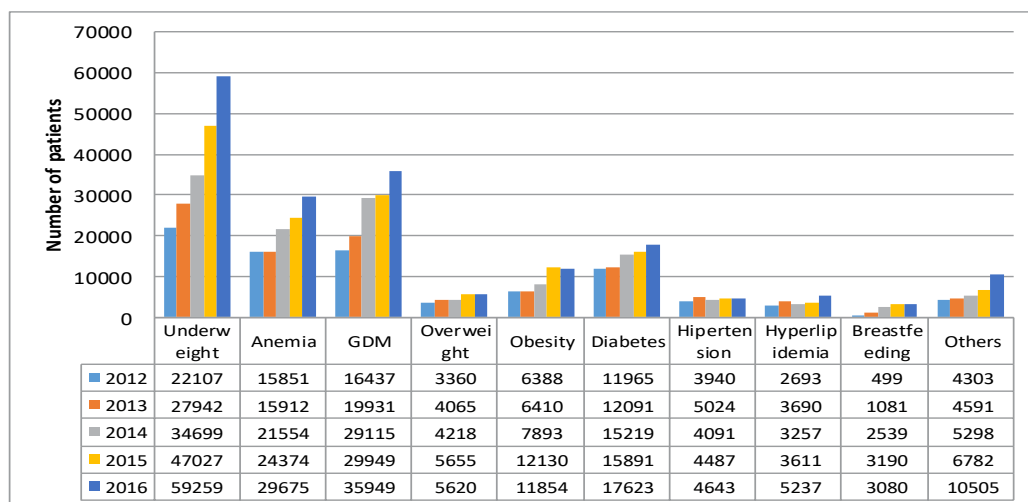
## ACTIVITY 12

### 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 government health clinics.

As shown in **Figure 69**, a total of 185,735 patients were given nutrition counselling in 2016 nationwide. It was an increase of 21.3 per cent, as compared to 153,096 patients in 2016. Nutrition counselling was given to patients with diabetes mellitus (9.5 per cent), gestational diabetes mellitus (19.4 per cent), overweight and obesity (9.4 per cent), as well as for malnourished children (32 per cent), anaemia (16.9 per cent) and other cases such as hypertension, hyperlipidaemia and breastfeeding (12.8 per cent).

**Figure 69**  
**Types of Cases and Number of Patients Counsellled by Nutritionists, 2012 to 20**



Source: State Health Department (mean), 2016

## ACTIVITY 13

### NUTRITION INFORMATION CENTRES AND HEALTHY COMMUNITY KITCHENS

Nutrition Information Centre (NIC) functions as a medium in disseminating information on healthy eating to the public. On the other hand, Healthy Community Kitchen (HCK) is a facility used to carry out nutrition promotion and educational activities. There are 17 NICs and 46 HCKs nationwide.

The main NIC is located at Level 1, Block E3, Ministry of Health, Putrajaya. In 2016, a total of 6,511 clients visited this centre, mainly for nutrition counselling. Clients who were overweight and obese attended the NIC routinely for counselling and weight loss activities.

By participating in the activities, there was a significant reduction of body weight and body fat of these clients.

In 2016, nationwide, a total of 23,463 visitors involved in activities carried out by the HCKs such as cooking demonstrations, healthy recipe modifications and tastings, Bumi Hijau programs, cooking classes and health talks.

**Image 6**  
**Nutrition Information Centre and Healthy Community Kitchen**



Healthy Community Kitchen in Keningau



Nutrition Information Centre in Penampang

Source: Nutrition Division, MoH, (2016)

## ACTIVITY 14

### HEALTHY CATERING TRAINING (HCT)

Healthy Catering Training has been implemented since 2004. The objective of HCT is to increase the knowledge and skills related to healthy eating and to enhance the practice of hygiene, healthy and safe food preparation among food handlers in Malaysia. The target group are all caterers and food handlers eg. Restaurants, food stalls, cafeterias, fast food restaurants and canteens.

Healthy Catering Training covers four main topics:

- i. Unit 1: Principles of Healthy Eating
- ii. Unit 2: Healthy Meals Preparation
- iii. Unit 3: Food Safety and Hygiene
- iv. Unit 4: The effects of poor diet and unsanitary and unsafety food preparation

In 2016, three trainings were carried out at the Ministry of Health's headquarters (MOH) involving 346 operators and food handlers providing catering services at MOH and other ministries. At the state level, a total of 114 districts /regions/divisions had conducted at least one Healthy Catering Training. This training involved a total of 9,678 operators and food handlers in year 2016. Out of this, 4,727 (48.8 per cent) were school canteen operators and food handlers, 1003 (10.3 per cent) health facilities caterers, 512 (5.2 per cent) operators and food handlers of boarding school canteens, 48 (0.5%) operators and food handlers in PLKN camps and 3,383 (34.9%) other categories\*.

\* Other categories: Assistant Principal HEM, School Canteen Supervisor, office staff, student management assistant, Pusat Pemulihan Dalam Komuniti (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 7**  
**Healthy Catering Training, 2016**



Source: Nutrition Division, MoH, (2016)

## ACTIVITY 15

### HEALTHY CAFETERIA

Healthy Cafeteria concept has been implemented since 2005 to create an environment that supports healthy eating practices in the community. A guideline regarding Healthy Cafeteria assessment and recognition was published in 2012 to facilitate the cafeteria owners in the implementation of the Healthy Cafeteria concept. Until 2016, there were 161 out of 164 (98.2 per cent) cafeterias in health facilities obtained the Healthy Cafeteria recognition.

**Image 8**  
**The Guideline on Healthy Cafeteria Assessment and Recognition**



Source: Nutrition Division, MoH, (2016)



## ACTIVITY 16

### MYFRUITVEGE CAMPAIGN & MALAYSIAN HEALTHY PLATE CONCEPT

Fruits and vegetables are low in calories, rich in various vitamins and minerals which contain high antioxidants, phytochemicals and fibre. Fruits and vegetables have been scientifically proven to reduce the risk of diet-related non-communicable diseases (NCDs). Unfortunately, only 6% of Malaysian adults had consumed sufficient fruits and vegetables, which is 3 servings of vegetables and 2 servings of fruits daily, as reported in National Health and Morbidity Survey, NHMS 2015. This unhealthy eating habit had contributed to numerous health issues such as overweight, obesity and higher risks of non-communicable diseases (NCDs). The NHMS 2015 also reported that 47.7 per cent of adults Malaysians was overweight and obese, 30.3 per cent was having hypertension and 17.5 per cent of Malaysians suffered from diabetes mellitus. Hence, MyFruitVege Campaign was jointly launched by the Honourable Minister of Health Malaysia and Minister of Agriculture and Agro-Based Industry Malaysia at Malaysia Agro Exposition Park, Serdang (MAEPS) on the 6 December 2016, to inculcate the daily habit of eating adequate fruits and vegetables amongst Malaysian.

In conjunction with this campaign, the Malaysian Healthy Plate was also officially launched and introduced to the public with the tagline of 'QuarterQuarterHalf'. The Malaysian Healthy Plate directly translates the daily requirement of Malaysian Food Pyramid to correct portion sizes for each food group in a form of a plate. The Malaysian Healthy Plate indicates that only a quarter of the plate should be filled with rice, noodles, bread or grains, another quarter for fish, poultry, meat or legumes and half of it should be filled with fruits and vegetables.

Image 9

#### The Launching of MyFruitVege Campaign and Malaysian Healthy Plate, 2016



Source: Health Education Division, MoH, (2016)



The Guideline of Malaysian Healthy Plate Concept

## ACTIVITY 17

### NUTRITIOUS SCHOOL MEAL PROGRAMME (HiTS)

Nutritious School Meal Programme (HiTS) is a healthy meal programme where it takes into account daily calorie requirement for the school children. The programme aims to prepare and serve nutritious meals based on their requirement. It also aims to improve the knowledge and practice on healthy eating amongst school children.

The pilot project on School Meal Program (HiTS) has been conducted by the Ministry of Health Malaysia in collaboration with the Ministry of Education Malaysia at Sekolah Kebangsaan Setiawangsa, Kuala Lumpur with participation of Year 1 and Year 2 pupils. This project has been extended to other schools in Kuala Lumpur, Putrajaya, Selangor, Johor and Kelantan through various initiatives including by the school, PTAs, Non-Governmental Organization (NGO) and advocacy by our nutritionists.

The foods served to the school children meet 25 to 30 percent of daily calorie requirement. The food package consists of staple foods such as rice, chicken, vegetables, fruit and nutritious drink. Food is served using container with three or four compartments, while drink is also served in container with lid. These food and drink are served during recess time. The estimated price for the meal package (main course, fruit and drink) is RM3.00. This programme encourage fruits and vegetables intake amongst school children.

Image 10

#### Nutritious School Meal Programme, 2016



Containers used for HiTS

School children having HiTS

Sample of meal package

Source: Nutrition Division, MoH, (2016)

## ACTIVITY 18

### REVISION ON HEALTHY SCHOOL CANTEEN MANAGEMENT GUIDE

Healthy School Canteen Management Guide was published by the School Management Division, Ministry of Education Malaysia in collaboration with the Ministry of Health in 2011. This guide outlined the school canteen management including the sale on nutritious foods. It aims to improve food serving in school and inculcate healthy eating habit among school children, teachers and staffs.



Healthy School Canteen Management Guide has been revised in 2016. The revised proposal include only two categories of food and drink that can be sold and not allowed to be sold in school canteen as compared to the existing three categories in the canteen guidelines which were food and drink that can be sold, not allowed to be sold and not encouraged to be sold in school canteen. In addition, the nutrition component in the guidelines has also been revised to establish supportive environment towards healthy eating.

## **ACTIVITY 19**

### **REVISION ON MENU FOR BOARDING SCHOOL**

Standard menu for boarding school (Primary and Secondary), 2007 has been developed as a reference for food preparation for boarding school students under the Ministry of Education. This document has been revised in 2016. The serving size recommendation in this revised document is based on the Recommended Nutrient Intake (2005). Calorie recommendations for primary school children are between 1600kcal-2200kcal and for secondary school children are between 2100kcal-2800kcal. The recommended menus consist of all food groups based on the Malaysian Food Pyramid.

In addition, a standard menu for *Asrama 1Malaysia* has been developed, taking into account the calorie and nutrient requirement for the students. Some of the activities that had been undertaken to revise the menu at the boarding school were as follows:

- i. Supervision to the kitchen and dining hall for all settings of boarding schools under the administration of MOE. These include Primary and Secondary Schools, Full Boarding Schools, Religious Schools, Technical Schools, Vocational Colleges, and Special Education Schools. These schools represented north, central, east coast, Sabah and Sarawak regions.
- ii. Brainstorming on the new suggested menu with MOE.
- iii. Food testing on the menu. These include cooking methods, preparation time and cost calculation.
- iv. Acceptance among the students from north, central, east coast, Sabah and Sarawak regions.

Contract of *Bekalan Makanan Bermasak Asrama* (BMBA) has been improvised. The revision include scope of services, specification of raw materials and penalties that may be charged to the contractor.

## HEALTH EDUCATION DIVISION

### PROMOTION OF HEALTHY LIFESTYLE CAMPAIGN

- **Media Campaign**

Throughout year 2016, the promotion of Healthy Lifestyle Campaign was carried out through an integrated media campaigns in major media channels especially during the festive seasons and special events as shown in **Table 37, 38 and 39**.

**Table 37**  
**Healthy Lifestyle Promotion in Media (Newspaper), 2016**

No	Festival	Newspaper	Message
1.	During Chinese New Year	<ul style="list-style-type: none"> <li>▪ See Hua Daily</li> <li>▪ Sin Cew Daily</li> <li>▪ New Straits Times</li> <li>▪ The Star</li> <li>▪ Nanyang Siang Pau</li> <li>▪ The China Press</li> </ul>	<ul style="list-style-type: none"> <li>▪ Activity Physical</li> <li>▪ Healthy Eating</li> <li>▪ Anti-Smoking</li> </ul>
2.	During Hari Raya	<ul style="list-style-type: none"> <li>▪ Malaysia Nanban</li> <li>▪ The Star</li> <li>▪ New Straits Times (M ) Bhd</li> <li>▪ Utusan Malaysia</li> <li>▪ Harian Metro</li> <li>▪ Makkal Osai</li> <li>▪ Thina Thant</li> </ul>	<ul style="list-style-type: none"> <li>▪ Activity Physical</li> <li>▪ Healthy Eating</li> <li>▪ Anti-Smoking</li> </ul>
3.	During Deepavali	<ul style="list-style-type: none"> <li>▪ The Star</li> <li>▪ Malaysia Nanban</li> <li>▪ Makkal Osai</li> </ul>	<ul style="list-style-type: none"> <li>▪ Activity Physical</li> <li>▪ Healthy Eating</li> <li>▪ Anti-Smoking</li> </ul>

Source: Health Education Division, MoH

**Table 38**  
**Healthy Lifestyle Promotion in Media (Television & Radio), 2016**

No	Title	Channels	Message
1.	Healthy Lifestyle Campaign <ul style="list-style-type: none"> <li>▪ Women age 35 above</li> </ul>	TV3 (25 spot) TV9 (32 spot)	Physical Acvitivity Let's Move
2.	Healthy Lifestyle Campaign	RTM1 & RTM2 (393 spot)	"Tak Nak Merokok"
3.	Healthy Lifestyle Campaign	RTM1 & RTM2 (412 spot)	Prevent Obesity Do Physical Activity
4.	Maternal and Child Health	Radio Era (105 spot)	Immunization

Source: Health Education Division, MoH

**Table 39**  
**Healthy Lifestyle Promotion in Social Media, 2016**

No	Title	Social Media	Message
1.	Healthy Lifestyle Maternal and Child Health	Facebook MyHealth MoH : <ul style="list-style-type: none"> <li>▪ 75 posts and 91,710 reach</li> </ul> Pro vaccine campaign based on support from 25 social media influencers : <ul style="list-style-type: none"> <li>▪ Facebook: 68,576,311 reach</li> <li>▪ Twitter: 85,497,650 (impression)</li> <li>▪ Instagram 22,672,000</li> </ul> Four (4) Religious expert panels : <ul style="list-style-type: none"> <li>▪ 24,250 views</li> </ul>	Immunization

Source: Health Education Division, MoH

Advertisements related to healthy lifestyle were promoted using LED Perimeter Advertising at Sultan Muhammad IV Stadium, Kota Bharu, Kelantan and Tun Abdul Razak Stadium, Pahang during the Malaysian Football Super League as shown in **Table 40**.

**Table 40**  
**Promotion of Healthy Lifestyle Campaign through LED Perimeter Advertising, 2016**

No	Event	Details
1.	Super League 2016 (3 August 2016)	<ul style="list-style-type: none"> <li>▪ Kelantan vs. Felda United</li> <li>▪ 32 x 15 second</li> </ul>
2.	Super League 2016 (6 August 2016)	<ul style="list-style-type: none"> <li>▪ Kelantan vs. T/Team</li> <li>▪ 32 x 15 second</li> </ul>
3.	Super League 2016 (12 August 2016)	<ul style="list-style-type: none"> <li>▪ Kelantan vs. Selangor</li> <li>▪ 32 x 15 second</li> </ul>
4.	Super League 2016 (17 September 2016)	<ul style="list-style-type: none"> <li>▪ Felda vs. T/Team</li> <li>▪ 32 x 15 second</li> </ul>

Source: Health Education Division, MoH

• **Fitness Trainings**

The objectives of this programme were to form fitness teams at the state level and to provide the team members with the up-to-date knowledge and skills on various aspects of physical activities and exercises. Training sessions were conducted among selected health personnel who have the potential to conduct physical and fitness programme. In 2016, a total of 37 personnels were trained from all the states. Each trainer was equipped with the Physical Activity Guidelines Book to facilitate the implementation of physical and fitness programme conducted at the state level.

- **Gegar 10,000 Langkah Merdeka**

Gegar 10,000 Langkah Merdeka was a well-known programme which received overwhelming response from the local community that was initiated by MoH since 2012. In 2016, a total of 54,020 participants took part in this event involving a total of 142 locations across the country.

- **Sweat Wednesday Programme**

It is a physical activity session that was being carried out in the MoH headquarter on every Wednesday. This programme received good feedbacks from the participants as it was conducted by a trained fitness instructor. The objective of the programme was to promote active lifestyles among members in the Headquarters of the MoH. The Sweat Wednesday activities encouraged them to be more active and fit through various physical activities. Various types of physical activities were organized weekly such as 10,000 steps, aerobics, cardio workout, pilates, cycling and *Senamtari*.

- **'10 on 10' Weight Management Programme**

This programme was initiated and implemented in 2015 as one of the important activities at the Health Promoting Community Centre (HPCC) which based at the MoH health clinics. It was a structured weight management programme that designed specifically for volunteers who were obese with the aim to lose 10 kilograms within 10 weeks. In 2016, there were 9 HPCC in the country namely Seberang Jaya, Masjid Tanah, Kuala Sawah, Teluk Datok, Sabak Bernam, Purun, Bangi, Sungai Dua and Kota Setar involved in this programme. A total of 119 participants' aged between 19 and 45 years old took part and completed the programme successfully. The highest weight loss among the participants was 17.8 kg. The range of weight loss was shown in **Table 41** below.

**Table 41**  
**Total Weight-loss In '10 on 10' Weight Reduction Program, 2016**

No	Weight-Loss	Numbers
1.	>10kg	15
2.	6kg-9kg	30
3.	<5kg	55
4.	Remained	3
5.	Gain Weight	4
6.	Relapsed	12
<b>TOTAL</b>		<b>119</b>

Source: Health Education Division, MoH

- **Health Camps**

Health Camp was held annually in the conjunction with the Thaipusam celebration at Batu Caves, Selangor. Various activities such as health screening, health talks, counselling, exhibition and interactive games were held to promote healthy lifestyle among the public.

## FAMILY HEALTH PROMOTION PROGRAMME

- **World Mental Health Day**

World Mental Health Day was observed on 10 October every year, with the objective to raise awareness regarding mental health issues around the world and to mobilize efforts in supporting mental health issues. The national celebration of the World Mental Health Day 2016 was held at Auditorium Darul Makmur Sultan Haji Ahmad Shah, Pahang with the theme 'Psychological First Aid: Fast Help Reduce Pain'. About 2,000 people were present at the launching event and they also have the opportunity to visit mental health exhibition booths. The main activity of the day was forum on mental health in Malaysia.

## HIV/AIDS PREVENTION

- **World AIDS Day**

The National World AIDS Day 2016 was held on 8 December 2016 at the Borneo Convention Centre, Kuching with the theme "End AIDS: Keep Commitment, Boost Business, and Strengthen HIV Prevention". Various activities were held during the event such as forum, fun ride, running man, blood donation and health screening. The main objective of this event was to create awareness among the public to commit in the prevention of HIV infection, especially to the various categories of people at high risk for HIV infection.

## HEALTH PROMOTION ON DENGUE

- **Communication for Behavioural Impact (COMBI)**

The major emphasized of this programme was mobilizing the community to adopt healthy lifestyle through change agents known as COMBI promoters. The programme was also seen as one way to help reduce the incidence rate of dengue fever cases in the country.

Until December 2016, a total of 3,082 localities of Community COMBI Dengue were established throughout Malaysia as shown in **Table 42**.

**Table 42**  
**COMBI Dengue Localities by State, 2016**

No	States	COMBI Localities
1.	Perlis	33
2.	Kedah	205
3.	Pulau Pinang	154
4.	Perak	234
5.	Selangor	478
6.	WPKL & Putrajaya	311
7.	Negeri Sembilan	524
8.	Melaka	93
9.	Johor	357
10.	Pahang	140
11.	Terengganu	148
12.	Kelantan	151

No	States	COMBI Localities
13.	Sarawak	134
14.	Sabah	106
15.	WP Labuan	14
<b>Total</b>		<b>3,082</b>

Source: Health Education Division, MoH

- **Community empowerment training**

In order to enhance the leadership skills in mobilizing the local community, this Division conducted community empowerment trainings to COMBI community leaders by their respective regions. The numbers of leaders trained by zone is shown in **Table 43**.

**Table 43**  
**Community Empowerment Training, 2016**

No	Region	States	No of Leaders Trained
1.	Northern region	Perlis, Perak, Pulau Pinang & Kedah	100
2.	Central and southern region	Selangor, Wilayah Persekutuan Kuala Lumpur & Putrajaya, Negeri Sembilan, Melaka dan Johor.	120
3.	East Coast Region	Kelantan, Terengganu & Pahang.	59
4.	Sabah	Kota Kinabalu, Penampang, Papar, Tuaran, Keningau, Kudat dan Wilayah dan Persekutuan Labuan	22
5.	Sarawak	Sibu, Mukah, Bintulu, Miri, Sarikei, Betong, Kapit, Sri Aman, Kota Samarahan dan Limbang	57

Source: Health Education Division, MoH

- **Communication for Behavioural Impact Information System (COMBiS)**

COMBiS was an online system used for collecting and monitoring data on dengue prevention activities carried out by community at their respective localities. Two series of system application trainings were conducted to health personnel and community leaders as shown in **Table 44**.

**Table 44**  
**COMBiS Training for Health Personnel and Community Leaders, 2016**

No	Venue	Numbers of Participants	State Representatives
1.	Hotel Pantai Puteri, Melaka	41	Kuala Lumpur, Melaka & Johor
2.	Kolej Sains Kesihatan Bersekutu	29	Perak & Pulau Pinang

Source: Health Education Division, MOH

## HEALTH PROMOTION ON ZIKA VIRUS

Informative and preventive television and radio spots on the spread of the virus were produced in collaboration with the local media in multi languages. The communities were given valuable resources regarding the risks associated with the virus and promotion of healthy behaviours to prevent any infection through various media channels (**Table 45**).

**Table 45**  
**Health Promotion on Zika through Electronic Media, 2016**

No	Channels	No. of Spots	Topics
1.	RTM (TV1) <ul style="list-style-type: none"> <li>National News</li> <li>Dialog</li> <li><i>Apa Kata Wanita?</i></li> <li><i>Selamat Pagi Malaysia</i></li> </ul>	4	<ul style="list-style-type: none"> <li>Zika Virus</li> <li>Zika: Symptoms and Prevention</li> <li>Zika: Advise to travellers</li> <li>Zika: Protect pregnant mothers</li> </ul>
2.	TV9 <ul style="list-style-type: none"> <li>Berita TV 9</li> </ul>	4	
3.	Astro <ul style="list-style-type: none"> <li>Astro Awani</li> <li>Agenda Awani</li> <li>Analisis Awani</li> <li>Astro Vaanavil &amp; Vinmeen</li> </ul>	1 1 1 1	
4.	Radio RTM <ul style="list-style-type: none"> <li>Mutiara FM</li> <li>Sabah VFM</li> <li>Minnal FM</li> <li>Nasional FM</li> <li>Pahang FM</li> <li>Melaka FM</li> </ul>	1 1 1 1 1 1	

Source: Health Education Division, MOH

## CONCLUSION

Throughout 2016, various efforts were made to ensure that the target groups acquired knowledge and skills related to healthy living. Achieving in developing new programmes and approaches over the years did not make the Division neglectful to keep seeking opportunities to expand the scope of health promotion. Although facing expected resource constraints, this division continued to perform all the planned activities creatively and with great determination.







# **CHAPTER 5**

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**MEDICAL**

## INTRODUCTION

The Medical Program is responsible for matters relating to services provided in hospitals headed by the Deputy Director-General of Health (Medical). The programme consists of six divisions: Medical Development, Medical Practices, Allied Health Sciences, Nursing, Telehealth and The Traditional and Complementary Medicine.

### MEDICAL DEVELOPMENT DIVISION

#### A. MEDICAL SERVICES DEVELOPMENT SECTION

##### a. HOSPITAL MANAGEMENT SERVICES UNIT

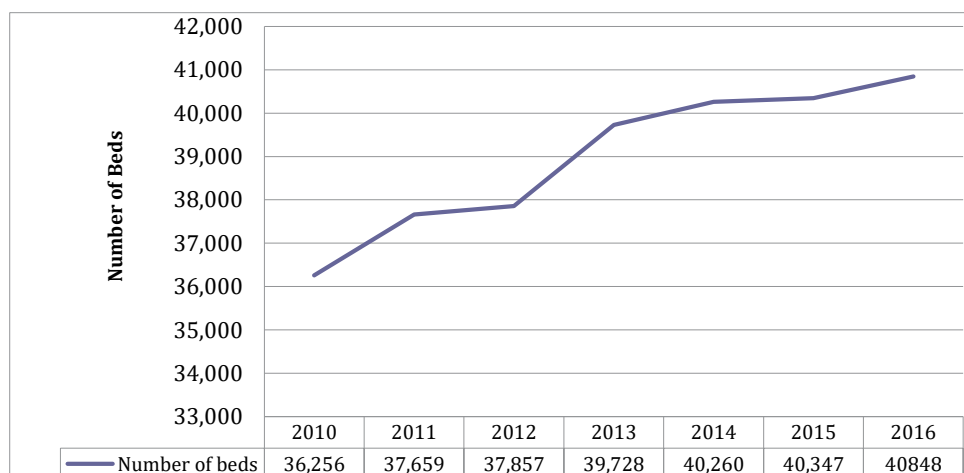
###### POLICIES

In 2016, the Hospital Management Services Unit, in collaboration with Medical Social Worker Department of selected hospitals has successfully published a Guideline for Voluntary Services in MoH Hospitals. The policy was enforced through the “Surat Pekeliling KPK Bilangan 18 tahun 2016” to both facilitate and regulate the expanding voluntary services in MoH hospitals.

###### FACILITY DEVELOPMENT & UTILIZATION

By end of 2016, the MOH Malaysia has a total of 145 functional hospitals and special institutions with a total capacity of 40, 848 operational beds. In view of increasing healthcare demands by the public and the government’s initiatives to increase access to healthcare for the public as well the target to achieve a bed to population ratio of 2.3 beds for every 1000 people under the 11<sup>th</sup> Malaysia Plan, 12 new hospitals have been planned for construction while several others were scheduled for facility upgrades. **Figure 1** depicts the number of hospital beds over the years.

**Figure 1**  
**Total Number of MoH Hospital Beds in Malaysia, 2010 to 2015**



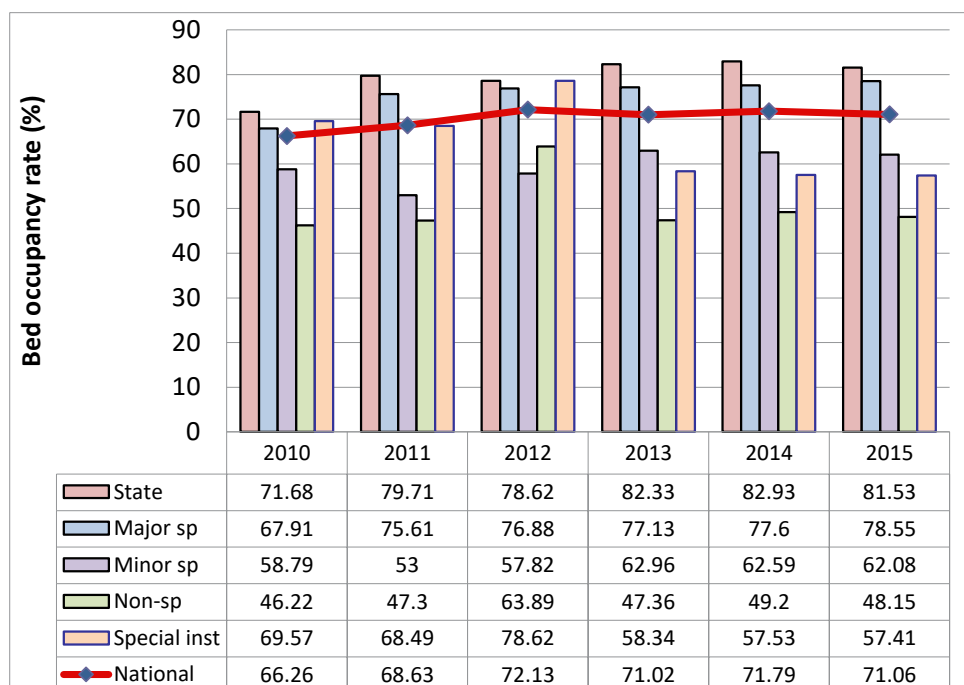
Source: Health Informatic Centre, MoH

Under the 11th Malaysia Plan strategic framework, MoH hospitals will be classified into 4 major categories (**Table 1 and 2**):

- State hospital (14 hospitals)
- Hospital with specialist (45 hospitals)
- Hospital without specialist (75 hospitals)
- Special medical institution (10 institutions)

The bed occupancy rate (BOR) indicates the level of congestion in the hospitals and every year, bigger hospitals like state and specialist hospitals with multiple specialty services recorded the highest figures for BOR while the smaller hospitals especially those without specialists recorded much lower figures, hence bringing down the national average of BOR. The figures are represented in **Figure 2**.

**Figure 2**  
**Bed Occupancy Rate of MoH Hospitals by Hospital Types, 2010 to 2015**



Source: HIMS Annual Report

**Table 1**  
**Non-Specialist Hospitals, 2016**

Non-Specialist Hospitals (65)			
<b>Kedah</b> <ul style="list-style-type: none"> <li>Hospital Baling</li> <li>Hospital Jitra</li> <li>Hospital Kuala Nerang</li> <li>Hospital Sik</li> <li>Hospital Yan</li> </ul>	<b>Negeri Sembilan</b> <ul style="list-style-type: none"> <li>Hospital Jelebu</li> <li>Hospital Jempol</li> </ul>	<b>Terengganu</b> <ul style="list-style-type: none"> <li>Hospital Hulu Terengganu</li> <li>Hospital Setiu</li> </ul>	<b>Sabah</b> <ul style="list-style-type: none"> <li>Hospital Beluran</li> <li>Hospital Kinabatangan</li> <li>Hospital Kota Belud</li> <li>Hospital Kuala Penyu</li> <li>Hospital Kudat</li> <li>Hospital Kunak</li> <li>Hospital Papar</li> <li>Hospital Pitas</li> <li>Hospital Ranau</li> <li>Hospital Semporna</li> <li>Hospital Sipitang</li> <li>Hospital Tambunan</li> </ul>
<b>Pulau Pinang</b> <ul style="list-style-type: none"> <li>Hospital Balik Pulau</li> <li>Hospital Sungai Bakap</li> </ul>	<b>Melaka</b> <ul style="list-style-type: none"> <li>Hospital Alor Gajah</li> <li>Hospital Jasin</li> </ul>	<b>Kelantan</b> <ul style="list-style-type: none"> <li>Hospital Jeli</li> <li>Hospital Machang</li> <li>Hospital Pasir Mas</li> <li>Hospital Tengku Anis, Pasir Puteh</li> <li>Hospital Tumpat</li> </ul>	
<b>Perak</b> <ul style="list-style-type: none"> <li>Hospital Batu Gajah</li> <li>Hospital Changkat Melintang</li> <li>Hospital Kampar</li> <li>Hospital Parit Buntar</li> <li>Hospital Selama</li> </ul>	<b>Johor</b> <ul style="list-style-type: none"> <li>Hospital Mersing</li> <li>Hospital Pontian</li> <li>Hospital Tangkak</li> <li>Hospital Temenggong Sri Maharaja Tun Ibrahim, Kulai, Pahang</li> </ul>	<b>Sarawak</b> <ul style="list-style-type: none"> <li>Hospital Bau</li> <li>Hospital Betong</li> <li>Hospital Daro</li> <li>Hospital Dalat</li> </ul>	

Non-Specialist Hospitals (65)			
<ul style="list-style-type: none"> <li>Hospital Sungai Siput</li> <li>Hospital Tapah</li> </ul>	<ul style="list-style-type: none"> <li>Hospital Jengka</li> <li>Hospital Jerantut</li> <li>Hospital Muadzam Shah</li> <li>Hospital Raub</li> <li>Hospital Rompin</li> <li>Hospital Sultanah Hajjah Kalsom, Cameron Highlands</li> </ul>	<ul style="list-style-type: none"> <li>Hospital Kanowit</li> <li>Hospital Lawas</li> <li>Hospital Lundu</li> <li>Hospital Marudi</li> <li>Hospital Rajah Charles Brooke Memorial, Kuching</li> <li>Hospital Saratok</li> <li>Hospital Serian</li> <li>Hospital Simunjan</li> </ul>	<ul style="list-style-type: none"> <li>Hospital Tenom</li> <li>Hospital Tuaran</li> </ul>
Selangor			
<ul style="list-style-type: none"> <li>Hospital Kuala Kubu Baru</li> <li>Hospital Tanjung Karang</li> <li>Hospital Tengku Ampuan Jemaah, Sabak Bernam</li> <li>Hospital Orang Asli, Gombak</li> </ul>			

Source: Medical Development Division, MoH and State Health Departments

**Table 2**  
**Hospitals with Specialist and Special Medical Institutions, 2016**

Specialist Hospitals and Institutions			
HKL + State Hospitals (14)	Major Specialist Hospitals (28)	Minor Specialist Hospitals (28)	Special Medical Institutions (10)
<i>Target of 45 specified resident specialties/sub-specialties</i>	<i>Target of 20 specified resident specialties/sub-specialties</i>	<i>Target of 10 specified resident specialties</i>	<i>Specific resident specialties</i>
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	
10. Hospital Tengku Ampuan Afzan, Kuantan	10. Hospital Serdang	10. Hospital Port Dickson	
11. Hospital Sultanah Nur Zahirah, Kuala Terengganu	11. Hospital Kajang	11. *** Hospital Tampin	
	12. Hospital Shah Alam	12. Hospital Enche Besar Hajjah Kalsom, Kluang	
	13. Hospital Tuanku Ampuan Najihah, Kuala Pilah	13. *** Hospital Kota Tinggi	
	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 Hospital Sultan Haji Ahmad Shah, Temerloh	17. *** Hospital Dungun	

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
12. Hospital Raja Perempuan Zainab II, Kota Bharu 13. Hospital Umum Sarawak (+ Pusat Jantung Sarawak), Kuching 14. Hospital Queen Elizabeth, Kota Kinabalu	19. Hospital Kemaman 20. Hospital Kuala Krai 21. Hospital Tanah Merah 22. Hospital Sibul 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	18. *** Hospital Besut 19. *** Hospital Gua Musang 20. Hospital Kapit 21. Hospital Limbang 22. Hospital Sarikei 23. Hospital Sri Aman 24. *** Hospital Mukah 25. Hospital Lahad Datu 26. Hospital Keningau 27. *** Hospital Beaufort 28. *** Hospital Kota Marudu	9. Hospital Wanita dan Kanak-Kanak, Likas 10. **Pusat Darah Negara, Kuala Lumpur

\* 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

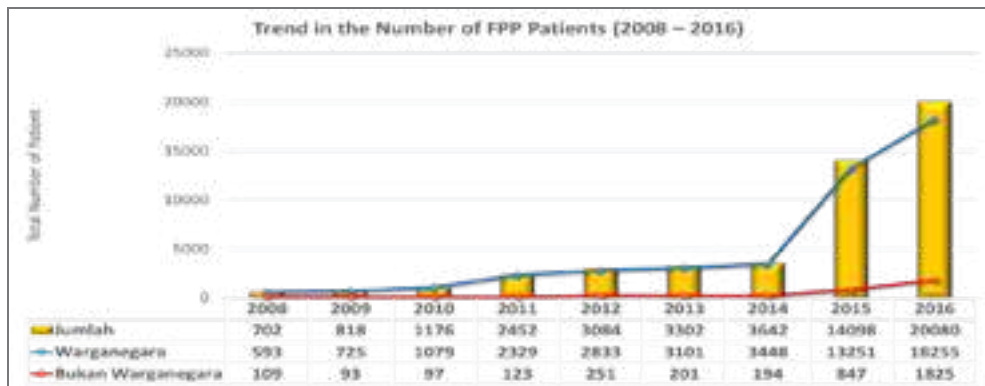
Source: Medical Development Division, MoH

## FULL PAYING PATIENT

The Full Paying Patient (FPP) Services was initially introduced into Ministry of Health (MoH) hospitals in 2007 to provide additional incentives as part of a retention package for specialists. The aim is to reduce the rate of attrition of government specialists to the private sector. The services are offered by selected MoH hospitals whereby patients are given the option to be treated by specialist of choice within executive or first class facilities and patients will be charged fully without subsidies from the government. The revenue collected by the hospital through these services will be given to specialists registered under this service and the Government.

The FPP services pilot project implemented at Hospital Selayang and Hospital Putrajaya in 2007 showed increasing trend in terms of patients' participation, the involvement of specialists and revenue to the Government within the 8 years period of implementation. Encouraging evidence of this achievement has prompted MoH to expand FPP services in stages to all 42 hospitals gazetted where in 2015, Phase 1 expansion has involved another eight (8) hospitals (Hospital Ampang, Hospital Serdang, Hospital Sungai Buloh, Hospital Pulau Pinang, Hospital Queen Elizabeth II, Pusat Jantung Hospital Umum Sarawak, Hospital Sultan Ismail, and Hospital Sultanah Aminah). By December 2016, there are 302 MOH specialists registered under FPP services.

**Figure 3**  
**FPP Patients Trend by Citizenship, Year 2008 to 2016**



Source: Medical Development Division, MoH

### LEAN HEALTHCARE INITIATIVE

Following its success in 2015, Lean Healthcare initiative had been rolled out to another 20 hospitals in 2016 involving Emergency Department (ED) and Medical Ward (MW). After six months into its implementation, some achievements have been gained where:

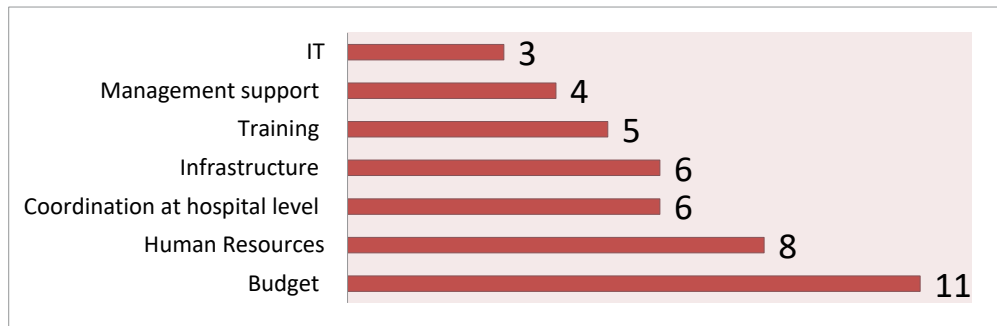
- For Emergency Department: 30 per cent (6 hospitals) of the hospitals were already efficient, 25 per cent (5 hospitals) of the hospitals showed improvement while 45 per cent (9 hospitals) of the hospitals required further improvement.
- For Medical Wards: Ward capacity had improved by 75per cent, resulting in more beds to treat patients.

In addition to ED and MW, Lean Healthcare has also expanded to reduce waiting time to see doctors at Orthopaedics and Ophthalmology Specialist Clinics. These specialties have been chosen to be part of Lean initiative in MOH due to their highest outpatients load among all clinical disciplines and coupled with complex processes during outpatient visits, they face severe congestion. A total of four (4) hospitals were selected as pilot project namely Hospital Kuala Lumpur, Hospital Tengku Ampuan Rahimah, Hospital Selayang and Hospital Sungai Buloh. Currently, this project is at its final phase of data collection and analysis.

Majority of the hospitals encountered challenges in lean implementation where budget constraint is most common followed by lack of human resource (**Figure 4**). In 2017, another 15 hospitals will embark on Lean Healthcare initiative journey as part of agile expansion approach involving ED and MW. Apart from ED and MW, new areas include Medical Records, Pathology and Operation Theatre to enhance work processes efficiency by identifying and eliminating waste as much as possible. These areas have

been identified by staff as issues that impede their daily work of providing clinical services and patient care efficiently to meet the increasing demands. It is envisioned that Lean will help them manage the demands and allow optimum utilization of spaces/ facilities.

**Figure 4**  
**Major challenges/issues of Lean Implementation of 16 MOH Hospitals, 2016**



Source: Medical Development Division, MoH

## HOSPITAL CLUSTER

Hospital Cluster comprised at least three (3) MoH hospitals (Specialists and Non-Specialists); located within the same geographic area providing specialized services to patients in these areas where human resources, facilities, and other resources will be shared between hospitals in the cluster.

Under MoH's Transformation of Healthcare System, Hospital Cluster has been actively implemented as a pilot project since 2014 to 2016 in three (3) States; Pahang, Melaka and Sabah. In 2016, Hospital Cluster initiative was selected as one of the initiatives under 10 priority areas of the Health Minister. It was also highlighted as one of the high impact initiative under the Public Service Transformation by the Public Services Department.

As of 2016 to 2020, Hospital Cluster will be expanded nationwide to involve all MoH Hospitals with the establishment of three (3) new Clusters per year; with the total of at least fifteen (15) Clusters by the year 2020.

As of 2016, overall outcome of the three new (3) Clusters as compared to pilot clusters implementation have been positive, improvements are seen in most aspects of the services clustered i.e. increased utilisation of beds & facilities, improved productivity and competency of staff at non-lead hospitals or non-specialist hospitals in the cluster. Overall, there are improvement in terms of 11.77 per cent increase of bed occupancy rate(BOR) at non-specialist hospital in the cluster (i.e. an average increase from BOR of 48.45 per cent to 54.15 per cent), improvement of 4.47 per cent in the number of patients seen at Specialist Outpatient Clinics at the non-specialist hospitals (i.e. an



average of 200 more patients seen at specialist clinics per cluster per month) and an increase of 9.83 per cent, for surgical procedure, with an average of 36 more surgical procedures conducted at non specialist clusters hospitals. The performance for clusters rolled out in 2016 as compared to pilot cluster implementation after 1<sup>st</sup> year showed better improvement at pilot clusters in term of number of surgical procedures and specialist clinics encounters. The overall performance for pilot clusters at 1<sup>st</sup> year and 2<sup>nd</sup> year implementation showed that cluster hospitals implementations will progressively improve the services especially at non-specialist hospitals.

**Figure 5**  
**Pilot Clusters (2014 to 2016) & New Clusters for 2016**



Source: Medical Development Division, MoH

## INFORMATION AND COMMUNICATION TECHNOLOGY

### Health Information Technology- Hospital

Perseverance in our mission to enable ICT in government hospitals, year 2016 showed some lights to move forward to achieve E-Health environment. ICT Project kick off include mega project in **software development** for Government hospitals.

**Project Clinical Documentation (CD)** starting from 21 March 2016 shall develop 11 Clinical modules, Medical, Surgical, Orthopedics, O&G, Pediatrics, Emergency Medicine, Ophthalmology, ORL, Psychiatry, Oral Health and nursing. CD shall be piloted at Hospital Raja Perempuan Bainun Ipoh.

**Project HIS@KKM Phase 1**, another project started on 27 June 2016 to develop 3 Clinical supporting Modules, Laboratory Information Systems (LIS), Operation Theatre

Information Systems (OTMS) and Central Supply Information System (CenCCIS). This shall be piloted at HTJ of Seremban.

Development of **Blood Bank Information System (BBIS) V2** also started from 01 June 2016 will be implemented at PusatDarah Negara and 21 Blood collection centers in Malaysia.

Procurement of specialized clinical modules, **Critical Care Information system (CCIS)**, implemented at HKL, was actually enhancing the current existing application at the General ICU. This project went live in November 2016 and next in planning is installation of CCIS in state Hospitals of MoH. Maternity & Children's Hospital KL (HWKKL), is currently at the final stages of facility readiness and ICT Implementation and soon to be operationalizing in 2017.

#### ***Sistem Pengurusan Pesakit (SPP)***

Till December 2016, 6 government hospitals are using 4 versions of SPP. December 2016 witnessed SPP v3.5 went live at Hospital Raja Perempuan Zainab II Kota Bharu, Hospital Tunku Jaafar Seremban and Hospital Bentong. Hospital Raja Perempuan Bainun Ipoh uses SPPv3.5\* the integrated version with Pharmacy HIS, and Hospital Taiping using SPPV3.1 with limited modules. The 3 SPP eKL-hospitals remained as it is, at Hospital Kuala Lumpur, Hospital Tengku Ampuan Rahimah Klang and Hospital Kajang. Further plan to expand roll-out SPP is halted by financial constraints and human resources. Despite no increase in numbers of hospitals implementing SPP, enhancement of current SPP is taken into account in the CD Project. Plans versioning upgrade through 167 change requests to be developed in 2017.

#### **Current IT Hospitals and New hospital using HIS**

In 2015 Hospital Selayang have started upgrading the current HIS while the rest of 11 IT hospitals from Package 1 HIS will be upgraded in phases. Hospital Shah Alam as a new HIS Hospital went live on 31 Dec 2015.

### **MEDICAL RECORD**

The Medical Records Centralisation Project is still being continuously implemented using current available space with the objective to improve the management of patient medical records. The aim is to achieve 100% implementation by the end of this year.

The total number of applications for Medical Report received in 2016 was 223,554 which included applications from various government and private agencies. The medical report shall be prepared within the following stipulated periods:

- State & Specialist Hospital: 28 days
- Non Specialist Hospital: 14 days.

The *Jadual Pelupusan Rekod Perubatan 2016* (Medical Record Disposal Guideline 2016) has been successfully published and distributed to all MoH hospitals and special medical institutions. It is currently available at the Ministry of Health portal.

The achievement for medical record and medical report is monitored by the Allied Health Division twice a year (**Table 3**).

**Table 3**  
**Medical Report Performance Monitoring (2011 to 2016)**

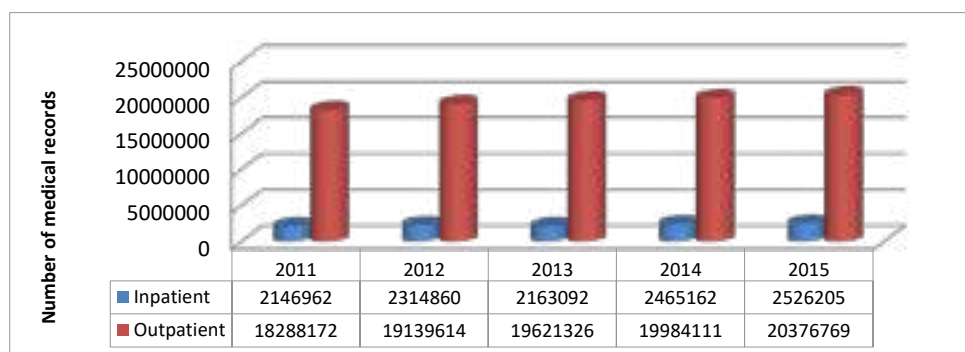
Hospital Category	Number of Hospital	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)
State Hospital	14 hospitals	77	84	90	94.5	94.6	94.7
Specialist Hospital	62 Hospitals + Institution	80	92	95	96	96.8	96.9
Non-Specialist Hospital	66 Hospitals	97%	98	99	99	99	97.1

*Source: Medical Development Division, MoH*

**Figure 6** shows the increasing numbers of patient records for both inpatient and outpatient services over the years. There is an increase of 11.42 per cent for inpatient records in 2015 compared to 2011 while outpatient records showed an increase of 17.6 per cent in 2015 compared to 2011.

Currently there are challenges of integration of “Electronic Medical Record” in order to allow sharing of information between different facilities. Cluster Record Management allows patients’ medical records to be taken out from hospital within the cluster facilities for the purpose of continuation of treatment is a new change in the current policy of medical record management. Lean Healthcare initiatives have also been implemented in Hospital Kuala Lumpur since late 2016 to improve medical record management services.

**Figure 6**  
**Management of Inpatient and Outpatient Patient Records in Hospital**  
**(2011 to 2016)**



Source: Health Informatic Centre, MoH

### CASEMIX SYSTEM

Utilisation of Casemix System was expanded from 27 MOH hospitals in 2015 to 38 hospitals in 2016. This expansion comprised of 10 hospitals and one Medical Institution, effective 1 October 2016 involved three (3) states, namely Pulau Pinang, Perak and Negeri Sembilan as listed in **Table 4**.

**Table 4**  
**Casemix System Expansion, 2016**

No	State	Hospital
1.	Pulau Pinang	i. Seberang Jaya Hospital ii. Bukit Mertajam Hospital iii. Kepala Batas Hospital iv. Sungai Bakap Hospital
2.	Perak	v. Sungai Siput Hospital vi. Kampar Hospital vii. Batu Gajah Hospital
3.	FT Putrajaya	viii. National Cancer Institute, Putrajaya
4.	Negeri Sembilan	ix. Tuanku Ampuan Najihah Hospital, Kuala Pilah x. Tampin Hospital xi. Jempol Hospital

Source: Medical Development Division, MoH

### AUDIT ON CLINICAL DOCUMENTATION ACCURACY AND COMPLETENESS; AND ICD-10 AND ICD-9-CM CODING ACCURACY

Audit on clinical diagnosis documentation was conducted at two hospitals in 2016, as listed below:

1. Baseline Audit for Clinical Procedure Documentation Accuracy & Completeness and ICD-9-CM Coding Accuracy was conducted at the 10 hospitals involved with the Casemix System Expansion 2016.
2. Phase 2 Audit on Clinical Diagnosis Documentation Accuracy and Completeness and ICD-10 Coding Accuracy, was conducted at two hospitals that had completed its own Phase 1 Audit. The two hospitals involved are:
  - i. Sultan Haji Ahmad Shah Hospital, Temerloh
  - ii. Melaka Hospital

## TRAINING

Training focused on four categories of staff from the 10 hospitals and one Medical Institution involved with Casemix System Expansion 2016; throughout 2016, with 5 of 14 training sessions co-organised by Medical Development Division, State Health Department and Hospitals involved. **Table 5** shows the category of staff and type of training conducted:

**Table 5**  
**Training Activity For Casemix System Expansion 2016 Hospitals**

No	Category of staff	Training
1	Medical Officer	Diagnosis and Procedure Documentation Course
2	Paramedics and Allied Health staff	Procedure Documentation according to ICD-9-CM Seminar
3	Medical Record Officer and Assistant Medical Record Officer	Basic Procedure Coding Course (ICD-9-CM) Clinical Module Application User Training Workshop Cluster Hospital Clinical Module Application User Training Workshop
4	Finance Officer	Costing Module Application User Training Workshop

*Source: Medical Development Division*

## MALYSIANDRG V2.0 PROJECT DEVELOPMENT

The MalaysianDRG V2.0 Project Development is an upgrade to the existing application, since 15.09.2015 where the first two years is for application development and the last one year is for maintenance.

Two main components from the entire four components of this project are:

1. Upgrading of existing modules: i. Clinical Module, ii. Costing Module and iii. Report Module. All modules have passed User Acceptance Test, Provisional Acceptance Test and Final Acceptance test, and have been in use since 1 December 2016.
2. Development of three new modules: i. Business Intelligent (BI) Module, ii. Mortality Medical Data System (MMDS) Module and iii. Pay-for-performance Module. All three modules are currently in the development stage, as of end 2016.

As of 2016, the overall progress of the MalaysianDRG V2.0 Project Development is at 62 per cent, and is expected to be ready for use by mid-2017.

#### b. MEDICAL SERVICES UNIT

Medical Services are the medical-based specialist and subspecialist services of General Medicine, Dermatology, Gastroenterology, Hematology, Hepatology, Endocrinology, Rheumatology, Infectious Diseases, Palliative Medicine, Geriatrics, Respiratory Medicine, Psychiatry, Nephrology, Neurology, Cardiology and Radiotherapy & Oncology.

**Table 6** shows the total number of patients who received outpatient treatment at specialist clinics of the various medical disciplines in 2014 and 2015. The total number of patients treated at specialist clinics of various medical disciplines increased by 6.6 per cent in 2015 as compared to 2014.

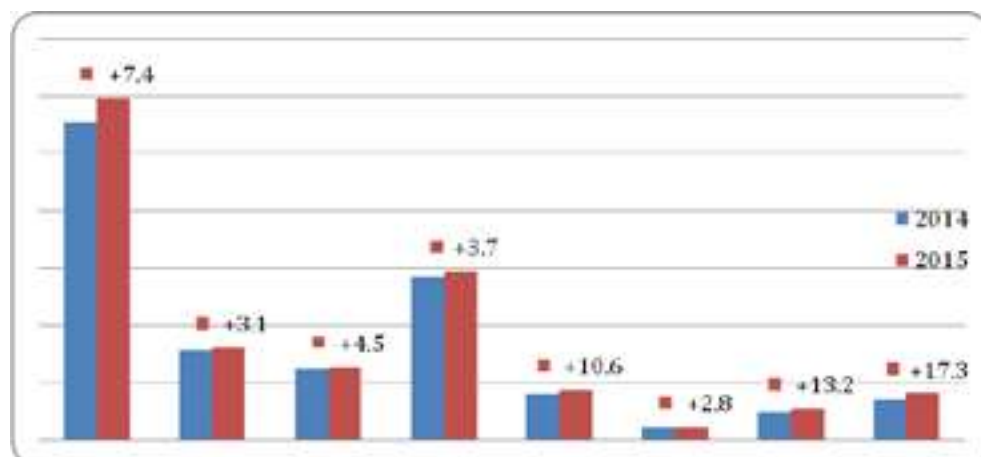
**Table 6**  
**Total Number of Patients Who Received Treatment at Medical Specialist Clinics in 2014 and 2015 According to Discipline**

Discipline	No. of patients at specialist clinics		% +/- Difference between 2014 and 2015
	2014	2015	
General Medicine	1,111,318	1,193,122	+7.4
Dermatology	311,468	321,112	+3.1
Respiratory Medicine	243,645	254,494	+4.5
Psychiatry	560,557	589,459	+3.7
Nephrology	156,538	173,182	+10.6
Neurology	41,785	42,939	+2.8
Radiotherapy & Oncology	94,562	107,045	+13.2
Cardiology	137,040	160,724	+17.3

Source: Health Informatics Centre, MoH

The bar chart in **Figure 7** illustrates the total number of patients who received treatment at medical specialist clinics between the years 2014 and 2015. Attendances at all clinics showed an increase.

**Figure 7**  
Total Number of Patients Who Received Treatment at Medical Specialist Clinics in 2014 and 2015 According To Discipline



Source: Health Informatics Centre, MoH

**Table 7** shows the total number of patients from various medical disciplines treated as in-patients. The total number of patients treated as inpatients for the medical disciplines increased by 4.1 per cent 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. This was due to strengthening of the community psychosocial rehabilitation services at the Community Mental Health Centres (CMHC).

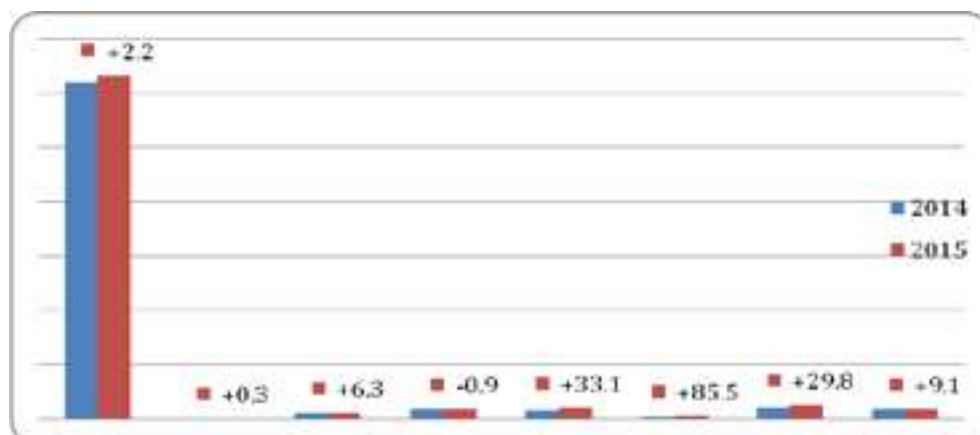
**Table 7**  
Total Admissions for the Specialist Medical Disciplines in 2014 and 2015

Discipline	Number of inpatients		% +/- Difference between 2014 and 2015
	2014	2015	
General Medicine	620,150	633,767	+2.2
Dermatology	964	967	+0.3
Respiratory Medicine	11,008	11,698	+6.3
Psychiatry	18,121	17,964	-0.9
Nephrology	14,960	19,911	+33.1
Neurology	2,843	5,273	+85.5
Radiotherapy & Oncology	19,623	25,472	+29.8
Cardiology	18,442	17,944	+9.1

Source: Health Informatics Centre, MOH

The bar chart in **Figure 8** illustrates the total admissions for the specialist medical disciplines in 2014 and 2015. Admissions showed an increase in all disciplines with the exception of Psychiatry. An increase in inpatients was most prominent for the disciplines of Neurology, Nephrology and Radiotherapy and Oncology.

**Figure 8**  
**Total Admissions for the Specialist Medical Disciplines In 2014 and 2015**



Source: Health Informatics Centre, MoH

Highlights of 2016 are:

1. A workshop on the Preparation of Standard Operating Procedures for the Supported Employment Program for psychiatric patients was held at Hospital Permai on the 8 to 10 May 2016. The objective of the workshop was to prepare the standard operating procedures for the supported employment program for Community Mental Health Centres (CMHC/MENTARI) and all psychiatric hospitals in Malaysia.
2. Mentari IT System (MITS), is an outpatient (community-based) IT system, initiative was started on 1 July 2016 in order to collect data recording activities conducted in the 12 Community Mental Health Centers (CMHC/MENTARI) across the country. It will run for 3 years.
3. The Dermatology Services Operational Policy was published in July 2016. This policy will be used as a guideline and reference for medical personnel in the Ministry of Health in the provision of dermatology services.
4. A Domiciliary Care Seminar was held in July 2016 at the Auditorium Parcel E, Putrajaya. This seminar was conducted so as to provide awareness and educate the hospital staff involved in referring patients to Domiciliary Care Teams at the District Health Office.



5. The Asia Dengue Conference 2016 was held on the 23 and 24 August 2016 at the JW Marriot Hotel Kuala Lumpur. Local and international speakers shared their knowledge and experience in handling dengue. The conference addresses various pertinent issues on the challenges, diagnosis, treatment and best practices in managing this growing menace in the region. More than 800 local and international participants attended the conference.
6. The Gastroenterology Services Operational Policy was published in November 2016. This policy is for all medical staff involved in providing gastroenterology services in the Ministry of Health hospitals.
7. The Guidelines on the Management of Aggressive Patients in Ministry of Health (MOH) Facilities were published in November 2016. This guideline will provide guidance for all Ministry of Health staff in managing aggressive patients safely and efficiently.
8. The Advanced Care Planning and End of Life Care Seminar was held on 1 November 2016 at the National Cancer Institute. The seminar was attended by 200 participants representing all disciplines.
9. On 1 to 3 November 2016, a workshop for Training of Trainers: Guidelines for Supported Employment, Guidelines on Psychiatric Nursing Home and Guidelines on Community Mental Health Team, was held at Auditorium Ixora, Hospital Permai.
10. A Dengue Clinical Study Workshop was held on 3 and 4 November 2016 at Best Western Hotel, Shah Alam. The representatives from the medical, intensive care and obstetrics and gynaecology disciplines gathered together to prepare the research protocol for a dengue study that will be conducted in 2017. The studies are: Retrospective Study on Prediction of Deaths in Severe Dengue (REPROSED), Haemodynamic and Fluid Responsiveness Assessment in Patients with Severe Dengue and Shock- an Echocardiography Study, and Prospective Study on Outcome of Dengue Infection In Pregnancy.

**c. SURGICAL SERVICES UNIT**

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 service is available in all major specialist hospitals, whereas surgical discipline such as neurosurgery, plastic surgery, urology 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 8** indicated an increased in number of the patients in almost all surgical discipline.

**Table 8**  
**Number of Outpatients at Surgical (Specialty) Clinics, 2014 and 2015**

Disciplines	No. of Outpatients		% +/- difference between 2014/2015
	2014	2015	
General Surgery	734,195	764,175	+4.08
Orthopedic	973,381	993,954	+2.11
Ophthalmology	1,018,543	1,082,190	+6.24
Otorhinolaryngology	577,245	616,049	+6.72
Urology	130,836	139,257	+6.43
Neurosurgery	43,647	47,440	+8.69
Cardiothoracic surgery	27,756	28,080	+1.16
Plastic Surgery	51,600	51,276	-0.62
Hand & Microsurgery	9,635	9,991	+3.69
Hepato-pancreatico-biliary	NA	NA	NA
<b>TOTAL</b>	<b>3,566,838</b>	<b>3,732,412</b>	

NA = Data not available

Source: Health Informatics Centre, MoH

The numbers of inpatients in all surgical (specialty) wards are shown in **Table 9**. Like surgical outpatient attendees, there was an overall increment in admission in 2015 as compared to 2014.

**Table 9**  
**Number of Beds, Inpatient and Bed Occupancy Rate of Surgical (Specialty) Ward, 2014 and 2015**

Discipline	No. of Beds		No. of Inpatients		% +/- Inpatient Difference Between 2014/2015	Bed Occupation Rate	
	2014	2015	2014	2015		2014	2015
General Surgery	3,596	3,636	221,634	221,451	- 0.08	59.33	59.41
Orthopaedic	3,080	3,221	139,315	139,631	0.22	71.73	68.62
Ophthalmology	622	628	36,094	38,600	6.94	45.83	45.34
Otorhinolaryngology	413	423	21,388	22,229	3.93	52.38	52.39
Urology	238	252	14,833	15,761	6.25	69.22	72.23
Neurosurgery	290	298	8,633	9,747	12.90	68.30	68.62
Cardiothoracic	132	137	2,860	2,411	- 15.69	75.92	64.40
Plastic Surgery	121	121	4,101	3,681	- 10.24	49.69	46.94
Hand & Microsurgery	18	18	NA	224	-	14.16	26.53
Hepatopancreaticobiliary	28	28	1,190	2,809	136.05	127.33	127.38
<b>TOTAL</b>	<b>8,538</b>	<b>8,762</b>	<b>436,879</b>	<b>456,544</b>			

Source: Health Informatics Centre, MoH

The core activity of all the surgical specialties were operations performed as shown in **Table 10** below. Included in the table are operations by subspecialties which were previously not available, as in asterisk. Overall, there was an increase in number of total operation performed in 2016 as compared to 2015.

**Table 10**  
**Number of Elective and Emergency Operation Performed, 2015 and 2016**

Disciplines	No. of Operation Performed					
	2015			2016		
	Elective	Emergency	Total	Elective	Emergency	Total
General Surgery	75,607	244,036	319,643	79,568	226,815	306,383
Orthopedic	85,140	219,511	304,651	88,684	201,277	289,961
Ophthalmology	67,598	8,839	76,429	97,244	8,103	105,347
Otorhinolaryngology	40,751	14,681	55,432	52,595	14,531	67,126
Urology	16,104	8,824	24,928	17,064	9,408	26,477
Neurosurgery	2,650	8,987	11,637	2,729	8,609	11,338
Cardiothoracic Surgery	1,572	681	2,253	2,245	1,215	3,460
Plastic Surgery	7,477	2,885	10,362	8,206	2,636	10,842
*Hand & Microsurgery	478	1,391	1,869	362	827	1,189
*Paediatric Surgery	4,899	2,080	6,979	5,131	2,336	7,467
*Hepatobiliary Surgery	4,081	1,734	5,815	2,636	985	3,531
*Breast & Endocrine Surgery	2,803	300	3,103	3,065	229	3,294
*Vascular Surgery	2,761	284	3,045	3,218	600	3,818
*Colorectal Surgery	1,010	884	1,894	848	1,097	2,035
<b>Total</b>	<b>305,454</b>	<b>515,117</b>	<b>820,571</b>	<b>363,595</b>	<b>475,505</b>	<b>842,268</b>

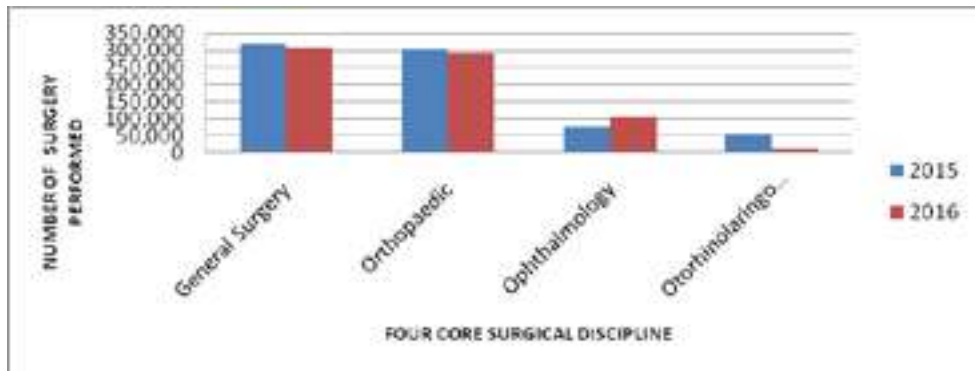
Source: Health Informatics Centre, MoH

Number of operations performed for the two years period is depicted in Figure 9 and Figure 10. **Figure 9** is the number of operations in the recognize specialty of surgery, and **Figure 10** is the number of operations in the regionalized surgical discipline.

Highlights of 2016 are;

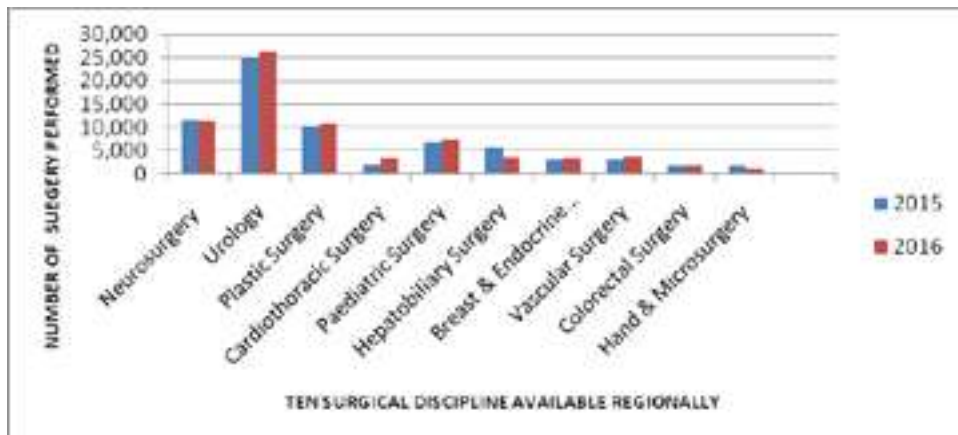
1. Paediatric Cardiothoracic Surgery Programme was resumed in 2016 and planned for another two years contract. In 2016, MoH successfully sent 39 congenital heart disease patients (in 8 batches) to Narayana Hospital Bangalore, India for surgery. This project collaboration started in 2008 with the aims to reduce waiting time in pediatrics cardiothoracic surgery.
2. Successfully funded 64 medical officers and specialists to attend Advanced Trauma Life Support Course (ATLS) for Provider and Instructor; which recognized by American College of Surgeon. This is a very essential course to equip medical officers in managing trauma cases in Malaysia.
3. In order to optimize operation theatre (OT) service, OT Manager position was created in 2008. Their roles and functions in managing OT are further strengthened by annual training organized by MoH. In 2016, two trainings were done; in East Malaysia Zone (done in Sabah) and Mid Zone (done in Malacca).
4. Continuation of Cochlear Implant Surgery Programme in 2016, whereby until December 2016, the Cochlear Implant Team have successfully operated on 298 cases (cumulative cases done since the Programme started in 2008). The Cochlear Implant Service is one of the important specialty services provided by otology surgeons, audiologist, auditory verbal clinician and speech therapist for hearing impaired patients.
5. To improve patients' empowerment and understanding of Otorhinolaryngology surgery, Otorhinolaryngology Patient Information Leaflet was started in 2016.
6. Operationalization of OTMS (Operation Theatre Management System) in mid-2016 benefited both surgical and anaesthetic services in hospitals starting with Hospital Tuanku Jaafar, Seremban as the pilot hospital.

**Figure 9**  
**Number of Surgery for Four Surgical Disciplines for 2015 and 2016**



Source: Health Informatics Centre, MoH

**Figure 10**  
**Number of Surgery in Ten Surgical Discipline Regionally for 2015 and 2016**



Source: Health Informatics Centre, MoH

#### d. ANESTHESIOLOGY SERVICES UNIT

Anesthesiology Services consist of Anesthetic Operation Theatre Service, Intensive Care Service and Pain Service. In 2015, there were 83 MoH hospitals providing anesthetic services with 47 having resident specialists with an increase in number of hospitals having such service as compared to 2014 (Number of hospitals with anesthesia service in 2014 was 80 hospitals). In the rest of the hospitals, the services were given by anesthetic medical officers and visiting specialists.

Workload for the Anesthesiology Services in 2014 and 2015 is depicted in **Table 11**. Number of anesthetic given, inclusive of all modalities, showed an increasing trend. This is also seen in attendances at anesthetic clinic and chronic pain clinic except intensive care unit admissions in 2015.

**Table 11**  
**Workload for The Anesthesiology Services In 2014 and 2015**

Items	2014	2015
No. of Anesthetic 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: Anesthesiology 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) as compared to 2014 where there were 52 General Intensive Care Unit available (with 613 functional beds). The CCIS (Critical Care Information System) project, a very important milestone for Anesthesiology Services in Ministry of Health hospitals started to operationalise since December 2016. Number of Ministry of Health hospitals offering pain free services increase in 2016, which also include Taiping Hospital and Sandakan Hospital.

**e. EMERGENCY AND TRAUMA SERVICE UNIT**

Emergency and Trauma Services has shown marked increase in the development over the last 10 years with most of the specialist hospital in Malaysia providing the specialty level of care. This was made possible by the increasing number of Emergency Physician every year. In 2016, there are a total of 253 Emergency Physician serving in specialist hospitals in Malaysia with 39 new Emergency Physicians graduated from various local universities such as University Malaya, Universiti Kebangsaan Malaysia and Universiti Sains Malaysia.

The number of patients attended to the Emergency and Trauma Department in hospitals all over the country also shows an increasing trend. In 2016, a total of 7,960,868 patients attended the department to seek treatment; an increased about 3.5 per cent compared to the previous year.

The types of cases that were seen in the Emergency and Trauma Department were mostly medical cases followed by pediatrics, trauma and others. Every year, it can be seen from the **Table 12** below that there is a steady increase of cases in every zone. Non-emergency cases remained as the second highest cases seen in the Emergency and Trauma Department. This may be due to the lack of understanding from the general public that only emergency treatment should be seek in the Emergency and Trauma Department.

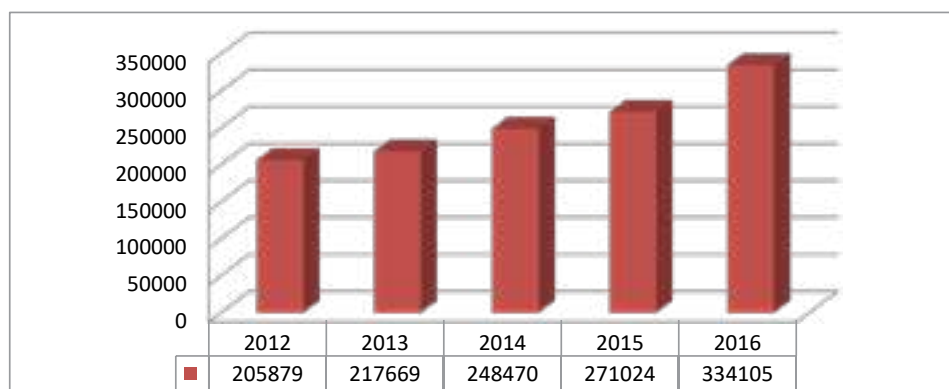
Pre hospital care which is an important scope in Emergency and Trauma Services has also shown marked increase in the demands of the service as per **Figure 11**. Ministry Of Health continued to be the agency which received the highest number of 999 calls whereby in 2016 with a total of 303,842 which comprises of nearly 50 per cent of the emergency calls received by all agencies throughout the country. Today there were 21 Medical Emergency Coordination Centre (MECC) that has been developed all over country. The list is shown on **Table 13**.

**Table 12**  
**Number of Patients Attended Emergency and Trauma Department, 2013 to 2016**

<b>Cases</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Red Zone</b>	223,480	225,965	242,241	257,214
<b>Yellow Zone</b>	1,516,328	1,576,892	1,607,436	1,612,029
<b>Green Zone</b>	4,329,656	4,412,440	4,440,804	4,741,684
<b>Non-Emergency cases</b>	1,464,515	1,565,624	1,648,598	1,642,376

Source: Health Information Management, MOH  
\*\*2016: Preliminary Data

**Figure 11**  
**Total Number of Emergency Calls (999) Received by Ministry of Health Malaysia**



Source: MERS 999

**Activities in 2016:**

Continuous training is done for the staffs from time to time.

1. ALS Instructor Course was organized twice in 2016 in Malacca and Kelantan
2. OSCC Workshop was also conducted in Penang and Sabah in 2016.
3. There were also several workshops and meeting organized for the development of various policies and guidelines;
  - 3.1 Continuous meetings for Guidelines for Management of Snake Bite

- 3.2 Meetings for renewal of Guidelines on ALS Training Manual
- 3.3 Meetings to create the Pre Hospital Care and Ambulance Policy and Ambulance Safety Policy
- 4. Guidelines on Heatstroke, NCORT policy and ALS Instructor Manual were published in 2016.

**Table 13**  
**List of Hospital With Medical Emergency Coordinating Centre (MECC)**

<b>Klang Valley</b>	Hospital Kuala Lumpur
	Hospital Tengku Ampuan Rahimah, Klang
	Hospital Serdang
	Hospital Sungai Buloh
	Hospital Selayang
	Hospital Ampang
	Hospital Putrajaya
<b>Perlis</b>	Hospital Tuanku Fauziah, Kangar
<b>Kedah</b>	Hospital Sultanah Bahiyah
<b>Pulau Pinang</b>	Hospital Seberang Jaya
<b>Perak</b>	Hospital Raja Permaisuri Bainun
<b>Kelantan</b>	Hospital Raja Perempuan Zainab
<b>Terengganu</b>	Hospital Sultanah Nurzahirah
<b>Pahang</b>	Hospital Tengku Ampuan Afzan
<b>Negeri Sembilan</b>	Hospital Tengku Jaafar
<b>Melaka</b>	Hospital Melaka
<b>Johor</b>	Hospital Sultanah Aminah
<b>Sabah</b>	Hospital Queen Elizabeth 1
	Hospital Tawau
<b>Sarawak</b>	Hospital Umum Sarawak
	Hospital Miri

Source: MERS 999

## WAY FORWARD

Under the 11<sup>th</sup> Malaysia Plan, Pre Hospital Care and Ambulance Service is one of the top ten priority focus in MOH Malaysia. 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. More collaboration with other government agencies as well as the NGOs in delivery the Pre Hospital Care and Ambulances Services will be strengthened. All the MECCs' Key Performance Index (KPI) will be monitored monthly and report will be presented to the Deputy Director General of Health from time to time.



## f. OBSTETRIC & GYNAECOLOGY SERVICE UNIT

**Table 14** showed the number of patients that underwent Assisted Reproductive Technology (ART) procedures in Government Hospitals in 2016 using both fresh and frozen embryo transfer techniques which showed the success rate of using the fresh embryo transfer technique is higher compared to frozen embryo transfer technique. 4 out of 6 hospitals showed a higher success rate using the fresh embryo transfer technique, i.e Hospital Sultanah Bahiyah Alor Setar, Hospital Sultanah Nur Zahirah Kuala Terengganu, Hospital Tengku Ampuan Rahimah Klang and Hospital Raja Permaisuri Bainun Ipoh.

**Table 14**  
**Number of Assisted Reproductive Technology (ART) Patients with Clinical Pregnancy Rate in Government Hospitals and Institutions, Malaysia 2016**

Hospital		Number Of Cases		Clinical Pregnancy Rate	
		Fresh Embryo Transfer (ET)	Frozen Embryo Transfer (FET)	Fresh Embryo Transfer (ET) (%)	Frozen Embryo Transfer (FET) (%)
Regional Center	Hospital Kuala Lumpur	67	140	19.40	35.70
	Hospital Sultanah Bahiyah, Alor Setar	160	61	47.00	24.60
	Hospital Sultanah Nur Zahirah, Kuala Terengganu	37	23	16.20	8.70
	Hospital Wanita Dan Kanak-Kanak Likas, Sabah	107	90	17.8	23.30
Satellite Center	Hospital Tengku Ampuan Rahimah, Klang	20	19	65.00	42.00
	Hospital Raja Permaisuri Bainun, Ipoh	84	61	29.76	24.60

Source: O&G and Pediatric service Unit, Medical development Division, MoH

Highlights of 2016 are;

1. 3099 MoH personnel consisting of O&G specialists, medical officers, house officers, staff nurses and others were trained through the Obstetric Life Saving Skills Training Program. The hospitals with the highest number of Obstetric Life Saving Skills trained staffs are from Hospital Tuanku Ja'afar Seremban, Hospital Tengku Ampuan Rahimah Klang and Hospital Umum Sarawak. The objective of this program is to increase the skills and knowledge of the staff in managing obstetrics emergency cases through hands-on experience using specialized mannequins.

2. The O&G and Paediatrics Services Unit in collaboration with the Family Health Development Division and clinicians from various hospitals and health clinics had conducted several meetings in 2016 to review The Termination Of Pregnancy Guideline. The objective of this review is to strengthen the mental health assessment, counselling, social services support and referral system component of the guideline to complement the existing Section 312 of the Penal Code (Act 574).
3. Establishment Of Low Risk Birthing Center (LRBC) is one of the 10 priority programmes for the Health Minister in the 11<sup>th</sup> Malaysia Plan. The aim of these low risk birth centers is to serve the obstetric needs of pregnant women with low risk 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. A pilot project of establishing a LRBC in a health clinic has been proposed and Klinik Kesihatan Langgar has been chosen for this purpose. This programme is a collaboration between the Medical Development Division, Family Health Development Division and the Kedah State Health Department.

**g. PAEDIATRICS SERVICES UNIT**

Paediatric specialty services are available in almost all Ministry Of Health hospitals. Emphasis on improving service delivery was given to certain areas such as thalassaemia, stem cell, genetics and intensive care services in paediatrics in 2016.

Highlights of 2016;

1. 9 research assistants from 8 hospitals were appointed to assist in data entry for MyThalassaemia Registry programme. Based on unpublished data from MyThalassaemia Registry in the year 2016, there were 7,171 thalassaemia patients in Malaysia with 3,657 transfusion-dependant thalassaemia patients requiring treatment from iron chelating agents. Since Malaysia is in the 'thalassaemia belt' that stretches from Mediterranean to South East Asia, there are approximately 100 transfusion-dependent thalassaemia patients being diagnosed in year 2016. Improvement in compliance was noted among patients using the iron chelating agents and consequently the life expectancy of the thalassaemia patients in Malaysia has also improved. As a result of this improvement, 45 per cent of these patients are in the adolescent group aged between 10 to 19 years old.
2. The National Thalassaemia Screening Program For Form 4 Students have been successfully launched by Y.B. Minister Of Health Malaysia on the 12 November 2016 in Segamat, Johor. A booth was set up by the O&G and Paediatrics Services

Unit during the event to educate and inform students, parents and the community regarding thalassaemia programme and the importance of the screening for thalassaemia among the students.

3. In the year 2016, The National Stem Cell Research and Ethics Committee (NSCERT) approved with recommendations to the Medical Research and Ethics Committee (MREC), research proposals on clinical trials using stem cell for various studies. These are :-
  - i. 'Transplantation of Autologous Limbal Stem Cells Via Contact Lens Delivery in Severe Ocular Surface Disease (Multicentre Trial)' from Hospital Kuala Lumpur, Hospital Sungai Buloh, UKM Medical Centre and Institute For Medical Research (IMR).
  - ii. 'Wound Healing Properties of Local Implantation of Autologous Peripheral Blood Mononuclear Cells, Autologous Bone Marrow Mononuclear Cell and Allogeneic Cord-Derived Mesenchymal Stem Cells : A Prospective, Multicentre, Randomized Trial' , from Pusat Terapi Sel, Pusat Perubatan Universiti Kebangsaan Malaysia and Cytopeutics Sdn. Bhd.
  - iii. 'Phase I Clinical Study on Safety of Intravenous Allogeneic Umbilical Cord Derived Mesenchymal Stem Cells Infusion in Healthy Volunteers' by Beacon International Specialist Hospital (Petaling Jaya) and Beverly Wilshire Medical Centre (Kuala Lumpur).
4. The O&G and Paediatrics Services Unit in collaboration with the Malaysian Society for Stem Cell Research and Therapy (MSCRT) and the National Committee on Ethics of Stem Cell Research and Therapy (NSCERT) have successfully conducted the 1st MSCRT Stem Cell Symposium 2016 on the 11 October 2016 at the Grand Seasons Hotel, Kuala Lumpur. This symposium was attended by clinicians, researchers from MOH, universities, professional bodies and other stakeholders. The objective of this symposium is provide a platform among researchers and clinicians to exchange knowledge and the latest findings in stem cell research and therapy.
5. A workshop on Neonatal & Paediatric Retrieval Services Update 2016 was carried out on 30 November to 2 December 2016 in collaboration with the Surgical & Emergency Medicine Services Unit, Medical Development Division at The Eastin Hotel, Petaling Jaya. It was attended by paediatricians, emergency physicians and paediatric surgeons to formulate and strengthen the neonatal and paediatric retrieval programme in MoH hospitals. Standard Operating Procedure and guidelines for neonatal and paediatric retrieval services will be prepared as an outcome of this workshop.
6. The Zika Virus outbreak and increased microcephaly cases in South America which led to a global health emergency in 2016 have prompted the Medical

Development Division to develop the “Ministry Of Health Guidelines On Zika Virus In Pregnancy”. This guideline covers the O&G, paediatrics and blood transfusion components in managing pregnant women with Zika Virus infection. All recommendations proposed in the guidelines were based on the current evidence and will be amended accordingly in the future if the need arises.

## h. CLINICAL SUPPORT SERVICES UNIT

### NUCLEAR MEDICINE

Nuclear Medicine Service encompasses the following 3 main divisions, which are:

1. Clinical Division: Diagnosis and Treatment which receives all diagnostic or therapeutic referrals from hospitals or clinics.
2. Radiopharmaceutical Division that plays an important role in providing quality assurance of the drugs in particularly the radiopharmaceuticals/radiotracers and assure they are safe to be used on patients
3. Physics Division that provides services on QC/QA of the instruments and monitoring on the radiation safety level for the patients, staff and members of the public.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
The <b>total number of Nuclear Medicine cases</b> handled over the last 4 years had seen an <b>increase rise of 34 per cent</b> , from 14,993 (2012) to 20,050 (2014) and 22,936 (2016). An annual increment of around 10-12 per cent.	<ol style="list-style-type: none"> <li>1. IKN had successfully <b>organized the 6<sup>th</sup> National Nuclear Medicine Seminar 2016</b> on 5 to 7 September 2016, with the theme on “Therapy in Nuclear Medicine”.</li> <li>2. HKL has successfully been <b>accredited for Quality Management Audits in Nuclear Medicine Practices (QUANUM)</b> by International Atomic Energy Agency (IAEA) expert panel.</li> <li>3. The following <b>articles</b> have been published: <ul style="list-style-type: none"> <li>• <b>HSAJB:</b> <ol style="list-style-type: none"> <li>1. Ng CS, Arulanantham S, Khoo JJ, Sabaratnam S, Lee YF, Ngim CF. Skill validation study on sentinel lymph node biopsy in breast cancer and the challenges of false-negative, in-transit and micrometastatic nodes. Med J Malaysia. 2016 Oct;71(5):275-281.</li> </ol> </li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. To <b>replace the entire old BER SPECT machine</b> in HPP that has already been approved.</li> <li>2. To <b>equip the Nuclear Medicine Center</b> at HKL with a unit of PET-CT machine.</li> <li>3. All current Nuclear Medicine Centers having PET-CT machine should provide <b>comprehensive full PET related services</b> in all working days.</li> <li>4. <b>Optimize the capacity and usage</b> of all nuclear medicine machines and radioisotopes.</li> <li>5. A <b>training workshop in nuclear neurology imaging</b> will be arranged through the IAEA expert mission.</li> </ol>

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
	<p>2. Khoo JJ, Ng CS, Sabaratnam S, Arulanantham S. Sentinel Node Biopsy Examination for Breast Cancer in a Routine Laboratory Practice: Results of a Pilot Study. Asian Pac J Cancer Prev. 2016;17(3):1149-55.</p> <ul style="list-style-type: none"> <li>• <b>HUS:</b></li> </ul> <p>1. Kuan JW, Law CS, Wong XQ, Ko CT, Awang ZH, Chew LP, Chang KM. A pioneer experience in Malaysia on In-house Radio-labelling of (131)I-rituximab in the treatment of Non-Hodgkin's Lymphoma and a case report of high dose (131)I-rituximab-BEAM conditioning autologous transplant. Appl Radiat Isot. 2016 Oct;116:13-21.</p> <p>4. <b>Replacement &amp; upgrading</b> of the old SPECT cameras in HSAJB and HUS cardiac dedicated SPECT and a SPECT-CT respectively.</p>	

## PATHOLOGY

Pathology services nowadays can be considered as the combined skills of diagnosing and treatment technologies aimed at to a more efficient and accurate patient management. The Pathology service in Malaysia is a branch of medical science that is divided in five disciplines, namely Anatomical Pathology (Histopathology and Cytology), Microbiology, Chemical Pathology and Hematology.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
<p>1. <b>National Pathology Meeting</b> was successfully held 3 times in 2016.</p> <p>2. <b>National Pathology Conference</b> on the 29 to 30 August 2016, Pusat Konvensyen Hotel Tabung Haji, Sabah. It was officiated by Director of Medical Development Division, YBhg. Dato' Dr. Azman bin Abu Bakar.</p>	<p>1. 11 MoH laboratories had successfully <b>accredited for MS ISO 15189</b>.</p> <p>2. Actively <b>involved in the EQA, Key Performance Index (KPI) and National Indicator Approach (NIA)</b> to ensure the quality of the results and laboratory analysis.</p> <p>3. Successfully established the <b>National Pathology Website</b> where all the dissemination of</p>	<p><b>Database analysis and 5 year planning</b> to improve:</p> <ul style="list-style-type: none"> <li>• Manpower and training</li> <li>• Equipment and facilities</li> <li>• LIS and networking</li> </ul>

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
<p>3. <b>Activities carried out by the committee of Pathology Services:</b></p> <ul style="list-style-type: none"> <li>• Formulation of “cost per test” project by the Finance Committee of Pathology Service.</li> <li>• Created a database on expenditure and allocation to help in projections in the budget preparation.</li> <li>• Preparation of guidelines for the management of the pathology as well as MLT career development by the Human Resource Committee of Pathology Service.</li> </ul> <p>4. Several <b>training</b> were conducted:</p> <ul style="list-style-type: none"> <li>• National Microbiology Training on 27 August 2016, Kota Kinabalu Sabah.</li> <li>• Preparation course for M.Path Entrance Exam 2016 on 11 October 2016.</li> <li>• Intensive course for M.Path year 2, 3 and 4 on 17 November 2016.</li> </ul>	<p>4. Information and activities pathology services can be found easily. (<a href="http://www.pathology.gov.my">www.pathology.gov.my</a>).</p> <p>5. Establishing several databases such as <b>Human Resource Database, Workload Database, Budget Allocation and Expenditure Database.</b></p> <p>6. Successfully circulated the <b>GUIDELINE ON STANDARDIZATION OF WORKLOAD DATA COLLECTION 4th EDITION 2016</b> on June 2016, that is also available in Pathology website and HKL website.</p>	

## TRANSFUSION MEDICINE

The Transfusion Medicine Service (TMS) remains as an integral and indispensable part in the National Healthcare system. The services will continue to be expanded to meet patients’ transfusion need while at the same time ensuring blood donor and patient safety throughout the transfusion chain. This strategy includes the establishment of nationally coordinated TMS, 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, appropriate and safe use of blood and blood components, and the integration of quality systems in all areas of TMS.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
<p>1. <b>Continuous education and blood donation promotion</b> to the public through events and campaigns with the help of both mainstream and social media.</p> <p>2. Celebrated <b>World Blood Donor 2016</b> with the theme "Blood connects us all". The event was held at Dewan Tun Razah, Menara Tun Razak and officiated by the Honorable Minister of Health on 10 August 2016.</p>  <p>3. Conducted several <b>National training</b> in transfusion medicine :</p> <ul style="list-style-type: none"> <li>• Safe Transfusion Practice Course Central and South Zone 19 to 20 July 2016</li> <li>• Safe Transfusion Practice Course North and East Coast Zone 5 to 6 October 2016</li> <li>• Immunoematologi &amp; Patient Safety in Transfusion Laboratory Course Selangor and Central Zone on 23 to 24 August 2016.</li> </ul>	<p>1. Transfusion Unit of Melaka Hospital and Transfusion Department of Pulau Pinang Hospital have been <b>audited and certified by CSL Behring for GMP adherence</b>.</p> <p>2. NBC has been certified to comply with <b>ISO 15189</b> in 2016.</p> <p>3. Conducted <b>National Patient Blood Management (PBM) Course</b> which involved clinicians from multi disciplines nationwide on 12 to 13 Oktober 2016. As an outcome, a consensus statement on Patient Blood Management has been developed and forwarded to the policy makers for its implementation.</p>  <p>4. Collaborated with the Malaysian Blood Transfusion Society in hosting the <b>Regional Conference of Asian Voluntary Non-Remunerated Blood Donation</b>.</p> <p>5. <b>Garis Panduan Pemilihan dan Kelayakan Penderma Darah</b> was circulated on the 4 February 2016 to prevent the spread of ZIKA virus through blood donation by educating public for self-deferral, donor selection and training for staff.</p>	<p>Challenges in 2016 and way forward :</p> <ol style="list-style-type: none"> <li>1. <b>Improving donation experience and donor satisfaction</b> to ensure the availability of stable donor pool thus improving the adequacy, stability and safety of blood supply.</li> <li>2. <b>Implementing Malaysian Blood Stock System (MyBSS)</b> as a mechanism to monitor blood stock throughout the country to ensure blood availability and overcome blood stock variation especially during the festive sessions and long national or school holidays.</li> <li>3. <b>Service expansion of Nucleic Acid Testing (NAT)</b> for the remaining 5 states namely Pulau Pinang, Perak, Terengganu, Sabah and Sarawak is compulsory to ensure safety of blood product nationwide.</li> <li>4. <b>Implementing patient safety</b> during blood transfusion process and <b>PBM</b> by having standard procedures, education and training for health workers and audits.</li> </ol>

## SPORTS MEDICINE

Sports Medicine was introduced in MoH Hospital in the year 2003 with the establishment of “Unit Perubatan Sukan” in Hospital Queen Elizabeth, Kota Kinabalu. The service has a close collaboration with Institut Sukan Negara (ISN) since 2014 to improve the services in the field of 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.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
<ol style="list-style-type: none"> <li><b>Clinical evaluation and management</b> of acute and chronic injuries related to sports and exercise/recreational activities.</li> <li><b>Prevention of sports-related injuries</b> through education and pre-tournament/participation assessment.</li> <li><b>Medical Coverage</b> during sporting events.</li> <li><b>Sports Medicine Clinic</b> - for sports and musculoskeletal injury prevention and management.</li> </ol>	<ul style="list-style-type: none"> <li><b>More Sports Medicine Specialists being placed</b> at KKM Hospitals (in conjunction with the placement of Sports Surgeons). A total of 4 Specialists placed in:               <ul style="list-style-type: none"> <li>Queen Elizabeth Hospital,</li> <li>Hospital Selayang,</li> <li>Hospital Sg Buloh and</li> <li>Hospital Hospital Tuanku Jaafar.</li> </ul> </li> <li><b>Increased number of inpatient services</b> at KKM hospitals.</li> <li><b>HTJ – first Sport Medicine Gymnasium</b> in MoH Hospital. The service started since January 2016.</li> </ul>	<ol style="list-style-type: none"> <li><b>Provision of specialist services</b> at more hospitals.</li> <li><b>Strengthening current services</b> with new equipments, consumables and manpower.</li> <li><b>Introduction of new services</b> e.g. Sports Emergency and trauma management for extreme, combat and collision sport.</li> <li>Better collaboration with ISN in the field of Sports Medicine including utilizing their <b>Satellite Centres</b> for the purpose of therapy of patients.</li> <li>Became a <b>member of SEA Games Committee</b> in establishing <b>Game Medical Centre (GMC)</b> in ISN and HKL.</li> </ol>

## DIETETICS & FOOD SERVICE

- Providing an evidence-based clinical dietetics services to complement the clinical management plan of the respective clinical specialty and subspecialty services of MoH.
- Supporting any health promotion activities through education and training related to the field of dietetics and nutrition to the public as well as contributing various inputs to research in the nutrition and dietetics fields in this country.



3. Planning the food and meal preparation by considering nutrient requirement, catering procedures, food safety and hygiene principle using current technology as well as implementing an efficient foodservice management system in MoH facilities based on current policies, circulars and best practises in the field of foodservice management.

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
<ol style="list-style-type: none"> <li>1. <b>Clinical Dietetics Service</b> <ul style="list-style-type: none"> <li>• Inpatient consultation</li> <li>• Outpatient consultations               <ul style="list-style-type: none"> <li>➢ Both services have shown increment of 3.2 per cent and 3.1 per cent respectively as compared to 2015.</li> </ul> </li> </ul> </li> <li>2. <b>Food Service</b> <ul style="list-style-type: none"> <li>• Monitoring and increasing the level of supervision the serving process in the kitchen and ward at hospital level to comply with the Standard Operating Procedure.</li> <li>• Monitoring the diet indent form received from the ward to ensure accuracy of the diet served according to clinical prescription, type of diets and current number of patients.</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>• <b>Successful achievement on KPI 2016</b> where       <ul style="list-style-type: none"> <li>○ All cases should be seen within one (1) working day (<math>\leq 24</math> hours) upon receiving the referral for nutrition support services and dietary consultation. Based on 141,631 cases seen, 136,284 cases (96.2 per cent) were seen within 24 hours. Therefore, <b>Achievement: 96.2 per cent</b>(Standard: <math>\geq 85</math> per cent)</li> </ul> </li> <li>2. The Dietetics and Food Service Department at all MoH's hospitals had achieved some Food Safety Assurance Programme such as <b>Programme Good Manufacturing Certification (GMP) and Hazard Analysis Critical Control Point Certification (HACCP)</b>.</li> <li>3. KPI of 'Percentage of therapeutic diets served according to clinical order in medical wards' was chosen as <b>KPI of The Malaysian Director General (DG) of Health in 2016</b> and discontinued in 2017. However, this</li> </ul>	<ol style="list-style-type: none"> <li>1. <b>National Strategic Plan for Dietetics Services, Ministry of Health, Malaysia (2016-2020)</b> has been developed and the plan was disseminated to all state Dietetics head.</li> <li>2. <b>Workload Indicators Staffing Needs (WISN)</b> has been gradually used by head of profession/and services to redistribute manpower.</li> <li>3. <b>New KPI</b> is being adopted in 2017 to better reflect outcome instead of output.</li> <li>4. To strengthen the community dietetics services together with Public Healthcare Team through domiciliary program and development of guidelines for <b>Home Nutrition Therapy</b>.</li> <li>5. Improving the level of inpatient's satisfaction level towards food service in the hospital and monitoring the percentage of hazard</li> </ol>

ACTIVITIES	ACHIEVEMENTS	PLANNING FOR 2017
	<p>indicator is still monitored at hospital level.</p> <ul style="list-style-type: none"> <li>• <b>Standard: ≥85 per cent</b></li> <li>• <b>Achievement: 95.2 per cent</b></li> </ul>	<p>physical contamination occurrence by full implementation of existing <b>Food Safety Assurance GMP</b> and continuing application of <b>HACCP</b> and <b>Halal Certification</b> for all MoH's hospitals.</p> <p>6. <b>Continue the high standard of Performance Indicator achievement</b> for In-House Food Services and improving the achievement of Out-Source Food Services at the MoH Hospital.</p>

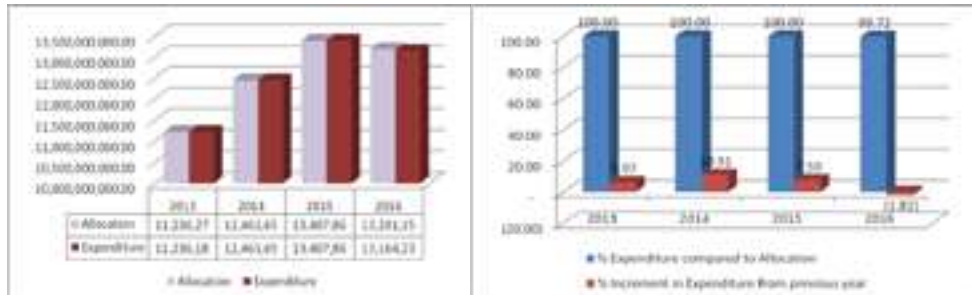
**i. MEDICAL RESOURCE UNIT**

Medical Resource Unit is one of the units under the Medical Service Development Division, Ministry of Health (MoH). This unit is responsible in planning and procurement of medical equipments and medical consumables for all medical services in MoH hospitals. Apart from that, it also coordinates various budget allocations for hospitals such as operating budget, development budget, *DasarBaru/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 demonstrations on the latest medical products introduced by various manufacturers and medical trading companies.

## Medical Programme Expenditure and Budget

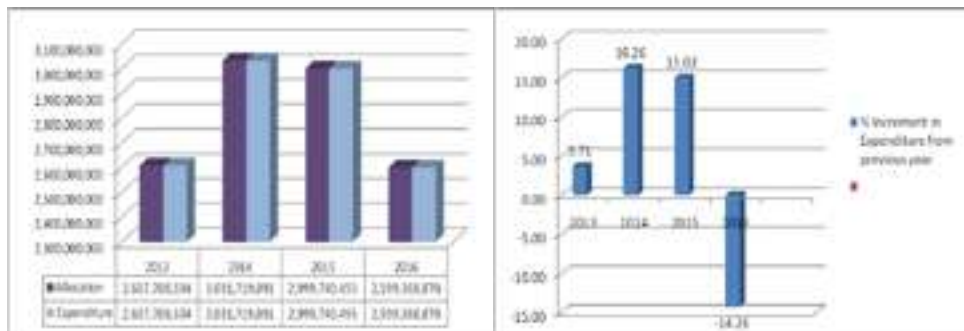
### a) Medical Programme Expenditure and Budget

**Figure 12**  
Management Expenditure (OA)



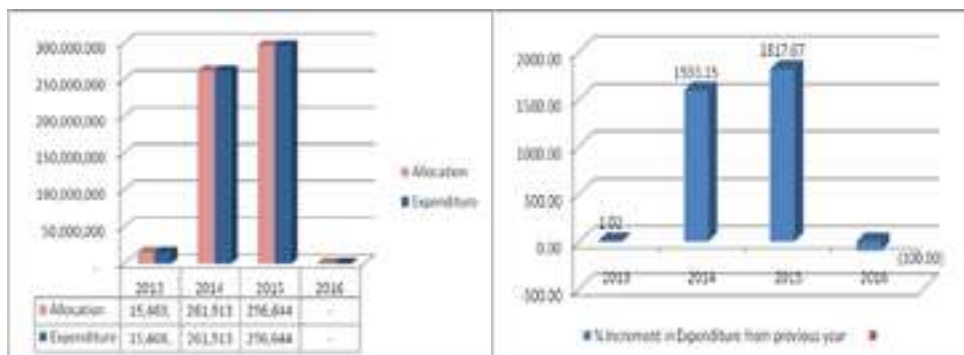
Source: Finance Division Mo

**Figure 13**  
Consumables/Drugs/Vaccine/Reagent



Source: Finance Division MoH

**Figure 14**  
Assets



Source: Finance Division MoH

## Procurement

- Medical equipments

In 2016, there were 48 central tenders for 3023 units of medical equipments conducted by Medical Resource Unit with overall cost of RM156,594,135.3. Out of these, 2991 units were plug and play equipments. Through this procurement of medical equipments by central tender, this unit managed to achieve savings of RM 10,009,594.70. Examples of major equipments tendered centrally include one (1) unit of Linear Accelerator (LINAC) with Steriostatic Radiosurgery System that cost RM19,680,000.00, two (2) units of Angiography B-Plane that cost RM11,385,600.00, one (1) unit of Angiography Computed Tomography Hybrid that cost RM6,940,000.00 and two (2) unit of Magnetic Resonance Tomography (MRI) that cost RM14,032, 140.24.

**Image1**  
**LINAC Project in Hospital Umum Sarawak**



*Source: Medical Development Division, MoH*

## Consumables

There are six (6) centrally procured consumable items which are managed by Medical Resource Unit. These items are tendered every 2-3 years. All of these items are monitored closely to ensure that the supply items comply with the specifications, terms and conditions as stated in the contract. In 2016, process for retendering of Continuous Renal Replacement Therapy(CRRT), Dialyser, Arteriovenous Fistula (AVF) Needles and Blood Line which contract will expire in 2017 were done. The overall cost for CRRT and Dialyzer was RM 20,079,129.00 with total number of 90,860 bags and 621,250 units respectively. The retendering processes of AVF and Blood Line are still

in progress and will complete in 2017.

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. In 2016, retendering processes for 2017 to 2019 Approved Product Purchased List (APPL) supplies which include specification preparation, price revision, factories tour and monitoring of APPL products complaints by the end-users were started.

### **Offtake Program**

Offtake 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 job creation for the people. Medical Resource Unit is involved in product selection, to identify the quantity required by MoH, specification development and technical evaluation of the Offtake Program products. Initially, 68 medical products were proposed by local companies under this program. Out of these, 35 products were accepted into the program. In 2016, technical evaluations were done for 4 out of the 35 products which include wound wash solution and hospital beds (electrical bed, manual bed and hydraulic bed).

### **Monitoring and Audit**

The goal of Audit 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.

**Image 2**  
**Before Improvement**



*Source: Medical Development Division, MoH*

**Image 3**  
**After Improvement**



### **Product demonstration (medical equipments and consumables)**

In 2016, there were 25 medical products presentations conducted. These medical products range from complex medical equipment like Magnetic Resonance Imaging (MRI) to simple consumable item such as hand sanitizer. Clinicians as well as officers from other relevant Divisions/Sections/Units in MoH were invited to give technical

and financial inputs regarding the products involved. Feedbacks were given to the requesting offices (Minister/Deputy Minister/Chief Secretary) after the presentations.

### **Hospital Support Services**

Medical Resource 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 to give advices and opinions to enhance services provided to the end-users in MoH hospitals.

### **GST**

Under the GST Act 2014, registered Private Health Care facilities can be given GST exemption for some medical devices under certain condition. Medical Resource Unit has been involved since the beginning of act implementation in issuing certificates for GST exemption to applying facilities. However since August 2015, the states also have been empowered to process the applications and issue the certificates for their respective states. In 2016, this unit did not issue any GST exemption certificates but instead continued to regularly monitor the process done by the states.

## **B. MEDICAL PROFESSIONAL DEVELOPMENT SECTION**

### **1. Housemanship Programme**

After completing medical degree, medical graduates will be appointed by Public Service Commission into Civil Service as House Officers and they are mandated to undergo housemanship training programme at the accredited housemanship training hospitals. Housemanship Training Programme is a period of apprenticeship after graduation from medical school before medical graduates are given Full Registration to practice independently as medical doctors. This programme 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 SPA as House Officers 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 2015 and 2016, the total number of newly appointed House Officers were 3,860 4,140 and 4360 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.

**Table 15**  
**Number of New House Officers Appointed (2006 to 2016)**

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
11.	2016	4,360

*Source: Medical Professional Development Section, Medical Development Division, MoH*

In 2011 there were 41 Housemanship Training Hospitals including 3 public university hospitals (**Table 16**). These were increased to 44 hospitals in December 2016, when Bintulu Hospital started to offer training for the houseman since August 2015. The MoH is in the process of accrediting a network of Army Hospitals and estimate to start in year 2017. Other hospitals such as Shah Alam Hospital and Langkawi Hospital going to accredited as housemanship training centres as soon as possible in year 2017.

**Table 16**  
**List of Accredited Housemanship Training Hospitals in 2015**

No	Hospital	No	Hospital
1.	Hospital Tuanku Fauziah, Kangar	23.	Hospital Sultanah Aminah, Johor Bahru
2.	Hospital Sultanah Bahiyah, Alor Setar	24.	Hospital Sultanah Nora Ismail Batu Pahat, Johor
3.	Hospital Sultan Abdul Halim, Sungai Petani	25.	Hospital Sultan Ismail, Johor
4.	Hospital Kulim, Kedah	26.	Hospital Tengku Ampuan Afzan, Kuantan
5.	Hospital Pulau Pinang	27.	Hospital Sultan Haji Ahmad Shah, Temerloh

No	Hospital	No	Hospital
6.	Hospital Seberang Jaya	28.	Hospital Sultanah Nur Zahirah, K. Terengganu
7.	Hospital Taiping	29.	Hospital Kemaman
8.	Hospital Raja Permaisuri Bainun	30.	Hospital Raja Perempuan Zainab II, Kota Bharu
9.	Hospital Teluk Intan	31.	Hospital Kuala Krai
10.	Hospital Seri Manjung	32.	Hospital Tanah Merah
11.	Hospital Kuala Lumpur	33.	Hospital Umum Sarawak
12.	Hospital Putrajaya	34.	Hospital Sibu
13.	Hospital Tengku Ampuan Rahimah, Klang	35.	Hospital Miri
14.	Hospital Selayang	36.	Hospital Queen Elizabeth
15.	Hospital Kajang	37.	Hospital Tawau
16.	Hospital Serdang	38.	Hospital Duchess Of Kent, Sandakan
17.	Hospital Ampang	39.	Pusat Perubatan Universiti Malaya
18.	Hospital Sungai Buloh	40.	Pusat Perubatan Universiti Kebangsaan Malaysia
19.	Hospital Tuanku Jaafar, Seremban	41.	Hospital Universiti Sains Malaysia
20.	Hospital Tuanku Ampuan Najihah, Kuala Pilah	42.	Hospital Segamat, Johor
21.	Hospital Melaka	43.	Hospital Enche' Besar Hajjah Kalsom Kluang
22.	Hospital Pakar Sultanah Fatimah	44.	Hospital Bintulu

Source: Medical Professional Development Section, Medical Development Division, MoH



To improve the quality of Housemanship Training Programme, the period of housemanship training programme was extended from one year to two years since 2008, 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 such as in Emergency Medicine /Anaesthesia/Psychiatry/Primer Health Care. 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 that has 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. This Modified Flexi Working Hour System emphasis on more accountability in patient care & more time spent for training during office hours. They are also entitled for Special Flexi Allowance of RM600 per month.

Since 2010, all new House Officers employed will upon successfully completing their housemanship training and obtaining Full Registration by MMC, be 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 Programme include the increasing number of medical graduates each year compared to number of House Officer posts, leading to prolonged waiting time for fresh medical graduates to be employed into Public Service as House Officers. Following the above matter, government announce a new method of employment of medical graduate in budget for year 2017. MOH appointed 1317 medical graduate as contract officer for first batch started on 5 December 2016.

These medical graduates were from various medical institutions, whereby there are variation between curriculums and clinical exposures between each medical programme, 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.

Currently, there are 10,835 posts for housemanship training which are distributed to 44 hospitals for housemanship training all over the country including 3 university hospitals. Medical graduates are allowed to choose the hospital for training through e-housemen, depending on availability of posts. There will be shorter waiting time for employment if these medical graduates choose to work outside Klang Valley particularly in district hospitals especially in Sabah and Sarawak. The e-housemen online system which was introduced in March 2015 allows medical graduates to decide on a hospital of their own choice for Housemanship training.

House Officers are provided with Log Books for each discipline. These log books are reviewed periodically and improvised accordingly. The new log book were successfully introduced for all disciplines, except and Surgery. Currently, the MoH planning to developed the method of assessing the competency by using the component and weightage in Certificate Completion of Posting/Certificate of Completion of Housemanship Training. This new assessment method will be implementing in year 2017.

## 2. Specialist Training Programme

### ▪ Masters of Medicine

The Masters of Medicine for basic specialties is conducted by seven local public universities 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 of Malaysia (UPM), Universiti Malaysia Sarawak (UNIMAS) and Universiti Teknologi MARA (UiTM) with collaboration from Ministry of Health (MoH), Malaysia. Within MoH Malaysia, the general training administration of the programme 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 training programme. As in 2016, there are 23 areas of specialty training currently being offered in the Masters of Medicine (**Table 17**).

The number of scholarship slots for the Masters of Medicine has increased from 450 slots prior to 2008 to 600 slots in 2008, 800 for the 2011/2012 session intake; and

subsequently to 1000 slots in 2013/2014 session. For 2016/2017 intake, 916 slots had been offered to eligible candidate to undergo Masters of Medicine (Open and Closed System). 30 candidates had declined the offer and subsequently 10 additional offers were accepted by candidates from reserve list. Hence, there were 893 candidates who had accepted the scholarship offer to pursue specialty training via Masters of Medicine programmes.

There are 33 MoH hospitals in 2106 that are accredited by universities as training centres for the Masters of Medicine programmes as compared to 28 MoH hospitals in 2105 (**Table 18**).

There are various issues and challenges in the implementation of the specialty training via Masters of Medicine programme, for example monitoring and placement of trainees, the number of qualified candidates in the university screening test, performance of trainees in passing the examinations and wastage of scholarship slots (*Hadiah Latihan Persekutuan*). Amongst measures taken include strengthening the monitoring of all trainees, particularly those in the Open System, enhancing the organisation of deployment of trainees at the training hospitals (Rotational System) and shortening of the period of allowance for extension for the scholarship

**Table 17**  
**Number of Slots For Specialty Training Via Masters of Medicine Offered And Number of Trainees For 2012/2013 – 2016/2017 Intake**

Disciplines	2012 / 2013 Session		2013 / 2014 Session		2014 / 2015 Session		2015 / 2016 Session		2016 / 2017 Session	
	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
Anaesthesiology	83	72	84	84	89	86	101	100	104	103
Clinical Oncology	4	4	6	6	5	5	12	11	11	11
Emergency Medicine	45	43	56	56	50	48	70	67	62	60
Family Medicine	57	50	77	74	66	56	60	53	66	65
General Surgery	48	46	54	51	60	59	45	44	51	47
Internal Medicine	52	45	64	53	72	67	82	68	62	60
Neurosurgery	7	7	7	7	10	10	11	11	13	12

Disciplines	2012 / 2013 Session		2013 / 2014 Session		2014 / 2015 Session		2015 / 2016 Session		2016 / 2017 Session	
	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
Nuclear Medicine	6	6	6	6	6	5	6	6	4	4
Obstetrics & Gynaecology	31	30	34	34	31	29	51	49	40	39
Ophthalmology	35	33	34	34	46	45	53	52	55	55
Orthopaedic	55	53	50	50	63	62	70	68	69	68
Otorhinolaryngology	25	24	29	29	31	31	38	38	34	34
Pathology	52	49	54	54	73	70	86	83	77	76
Paediatric	37	32	41	37	46	43	26	20	50	43
Paediatric Surgery	10	10	2	2	8	8	7	7	8	8
Plastic Surgery	4	4	7	7	8	8	5	5	9	9
Psychiatry	39	24	40	38	50	43	46	44	49	48
Public Health	45	39	44	42	54	50	72	67	68	66
Radiology	53	50	41	38	53	53	54	52	67	65
Rehabilitation Medicine	6	6	9	9	8	7	9	9	10	10
Sports Medicine	7	6	6	6	5	5	9	8	3	3
Transfusion Medicine	5	5	6	6	6	6	8	8	7	7
<b>TOTAL</b>	<b>706</b>	<b>638</b>	<b>737</b>	<b>723</b>	<b>847</b>	<b>804</b>	<b>721</b>	<b>835</b>	<b>998</b>	<b>966</b>

Source: The Training Management Division, MoH

**Table 18**  
**MoH Hospitals Accredited As Training Centres For Masters Of**  
**Medical Programme**

No	Hospital
1.	Tuanku Fauziah Hospital, Kangar
2.	Sultanah Bahiyah Hospital, Alor Setar
3.	Pulau Pinang Hospital
4.	Seberang Jaya Hospital
5.	Raja Permaisuri Bainun Hospital, Ipoh
6.	Taiping Hospital
7.	Bahagia Hospital, Ulu Kinta
8.	Kuala Lumpur Hospital
9.	Putrajaya Hospital
10.	Tengku Ampuan Rahimah Hospital, Klang
11.	Selayang Hospital
12.	Sungai Buloh Hospital
13.	Serdang Hospital
14.	Ampang Hospital
15.	Tuanku Jaafar Hospital, Seremban
16.	Melaka Hospital
17.	Sultanah Aminah Hospital, Johor Bahru
18.	Sultanah Fatimah Specialist Hospital, Muar
19.	Sultan Ismail Hospital, Pandan, Johor Bahru
20.	Permai Hospital, Tampoi
21.	Tengku Ampuan Afzan Hospital, Kuantan
22.	Sultanah Nur Zahirah Hospital, Kuala Terengganu
23.	Raja Perempuan Zainab II Hospital, Kota Bharu
24.	Sarawak General Hospital
25.	Sentosa Hospital, Kuching
26.	Queen Elizabeth Hospital, Kota Kinabalu
27.	Women and Children Hospital, Likas
28.	Mesra Bukit Padang Hospital, Kota Kinabalu
29.*	Hospital Sultan Haji Ahmad Shah, Temerloh
30.*	Hospital Miri
31.*	Hospital Duchess of Kent, Sandakan
32.*	Pusat Darah Negara, Kuala Lumpur
33.*	Institut Kanser Nasional, Putrajaya

\*new

Source: The Training Management Division, MoH

The increase of scholarship slots for Masters of Medicine programmes over the years has resulted the rise of number of specialists produced annually In 2016, there were 481 medical officers obtained their Masters in Medicine as compared to 371 in the year 2014 and 442 in 2015.

It is hoped further improvements could be made with regards to the implementation of training in Master of Medicine programme. These include gradual increase of scholarship slots annually and the number of MoH's hospitals accredited as training centres. MoH Malaysia is also looking for more slots for the 'Open System' to be made available, with more areas of specialty training can be offered by the universities (depending on the capacity of the universities).

▪ **Specialty Training via Parallel Pathway in MoH Malaysia (Membership and Fellowship from International Collegiate)**

Medical Officers in MoH Malaysia can also opt to pursue specialty training via Specialty Training Programme via Parallel Pathway in MoH Malaysia, which is also another way of producing specialists in the basic specialties to cater for the need of the country. The training programme is run either partially or fully in Malaysia, but the examination, qualification or certificate is under the purview by the international institution. The implementation of the Specialty Training Programme via Parallel Pathway in MoH Malaysia is continuously being strengthened to produce more specialists for the country. Examples of the qualifications are as in **Table 19**.

2 local training programmes under MOH Malaysia Specialty Training Programme via Parallel Pathway in Urology and Cardiothoracic Surgery has begun in July 2016 with the 1<sup>st</sup> batch intake and would take 4 and 6 years respectively.

**Table 19**  
**Examples of The Qualifications From International Collegiate In 2016**

Specialty	Examples Of The Parallel Pathway Programmes
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 (FRACOphth)
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 specialist qualification are also 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 Programme 2011 to 2016**

Dicipline	Qualification	2011	2012	2013	2014	2015	2016
Internal Medicine	MRCP	67	76	47	77	85	112
Pediatrics	MRCPCH	25	27	27	37	35	15
O&G	MRCOG	5	5	4	2	9	1
Cinical Oncology	FRCR ONCOLOGY	1	1	3	0	2	4
Anaesthesiology	FCAI	0	0	0	0	0	1
<b>TOTAL</b>		<b>98</b>	<b>109</b>	<b>81</b>	<b>116</b>	<b>131</b>	<b>133</b>

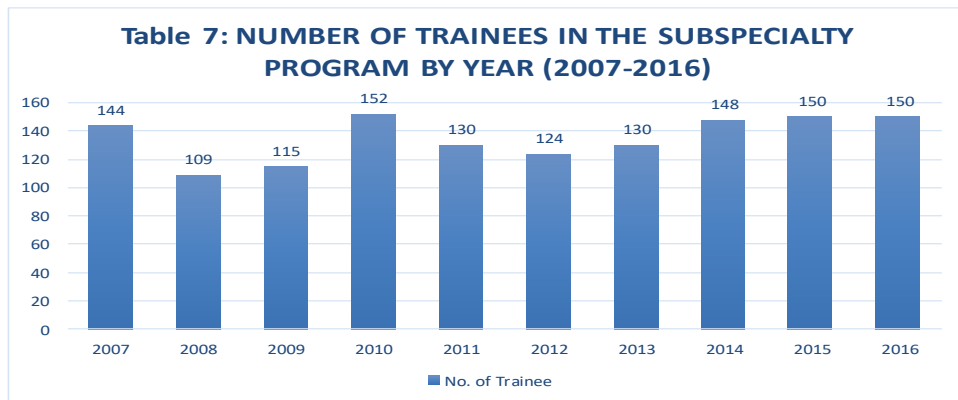
Source: Medical Professional Development Section, Medical Development Division, MOH

### 3. Subspecialty Programme

In the effort to further increase the number of subspecialists for the country, the subspeciality training 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 subspeciality training. Partial scholarship will be awarded to those pursuing the local training, while full scholarship is awarded to those who pursue overseas training. Annually as on average the MOH provides 150 scholarship slots for subspeciality training.

The number of trainees in 2015 and 2016 were 150 while there were 148 trainees in 2014 (**Figure 15**) The most popular subspecialties were Cardiology followed by Nephrology, Endocrinology, Rhinology and Maternal Fetal Medicine.

Figure 15



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 586 in 2016. The field of Internal Medicine has produced the most number of gazetted specialists, followed by Paediatrics and General Surgery (Table 21).

**Table 21  
Number of Specialists And Subspecialists Gazetted Based on Specialty (2008 to 2016)**

Specialist/ Subspecialist	No of Gazetted Specialist/Subspecialist								
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Internal Medicine	63	51	66	64	92	105	85	81	101
Dermatology			3	3	1		3	3	12
Neurology	1	1	1	1	3	9	3	2	2
Nefrology	1	3	5	1	2	8	1	5	
Respiratory Medicine		4	1	1	6	2	5	3	3
Gastroenterology	5	4	2	2	4	3	1	1	
Cardiology	4	7	4	7	6	7	6	2	4
Upper GI	3							2	



Specialist/ Subspecialist	No of Gazetted Specialist/Subspecialist								
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rheumatology	4	3	3	2	1	3	6	5	1
Geriatric				2	2				
Hepatology				1	3			1	
Haematology Medicine	2	1			6	1			
Palliative Medicine		1		2					1
Endocrine Medicine	1	2	6	3	4	2	2	3	3
Medical Oncology						1	1		
Clinical Genetic						1	2		
Acute Internal Medicine							2	1	
General Surgery	42	18	21	16	21	36	35	25	53
Hand & Mikrosurgery									
Surgery Urology	1	2	3		6	4	3		1
Neurosurgery	4	5	7	3	4	4	4	8	5
Breast & Endocrine Surgery	1	2	1	1		4	6	2	
Paediatric Surgery		1	1	1	4	3	2	2	4
Plastic Surgery	3	2	3	2	4	1	1	2	5
Cardiothoracic Surgery	2	1	4	1	1		4	1	
O & G	49	23	17	33	37	23	33	26	36
Maternal Fetal Medicine	1	1		1	6		1		
Uro-Gynaecology	2	1			2		2	1	
Advance O&G	1	1							
Reproductive Medicine	1		4		1	2		1	3
Gynae-Oncology	1		2	4	1	4	1	2	
Paediatric	31	31	22	30	38	42	48	34	57
Paediatric Dermatology				1				1	
Paediatric Endocrine								1	1
Paediatric Cardiology	1	1		2	1	2	2		

Specialist/ Subspecialist	No of Gazetted Specialist/Subspecialist								
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Paediatric Rheumatology				1				1	
Paediatric Neurology	1								1
Paediatric Cardiothoracic						1			
Paediatric Radiology					2	1			
Paediatric Adolescent Medicine		1		1					
Paediatric Infectious Disease				1					
Development Paediatric							2		1
Paediatric Gastroenterology								1	
Paediatric Hematology-Oncology								1	
Neonatology							2	3	2
Anaesthesiology	35	34	33	43	41	42	51	78	47
Anaesthesiology Cardiothoracic	6	2		3	2	1	1	1	
Anaesthesiology Neuro	3				1			1	
Pain Management	4		1	1	4	1	4	2	
Anaesthesiology Obstetric				2	1	1		1	1
Anaesthesiology Paediatric	6			1				3	
Intensive Care	5		1	2	1		1	4	3
Orthopaedics	18	30	23	29	29	22	30	34	35
Radiology	31	11	17	31	38	26	37	24	29
Uroradiology						1	1		
Breast Imaging					1		1	1	2
Interventional Neuroradiology	2		2				1		2
Musculoskeletal Radiology	1			1					
Interventional Radiology		2			2	1			3

Specialist/ Subspecialist	No of Gazetted Specialist/Subspecialist								
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Radiologi Gastrohepatobiliary	1							1	
Radiology Forensic								1	
Neuroradiology							1		1
Patology	3	1	2						
Patology (Anatomy)		2	13	5	8	11	14	9	11
Patology (Microbiology)	5	3	6	8	7	6	5	3	5
Patology (Haematology)	7	4	4	9	8	5	9	4	13
Patologi (Chemistry)	1	1	5		8	7	3	3	2
Forensic	3		2	2		3	3		2
Ophthalmology	17	22	21	18	21	32	25	21	33
Psychiatry	8	5	18	17	11	22	14	13	24
ENT	12	18	14	10	20	12	15	16	20
Emergency Medicine	8	9	12	15	19	26	27	40	36
Radiotherapy & Oncology	1	2	6	6	3	5	3	1	3
Rehabilitation Medicine	2	6	2	3	3	9	7	6	8
Nuclear Medicine				1	5	5	7	6	3
Perubatan Nuklear	1			1	1	4	3	6	3
Sport Medicine	3	2		2	1	3	2	3	4
<b>TOTAL</b>	<b>409</b>	<b>321</b>	<b>358</b>	<b>397</b>	<b>493</b>	<b>514</b>	<b>528</b>	<b>503</b>	<b>586</b>

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 increasing year by year. However, they are still not enough to cater for the need of the country. In 2016, the total number of specialists from various specialties and subspecialties were 4,777. This number has increased as compared to 2015 when there were 4,319 specialists working in the MoH (**Table 22**). Besides that, significant increase in the percentage of specialists is seen in certain discipline such as General Medicine, which increased from 3.53 per cent in 2015 to 24.84 per cent in 2016.

**Table 22**  
**Number of Clinical Specialists in MoH Hospitals (2009 to 2016)**

Discipline	No. of Specialists (Including Subspecialty Trainee)							
	2009	2010	2011	2012	2013	2014	2015	2016
Anaesthesiology	282	350	328	350	387	479	474	514
Cardiology	36	47	49	47	51	51	49	46
Cardiothoracic Surgery	10	22	19	22	22	24	24	21
Dermatology	24	33	32	33	40	41	40	40
Emergency Medicine	54	110	89	110	146	207	207	246
Forensic	19	24	21	24	27	28	28	27
General Medicine	311	515	461	515	552	622	644	804
General Surgery	204	238	231	238	262	287	284	303
Hand and Microsurgery	1	1	1	1	1	1	1	1
Nephrology	48	60	57	60	71	71	70	67
Neurology	17	26	23	26	28	30	30	29
Neurosurgery	24	29	30	29	33	47	46	54
Nuclear Medicine	6	10	6	10	13	22	22	22
Obstetrics and Gynaecology	224	280	276	280	300	303	293	306
Ophthalmology	155	196	188	196	226	233	232	252
Orthopaedic	190	255	222	255	249	278	276	297
Otorhinolaryngology	103	129	124	129	146	159	159	162
Paediatric	258	344	315	344	398	438	435	459
Paediatric Surgery	11	16	16	16	20	25	24	27
Pathology	160	227	201	227	260	306	305	333
Plastic Surgery	21	28	28	28	27	27	26	30
Psychiatry	108	148	135	148	158	176	176	203
Radiology	162	220	208	220	249	275	275	324
Radiotherapy and Oncology	11	24	22	24	29	32	31	31
Rehabilitation Medicine	23	32	26	32	40	49	49	57
Respiratory Medicine	23	33	31	33	40	39	38	37
Sports Medicine	6	11	9	11	13	19	19	23
Urology	29	29	31	29	32	30	28	27
Transfusion Medicine		18	13	18	24	34	34	35
<b>Total</b>	<b>2,520</b>	<b>3,424</b>	<b>3,192</b>	<b>3,424</b>	<b>3,845</b>	<b>4,333</b>	<b>4,319</b>	<b>4,777</b>

Source: Medical Professional Development Section, Medical Development Division, MoH  
Note: Excluding Family Medicine Specialists, Public Health Specialists and Dental Specialists

## 6. Medical Officers in MoH

The number of Medical Officers (excluding the House Officers) working in MoH has been increasing. There were 21900 Medical Officers until September 2016, as compared to 19982 in 2015 (**Table 23**).

**Table 23**  
**Number of Medical Officers (Excluding House Officers) in MOH (2009 to 2016)**

2009	2010	2011	2012	2013	2014	2015	2016
9,634	9,257	11,244	12,465	14,898	18,072	19,982	21,900

Source: Medical Professional Development Section, Medical Development Division, MoH

**7. Employment of Medical Officers and Specialists as Contract Officers in MoH**

Until now, the Ministry of Health Malaysia (MoH) is still having lack of specialists, especially in Sabah and Sarawak. Hence the MOH are still continuing the employment of specialists include reappointment of retired specialists. The MoH had decided not to employ any foreigner Medical Officer. However the MoH are still employing medical officer only if there are Malaysian citizen for the purpose of completing compulsory service subject to availability of the posts. Besides that, the MoH are also continued to support the renewal of contract medical officer who have post graduate specialist qualification in view of gazzement process to be a specialist and also renewal of contract of house officer for the purpose of completing housemanship training.

The employments of those officers are under the responsibility of the MoH's Contract Officers Selection Committee, chaired by the Deputy Director-General of Health (Medical) with the Human Resource Division, MoH as the secretariat. The Medical Development Division, MoH and the Malaysia Medical Council are committee members who are responsible to provide technical inputs related to the qualification, experience and skills. In 2016, there were 144 doctors employed by MoH on contractual basis compared to 268 in 2015 (Table 24).

**Table 24**  
**Number of Doctors Employed on Contractual Basis for**  
**Year 2010 to 2016 (Till 30 November 2016)**

Category Of Doctors	Number of doctors						
	2010	2011	2012	2013	2014	2015	2016
Medical Officers	445	389	378	365	355	190	61
Specialists	222	337	244	173	168	78	83
<b>TOTAL</b>	<b>667</b>	<b>726</b>	<b>622</b>	<b>538</b>	<b>523</b>	<b>268</b>	<b>144</b>

Source: Human Resource Division, MoH

**Engagement of Private Practitioners in Providing Services for MoH**

Private practitioners particularly specialists continue to be employed by MoH on sessional basis for provision of certain specialties required by the government. In 2016, there were 27 private specialists employed on sessional basis by MoH as compared to 19 in 2015 (Table 25).

**Table 25**  
**Number of Private Practitioners Employed on Sessional Basis for Year 2010 to 2016**

Hospital	Discipline	Number						
		2010	2011	2012	2013	2014	2015	2016
Hospital Umum Sarawak	Neurology	1	1	-	-	-	1	-
	Radiology	1	1	-	1	-	-	-
	Ophthalmology	1	-	-	-	-	-	-
	Plastic Surgery	1	-	1	1	-	-	-
	Cardiology	-	-	-	1	-	1	-
	Cardiac Anesthesia	-	-	-	2	-	-	1
	Vascular Surgery	-	-	-	-	1	-	-
	Pediatric	-	-	-	-	-	1	-
	Urology	-	-	-	-	1	-	-
<b>Subtotal</b>		<b>4</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>1</b>
Hospital Sibul	O&G	-	-	1	-	-	-	-
	General Surgery	-	-	-	1	-	-	-
	Radiology	-	-	-	-	-	1	1
	Pediatrik	-	-	-	-	-	-	1
	ORL	-	-	-	-	-	1	1
	Orthopedic	-	-	-	-	1	1	-
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>
Hospital Miri	Pediatric	-	-	1	-	-	-	-
	Radiology	-	-	1	-	-	1	-
	Plastic Surgery	-	-	-	1	-	-	-
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>2</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>-</b>
Hospital Bintulu	General Medicine	-	-	-	-	-	-	1
	General Surgery	-	-	-	-	-	-	1
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2</b>
Hospital Rajah Charles Brooke Memorial (RCBM)	leprosy	-	-	1	-	2	-	-
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>
Hospital au, Sarawak	Pediatrik	-	-	1	-	2	-	-
<b>Subtotal</b>		<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>
Hospital Queen Elizabeth, Sabah	Geriatric	-	-	-	-	-	-	1
	Rheumatology	-	-	-	-	-	-	1

Hospital	Discipline	Number						
		2010	2011	2012	2013	2014	2015	2016
	Hepatobiliary Surgery	-	-	-	-	-	-	1
	Urology	-	-	-	-	-	-	1
<b>Subtotal</b>		-	-	-	-	-	-	<b>4</b>
Hospital Tawau, Sabah	Orthopedic	-	-	-	-	-	1	-
<b>Subtotal</b>		-	-	-	-	-	<b>1</b>	-
Hospital Sultanah Aminah, JB	General Medicine	-	1	-	-	-	-	-
	Pathology	1	-	-	-	-	-	-
	Plastic Surgery	1	-	-	-	-	-	-
	O&G	1	-	-	-	-	-	-
	Pediatrik	2	-	-	-	-	-	-
	Radiology	1	-	-	-	-	-	-
<b>Subtotal</b>		<b>6</b>	<b>1</b>	-	-	-	-	-
Hospital Sultan Ismail	Anesthesiology	1	-	-	-	-	-	-
<b>Subtotal</b>		<b>1</b>	-	-	-	-	-	-
Hospital Sultanah Fatimah, Muar, Johor	Dermatology	-	1	-	-	-	-	-
<b>Subtotal</b>		-	<b>1</b>	-	-	-	-	-
Hospital Kuala Lumpur	Anesthesiology	5	3	-	2	-	1	-
	Pediatrik	3	1	-	-	-	1	-
	General Medicine	-	1	-	2	-	-	-
	Ophthalmology	1	1	1	1	1	2	3
	ORL	-	1	-	1	1	1	1
	Oncology	-	-	1	-	2	-	-
	Orthopedic	-	-	1	-	-	-	-
	Nephrology	1	-	-	-	-	-	-
	General Surgery	-	-	-	-	-	-	1
	Urology	1	-	-	-	1	-	-
Gastroenterology	-	-	-	1	1	1	-	
<b>Subtotal</b>		<b>11</b>	<b>7</b>	<b>3</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>5</b>
Pusat Darah Negara	Pathology	-	-	-	-	-	1	-

Hospital	Discipline	Number						
		2010	2011	2012	2013	2014	2015	2016
<b>Subtotal</b>		-	-	-	-	-	1	-
Hospital Pulau Pinang	General Surgery	-	2	-	-	-	-	1
	Pediatric	-	1	-	-	1	-	-
	Cardiohoracic	-	-	1	-	-	1	-
	Nuclear Medicine	-	-	-	-	-	-	1
	Urology Surgery	-	-	-	-	-	-	1
	Nephrology	-	-	-	-	-	-	1
	Pediatric	-	-	1	-	-	-	1
	O&G	-	-	-	1	-	-	-
<b>Subtotal</b>		-	3	2	2	1	1	5
Hospital Melaka	Pathology	-	1	-	-	-	-	-
	Cardiology	-	-	-	1	-	-	1
	Neurosurgery	-	-	-	2	-	1	-
	Radiology	-	-	-	1	-	-	2
<b>Subtotal</b>		-	1	-	4	-	1	3
Hospital Jasin	Radiology	-	-	-	1	-	-	-
<b>Subtotal</b>		-	-	-	1	-	-	-
Hospital Raja Perempuan Bainun, Ipoh	Pathology	-	-	1	-	-	-	-
	Rheumatology	-	-	-	-	-	-	1
	Pediatric Neurology	-	-	-	-	-	-	1
	Anesthesiology	-	-	1	-	-	-	-
	Dermatology	1	-	-	-	-	-	-
	Urology	-	-	-	1	-	-	-
	Pediatric	-	-	-	1	-	-	-
	Gynecology-oncology	-	-	-	-	-	1	1
	Ophthalmology	-	-	-	-	2	1	1
<b>Subtotal</b>		1	-	2	2	2	2	4
<b>TOTAL</b>		<b>23</b>	<b>15</b>	<b>13</b>	<b>22</b>	<b>16</b>	<b>19</b>	<b>27</b>

Source: Medical Professional Development Section, Medical Development Division, MoH

## 8. Continuing Professional Development (CPD)

Continuing Professional Development (CPD) is a bigger form of Continuing Medical Education (CME), which is implemented in a more comprehensive 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 V 2.0) and expected to complete by 2017. The MoH's myCPD currently used by **over 200,000** registered users since its launching in 2007 till December 2016. myCPD is used by **49** various health professional or health schemes in MoH, private sectors and universities. Various programs and workshops had been carried out throughout 2016.

Various improvements have been proposed as efforts to increase the capacity of the system. Awareness programs are being implemented to increase user awareness on use of CPD and as for the CPD Committees at various stages to be more active in carrying out CPD activities. CPD will continue to be used for various purposes in the MOH and the use of credit points to be adapted to different requirements such as for Annual Practicing Certificate renewal for Practitioners and Physician enrollment in the National Specialist Register (NSR). 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.

## **9. Human Capital Development and In-service Training Activities in the Medical Programme**

The sub-section coordinates sponsorship and selection of the candidates to attend courses, workshops, seminars and conferences locally or internationally. In the year 2016, RM23.152 million was allocated by the MoH to the Medical Programme for in-service training locally or internationally. Out of the RM23.152 million, RM21.152 million was allocated for local training of which 10,455 courses were conducted and attended by 259,951 medical personnel. The balance RM2 million was utilised for oversea short courses of which 71 participants from various categories had been sent abroad for training (**Table 26**).

**Table 26**  
**Human Capital Development And In-Service Training Activities For 2016**

Year	Total Allocations (RM)	Expenditure (RM)	No. of Training Activities	No. of Medical Personnel
<b>2014</b>				
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
<b>TOTAL</b>	<b>23,152,000.00</b>	<b>22,263,488.03</b>	<b>16,501</b>	<b>278,000</b>
<b>2015</b>				
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
<b>TOTAL</b>	<b>23,152,000.00</b>	<b>22,649,169.43</b>	<b>10,642</b>	<b>266,160</b>
<b>2016</b>				
Overseas Training	2,000,000.00	1,149,341.65	53	71
Local training	21,152,000.00	20,812,727.44	10,455	259,951
<b>TOTAL</b>	<b>23,152,000.00</b>	<b>21,332,069.09</b>	<b>10,508</b>	<b>260,022</b>

*Source: Medical Professional Development Section, Medical Development Division, MoH*

**Smart Partnership between the MoH and the Local and Foreign Agencies - Medical Programme:**

**a) Smart Partnership with Local Agencies**

Since 1993, the Ministry of Health Malaysia (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, the 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 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 Understanding (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.

#### **b) 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.

### **10. Other Activities and Achievements**

#### **i) Part Time Job (Locum) By Government's Medical Officer**

- a. Locum is one of the retaining packages for medical officer and specialist to remain working with government. There are two (2) types of locums, namely the government doctors doing locum at private healthcare facilities and the government doctor doing locum at government healthcare facilities.
- b. On 1 March 2006, The Cabinet had approved locum for the government doctors. Subsequently, the circular letter No. 5 year 2006 was issued by the Secretary-General of Ministry of Health Malaysia explaining the procedure of locum for medical officer and dental officer was circulated [*"Surat Pekeliling Ketua Setiausaha Bilangan 5 Tahun 2006 - Tatacara Pelaksanaan Pegawai Perubatan dan Pergian Berdaftar Melakukan Pekerjaan Luar (Lokum)"*].
- c. Following the approval of locum in the year 2006, improvements had been made on the procedures of locum and several circulars were issued such as:-
  - i. The Circular no. 7 year 2007 by the Director-General MoH Malaysia regarding the procedure of locum at the MOH Emergency Department [*"Pekeliling Ketua Pengarah Kesihatan bilangan 7/2007 - Perlaksanaan Perkhidmatan Klinik Rawatan Pesakit Selepas Waktu Pejabat (KRPSWP) Di Jabatan Kecemasan"*].
  - ii. The Circular Letter no. 11 year 2008 by the Director-General MoH Malaysia explaining the guideline for private medical practitioners to work at the government clinic (hospital and clinic) with the rate of RM 80 per hour [*"Surat Pekeliling Ketua Pengarah Kesihatan Bilangan 11 / 2008 - Panduan bagi Penggunaan Khidmat Doktor Swasta untuk Perkhidmatan Kesihatan di*

*Klinik Kementerian Kesihatan Malaysia (Hospital dan Klinik Kesihatan) dengan Kadar Baru RM 80 Sejam”];*

- iii. The Circular Letter no. 2 year 2010 by the Director-General MoH Malaysia refining further the guideline procedure of locum at private healthcare facilities for the government doctor [*“Surat Pekeliling Ketua Pengarah Kesihatan Malaysia Bilangan 2/2010 - Garispanduan Pelaksanaan Melakukan Pekerjaan Luar (Lokum) Di Sektor Swasta Oleh Pegawai Perubatan Kementerian Kesihatan Malaysia”*];
  - iv. The Director-General MoH Malaysia issued another circular dated 31 January 2012 clarifying further the procedure of locum at private healthcare facilities for the government doctor [*“Surat Ketua Pengarah Kesihatan Malaysia bertarikh 31 January 2012 - Penjelasan Tambahan Mengenai Pelaksanaan Garispanduan Melakukan Pekerjaan Luar (Lokum) Di Sektor Swasta Oleh Pegawai Perubatan Kementerian Kesihatan Malaysia (KKM)”*].
- ii) **The Programme to Encourage Malaysian Citizens with Expertise Residing Overseas To Return To Malaysia (Returning Expert Programme)**
- a. Since 2001, the Ministry of Human Resource in collaboration with other ministries and agencies including the Ministry of Health Malaysia have offered various incentives under the Returning Expert Programme (REP). In the beginning of this programme, it had not well received by the specialists working overseas among others due to wide disparity variation in remunerations offered by Malaysia government.
  - b. A Memorandum of Understanding (MoU) was signed between the Ministry of Health Malaysia and Talent Corporation Malaysia Berhad (TalentCorp) on 3 May 2012 with objectives to facilitate the returning of medical doctors into Government’s healthcare services to meet the need of the government. Besides that, a Memorandum of Agreement (MoA) was also signed between TalentCorp and Association of Private Hospital of Malaysia (APHM). The MoH Malaysia in collaboration with the Malaysia Medical Council (MMC) and National Specialist Register (NSR) regarding registration as medical practitioner and specialist.
  - c. Since the establishment of TalentCorp on 1 January 2011, it had organised several outreach programmes to the United Kingdom, Ireland, Australia and Taiwan. Subsequently, the Talent Corp has established Returning Expert Programme Committee to facilitate the admission process and supply of talented Malaysians to return from abroad and served in Malaysia.

- d. According to the Medical Act 1971 (amended 2012), it states that the Malaysian Medical Officer who have postgraduate qualification is required to register with the MMC and the NSR as to qualify them to practice as a specialist in Malaysia, therefore in year 2014, the Talent Corp has established the Joint Working Committee - Healthcare Talent (JWC-HT).
- e. The term and reference of the Committee as following: -
  - i. To identify issues related to the return of specialists under the REP and recommend actions to be taken by the TalentCorp;
  - ii. To ensure that the Medical Officer must have the basic medical degree recognized by the MMC and eligible to register with the MMC. In addition, the Medical Officer also has a post graduate degree and experience as a specialist to be accepted to register with the NSR before they are eligible to work in Malaysia for consideration and approval by the REP Committee;
  - iii. To ensure that others healthcare professionals such as dentists, pharmacists, nurses, Allied Healthcare etc. are registered with the regulatory body, respectively;
  - iv. To provide input into the planning outreach program and promotion to raise awareness about the REP among Malaysians specialist working abroad; and
  - v. To discuss issues related to the sharing of knowledge and skills in joint venture between Malaysian medical practitioners with medical practitioners from abroad through the REP, especially after the Medical Act 1971 (Amendment 2012) came into force.
- f. The committee comprises representatives from various agencies such as the following: -
  - i. Medical Development Division, Ministry of Health;
  - ii. Medical Practice Division, Ministry of Health;
  - iii. Malaysia Medical Council;
  - iv. National Specialist Registry who represented of Academy of Medicine of Malaysia; and
  - v. Representatives of other professions under the medical field (if required).
- g. In 2016 there were 16 specialists who applied returning from abroad and work in Malaysia through the Returning Expert Programme (REP) against 28 specialists in 2015 (**Table 27**)

**Table 27**  
**The Return of Doctors Through The REP In Year 2011 to 2016**

REP	Numbers of Applicants					
	2011	2012	2013	2014	2015	2016
Number of specialist	31	59	32	49	21	13
Number of Medical Officer	-	-	-	-	7	3
<b>TOTAL</b>	<b>31</b>	<b>59</b>	<b>32</b>	<b>49</b>	<b>28</b>	<b>16</b>

*Source: TalentCorp Malaysia*

### C. MALAYSIAN HEALTH TECHNOLOGY ASSESSMENT SECTION (MaHTAS)

#### a. Introduction

Malaysian Health Technology Assessment Section (MaHTAS), the first of its kind in Asian countries, was established in August 1995 under Medical Development Division, Ministry of Health. In its 21<sup>st</sup> year of operation, under the direction of newly appointed Head of the Section, Dr Junainah Sabirin, MaHTAS continues to provide valuable support to policy makers on the introduction of new health technologies in MOH. It assists clinical decision-making by ensuring that health technologies introduced into Malaysian's public healthcare system are safe, effective and cost-effective and appropriate patient care is delivered using recommendations from the Clinical Practice Guidelines (CPG).

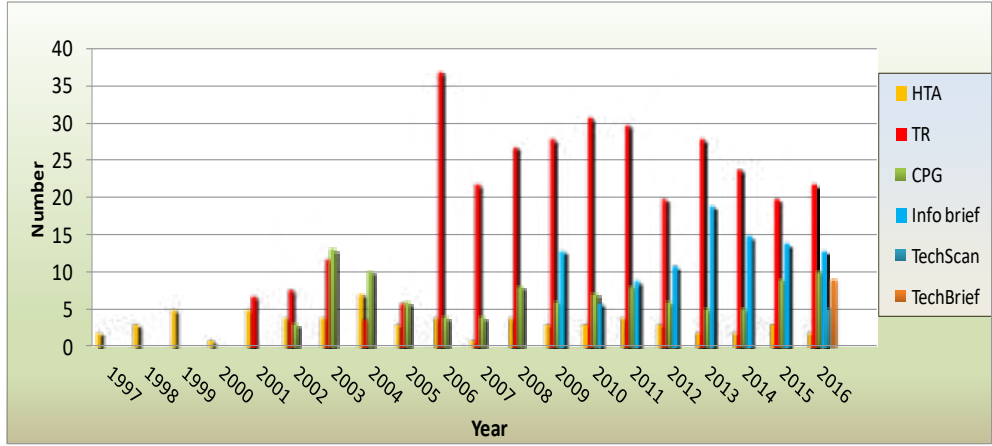
MaHTAS has broaden its scopes to include implementation of CPG (since 2008), evaluation of utilisation and impact of its product, Horizon Scanning of emerging health technologies (since 2015) and conducting local economic evaluation in collaboration with public and private universities.

#### b. Output/Achievement

##### 1. Health Technology Assessment (HTA)/Technology Review Reports (TR) / Information Brief (IB) /CPGs/TechScan and TechBrief

In 2016, MaHTAS had produced two (2) HTA reports, 22 TR reports, 13 Information Brief (IB), 10 CPGs, five (5) TechScan reports and nine TechBrief reports. **Figure 16** showed the number of MaHTAS products since 1997 until 2016 with a total of 65 HTA reports, 326 TR reports, 104 CPGs, 100 IB reports, five TechScan reports and nine TechBrief reports. All reports and CPGs can be accessed at [www.moh.gov.my](http://www.moh.gov.my) and myMaHTAS mobile apps.

**Figure 16**  
**Number of MAHTAS Products By Year (1997-2016)**



Source : Health Technology Assessment Section, MoH

**Table 28**  
**HTA Reports and CPGs in 2016**

<b>Health Technology Assessment Reports 2016</b>	
1.	HPV Urine Test for Cervical Cancer Screening
2.	N-Acetylcysteine in prevention of Contrast Induced Acute Kidney Injury
<b>Clinical Practice Guidelines 2016</b>	
1.	Management of Rhinosinusitis in Adolescents and Adults
2.	Prevention of Heart Disease in Women (2 <sup>nd</sup> edition)
3.	Management of Heart Disease in Pregnancy (2 <sup>nd</sup> edition)
4.	Management of the Palatally Ectopic Canine (2 <sup>nd</sup> edition)
5.	Management of Drug-Resistant Tuberculosis
6.	Treatment of Tobacco Use Disorder
7.	Diagnosis, Management and Prevention of Infective Endocarditis
8.	Management of Nasopharyngeal Carcinoma
9.	Management of Periodontal Abscess (2 <sup>nd</sup> edition)
10.	Management of Acute Orofacial Infection of Odontogenic Origin in Children

Source : Health Technology Assessment Section, MoH

## 2. Impact/influence of HTA/TR reports for 2016

Biannually, objective impact/influence evaluation for HTA/TR reports was started in 2016 using self administered evaluation form completed by the requestors. It

assessed indication and level of impact/influence of the reports categorized by its type of recommendation. Three HTA and 19 TR reports were assessed in 2016. Result was summarised in **Table 29**.

**Table 29**  
**Summary of Impact Evaluation of HTA/TR Reports for 2016**

<b>Recommendation type</b> <b>Item evaluated</b>	<b>Recommended (n=11)</b>	<b>Recommended for research purpose (n=10)</b>	<b>Not recommended (n=1)</b>
Indication of impact/influence	<ul style="list-style-type: none"> <li>Recommendation or conclusion agreed/ accepted (82%)</li> <li>Use as reference material (55%)</li> </ul>	<ul style="list-style-type: none"> <li>Recommendation or conclusion agreed/ accepted (100%)</li> </ul>	<ul style="list-style-type: none"> <li>Incorporate into policy/ decision/ administrative document (100%)</li> </ul>
Indication of impact/influence	<ul style="list-style-type: none"> <li>Initiate/propose/ implement programme (36%)</li> <li>Conduct pilot study/ implementation (36%)</li> <li>Incorporate into policy/ decision/ administrative document (27%)</li> <li>Request for funding (9%)</li> <li>Others: Fee Act (9%)</li> </ul>	<ul style="list-style-type: none"> <li>Use as reference material (90%)</li> <li>Incorporate into policy/decision/administrative document (70%)</li> <li>Conduct research (60%)</li> </ul>	<ul style="list-style-type: none"> <li>Use as reference material (100%)</li> </ul>
Level of impact/influence	<ul style="list-style-type: none"> <li>Major influence on decisions (18%)</li> <li>Informed decision [finding accepted by decision maker] (64%)</li> <li>Some consideration by decision makers (18%)</li> </ul>	<ul style="list-style-type: none"> <li>Major influence on decisions (80%)</li> <li>Some consideration by decision makers (20%)</li> </ul>	<ul style="list-style-type: none"> <li>Major influence on decisions (100%)</li> </ul>

Source : Health Technology Assessment Section, MoH

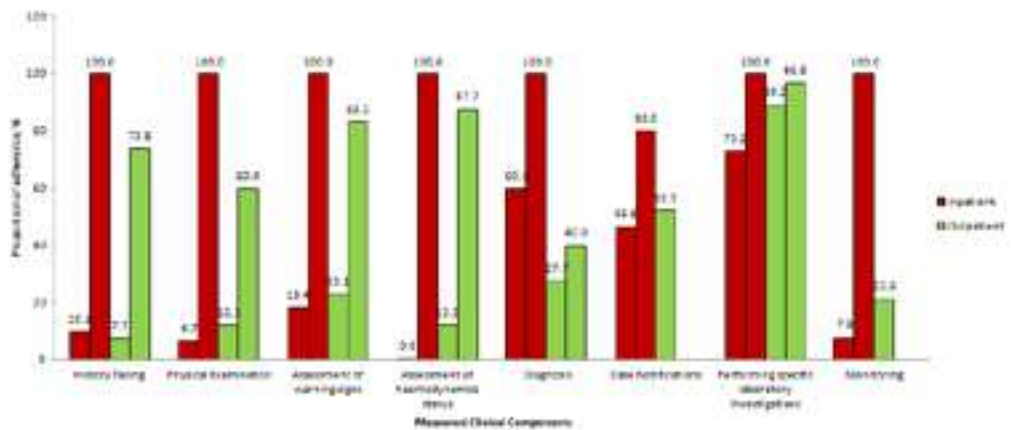
### **3. Study of Adherence to CPG Management of Dengue Infection In Adults (Revised 2<sup>nd</sup> Edition)**

MaHTAS in collaboration with other divisions in MoH, a group of clinicians and University of Malaya conducted a study to evaluate the adherence to the Dengue



CPG among healthcare providers. A retrospective cohort study was conducted on registered dengue cases from 1 January 2014 to 1 June 2015 in public hospitals and health clinics in Selangor, Putrajaya and Kuala Lumpur. Adherence to the CPG key recommendations were recorded by reviewing patients' case notes. Adherence is defined as the presence of documentation of recommended CPG components in the patients' notes. Clinical components of the CPG recommendations were measured for inpatient versus outpatient. This study was registered with National Medical Research Register (NMRR ID: 20233) and approved by the University of Malaya Medical Centre Ethical Committee (MEC ID: 201412-902). A total of 326 cases were included in the study with 261 cases were from hospitals (inpatient) and 65 cases were from health clinics (outpatient). Result was illustrated in **Figure 17** below. The proportion of adherence to the Dengue CPG varied widely across the different settings and measured clinical components. Although these measurements may not truly reflect the actual clinical practice during dengue case management compared to direct observations, it highlights the importance of accurate and complete record documentation by healthcare providers and the need to enhance Dengue CPG utilisation at all level of care.

**Figure 17**  
**Summary Proportion of Adherence To CPG by Measured Clinical Components**



Source : Health Technology Assessment Section, MoH

#### 4. Economic Evaluation for Health Technologies

Economic evaluation plays an important role in providing information of value for money to the policy maker. The result from economic evaluation may assist the decision maker in making decision pertaining to healthcare budget and expenditure. Since 2014, MaHTAS has been actively involved with value-based medicine and gradually building the capacity in conducting economic evaluation for health technologies by organising various internal and external training for its officers. A collaborative work on economic evaluation for health technologies has also been

initiated between Ministry of Health and various local academic institutions such as Monash University, University of Malaya, University Sains Malaysia and National University of Malaysia to strengthen the component of economic evaluation for health technologies by MaHTAS. This committee is known as Technical Advisory Committee for Health Technologies Economic Evaluation (TACHTEE) and primarily responsible for reviewing the economic evaluation conducted by MaHTAS either as part of HTA report, TR (Mini-HTA) reports or as an independent project. With this successful collaboration, it is hoped that more economic evaluation of health technologies could be produced in the near future. Up to 2016, MaHTAS has produced two technology reviews with economic evaluation entitled 'Tyrosine Kinase Inhibitors as first line treatment for advanced non-small cell lung cancer' and 'colorectal cancer screening using colonoscopy'. The information from these reviews was useful in guiding decision pertaining to access to the medicine following price negotiation and decision on adoption of colonoscopy in colorectal cancer screening.

### 5. Training

MaHTAS continued to organise training on HTA for healthcare personnel from the Eastern Zone of Malaysia (Trengganu, Kelantan, and Pahang) and training to CPG Development Group members (two sessions). Capacity building for MaHTAS officers was on-going with 14 internal training sessions conducted.

### 6. Launching of Clinical Practice Guidelines (CPG)

MaHTAS, in collaboration with professional societies, had successfully launched four national CPGs in 2016, officiated by the Director General of Health. CPG packages consisting of the CPG and Quick Reference were presented to representatives from the State Health Departments, medical faculties and professional societies as a symbolic mandate for them to implement the CPGs at their respective institutions. CPGs which were launched in 2016 were:

**Image 4**  
**Launching of Clinical Practice Guidelines (CPG)**



CPG Early Management of Head Injury in Adults  
(18 July 2016, Sungai Buloh Hospital)

Source: Health Technology Assessment Section, MoH



CPG Management of Multiple Sclerosis  
(19 August 2016, KLCC Convention Centre)

## 7. International Networking/Participation

As a member of various international organisations such as International Network of Agencies for Health Technology Assessment (INAHTA), Health Technology Assessment International (HTAi), HTAsia Link, International Society for Pharmacoeconomics & Outcomes Research (ISPOR), and Guidelines International Network (GIN), MaHTAS participated in their events to ensure it remained relevant locally and internationally as well as to keep up-to-date with the latest information. In 2016, MaHTAS representatives participated in the following international events:

- **5<sup>th</sup> HTAsiaLink annual conference, 3 to 6 May 2016, Singapore**

The annual conference 2016 was held in Duke-NUS Medical School, Singapore. It serves as a platform to convene similar HTA agencies in the region to facilitate exchange of knowledge and provides opportunities for the staff of member organization to present their abstracts to a panel of expert commentators. MaHTAS was one of the panelists in the forum entitled “*How Much Difference Do Institutional Make for HTA*” while eight officers presented orally in the Health System Research category. An officer had won third place in the oral presentation for the review entitled “*Water Birth: How safe and effective*”

- **13<sup>th</sup> HTAi annual meeting and INAHTA conference, 10 to 14 May 2016, Tokyo**

The 13<sup>th</sup> annual meeting HTAi 2016, was held from 10 to 14 May 2016 in Tokyo, Japan with the theme “*Informing Health Care Decisions with Values and Evidence*”. Subsequent to this, the International Network of Agencies for Health Technology Assessment (INAHTA) congress took place in the same venue with the theme “*Sharing Innovative Solutions for Health Policy Challenges*”. MaHTAS took part in the pre-conference meeting with presentation on “*Horizon Scanning of Health Technologies in Malaysia*” as well as the oral and poster presentations. In the INAHTA Congress, MaHTAS shared the impact of HTA report with other agencies and presented in the forum entitled “*Innovative solutions to health policy challenges in Asia*”.

- **7<sup>th</sup> ISPOR Asia Pacific Conference , 2 to 7 November 2016, Singapore**

Two MaHTAS officers attended this conference which was held in Singapore from 2 to 7 November 2016 and presented their posters. The theme chosen was *Pharmacoeconomics and Outcomes Research in Asia-Pacific: Challenges, Opportunities and Future Direction*”.

- **HTAi Asia Policy Forum 2016, 17 to 18 November 2016, Impiana KLCC, Kuala Lumpur**

HTAi Asia Policy Forum 2016 was held in Impiana Hotel KLCC, Kuala Lumpur from 17 to 18 November 2016 with the theme “*Assessing Value, Budget*”

Impact and Affordability to Inform Discussions on Access and Reimbursement: Principle and Practice, with Special Reference to High Cost Technologies”. This annual event was organised by HTA International (HTAi) to provide a unique opportunity for leaders and senior management from public and private sector organizations that utilised health technology assessment, to come together along with the experts on HTA, for strategic discussions on specific issues or organizational policies. MaHTAS involved as part of the organising committee in this event. The meeting was opened by the Director General of Health Malaysia. Stimulating dinner speech was delivered by him on ‘the role of collaboration and HTA in Malaysian Health System Transformation’. A total of 46 delegates from countries within Asia including Japan, Korea, Singapore, Vietnam, Thailand, Taiwan and Malaysia participated in this forum. Malaysia was represented by the Director General of Health, Director of Medical Development Division and senior officials from MaHTAS and Pharmaceutical Service Division.

**Image 5**  
**International Networking**



*Source : Health Technology Assessment Section, MoH*

**c. Way Forward**

Continued progress in all key areas has been shown amidst the challenging healthcare environment faced locally and globally. MaHTAS will continue focusing on building momentum as the main player in advocating informed decision making in Malaysia with its brand new vision and mission. The team is working diligently in reaching its vision to be the leading and renowned centre for informed decision making for better healthcare in Malaysia. Works will be geared up towards its mission to advocate evidence-informed decision making by producing transparent, relevant, accessible synthesized research evidence; fostering collaboration with local and international stakeholders; strengthening health technology assessment capacity in Malaysia and empowering Malaysian consumer in the years to come.

## D. MEDICAL CARE QUALITY SECTION

### a. Accreditation & Standards Unit

#### Hospital Accreditation

Since 1998 until 2016, 113 from 143 MoH hospitals have been accredited by the Malaysian Society for Quality in Health (MSQH) the national accreditation body for healthcare facilities. In 2016, 16 MoH hospitals have undergone surveys against the fourth edition MSQH hospital accreditation standard. Seven hospitals successfully received four years certification; four hospitals which underwent focus surveys; received three additional years while another two hospitals received one year certification. A total of 55 MoH hospitals successfully maintained their certifications. Performance of state as listed in **Table 30**

#### Quality Management System MS ISO 9001

The Medical Programme has undergone three cycles of QMS MS ISO 9001 certification. Surveillance and upgrading audit to the new version 9001:2015 was done by SIRIM on 6 to 7 October, 2016. Recertification audit will be due in 2017. 52 MoH hospitals maintained their QMS MS ISO 9001 certifications. 25 MoH hospital underwent recertification audit in the year 2016. Most hospital are planning towards migration to the latest edition of the standards; that is QMS MS ISO 9001:2015. Performance of state as listed in **Table 30**

#### Public Sector Conduasive Ecosystem

Eight hospitals maintained their Public Sector Conduasive Ecosystem certification or also known as EKSA from MAMPU. It is one of the elements in the Star Rating System (SSR) for all the ministries. In 2016, it will be done through the Do-it-Yourself (DIY) method where the head office is responsible for the execution of the program at state level. Performance of state as listed in **Table 30**.

**Table 30**  
**Number and Percentage of Hospitals Maintaining Their Accreditation, QMS MS ISO and EkSA Certification for The Year 2016**

No	State	Certification						Total Hospital
		Accreditation		QMS MS ISO		EKSA		
1.	Perlis	1	100%	1	100%	0	0%	1
2.	Kedah	5	55%	1	11%	0	0%	9
3.	Pulau Pinang	3	50%	3	50%	0	0%	6
4.	Perak	9	60%	2	13%	0	0%	15
5.	Selangor	4	33%	11	91.6%	0	0%	12
6.	Negeri Sembilan	3	50%	1	16.7%	0	0%	6
7.	Melaka	0	0%	3	100%	0	0%	3
8.	Johor	1	8.3%	2	8.3%	0	0%	12
9.	Pahang	6	54.5%	8	66.6%	1	9%	11
10.	Terengganu	1	16%	6	100%	0	0%	6
11.	Kelantan	1	11%	4	44.4%	0	0%	9

No	State	Certification						Total Hospital
		Accreditation		QMS MS ISO		EKSA		
12.	Sabah	12	20%	13	75%	6	25%	24
13.	Sarawak	6	26%	0	0%	1	4.3%	23
14.	Wilayah Persekutuan	2	33%	1	16.6%	0	0%	6
<b>TOTAL</b>		<b>55</b>	<b>38.5%</b>	<b>56</b>	<b>39.2%</b>	<b>8</b>	<b>5.6%</b>	<b>143</b>

Source: Medical Care Quality Section, Medical development Division, MoH

### Hospital Innovation

Five innovations that had won the MoH national innovation award in the year 2015 have been shared i.e two from the product category, two from the service category and one from the technology category. Close collaboration with other divisions towards the MoH guidelines for the mechanism of commercialization of the innovation products. It is scheduled to be ready by the year 2017. Involvement and achievement of MOH hospital staff in innovation activity are very impressive as listed in **Table 31**

**Table 31**  
**MoH Hospital Achievement in Innovation Activities for The Year 2016**

2015 MoH Innovation & Creative Innovative Group Award Winners and Mandated for Sharing in 2016 by MoH Innovation Evaluator Panel			
No	Innovation Project	Category	Hospital
1.	Universal Portable Traction Device	Product	Queen Elizabeth II
2.	Kejora Portable Bed	Product	Tampin
3.	Single Channel Cystometry	Process	Sungai Buloh
4.	Collection, Delivery & Coordination	Process	Sungai Buloh
5.	Sistem Medical Report HKBPP	Technology	Kepala Batas
6.	S-NET	Management	Taiping
7.	MOBIX	Technical	Tengku Ampuan Afzan
2016 MoH Innovation & Creative Innovative Group Award Winners and Mandated for Sharing in 2017 by Moh Innovation Evaluator Panel			
1.	Kejora Smart Cool	Product	Tampin
2.	Star Wheelers	Service	Sultanah Bahiyah
3.	'C-Series'	Service	Sungai Buloh
4.	Great Excell	Process	Queen Elizabeth II
5.	<i>Hospital ADR Sistem</i>	Technology	Kapit
6.	<i>Sistem Pengurusan Credentialing &amp; Privileging</i>	Technology	Selayang
7.	Bullet Light	Technical	Kuala Krai
8.	Mobile Personal Care Station	Technical	Pulau Pinang

Source: Medical Care Quality Section, Medical Development Division, MoH

## MEDICAL PRACTICE DIVISION

### MEDICO LEGAL SECTION

Medico Legal Section is responsible for the management of potential medico legal cases involving healthcare facilities in the Ministry of Health (MoH). The process includes investigating, coordinating, resolving, compensating and providing technical advice related to medico legal issues. The Section also coordinates and mitigates medico legal litigation cases between MOH facilities and the Attorneys' General Chambers. In addition, the Section undertakes to role of organising training and courses on medico legal awareness for healthcare personnel in the MOH.

### MAIN ACTIVITIES IN MEDICO LEGAL SECTION

#### i. Management of potential medico legal complaints

The number potential medico legal complaints and medico legal litigation cases recorded by the Medico Legal Section from year 2008 to 2016 showed an increasing trend (**Table 32**).

**Table 32**  
**Number of Potential Medico Legal Complaints and Medical Litigation Cases**  
**Recorded by MoH (2008 to 2016)**

Year	Potential Medico Legal Complaints	Medico Legal Litigation
2012	194	42
2013	159	35
2014	142	55
2015	173	55
2016	225	59

*Source: Surveillance Unit, Medico Legal Section, MOH*

#### ii. Independent Inquiry Committee

Independent Inquiry Committee will be established for medico legal cases which were not resolved at the facility and state level. Cases which demand compensation will also be investigated via this committee. Independent Inquiry Committee is an external panel consisting of Senior Consultant Specialist, Specialist from related discipline, representative from State Health Departments, Representative from Medical Practice Division and community representative. In 2016, a total of 147 inquiries had been conducted by the MoH.

#### iii. Ex Gratia Meetings

Ex Gratia Meetings were conducted at the Ministry level on a monthly basis. Medico legal cases requesting compensation will be presented and discussed in this meeting. The meetings were

chaired by the Director of Medical Practice Division and the panels include representative from MOH Legal Advisor Office and members of the Attorney General's Chamber. In 2016, a total of 116 potential medico legal cases were presented of which 88 (75.9 per cent) cases were offered for *ex gratia* payment.

#### iv. Ex Gratia Compensation

In 2016, the total amount of *ex gratia* compensation paid for medico legal cases was RM 5,233,046.05 and the amount paid for court cases was RM 5,986,092.39. The total amounts of payment in 2016 for both cases were RM 11,219,138.44. The figure was significantly lower as compared to amount being paid in 2015 which was RM 24,529,597.37 (**Table 33**).

**Table 33**  
**Compensation Paid by Court and Ex Gratia Payment (2012 to 2016)**

Year	Payment for Court Cases (RM)	Payment for Ex Gratia Cases (RM)	Total (RM)
2012	7,069,666.79 (23)	5,460,300.00 (76)	12,529,966.79
2013	18,107,845.77 (29)	7,069,399.00 (76)	25,177,244.47
2014	410,000.00 (5)	6,762,109.00 (71)	7,172,109.00
2015	20,099,197.37 (30)	4,430,400.00 (73)	24,529,597.37
2016	5,986,092.39 (13)	5,233,046.05 (56)	11,219,138.44

Source: Surveillance Unit, Medico Legal Section, MoH

( ) – denotes no. of cases

#### v. Medico Legal Trainings

In 2016, the Medico Legal Section took the initiative to introduce the first ever training on Expert Witness by the MoH. The objectives of the course were to train and exposed the Senior Specialist on their role as expert witness in court, principles of medical negligence, importance of communication and documentation. The 3-days course includes presentation by academicians, senior consultants' clinician, legal counsels and a mock trial session. In addition to that, the Section continues its collaboration with various MOH hospitals and State Health Departments to conduct seminars and training. A total of 84 training session were conducted in 2016 (**Image 6**).



**Image 6**  
**Training on Expert Witness**



**Expert Witness Training 1/2016 being held in Dorsett Hotel,  
Putrajaya from 9 to 11 May 2016**



**Expert Witness Training 2/2016 was held in Thistle Hotel,  
Port Dickson from 24 to 26 October 2016**

*Source: Surveillance Unit, Medico Legal Section, MoH*

## WAY FORWARD

The Medico Legal Section aims to reduce the number of medico legal cases in MoH. To achieve this, regular training and awareness programme need to be conducted. Furthermore, monitoring of these cases performed through surveillance and regular audits will be undertaken to ensure that the high standards and quality of services being provided to all MoH clients are maintained.

The Section planned to improve our performance with various activities for 2107 namely:

- i) Organizing Technical Meetings for Medico Legal Units at the hospitals and State Health Departments. The aim is to get feedback from all states and providing updates on management of potential medico legal cases.
- ii) Drafting of Management of Cerebral Palsy Consensus Guideline
- iii) Revising and updating the “Guideline on Management of Medico Legal Complaints 2007”
- iv) Development of “Ex Gratia Policy Guideline”
- v) Field Audits on improvement of service quality based on External Inquiry recommendations

## PRIVATE MEDICAL PRACTICE CONTROL SECTION

The Private Medical Practice Control Section (CKAPS) undertakes the role to implement and enforce the Private Healthcare Facilities and Services Act 1998 [Act 586] which has come to its tenth year of implementation in 2016. 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 (PHFS).

There are three (3) main units under this Section, namely:

- (a) Policy, Standard and Operational Unit;
- (b) Registration and Licensing Unit;  
Under this unit, there are three subunits –
  - (i) Clinic Registration Team;
  - (ii) Haemodialysis Licensing Team; and
  - (iii) Hospital Licensing and Other Facility Team.
- (c) Enforcement Unit;  
The enforcement unit is made up of three subunits –
  - (i) Complaint Handling Team;
  - (ii) Quality Evaluation Team; and
  - (iii) Enforcement Team.

## MAIN ACTIVITIES UNDER CKAPS

### i. Clinic Registration Team

The scopes and functions of Clinic Registration Team under CKAPS are to process the applications related to Certificate of Registrations (COR) of private medical clinics and private dental clinics, as listed below:

- (a) Registrations of private medical clinics and private dental clinics;
- (b) Transfer of Certificate of Registration;
- (c) Amendment to Certificate of Registration;
- (d) Duplicate of Certificate of Registration;
- (e) Disposal of Certificate of Registration;
- (f) Revocation of Certificate of Registration;
- (g) Amendment of registration information; and
- (h) Withdrawal of application.

At the end of 2016, **7335** private medical clinics and **1992** private dental clinics were registered with the Ministry of Health, as in **Table 34**.

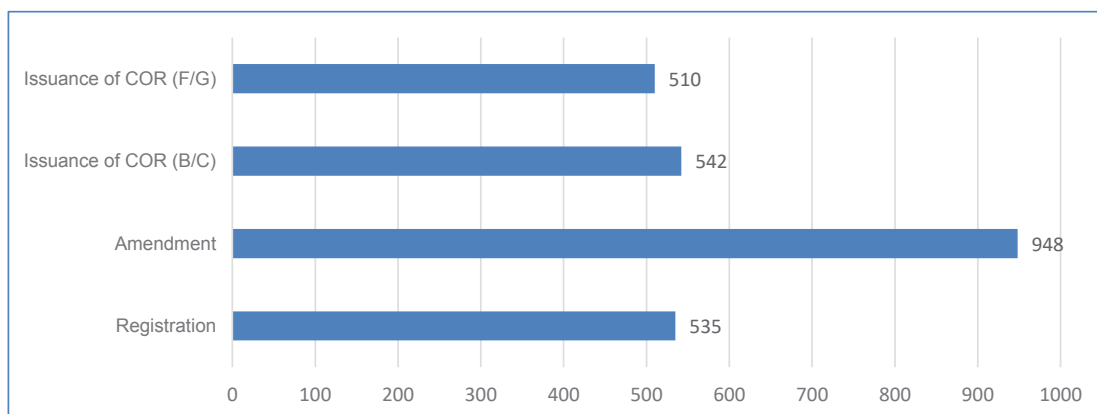
**Table 34**  
**Number of Registered Private Medical Clinics and Private Dental Clinics in Malaysia**  
**(Until 31 December 2016)**

No	State	Clinic Categories	
		Private Medical Clinic	Private Dental Clinic
1.	Johor	894	211
2.	Kedah	351	68
3.	Kelantan	219	58
4.	Malacca	294	43
5.	Negeri Sembilan	286	59
6.	Pahang	229	55
7.	Penang	525	144
8.	Perak	631	117
9.	Perlis	36	7
10.	Selangor	1,937	626
11.	Terengganu	160	51
12.	Sabah	370	110
13.	Sarawak	335	92
14.	Federal Territory of Kuala Lumpur	1055	347
15.	Federal Territory of Labuan	13	4
<b>TOTAL</b>		<b>7,335</b>	<b>1,992</b>

Source: Private Medical Practice Control Section, MoH

The number of applications processed by Clinic Registration Team for 2016, is as shown in **Figure 18**.

**Figure 18**  
**Number Of Application Processed by Clinic Registration Team For 2016**



Source: Private Medical Practice Control Section, MoH

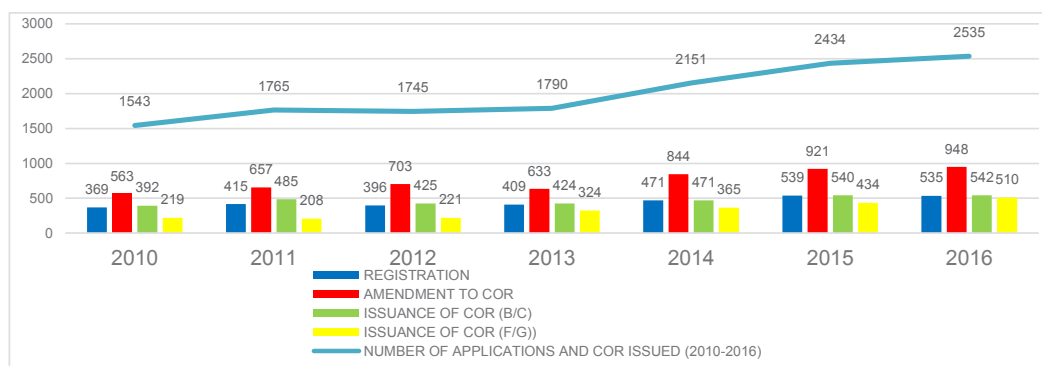
There is an increase in the number of applications for registration and other applications (except for application for amendment to COR) from 2010 to 2016, as shown in **Table 35**.

**Table 35**  
**Total Numbers of Applications for Registration and Other Applications from 2010 to 2016**

TYPE OF APPLICATION	2010	2011	2012	2013	2014	2015	2016
Registration	369	415	396	409	471	539	535
Amendment	563	657	703	633	844	921	491
Issuance of COR (B/C)	392	485	425	414	471	540	542
Issuance of COR (F/G)	219	2018	221	324	365	434	510

Source: Private Medical Practice Control Section, MoH

**Figure 19**  
**Total Number of Applications Processed and COR Issued by Clinic Registration Team**  
**(2010 to 2016)**



Source: Private Medical Practice Control Section, MoH

## ii. Hospital Licensing Team

Licensing of private hospitals and other private healthcare facilities other than private clinics, consists of two (2) stages namely Approval to establish or maintain and License to operate or provide.

The scopes and functions of Hospital Licensing Team (other than private clinics and private haemodialysis centre) are related to processing of these applications:

- Application for Zoning (for the location);
- Application for an Approval to Establish;
- Application for a Licence;
- Application for Renewal of a Licence;
- Application for Extension or Alteration;
- Application for Transfer of Approval or Licence;
- Amendment of particulars of Approval or Licence;
- Duplication of an Approval or Licence;
- Application for Disposal of Approval or Licence; and
- Withdrawal of applications.

In addition, the team is also responsible to perform verification visit and inspection visit as well as issuing show cause notice and revoking an Approval or Licence.

Applications processed by the Hospital Licensing team, are related to the private healthcare facilities, listed as below:

- Private Hospital;
- Private Psychiatric Hospital;
- Private Ambulatory Care Centre;
- Private Nursing Home;
- Private Psychiatric Nursing Home;

- (f) Private Maternity Home;
- (g) Private Blood Bank;
- (h) Private Community Mental Health Centre; and
- (i) Combined Facilities (a-h).

Until the end of 2016, **297** private healthcare facilities (other than private haemodialysis centre) were licensed as in **Table 36**.

**Table 36**  
**Number of Licensed Private Healthcare Facilities and Services other than the Private Haemodialysis Centre in Malaysia (Until 31 December 2016)**

No.	State	Licensed Private Healthcare Facility or Service Categories		Total
		Private Hospital	Others*	
1.	Johor	24	19	43
2.	Kedah	9	1	10
3.	Kelantan	3	0	3
4.	Malacca	5	1	6
5.	Negeri Sembilan	4	1	5
6.	Pahang	5	3	8
7.	Penang	19	9	28
8.	Perak	16	6	22
9.	Perlis	0	0	0
10.	Selangor	50	28	78
11.	Terengganu	2	2	4
12.	Sabah	4	4	8
13.	Sarawak	10	6	16
14.	Federal Territory of Kuala Lumpur	35	31	66
15.	Federal Territory of Labuan	0	0	0
<b>TOTAL</b>		<b>186</b>	<b>111</b>	<b>297</b>

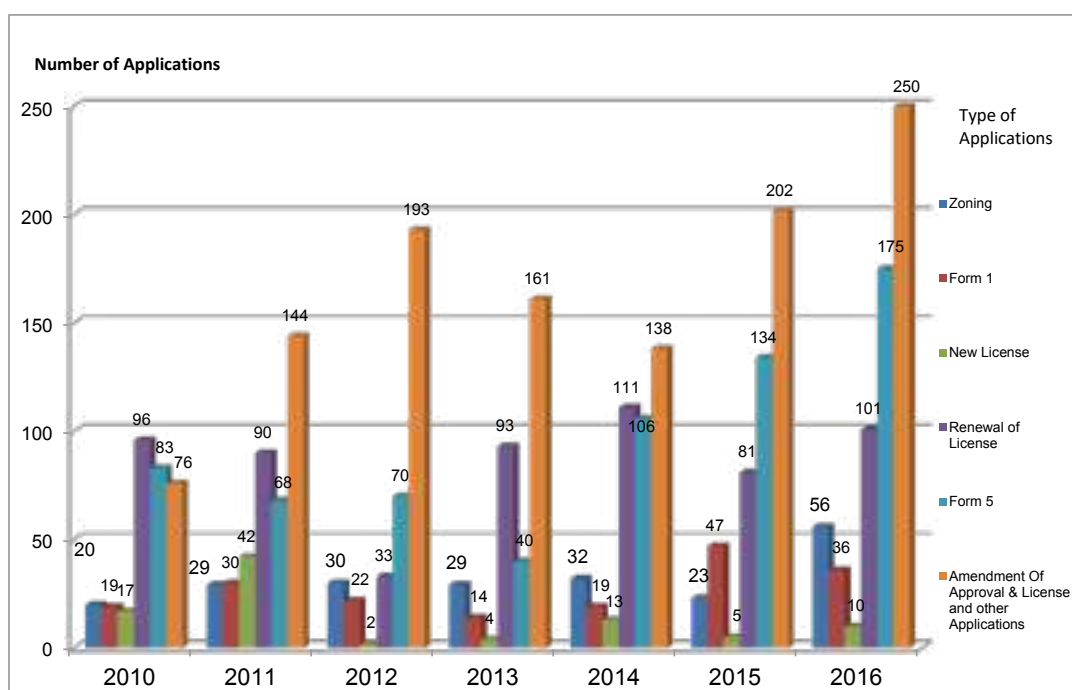
Source: Private Medical Practice Control Section, MoH

**Note:**

\*Others include private maternity home, private nursing home, private hospice, private ambulatory care centre, private blood bank and private community mental health centre.

There is an increase in the number of applications for licensing of private hospital from 2010 to 2016 as shown in **Figure 20**.

**Figure 20**  
**Total Number of Applications for Licensing of Private Hospital Processed by**  
**Hospital Licensing Team (2010 to 2016)**



Source: Private Medical Practice Control Section, MoH

### iii. Haemodialysis Licensing Team

Licensing of private haemodialysis centre, consists of two (2) stages namely Approval to establish or maintain and License to operate or provide.

The scopes and functions of Haemodialysis Team are related to processing these applications:

- (a) Application for Zoning (for the location);
- (b) Application for an Approval to Establish;
- (c) Application for a Licence;
- (d) Application for Renewal of a Licence;
- (e) Application for Extension or Alteration;
- (f) Application for Transfer of Approval or Licence;
- (g) Amendment of particulars of Approval or Licence;
- (h) Duplication of an Approval or Licence;
- (i) Application for Disposal of Approval or Licence; and
- (j) Withdrawal of applications.

In addition, the team is also responsible to perform verification visit and inspection visit as well as issuing show cause notice and revoking an Approval or Licence.

Until the end of 2016, **379** private haemodialysis centre were licensed as in **Table 37**.

**Table 37**  
**Number of Licensed Private Haemodialysis Centre in Malaysia**  
**(Until 31 December 2016)**

No	State	Total
1.	Johor	58
2.	Kedah	35
3.	Kelantan	10
4.	Melacca	19
5.	Negeri Sembilan	21
6.	Pahang	16
7.	Penang	37
8.	Perak	30
9.	Perlis	3
10.	Selangor	78
11.	Terengganu	15
12.	Sabah	10
13.	Sarawak	11
14.	Federal Territory of Kuala Lumpur	36
15.	Federal Territory of Labuan	0
<b>Total</b>		<b>379</b>

Source: Private Medical Practice Control Section, MoH

**Figure 21**  
**Total Number of Applications for Licensing of Private Haemodialysis Centre Processed by**  
**Haemodialysis Licensing Team (2010 To 2016)**



Source: Private Medical Practice Control Section, MoH



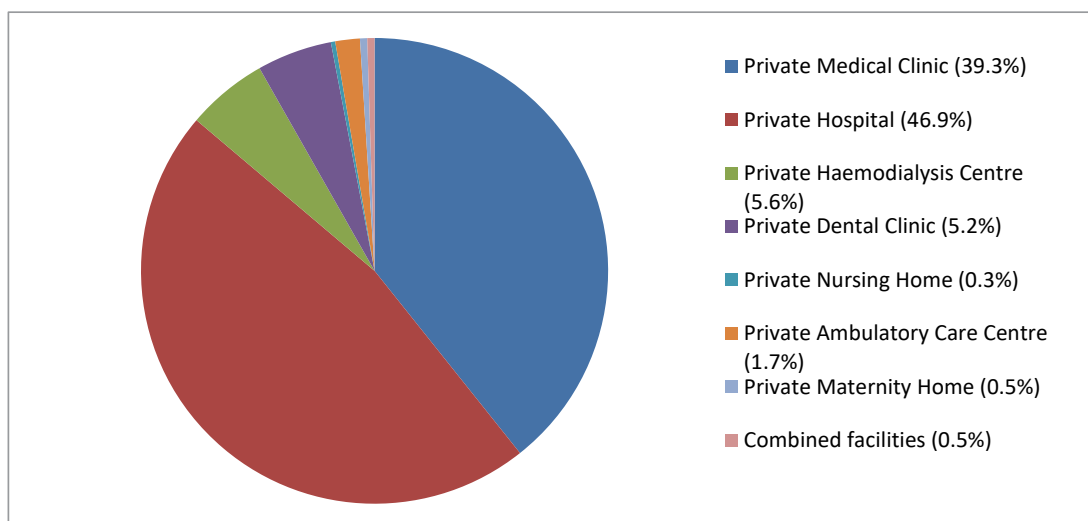
#### iv. Complaint Handling Team

The scopes and functions of Complaint Handling Team are –

- (a) To supervise and monitor grievance mechanism plans by PHFS;
- (b) To investigate complaints received by CKAPS or UKAPS, when necessary; and
- (c) To analyse and to take necessary action on reports received regarding complaints handled by UKAPS.

Throughout 2016, Private Medical Practice Control Section received a total of **407** complaints, involving PHFS regulated under Act 586, as shown in **Figure 22**

**Figure 22**  
**Complaints Received according to Facilities Regulated Under Act 586 for 2016**

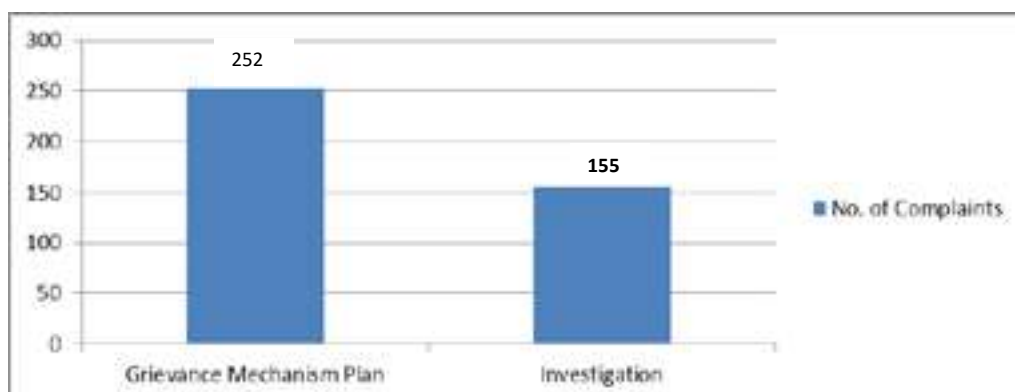


Source: Private Medical Practice Control Section, MoH

Note: There were no complaints received involving private psychiatric nursing 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. There were complaints warranted investigations to be carried out such as complaints that were received from other parties and complaints that involved death of the patient or other detrimental issues, following which necessary actions will be taken in accordance to Act 586 such as show cause notice, suspension or revocation of Licence or Registration.

**Figure 23**  
**Number of Complaint Handling Mechanism for Complaints Received in 2016**



Source: Private Medical Practice Control Section, MoH

#### v. Enforcement Team

The scopes and functions of Enforcement Team are to plan and undertake enforcement activities which include undercover activities, raid activities, investigation dan conviction in court.

Throughout 2016, a total of 26 enforcement activities were done by various states, with RM1,046,000.00 fines collected through conviction in court. The enforcement activities involved 12 private medical clinics, 11 private dental clinics, and one each for private hospital, private ambulatory care centre and private haemodialysis centre.

#### vi. Quality Evaluation Team

The scopes and functions of Quality Evaluation Team are:

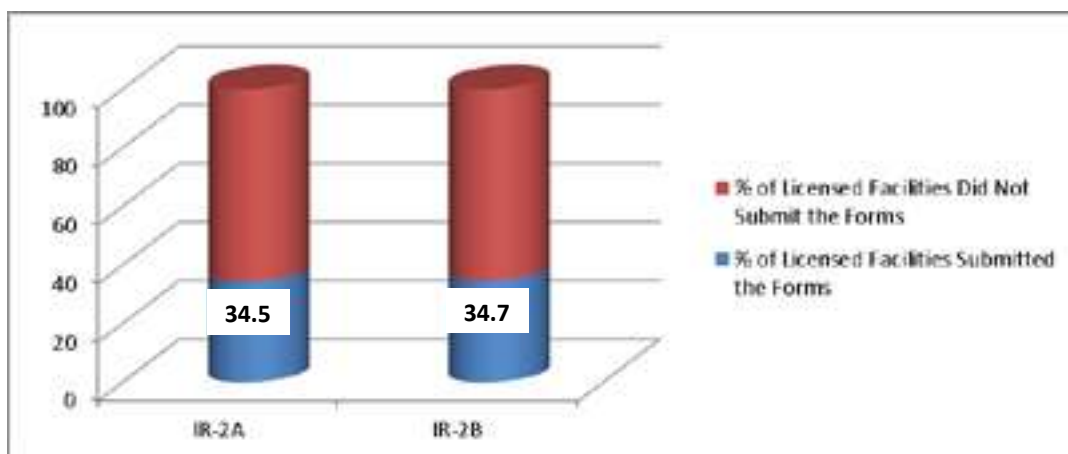
- (a) To monitor the implementation and to analyse reports regarding *incident reporting*; and
- (b) To monitor the implementation and to analyse reports regarding *assessable death*.

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 Director General of Health's Directives No. 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 information regarding incidents and deaths that occurred in PHFS. The reporting and notifications are on voluntary basis, using these 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 2016, a total of **60** AD notifications and **38** IR-1 reports were recorded. While for IR-2, a total of **247** IR-2A and **249** IR-2B (as of 23 February 2017) reports were recorded, as in **Figure 24**.

**Figure 24**  
**Percentage of Licensed Private Healthcare Facilities and Services (other than the Private Clinics) in Malaysia Submitted IR-2A And IR-2B Forms for Year 2016**



Source: Private Medical Practice Control Section, MoH

#### vii. Policy, Standard and Operational Unit

The scopes and functions of Policy, Standard and Operational Unit are:

- (a) To coordinate information and input as to avoid any delay in training, audit and development programs;
- (b) To manage online application system, MedPCs; dan
- (c) To update standard operating procedures as well as to be involved in formulation and amendment of laws.

#### OTHER TASKS AND ACTIVITIES

##### i. Organizing Workshops for CKAPS and UKAPS members

To enhance the understanding and skills among CKAPS and UKAPS members, four workshops have been conducted in 2016, as **table 38** below:

**Table 38**  
**Workshop for CKAPS and UKAPS Members**

No	Title	Date
1.	<i>Bengkel Mengemaskini Data Pendaftaran, Kelulusan, Pelesenan, Aduan Dan Penguatkuasaan Di Bawah Akta 586 Serta Tatacara Pengurusan Dokumen Terperingkat Untuk Anggota CKAPS KKM</i>	15 to 17 May 2016

No	Title	Date
2.	<i>Bengkel Pembaharuan Lesen Pusat Hemodialisis Swasta (Stand Alone &amp; Hospital)</i>	5 to 8 September 2016
3.	<i>Bengkel Memproses Permohonan Pendaftaran Klinik Perubatan/Pergigian Swasta Untuk Pegawai Proses di CKAPS dan UKAPS</i>	9 to 11 October 2016
4.	<i>Bengkel Pengenalan Tatacara Pelesenan Pusat Hemodialisis Swasta Bersama Pengurus Unit Hemodialisis Kementerian Kesihatan Malaysia</i>	17 to 19 October 2016

Source: Private Medical Practice Control Section, MoH

## ii. Assisting in formulation of Bills and Ministry's policies

CKAPS members have been invited to give input and have been actively involved in formulation of Bills and Ministry's policies.

Among related workshops for this activities, are as **Table 39** below:

**Table 39**  
**Workshop Assisting in formulation of Bills and Ministry's policies**

No	Title	Date
1.	Women Health Workshop	9 to 12 August 2016
2.	Organ Transplant Bill Workshop	29 September to 1 October 2016

Source: Private Medical Practice Control Section, MoH

CKAPS also has involved in Bill's formulation and amendment of the Acts, as follow:

- (a) Assisted Reproductive Technology Bill;
- (b) Private Aged Healthcare Facilities And Services Bill;
- (c) Human Tissue Act 1974;
- (d) Pathology Lab Act 2007; and
- (e) Private Healthcare Facilities And Services Regulation 2006 [P.U (A) 137/2006].

## iii. Formulation of Director General of Health's Directives

There are two Director General of Health's Directives prepared in 2016 which are ready and can be downloaded from Medical Practice Division's website, namely:

- (a) Arahan Ketua Pengarah Kesihatan Bil 1/2016: Rawatan Terapi Sel; dan
- (b) Arahan Ketua Pengarah Kesihatan Bil 2/2016: Garispanduan Untuk Menubuhkan Dan/Atau Menyediakan Kemudahan Dan Perkhidmatan *Water Immersion* Dan/Atau *Water Birth* Di Hospital Swasta.

#### iv. Education and Sharing Sessions with Private Sectors

In 2016, CKAPS has conducted a few workshops for private sectors mainly to deliver an understanding on the licensing process as well as to remove key constrains involved in the process. Among other workshops are as **table 40** below:

**Table 40**  
**Education and Sharing Sessions with Private Sectors**

No	Title	Date
1.	Improving Efficiency in Dealing with Construction Permits (DCP) for Private Hospitals	1 to 3 September 2016
2.	Workshop Construction Premits In Private Hospitals, by Ministry Of Health Malaysia (MoH), Ministry Of Urban Wellbeing, Housing And Local Authorities (KPKT) And Malaysia Productivity Corporation (MPC) – Module 1	22 to 23 October 2016
3.	Workshop Construction Premits In Private Hospitals, by Ministry Of Health Malaysia (MoH), Ministry Of Urban Wellbeing, Housing And Local Authorities (KPKT) And Malaysia Productivity Corporation (MPC) – Module 2	5 to 6 November 2016
4.	Workshop Construction Premits In Private Hospitals, by Ministry Of Health Malaysia (MoH), Ministry Of Urban Wellbeing, Housing And Local Authorities (KPKT) And Malaysia Productivity Corporation (MPC) – Module 3	3 to 4 December 2016

Source: Private Medical Practice Control Section, MoH

**Image 7**  
**Education and Sharing Sessions with Private Sectors**



Workshop Construction Premits In Private Hospitals, by Ministry Of Health Malaysia (MoH), Ministry Of Urban Wellbeing, Housing And Local Authorities (KPKT) And Malaysia Productivity Corporation (MPC)

Source: Private Medical Practice Control Section, MoH

To conclude, CKAPS is committed towards ensuring patients safety and enhancing quality of care provided by PHFS in Malaysia. Therefore, cooperations and supports from all parties especially higher authorities, stakeholders dan consumers are needed along with the implementation of relevant Acts related to private healthcare in Malaysia.

## 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 Opticianry Programme provided by Higher Education Provider in Malaysia.

### OPTOMETRISTS AND OPTICIANS' REGISTRATION

At the end of 2016, the number of registered optometry practitioners under section 18 and section 19 of the Optical Act 1991 had increased by 6.8 per cent from 4740 in year 2015 to 5062 optometry practitioners in year 2016.

- **Opticians**

Similarly, the total number of opticians was also observed to be 2.4 per cent higher in 2016 compared to 2015 (**Table 41**).

**Table 41**  
**Number of Opticians Granted Full Registration According to Sections, 2015 and 2016**

No	Section	No. of Opticians (Cumulative)		Increment from 2015 to 2016 (%)
		2015	2016	
1.	18(1) <sup>1</sup>	1,452	1,528	5.2
2.	18(2)(a) <sup>2</sup>	1,731	1,732	0.06
3.	18(2)(b) <sup>3</sup>	1	1	0
4.	18(3) <sup>4</sup>	0	0	0
TOTAL (Cumulative)		3,184	3,261	2.4

Source: Malaysian Optical Council, MoH

**Note:**

1. refers to any person who holds the qualifications specified in the First Schedule on registrable qualifications for opticians.
2. 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.
3. refers to any person who holds a qualification which is not specified in the First Schedule but is deemed suitable by the Minister.
4. 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 15.7 per cent from 1556 in 2015 to 1801 optometrists in 2016 (Table 42).

**Table 42**  
**Number of Optometrist Granted Full Registration According to Sections, 2015 and 2016**

No	Section	No. of Optometrists (Cumulative)		Increment from 2015 to 2016 (%)
		2015	2016	
1.	19(1) <sup>1</sup>	1,416	1,631	15.2
2.	19(2) <sup>2</sup>	140	170	21.4
<b>TOTAL (Cumulative)</b>		<b>1,556</b>	<b>1,801</b>	<b>15.7</b>

Source: Malaysian Optical Council, MoH

**Note:**

1. refers to any person who holds the qualifications specified in the Second Schedule on registrable qualifications for optometrists.
2. 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 Malaysian had increased by 11.5 per cent in 2016, whereas for optician there was no increment and the number of contact lens practitioners for optometrist had increased by 15.7 per cent (Table 43).

**Table 43**  
**Number of Contact Lens Practitioners, 2015 and 2016**

No	Section	No. of Contact Lens Practitioners (Cumulative)		Increment from 2015 to 2016 (%)
		2015	2016	
1.	Opticians	567	567	0
2.	Optometrist	1,556	1,801	15.7
<b>TOTAL (Cumulative)</b>		<b>2,123</b>	<b>2,368</b>	<b>11.5</b>

Source: Malaysian Optical Council, MoH

**Annual Practising Certificate**

A total number of 3719 (73.5 per cent) optometry practitioners had renewed their annual practising certificates for 2016 and the Malaysian Optical Council had sent reminders to the remaining 1343 optometry practitioners to apply for renewal (Table 44).

**Table 44**  
**Total Number of Registered Optometry Practitioners who had Renewed their Annual Practising Certificate (APC), 2010 to 2016**

No	Item	No. of Optometry Practitioners						
		APC 2010	APC 2011	APC 2012	APC 2013	APC 2014	APC 2015	APC 2016
1.	Registered practitioners	3,693	3,919	4,076	4,367	4,524	4,740	5,062
2.	Registered practitioners with APC renewed	3,023	3,187	3,285	3,352	3,485	3,744	3,719
<b>Percentage of APC renewed</b>		<b>81.9</b>	<b>81.3</b>	<b>80.6</b>	<b>76.8</b>	<b>77.0</b>	<b>79.0</b>	<b>73.5</b>

*Source: Malaysian Optical Council, MoH*

## **MALYSIAN OPTICAL COUNCIL ACHIEVEMENT IN 2016**

### ***KURSUS ASAS RISIKAN MAJLIS OPTIK MALAYSIA***

*Kursus Asas Risikan Majlis Optik Malaysia* was held on the 10 to 12 of April 2016 at Klana Beach Resort, Port Dickson. A total of 21 Ministry of Health (MOH) Optometrist Officer from all over Malaysia were trained to become intelligent officers to help Malaysian Optical Council (MOC) in the enforcement of Optical Act 1991.

### ***BENGKEL PERLAKSANAAN DAN PEMANTAPAN PELAN STRATEGIK MAJLIS OPTIK MALAYSIA***

This workshop was held on 20 to 22 of May 2016 at Hotel Pantai Puteri, Tanjong Kling, Melaka. This workshop has successfully achieved its objectives to ensure that the secretariat are well informed with the Strategic Plan that has been developed by the Secretary. The Strategic Plan for MOC is for a period of 2016 to 2020.

### **REVIEW OF GUIDELINES ON APPROVAL AND ACCREDITATION OF OPTOMETRY AND OPTICIANRY PROGRAMME IN HIGHER EDUCATION INSTITUTION**

This workshop was held on the 7 to 10 August 2016 at Sutera Hotel, Seremban 2, Negeri Sembilan. The purpose of this workshop is to review and improve the guideline which was developed in 2009 in order to maintain the standard of optometry and opticianry programme provided by HEP.



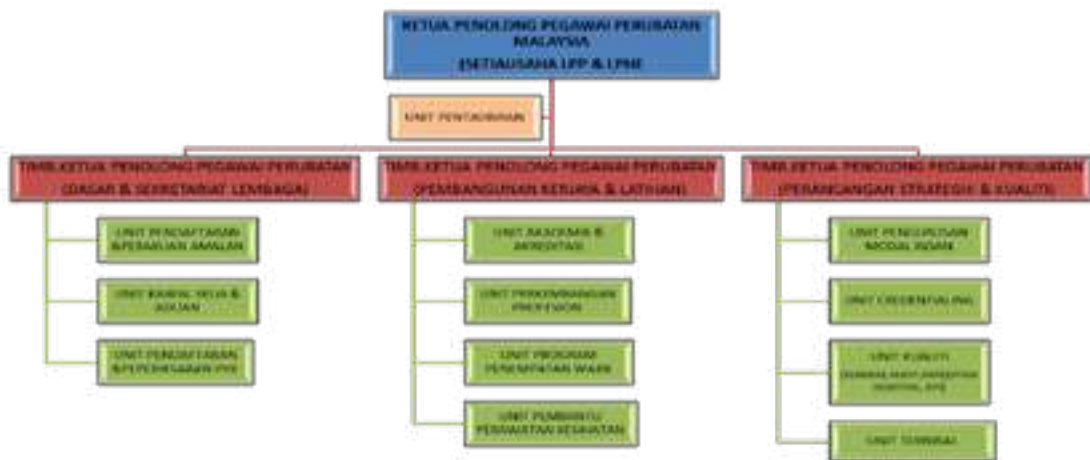
## OUTCOMES-BASED EDUCATION WORKSHOP

This workshop was held on the 14 to 15 November 2016 at Meeting Room 4 (Ibnu Ar-Razi), Block E1, Ministry of Health. The participants for this workshop were selected MoH Optometrists Officer, who is going to be appointed as panel of assessor for the accreditation of optometry/opticianry programme. This workshop's aim was to educate them on the concept of outcomes-based education and Code of Practice for Programme Accreditation (COPPA) as a preparation to become the MQA-MOM's panel of assessors.

## MEDICAL ASSISTANT BOARD

The registration and practice of Medical Assistants (Assistant Medical Officers) are regulated by the Medical Assistant Board under the Medical Assistant's Act 1977 in Malaysia. The board also oversees the registrations of Estate Hospital Assistant's which is regulated by Estate Hospital Assistant's Act 1965. Since 2015, the Healthcare Assistants (*Pembantu Perawatan Kesihatan*) has also been placed under the responsibility of the Medical Assistant Board.

## ORGANIZATIONAL CHART



Source: Medical Assistant Board, MoH

## REGISTRATION AND RENEWAL UNIT

### REGISTRATION QUALITY OBJECTIVES

Application for Assistant Medical Officers registration [Regulation 16(1)] to be completed within the period of three (3) months. Standard 85 per cent. **Table 45** shows the registration performance for year 2016.

**Table 45**  
**Registration (Performance) 2016**

Month	Registration	Compliance	Non-Compliance	Percentage
January	791	791	0	100
February	207	207	0	100
March	24	24	0	100
April	15	15	0	100
May	0	0	0	0
June	50	50	0	100
July	26	26	0	100
August	453	139	314	30.6
September	81	81	0	100
October	233	233	0	100
November	8	8	0	100
December	203	203	0	100

Source: Medical Assistant Board, MoH

### REGISTRATION OF ASSISTANT MEDICAL OFFICERS'S BY AGE COHORT (2007 to 2016)

#### REGISTRATED ASSISTANT MEDICAL OFFICERS = 20748

Public sector = 16977, Private sector = 3723, Death = 28, Male = 17729, Female = 2981  
Age cohort ≤29 = 9511, 30-39 = 4715, 40-49 = 2428, 50-59 = 1461, ≥60 = 2605

**Table 46** shows the number of registration of assistant medical officers's by age cohort (2007 to 2016)

**Table 46**  
**Registration of Assistant Medical Officers's by Age Cohort (2007 To 2016)**

Year	Sector	Sex		Age					
		M	F	≤29	30 - 39	40 - 49	50 - 59	60 - 74	≥75
2007	Public	588	0	0	584	4	0	0	0
	Private	38	0	0	38	0	0	0	0

Year	Sector	Sex		Age					
		M	F	≤29	30 - 39	40 - 49	50 - 59	60 - 74	≥75
2008	Public	632	1	3	629	1	0	0	0
	Private	59	0	14	45	0	0	0	0
2009	Public	617	23	129	509	2	0	0	0
	Private	50	10	26	33	1	0	0	0
2010	Public	830	94	702	221	1	0	0	0
	Private	80	79	137	22	0	0	0	0
2011	Public	342	94	412	24	0	0	0	0
	Private	30	70	95	5	0	0	0	0
2012	Public	678	206	845	39	0	0	0	0
	Private	207	124	310	20	1	0	0	0
2013	Public	632	173	789	15	1	0	0	0
	Private	216	275	486	5	0	0	0	0
2014	Public	655	157	793	17	2	0	0	0
	Private	210	342	542	10	0	0	0	0
2015	Public	952	400	1,345	7	0	0	0	0
	Private	127	299	423	2	1	0	0	0
2016	Public	1,377	432	1,795	14	0	0	0	0
	Private	79	203	281	1	0	0	0	0

Source: Medical Assistant Board, MoH

## RENEWAL OF ANNUAL REGISTRATION CERTIFICATE (ARC)

Every registered Assistants Medical Officers must have a valid ARC to practice as an Assistant Medical Officer in Malaysia. **Table 47** shows the number of renewal of Annual Registration Certificate (ARC) for 2013 to 2016 in which shows an increasing in number from 2013 to 2016

**Table 47**  
**Renewal of Annual Registration Certificate (ARC) 2013 to 2016**

Year	2013	2014	2015	2016
No of. ARC	5,545	12,059	12,929	14,129

Source: Medical Assistant Board, MoH

## ACADEMIC AND ACCREDITATION UNIT

**Table 48** shows 4313 trainee assistant medical officer's in ministry of health (MoH) and 1202 in private colleges

**Table 48**  
**Total Number of Trainee Assistant Medical Officer's In Ministry of Health (MoH)**  
**and Private Colleges**

No	Private Colleges	Trainees	MoH	Trainees
1.	Kolej Islam Sains & Teknologi (KIST) Bachok, Kelantan	49	Kolej Pembantu Perubatan Seremban, Negeri Sembilan	558
2.	Kolej I-System Kuching, Sarawak	86	Kolej Pembantu Perubatan Alor Setar, Kedah	596
3.	Management & Science University (MSU), Shah Alam, Selangor	77	Kolej Sains Kesihatan Bersekutu Sultan Azlan Shah, Ulu Kinta, Perak	1,249
4.	Kolej Antarabangsa Murni, Nilai, Negeri Sembilan	215	Kolej Sains Kesihatan Bersekutu Johor Bahru, Johor	544
5.	Universiti Kolej Shahputra, Kuantan, Pahang	34	Kolej Sains Kesihatan Bersekutu Kota Kinabalu, Sabah	671
6.	Ramsay Sime Darby Healthcare College, Shah Alam, Selangor	144	Kolej Sains Kesihatan Bersekutu Kuching, Sarawak	695
7.	Lincoln University College, Petaling Jaya, Selangor	32		
8.	PUSRAWI International College of Medical Sciences (PICOMS), Kuala Lumpur	312		
9.	Kolej Antarabangsa & Teknologi Perlis (KATPM), Perlis	38		
10.	Cyberjaya University College of Medical Science (CUCMS), Cyberjaya, Selangor	37		
11.	Kolej ITA Sibul, Sarawak	38		
12.	Universiti Kuala Lumpur (UniKL) Kajang, Selangor	69		
13.	DSH Institute Of Technology (D.I.T) Setapak, Kuala Lumpur	56		
14.	Kolej Antarabangsa Geomatika, Setiawangsa, Kuala Lumpur	15		
<b>TOTAL</b>		<b>1,202</b>	<b>TOTAL</b>	<b>4,313</b>

Source: Medical Assistant Board, MoH

## MEDICAL ASSISTANT BOARD EXAMINATION; MINISTRY OF HEALTH TRAINEES (SEM 6)

**Table 49** shows Medical Assistant Board Examination for MoH Trainees.

**Table 49**  
**Medical Assistant Board Examination; Ministry of Health Trainees (Sem 6)**

No	MoH Colleges	No of Sem 6 trainees	No of trainees sat for board's exam.	No of trainees pass	No of trainees fail	Remarks
1.	KPP Alor Setar, Kedah	126	126	126	nil	
2.	KSKB Sultan Azlan Shah, Ulu Kinta, Perak	203	203	203	nil	
3.	KPP Seremban, Negeri Sembilan	No student intake				
4.	KSKB Johor Bahru, Johor	89	89	89	nil	nil
5.	KSKB Kuching, Sarawak	108	107	107	nil	Training postponed -1 trainee
6.	KSKB Kota Kinabalu, Sabah	143	143	141	nil	Examination result postponed – 2 trainee

Source: Medical Assistant Board, MoH

## COMPULSORY PLACEMENT PROGRAMME

### NUMBER OF CANDIDATES BY STATE

The 6-month Compulsory Placement Program (PPW) in Emergency Department is a special program designed and implemented to all new Assistant Medical Officers in the Ministry of Health, aimed at standardizing all new Assistant Medical Officers appointments, strengthening clinical skills, enhancing ability to make decisions, and improving their communication effectiveness. **Table 50** showed the number of Compulsory Placement Programme candidates by State

**Table 50**  
**Compulsory Placement Programme by State**

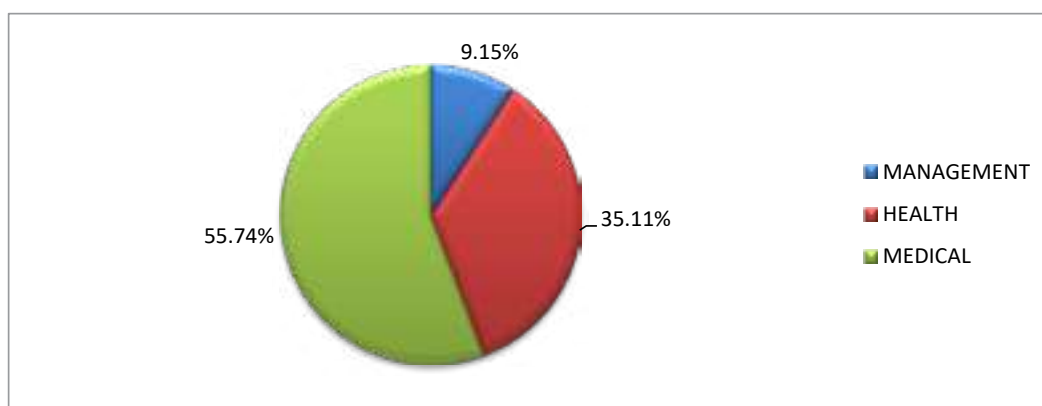
No	State	Group 2/2015	Group 1/2016	Group 1b/2016	Total
1.	Perlis	16	10	3	29
2.	Kedah	16	24	0	40
3.	Pulau Pinang	68	66	4	138
4.	Perak	88	81	5	174
5.	Selangor	112	96	10	218
6.	Hospital Kuala Lumpur	52	60	4	116
7.	W.P. Putrajaya	21	25	7	53
8.	Negeri Sembilan	56	90	8	154
9.	Melaka	36	40	2	78
10.	Johor	128	120	15	263
11.	Kelantan	5	4	0	9
12.	Terengganu	16	16	0	32
13.	Pahang	64	76	0	140
14.	Sabah	15	65	20	100
15.	Sarawak	15	77	12	104
<b>TOTAL</b>		<b>708</b>	<b>850</b>	<b>90</b>	<b>1,648</b>

Source: Medical Assistant Board, MoH

#### DISTRIBUTION OF AMO BY PROGRAMME

**Figure 25** shows the distribution of AMO mainly in medical programme (55.74 per cent), followed by health programme (35.11 per cent) and 9.15 per cent in management field

**Figure 25**  
**Distribution of AMO by Programme**



Source: Medical Assistant Board, MoH

## HUMAN RESOURCE HEALTHCARE ASSISTANTS (PPK)

There are 21,391 out of 2,3003 post of Human Resource Healthcare Assistant (PPK) filled in Peninsular Malaysia, 2,597 out 2,661 in Sarawak and 2,294 out of 2630 in Sabah as shown in Table 51 to 53

**Table 51**  
**Human Resource Healthcare Assistants (PPK) in Peninsular Malaysia**

No	Grade	Filled Post	Empty Post	Total
1.	U 11/12	21,075	1,517	<b>22,592</b>
2.	U 14	316	95	<b>411</b>
<b>TOTAL</b>		<b>21,391</b>	<b>1,612</b>	<b>23,003</b>

Source: Medical Assistant Board, MoH

**Table 52**  
**Human Resource Healthcare Assistants (PPK) in Sarawak**

No	Grade	Filled Post	Empty Post	Total
1.	U 11/12	2,577	37	<b>2614</b>
2.	U 14	20	27	<b>47</b>
<b>TOTAL</b>		<b>2,597</b>	<b>64</b>	<b>2,661</b>

Source: Medical Assistant Board, MoH

**Table 53**  
**Human Resource Healthcare Assistants (PPK) in Sabah**

No	Grade	Filled post	Empty post	Total
1.	U 11/12	2,258	322	<b>2,580</b>
2.	U 14	36	14	<b>50</b>
<b>TOTAL</b>		<b>2,294</b>	<b>336</b>	<b>2,630</b>

Source: Medical Assistant Board, MoH

## ESTATE HOSPITAL ASSISTANT'S BOARD (LPHE)

### ESTATE HOSPITAL ASSISTANT HUMAN RESOURCE

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. A total of 849 Estate Hospital Assistant were registered under public category and 686 were registered under armed force category. Table 54 and 55 show the number of registered Estate Hospital Assistants for 2016.

**Table 54**  
**Estate Hospital Assistant Human Resource in Public Category**

State	Registered Estate Hospital Assistant	Male	Female	Probation	Various Grades
Perlis	0	0	0	0	0
Kedah	165	165	0	130	35
Pulau Pinang	5	5	0	5	0
Perak	193	187	6	133	60
Selangor	112	111	1	80	32
WPKL	15	15	0	15	0
Negeri Sembilan	33	33	0	32	1
Melaka	10	10	0	10	0
Johor	53	52	1	41	12
Pahang	28	22	6	22	6
Terengganu	7	2	5	7	0
Kelantan	3	3	0	3	0
Sabah	224	29	195	114	110
Sarawak	1	1	0	1	0
<b>TOTAL</b>	<b>849</b>	<b>635</b>	<b>214</b>	<b>593</b>	<b>256</b>

Source: Medical Assistant Board, MoH

**Table 55**  
**Estate Hospital Assistant Human Resource in Armed Forces Category**

State	Registered Estate Hospital Assistant	Male	Female	Probation	Various Grade
Perlis	4	4	0	4	0
Kedah	54	54	0	46	8
Pulau Pinang	14	14	0	12	2
Perak	95	95	0	84	11
Selangor	22	22	0	20	2
WPKL	75	75	0	64	11
Negeri Sembilan	53	52	1	42	11
Melaka	178	178	0	148	30
Johor	79	79	0	58	21
Pahang	39	39	0	29	10
Terengganu	16	15	1	15	1
Kelantan	41	41	0	37	4
Sabah	6	6	0	5	1
Sarawak	10	10	0	10	0
<b>TOTAL</b>	<b>686</b>	<b>684</b>	<b>2</b>	<b>574</b>	<b>112</b>

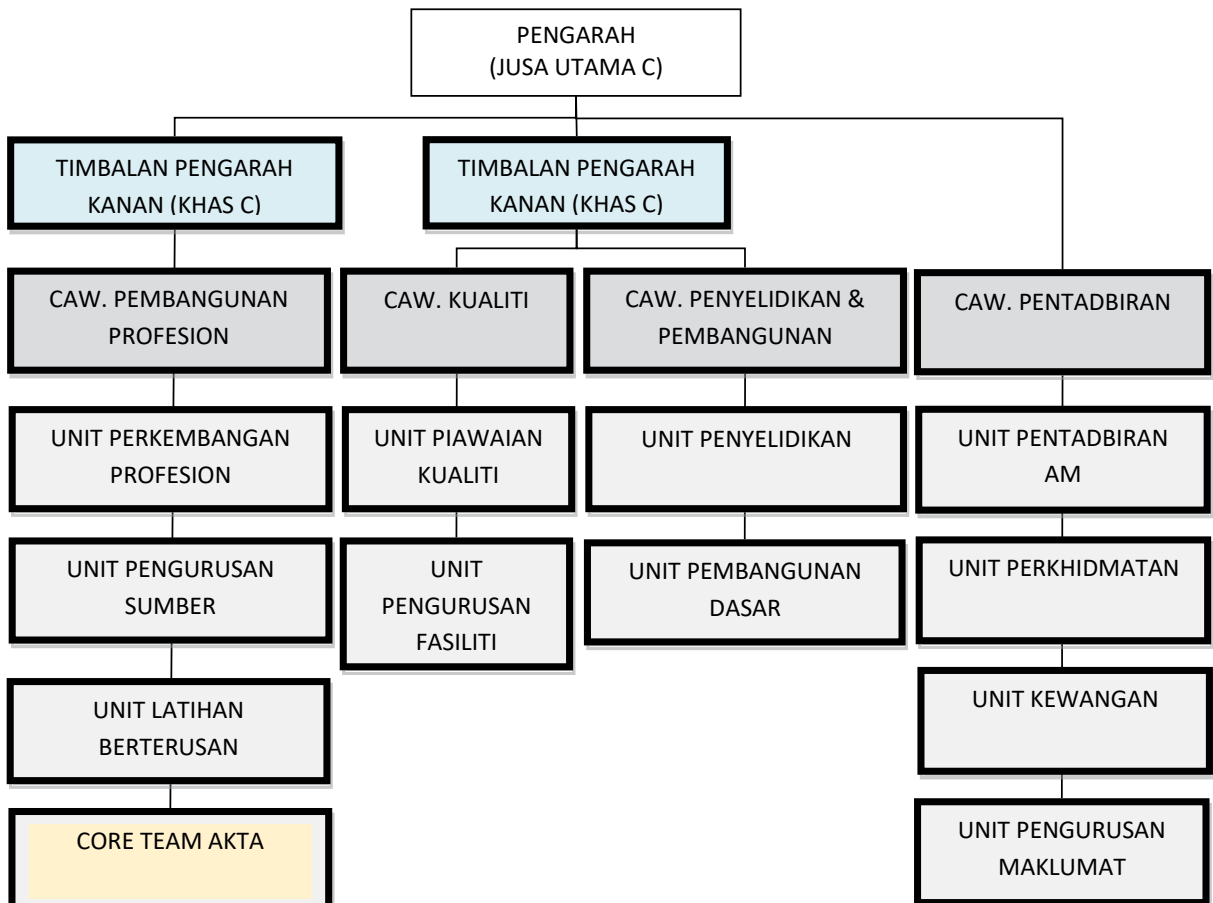
Source: Medical Assistant Board, MoH



## ALLIED HEALTH SCIENCES DIVISION (AHSD)

Allied Health Sciences Division (AHSD) was established on 1 November 2008. This organisation is responsible for human capital development of allied health professionals (AHPs) and service delivery in Ministry of Health (**Figure 26**). Act Core Team was established later for development of documents and formalities related to Allied Health Professionals Act. AHSD ensures quality and effective healthcare delivery with optimal practice standard and facilitate the use of up to date technology and evidences. This is in line with the aspiration of the Ministry of Health.

**Figure 26**  
**Organisation Chart Allied Health Sciences Division**



Source: Allied Health Sciences Division, MoH

Currently, 30 Allied Health Professional's (AHPs) are appointed as head of profession by the Director General (DG) of Health. They are responsible in administration of professional development, training, and enhancement of specialized competencies, improvement of service standards, provision of expert advice and contribution in research & development of each profession as in **Table 56**.

**Table 56**  
**Allied Health Professions**

CLINICAL GROUP	LABORATORY GROUP	PUBLIC HEALTH
Optometrist	Microbiologist	Nutritionist
Dietitian	Medical Geneticist	Food Technologist
Audiologist	Medical Laboratory Technologist	Entomologist
Speech-Language Therapist	Biochemist	Health Education Officer
Clinical Psychologist	Dental Technologist	Environmental Health Officer
Counseling Psychologist	Biomedical Scientist	
Physiotherapist	Forensic Science Officer	
Occupational Therapist	Embryologist	
Medical Social Officer		
Medical Physicist		
Diagnostic Radiographer		
Radiation Therapist		
Dental Therapist		
Assistant Pharmacist		
Food Service Officer (Healthcare)		
Medical Record Officer		
Tutor		

Source: Allied Health Sciences Division, MoH

## ACTIVITIES AND PERFORMANCE

### KEY PERFORMANCE INDICATOR (KPI) DIRECTOR GENERAL OF HEALTH

Seven (7) AHPs service performance indicators were selected as KPI Director General of Health and monitored by State Health Directors as shown in **Table 57**. These indicators have impact on efficiency and quality services to patients. All KPI achieved performance standard of  $\geq 85$  per cent for the year 2016 except Speech-Language Therapist services, which obtained only 77.7 per cent of standard as shown in **Table 58**. This shortfall directly related to lack of Speech-Language Therapist throughout the country.

**Table 57**  
**Key Performance Indicator (KPI) For Director General of Health: Allied Health Services**

Key Performance Indicators (KPI)		Standard (%)
<b>Percentage of Patients who Received Therapy Services by Allied Health Sciences Professionals within a Defined Period</b>		<b>≥ 85</b>
1.	<b>Dietetic Services</b> - Inpatient (urgent and non-urgent) Getting Service within 24 Hours	≥ 85
2.	<b>Speech Therapy Services</b> - New Patient Gets Appointment within 90 Days	≥ 85
3.	<b>Hearing (Audiology) Therapy Services</b> - New Patient Gets Appointment within 45 Days	≥ 85
4.	<b>Physiotherapy Services</b> - Referral Inpatient Getting Service within 24 Hours	≥ 85
5.	<b>Occupational Therapy Services</b> - Referral Inpatient Getting Service within 24 Hours	≥ 85
6.	<b>Clinical Psychology Services</b> - Percentage of Psychological Assessment Report Readiness within 30 days	≥ 85
7.	<b>Food Services</b> - Percentage of Therapeutic Diet Served According to Clinical Orders in Medical Wards	≥85

Source: KPI Annual Report, Allied Health Sciences Division, MoH

**Table 58**  
**Key Performance Indicator (KPI) Director General of Health: Allied Health Services**

Key Performance Indicators (KPI)						
Division	Allied Health Sciences Division					
Indicator	Percentage Of Patients Who Received Therapy Services By Allied Health Sciences Professionals Within A Defined Period					
Allied Health Profession	Target (%)	Numerator	Denominator	Achievements (%)		
				2016	2015	2014
					Target ≥ 80%	
Dietitian	≥ 85	136,254	141,631	<b>96.20</b>	99.06	94.2
Speech-Language Therapist	≥ 85	15,615	20,094	<b>77.71</b>	83.45	75.0
Audiologist	≥ 85	42,689	48,482	<b>88.05</b>	94.86	89.2
Physiotherapist	≥ 85	197,848	200,914	<b>98.47</b>	99.97	94.5
Occupational Therapist	≥ 85	80,447	81,106	<b>99.19</b>	99.53	94.9
Clinical Psychologist	≥ 85	410	453	<b>90.51</b>	NA	NA
Food service	≥ 85	33,785	35,484	<b>95.21</b>	NA	NA
<b>OVERALL</b>	<b>≥ 85</b>	<b>507,048</b>	<b>528,164</b>	<b>96.00</b>	<b>98.36</b>	<b>89.56</b>

Source: KPI Annual Report, Allied Health Sciences Division, MoH

## RESEARCH AND DEVELOPMENT

A series of research training were conducted on Research Methodology, Data Analysis and Scientific Writing throughout the year to enhance continuous improvement and encourage professionals to conduct, publish and present research findings.

In addition to the above effort, the Fifth Allied Health Sciences Research Seminar (East Zone) was held for 88 AHPs from East zone from 27 to 28 April 2016. Awareness on role and function of National Institute of Health (NIH) and the Section for Research, Ministry of Science, Technology and Innovation (MOSTI) were the highlight.

In the year 2016, Allied Health Sciences Division also initiated and published the 1<sup>st</sup> Newsletter 'Buletin SKB' (Research) to disseminate research activities and initiatives by various professions (Image 8).

Image 8  
Newsletter 'Buletin SKB' (Research)

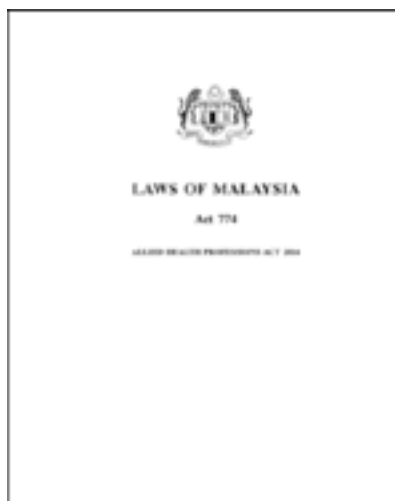


Source: Allied Health Sciences Division, MoH

## THE AHP ACT CORE TEAM

Allied Health Professions Act, 2016 (Act 774) was gazette in the Parliament on 18 February 2016 (**Image 9**). Thereafter, the AHP ACT Core Team was appointed to prepare needs and requirements for AHP Act implementation. Activities related to Rules and Regulation, Code of Ethics (COE), Code of Professional Conduct (COPC) and the Standards of Professional Practice the other primary documents were developed in the year 2016.

**Image 9**  
**Allied Health Professions Act, 2016 (ACT 774)**

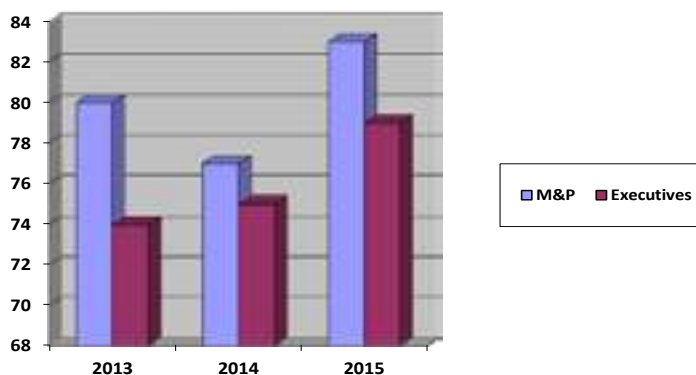


*Source: Allied Health Sciences Division, MoH*

## MyCPD

Since 2013, MyCPD on-line system has been established to facilitate registration of Continuing Professional Development (CPD) activities and cumulative yearly CPD points. In the year 2015, 83 per cent of Allied health professionals from Management and Professionals (M&P), while 79 per cent from Executives managed to accumulate more than 30 CPD points (cumulative) and fulfill the requirement of seven (7) days of training/year as in **Figure 27**. It was then decided to implement 30 CPD points as a criterion for application of Practicing Certificate under Allied Health Professional Act (Act 774).

**Figure 27**  
**Percentage of the Allied Health Professionals Achieved 30 CPD Credit Points (Actual),**  
**MoH Year 2013 to 2015**



*Source: Allied Health Sciences Division, MoH*

## OTHER ACTIVITIES

### WORKLOAD INDICATORS FOR STAFFING NEED (WISN)

WISN is a tool to identify workload and projection of manpower need. Several WISN training and workshops were conducted for AHPs in the year 2016 with collaboration from Planning Division of MoH. It was started with WISN for Diagnostic Radiographer profession from Hospital Raja Perempuan Zainab II and Hospital Kuala Krai.

### GUIDELINES FOR AHP CAREER ADVANCEMENT AND DEVELOPMENT

A total of 15 professions had produced Guidelines for the Advancement and Career Development and published in the year 2016. These guidelines to be used as reference to identify career development in building their expertise and sub-specialty for the service improvement and development of Allied Health Professions in line with the advancement of medical and health services in the country (**Image 10**).

**Image 10**  
**Guidelines for the Advancement and Career Development for AHPs**



Source: Allied Health Sciences Division, MoH

1. Medical Laboratory Technologist
2. Medical Record Officer
3. Food Service Officer (Healthcare)
4. Biomedical Scientist
5. Medical Physicist
6. Diagnostic Radiographer
7. Radiation Therapist
8. Counseling Psychologist
9. Clinical Psychologist
10. Forensic Science Officer
11. Dietitian
12. Physiotherapist
13. Occupational Therapist
14. Biochemist
15. Environmental Health Officer

**ORIENTATION FOR NEWLY APPOINTED AHPs**

Five (5) orientation courses for the newly appointed AHPs have been conducted in 2016 involving 51 Dietitians, 15 Diagnostic Radiographers, 7 Counselling Psychologists, 29 Occupational Therapists and 30 Radiation Therapists.

A book on Guidelines for Orientation and Competency Training for Newly Appointed AHPs has been developed in 2016. The development for this guideline is to provide guidance and reference for the implementation of orientation and competency training for all newly appointed AHPs in MoH (**Image 11**).

**Image 11**  
**Guidelines for Orientation and Competency Training**  
**for Newly Appointed AHPs**



*Source: Allied Health Sciences Division, MoH*

**CREDENTIALING**

Allied health professionals from five (5) professions had applied for credentialing and the National Credentialing Committee (NCC) approved a total of **433** the applications in the year 2016 as in **Table 59**.

Concurrently, four (4) other professions developed procedures for credentialing logbook in the year 2016 as in **Table 60**.

**Table 59**  
**Number of Allied Health Professionals Credentialed in 2016**

No	Allied Health Professions	Number
1.	Diagnostic Radiographer	208
2.	Radiation Therapist	20
3.	Physiotherapist	139
4.	Occupational Therapist	65
5.	Dental Therapist	1
<b>TOTAL</b>		<b>433</b>

*Source: Allied Health Sciences Division, MoH*



**Table 60**  
**Allied Health Profession Involved in Development of Procedures for Log Book In 2016**

No	Allied Health Professions
1.	Optometrist
2.	Dietitian
3.	Speech-Language Therapist
4.	Audiologist

Source: Allied Health Sciences Division, MoH

### MANAGEMENT OF MoH FACILITY USED FOR STUDENT TRAINING

In the year 2016 a total of 41 applications from Institutions of Higher Learning involving 86 programs were received and processed by AHSD. However, only 14 applications approved for attachment. *Garis Panduan Penggunaan Fasilitas Kementerian Kesihatan Malaysia bagi Tujuan Latihan Pelajar Institusi Pengajian Tinggi (IPT)* was also developed as a guide on the use of facilities for training (**Image 12**).

**Image 12**  
***Garis Panduan Penggunaan Fasilitas Kementerian Kesihatan Malaysia***  
***Bagi Tujuan Latihan Pelajar Institusi Pengajian Tinggi (IPT)***



Source: Allied Health Sciences Division, MoH

## 11<sup>th</sup> ALLIED HEALTH SCIENTIFIC CONFERENCE (AHSC)

11<sup>th</sup> Allied Health Scientific Conference (AHSC) was organized by the Association of Allied Health Sciences Division Personnel (PABSKB) in collaboration with Allied Health Sciences Division, Ministry of Health and Malaysian Healthcare Travel Council (MHTC) and supported by MySihat, Association of Private Hospitals of Malaysia (APHM) and International Chief Health Professionals Officers (ICHPO) was held on 6 to 7 September 2016 at Hotel Istana, Kuala Lumpur. A total of 585 participants consists of AHP members, exhibitors and health promotion agencies attended the conference. 425 participants were from the public sector while 160 participants were from various private sectors. Malaysian participants were 540 and remainder were from other countries (ASEAN, Middle East, Australia, United Kingdom and United States) attended this two (2) days conference. Eight (8) plenary sessions, 24 oral presentations and 65 posters were presented in this Conference. The Conference was officiated by the Minister of Health YB. Datuk Seri Dr. S. Subramaniam. The Malaysian Confederation of Allied Health Professional Associations (MyCAHP) was also launched during this event. The Confederation which consists of 23 local associations (**Table 61**) is established to protect the members' right and enhance the development of AHPs.

**Image 13**

11<sup>th</sup> Allied Health Scientific Conference (AHSC)



Source: Allied Health Sciences Division, MoH



**Table 61**  
**Members of the Malaysian Confederation of**  
**Allied Health Professional Associations (MyCAHP)**

No.	List of Associations
1.	MoH Medical Physicist Association – PERFEKS
2.	Malaysian Occupational Therapy Association – MOTA
3.	Malaysian Institute of Medical Laboratory Sciences – MIMLS
4.	<i>Persatuan Pegawai Pembangunan Masyarakat (Perubatan) Malaysia – PPPM(P)M</i>
5.	Malaysian Dental Technologist Association – MDTA
6.	Association of Environmental Health Officers, Malaysia – EHOM
7.	Malaysian Physiotherapy Association – MPA
8.	Malaysian National Society of Audiologist – MANSA
9.	<i>Persatuan Patologis Pertuturan-Bahasa, Malaysia – SPEAK</i>
10.	Malaysian Association of Public Health Entomology – PEKA
11.	<i>Persatuan Pengajar Sains Kesihatan Bersekutu Malaysia – MAHSTA</i>
12.	Malaysia Dental Technologist Association – MDTA
13.	Malaysian Association of Speech Language and Hearing – MASH
14.	<i>Persatuan Profesion Psikologi KKM - PSIKEM</i>
15.	Association of Scientific Officer, Ministry of Health – ASOMH
16.	Nutrition Society of Malaysia – NSM
17.	Malaysian Society of Clinical Psychology – MSCP
18.	Malaysian Society of Medical Laboratory Technologist - MSMLT
19.	<i>Persatuan Penolong Pegawai Farmasi – PPPFM</i>
20.	<i>Persatuan Rekod Perubatan</i>
21.	Malaysia Association of Health Promotion – MAHEO
22.	Malaysian Dietitians’ Association – MDA
23.	Malaysian Association Healthcare Foodservice – MHSF

Source: Allied Health Sciences Division, MoH

## **FUTURE DIRECTION**

In view of the gazette of Allied Health Professionals Act 2016 (Act 774) in this year, the main agenda of AHSD for next few years will be preparation and enforcement of Act 774. Mid-term review of AHSD Strategic Plan (2016 to 2020) and new direction and activities gearing towards this, will be prime objective in the year 2017.

## 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 (1<sup>st</sup> 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 62**  
**Statistics of MoH Nurses In Hospital, as Of December 2016**

No	Particulars	No. of visits done
1.	Overall Total of Nurses	128,317
2.	Nurses with Post Basic Education	30,423
3.	Nurses with Degree	2,916
4.	Nurses with Masters/PhD	64 / 1 PhD

Source: Nursing Division, MoH

### a) Practice monitoring and supervisory visits done in Year 2016

**Table 63**  
**Practice Monitoring and Supervisory Visits Conducted, 2016**

No	Particulars	No. of visits done
1.	MOH Hospitals	18
2.	Public Health Clinics	23
3.	Health facilities with IPTA/IPTS student nurses	12

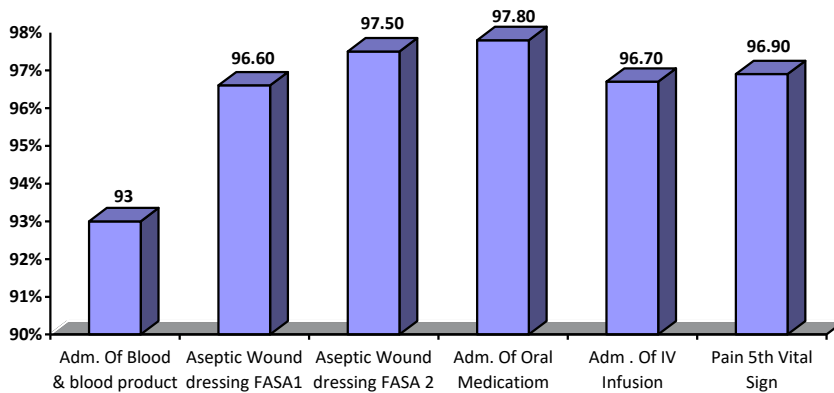
Source: Nursing Division, MoH

## Policy

### a) Quality and Standard Development

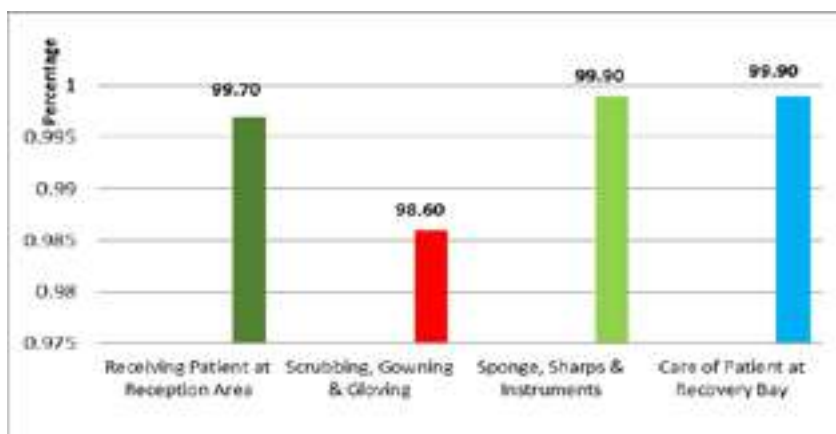
National Nursing Audit (NNA) is conducted in two (2) phases to determine the competency of nurses performing critical procedures in hospitals, public health and private facilities. 4 and 13 indicators have established for hospitals and public health respectively. Results are collected, compiled, analysed and presented during the national senior nurses administrative technical meeting corrective action are to be taken by health facilities accordingly.

**Figure 28**  
**Percentage Achievement Audit NNA, 2016**



Source: Nursing Division, MoH

**Figure 29**  
**Percentage Achievement Audit NORA, 2016**



Source: Nursing Division, MoH

### 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 64**  
Percentage of Staff Achieving Required CPD Points 2016

Particulars	Total No. of Staff (by Grade Designation)			No. of Staff Achieving Required CPD Points (by Grade Designation)			Percentage of Achievement (%) $B \times 100$ A
	Professional	Support	Total (A)	Professional	Support	Total (B)	
Nursing Division	33	55	88	27	54	81	92.05

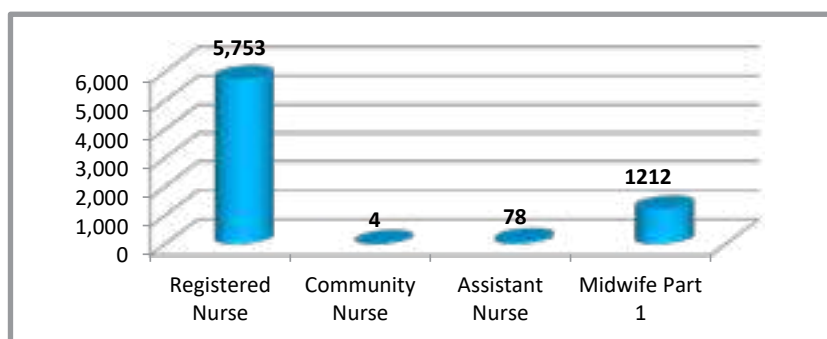
Source: Nursing Division, MoH

### 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.

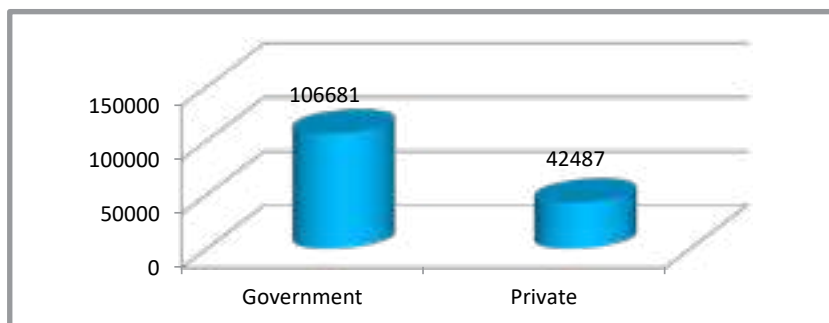
- Number of nurses registered year 2016 (Figure 30)
- Number of Annual Practising Certificate issued Year 2016 (Figure 31)
- Statistics Application for Temporary Practicing Certification for Foreign Nurses (Table 65)

**Figure 30**  
Number of Nurses Registered Year 2016



Source: Nursing Division

**Figure 31**  
**Number of Annual Practicing Certificate Issued Year 2016**



Source: Nursing Division, MoH

**Table 65**  
**Statistics Application for Temporary Practicing Certification for Foreign Nurses, 2016**

No	Institution	Total Applicants	Total Approved	Total Rejected	Total Incomplete	Total Application Pending
1.	Health Facility/Institutions	61	57	1	3	-
2.	College/University	15	15	-	-	-
3.	Elective Training	8	8	-	-	-
<b>TOTAL</b>		<b>84</b>	<b>80</b>	<b>1</b>	<b>3</b>	<b>-</b>

Source: Nursing Division, MoH

#### d) Examination and Curriculum

Curriculum Unit collaborates with the Malaysian Qualifications Agency (MQA) and the Ministry of Higher Education (MOHE) 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.

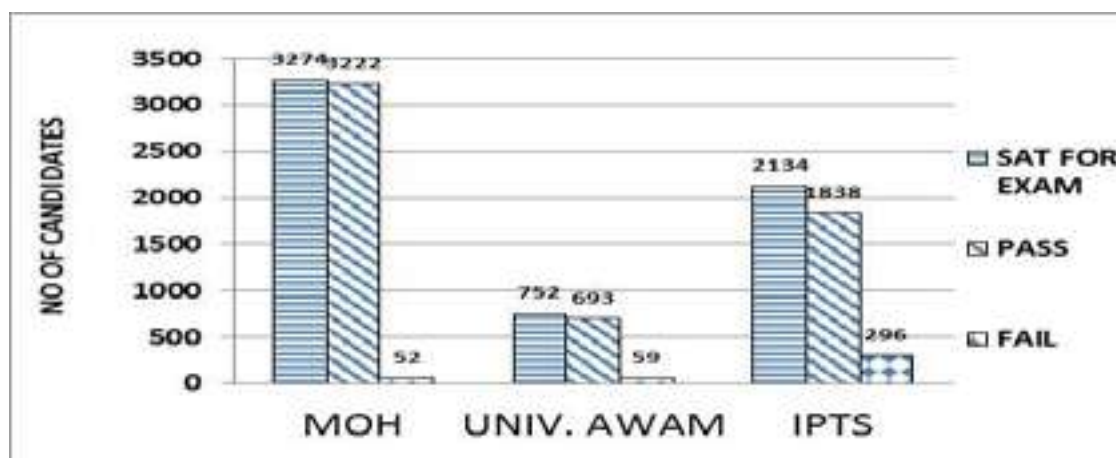
- Number of Examination Conducted by the Nursing and Midwifery Board of Malaysia and achievement (**Table 66**).
- Overall achievement amongst colleges Year 2016 (**Figure 32**).
- Number of institution providing nursing programme Year (**Figure 33**).
- List of nursing programme in MoH, IPTA, IPTS and Ministry of Defence (**Figure 34**).
- Number of document assessment done by NBM panel 2016 (**Figure 35**).

**Table 66**  
**Number of Examination Conducted by Nursing and Midwifery Board of Malaysia**  
**And Achievement 2016**

No	Program	College/Institution				Candidates	
		MoH	Public Higher Education Institutions (IPTA)	Private Higher Education Institutions (IPTS)	Total	Passed (%)	Failed (%)
1.	Degree/ Diploma/ Conversion Diploma Program	66	25	128	6,160	5,753 (93.4)	407 (6.6)
2.	Advanced Diploma in Midwifery	24	3	4	1,230	1,212 (98.5)	18 (1.5)
3.	Community Nurse	1	0	0	4	4 (100)	0 (0)
4.	Assistant Nurse	0	0	4	85	78 (91.8)	7 (8.2)
<b>TOTAL</b>		<b>91</b>	<b>28</b>	<b>136</b>	<b>7,479</b>	<b>7,047 (94.2)</b>	<b>432 (5.8)</b>

Source: Nursing Division, MoH

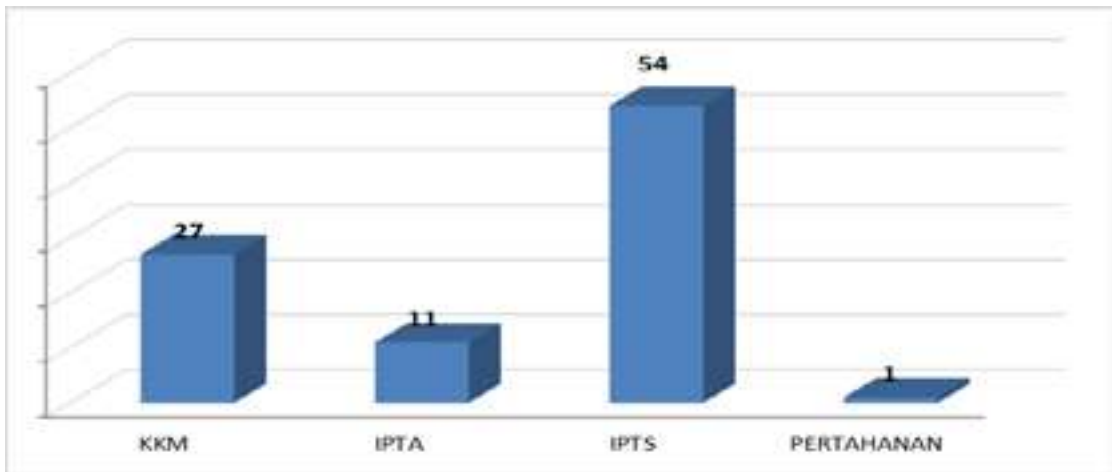
**Figure 32**  
**Overall Achievement amongst Colleges 2016**



Source: Nursing Division, MoH

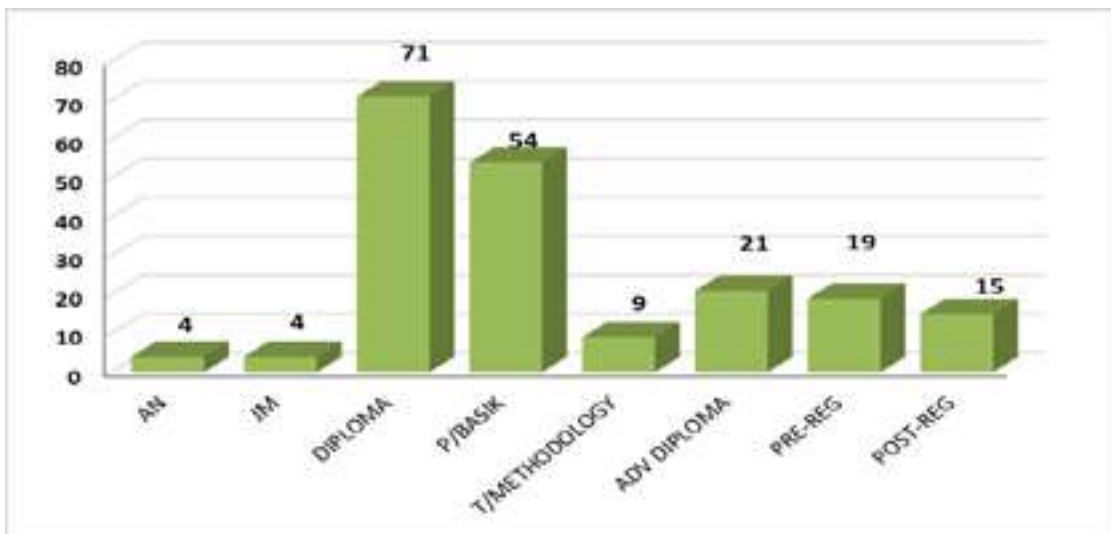


**Figure 33**  
**Number of Institution Providing Nursing Programmes Year 2016**



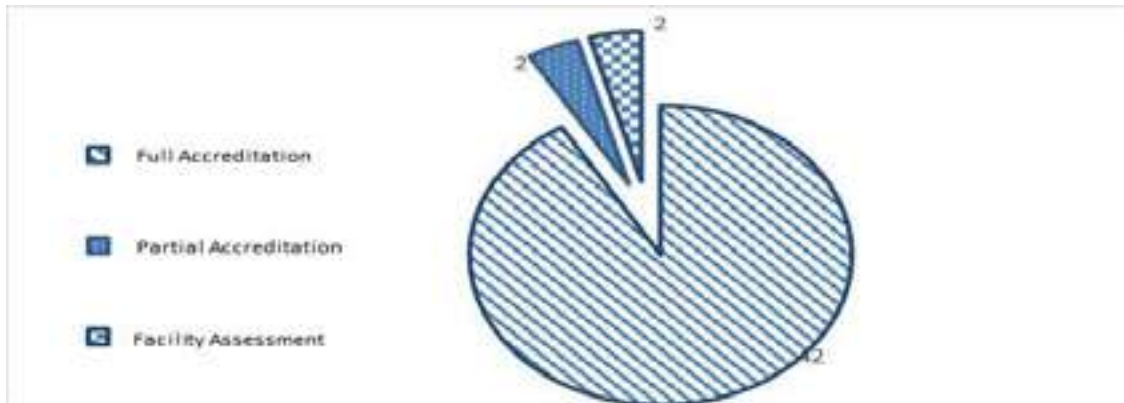
Source: Nursing Division, MoH

**Figure 34**  
**List of Nursing Programme in MoH, IPTA, IPTS and Ministry of Defence**



Source: Nursing Division, MoH

**Figure 35**  
**Number of Document Assessment and Facility Done by NBM Panel, 2016**



Source: Nursing Division, MoH

## WAY FORWARD

Nursing Division participates in the health care transformations and working together with our counterparts in MoH towards a healthy and active nursing populations. We always look forward to be able to deliver quality and safe service to our clients.

## TELEHEALTH

Telehealth Division is leading transformation of Ministry of Health, Malaysia (MOH) healthcare system through information and communication technology (ICT) by:

- I. Enabling the health system transformation plan using ICT.
- II. Strengthening health care services through ICT.
- III. Improving individual skills and expertise in the field of health ICT.
- iv. Manage changes in the implementation of health ICT projects and programmes relating to health ICT.

Telehealth Division is responsible for delivering health ICT initiative for MOH by:

- I. Developing ICT policies relating to telehealth (such as User Access Policy Control) and monitoring compliance of health and safety controls.
- II. Planning and providing infrastructure for telehealth project requirements.
- III. Designing and developing applications for telehealth project systems.
- IV. Providing MyHEALTH Portal as a platform over the internet for the dissemination of health information and health education to the public.

- V. Providing teleconsultation services to MOH healthcare facilities throughout the country (selected facilities).

## ACTIVITIES/ACHIEVEMENTS

### QUALITY OBJECTIVES OF TELEHEALTH DIVISION

**Table 67** shows the quality objective of Telehealth Division, meanwhile **Table 68** shows the strategic Plan for 2016

**Table 67**  
**Quality Objectives of Telehealth Division**

No	Activity	Target/Indicator	Achievement (%)
1.	Developing integration profile to enable information sharing between health systems	One (1) profile of every two (2) year	100
2.	% of Telehealth staff that have attended 7 days' training a year	All Telehealth staff	87.5
3.	Providing SME advisory services for MoH health ICT projects	At least 2 projects seeking SME advisory services annually	-

Source: Telehealth Division, MoH

**Table 68**  
**Strategic Plan of Telehealth Division**

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) List of health facilities: 1. Hospital Putrajaya 2. Klinik Kesihatan Putrajaya, Presint 9 3. Hospital Tuanku Ja'afar, Seremban 4. Hospital Port Dickson 5. Hospital Bentong 6. Hospital Sultanah Nur Zahirah, Kuala Terengganu 7. Hospital Raja Perempuan Zainab II, Kota Bharu 8. Institut Kanser Negara
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	81.1%

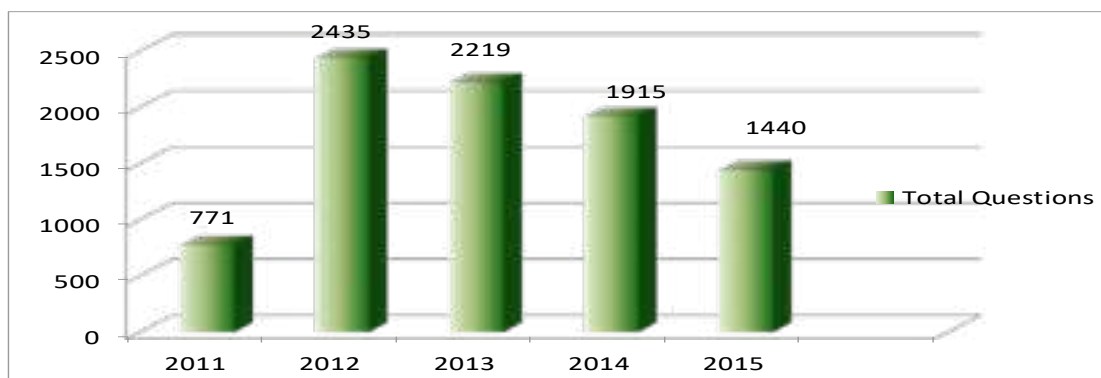
Source: Telehealth Division, MoH

## ACHIEVEMENTS (PROJECTS)

### “ASK THE EXPERT” SERVICE, MyHEALTH PORTAL

Ask The Expert is managed by Telehealth Division. Moderators from Operational Unit permanently handling these services during involving three (3) personnel (two (2) medical doctors and one (1) nursing sister). For capacity building, other doctors and paramedics in Telehealth Division are given training as moderators to assist in the Ask the Expert Service. However, the service has been discontinued starting from 1 February 2016. Statistics on Number of questions received from Ask The Expert Service, MyHEALTH Portal from 2011 to 2015 as shown in **Figure 36**.

**Figure 36**  
Number of Question received from “Ask the Expert” services of MyHEALTH Portal from 2011 to 2015

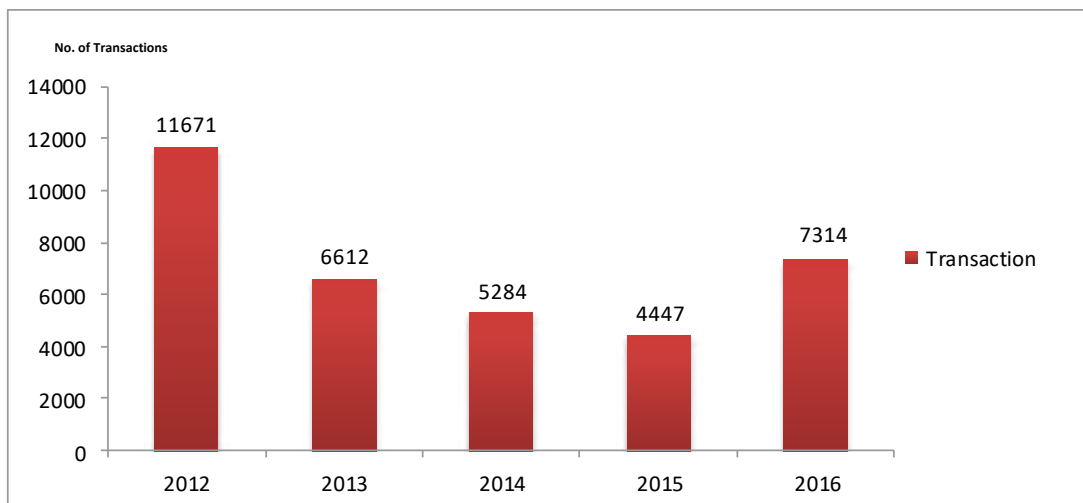


*Note: Ask The Expert service has been discontinued starting from 1 February 2016*  
*Source: Telehealth Division, MoH*

### TELECONSULTATION SERVICE (TC)

Teleconsultation has covered a total of 45 facilities and 60 stations throughout the country, which includes Sabah and Sarawak. **Figure 37** showed the Statistics on Teleconsultation Service usage from 2012 to 2016:

**Figure 37**  
**Statistics on Teleconsultation Service usage from 2012 to 2016:**



Source: Telehealth Division, MoH

## OTHER ACTIVITIES AND ACHIEVEMENTS

1. Health ICT Exhibition on MyHIX, myCPD, MyHEALTH Portal and Virtual Library during the 1 Telemedicine Conference was held in Sunway Medical Centre from 16 to 18 August 2016).
2. Connectathon 2016 was held on 15 June 2016 in Everly Hotel, Putrajaya.
3. MyHIX Toolkit Version 2 (Draft) has been finalised on 20 Oktober 2016 for approval.
4. Teleconsultation Services Survey (Kajian Perkhidmatan TC) was held report was approved on 20 September 2016.
5. Change Management Workshop for MyHIX at the facility level (*Bengkel Pengurusan Perubahan bagi Projek Peningkatan Sistem MyHIX Versi 2.0 di Peringkat Fasiliti*) was held in Kota Bharu, Kelantan from 8 to 9 November 2016.

## CHALLENGES

1. eHealth in Malaysia began actively with the era of MSC. We had an era of rapid build-up and POCs and pilots on the back of CAPEX model, which today, is being hampered by budget constraints.
2. Today in MOH, we have over 75 systems and the numbers continue to grow due to functional needs, but we continue to have a large gap on patient care systems despite its obvious benefits.

3. Healthcare is poised for its biggest shakeup ever as its transformation to a more better, efficient and equitable healthcare requires 'quick wins' in ICT to be addressed.
4. Today, we have a promising patient care system (TPC, OHCIS & SPP) on the back of CAPEX model, which today, is not sustainable for scaling.
5. We need to take MoH to the next level, one that embraces the need for changes and focuses on the ways to get there.
6. The confluence of Big Data, Cloud, Managed and Shared Services combined with uncertain budgets and government policies compels us to rethink our business model.

eHealth is an emerging field in the intersection of medical informatics, public health, and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology (Eysenbach, 2001).

#### **WAY FORWARD**

1. Healthcare is an ecosystem of providers, payers, regulators, and consumers with very high level of complexity.
2. We are already addressing issues of efficiency, quality care, outcomes, cost, and sustainability.
3. Proposed transformation in 3 areas: health service delivery, organisation and financing.
4. We need to take MOH to the next level, one that embraces the need for changes and focuses on the ways to get there.
5. ICT is one of the key building blocks in national health reform strategies & to enable efficiency, quality, improved outcome and innovation in healthcare delivery.

Starting from 1 January 2017, Telehealth Division will be part of Planning Division and renamed as eHealth Planning Section. Telehealth Steering Committee (*Jawatankuasa Pemandu Telekesihatan*) will be renamed as National eHealth Coordination Committee (NeHCC) in which the memberships will be multi-stakeholders from health sector.

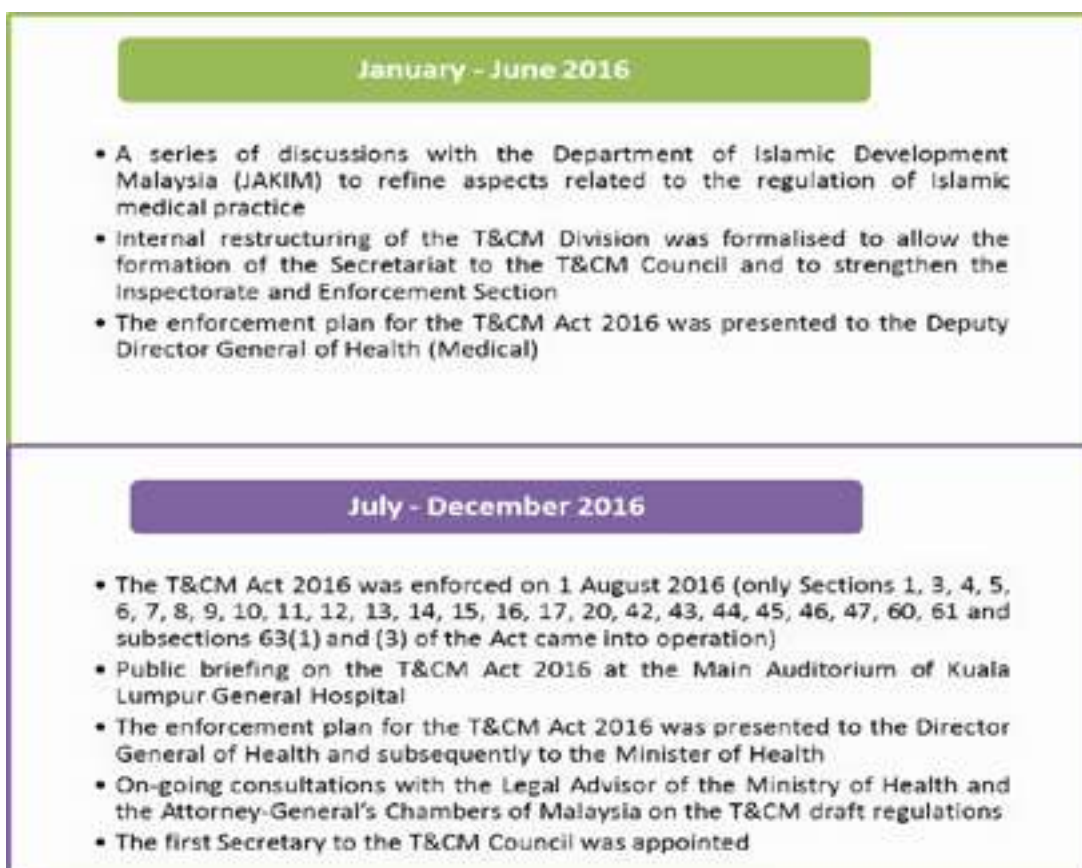
## TRADITIONAL AND COMPLEMENTARY MEDICINE

### Traditional and Complementary Medicine Act 2016

The Traditional and Complementary Medicine (T&CM) Act 2016 [Act 775] was gazetted on 10 March 2016 and enforced on 1 August 2016 by the Health Minister. This Act provides for the establishment of a T&CM Council to regulate T&CM services in Malaysia and to provide for matters connected therewith. The chronology for the enforcement of this Act is shown in **Figure 38** as follows:

**Figure 38**

#### The chronology for the enforcement the Traditional and Complementary Medicine (T&CM)



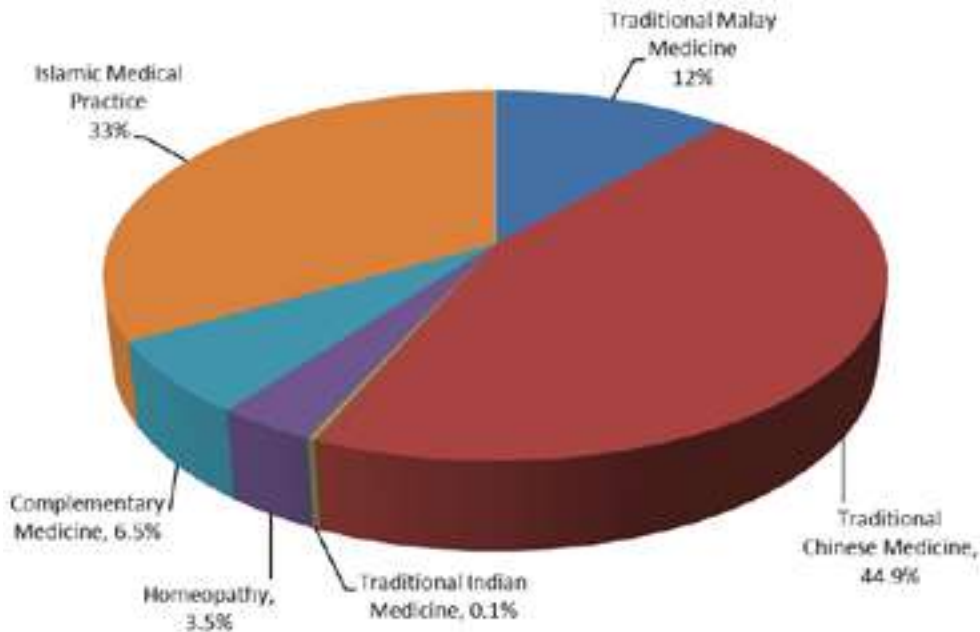
*Note: The T&CM Act 2013 [Act 756] has been replaced by the T&CM Act 2016 [Act 775]. As such, Act 756 holds no force of law. The T&CM Act 2016 was gazetted on 10<sup>th</sup> March 2016 and was enforced on 1 August 2016 (P.W. 5450). Source: Traditional And Complementary Medicine, MoH*

## LOCAL T&CM PRACTITIONERS' STATISTICS

In 2004, MoH had appointed eight (8) practitioner bodies to self-regulate existing local T&CM practitioners based on their respective practice area. A compiled database on existing local T&CM practitioners who have registered with the practitioner bodies before 1 August 2016 was handed over to T&CM Division. This database reported that a total of 17,045 T&CM practitioners have registered with practitioner bodies.

In conjunction with the enforcement of Section 20 to 28 of the T&CM Act 2016, it will be compulsory for all local T&CM practitioners who are intending to practise T&CM in any recognised practice area to register with the T&CM Council. Hence, an electronic software system termed '*e-Pengamal*' has been developed for this purpose. The software is currently undergoing a trial process. **Figure 39** showed the percentage of local T&CM practitioners who have registered with practitioner bodies as August 2016

**Figure 39**  
**Percentage Of Local T&Cm Practitioners Who Have Registered With Practitioner Bodies As August 2016**



Source: Traditional And Complementary Medicine, MoH



## SERVICES AT T&CM UNITS

As of December 2016, T&CM services are being offered at 14 government hospitals and one unit in 1Malaysia Low-risk Birth Centre, Majlis Agama Islam Wilayah Persekutuan (PBBR1M MAIWP), Putrajaya.

Generally, all modalities have shown an increment in the number of patients who received treatment in all T&CM units in government healthcare facilities with the exception of *Shirodhara*. In 2016, Herbal Therapy as an Adjunct Treatment for Cancer recorded the highest percentage increment of 29 per cent followed by Traditional Postnatal Care (21per cent), Acupuncture (3 per cent) and Traditional Massage (3 per cent). The overall increment shows that T&CM services are gaining popularity and acceptance among Malaysians. Additionally, there is rising awareness and understanding among modern medicine practitioners on the importance of T&CM treatment as a complement to existing modern medicine treatments in the national healthcare system.

*Shirodhara*, had showed a 70 per cent reduction in the number of treated patients due to the uprising demand for External *Basti* Therapy since its introduction in Hospital Port Dickson and Cheras Rehabilitation Hospital in 2015. The public's encouraging response is attributed to the ongoing efforts made by the deputed Ayurvedic expert from the Republic of India and staff members of Hospital Port Dickson and Cheras Rehabilitation Hospital in promoting the services in their respective hospitals and to nearby public healthcare facilities. The excellent rapport between the Ayurvedic physician and Orthopaedic Surgeon in Hospital Port Dickson also contributed to the increment.

External *Basti* Therapy and *Shirodhara* in public healthcare facilities are provided by the same Ayurvedic physician and therapists. Thus, the introduction of External *Basti* Therapy led to the reduction of patients for *Shirodhara* as both services utilise the same manpower and time slots for treatment.

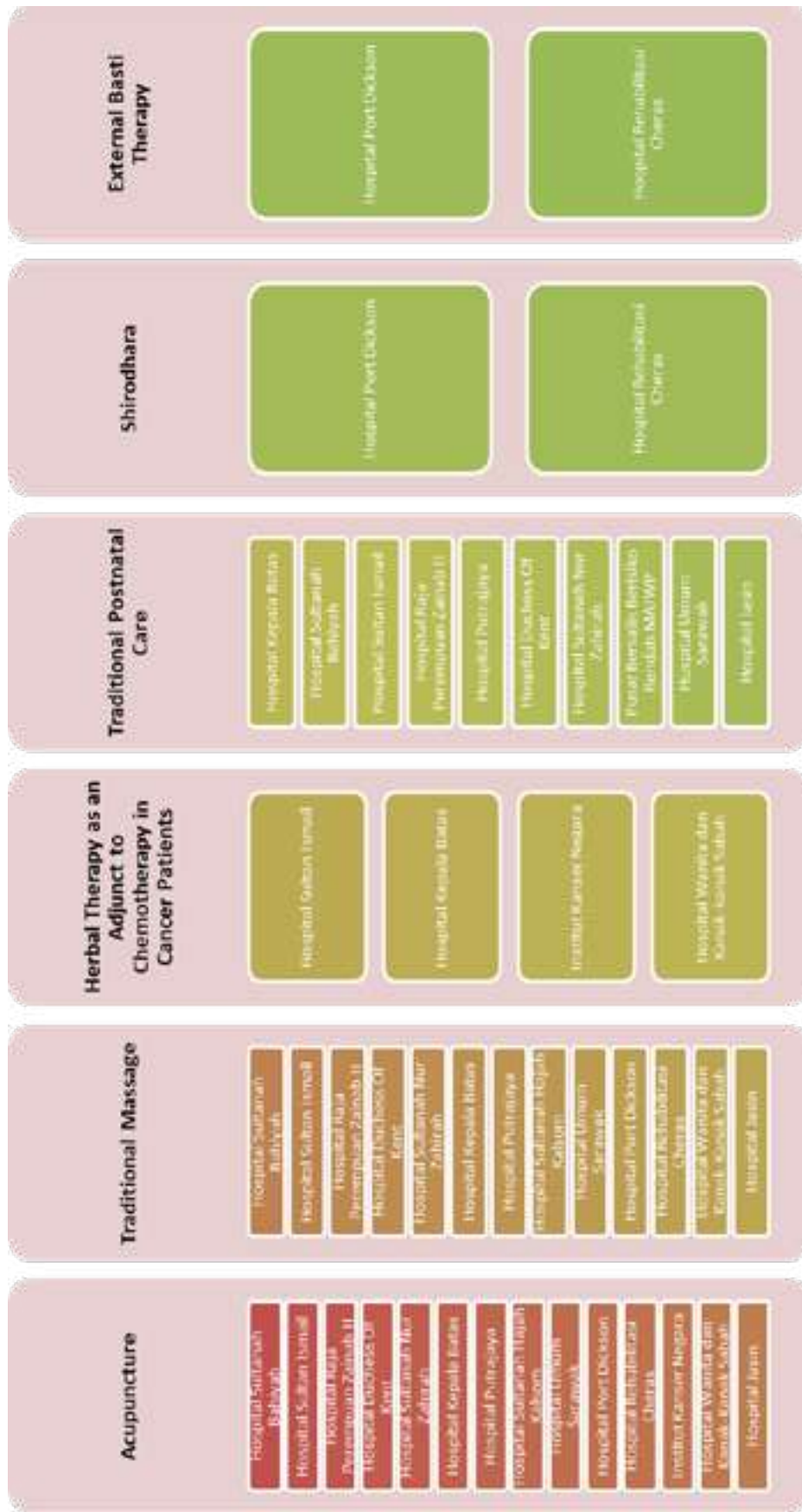
Despite the ongoing challenges, the T&CM Units in public healthcare facilities continues to strive for promoting and improving existing services. It is hoped that these efforts will continue to drive the mission of T&CM Division in ensuring that T&CM services continue to be of quality, safe and beneficial to the people. **Table 69** showed the number of patients who received T&CM services in T&CM units (2014 to 2016), meanwhile **Figure 40** showed the list of T&CM services offered in public healthcare facilities.

**Table 69**  
**Number of Patients who Received T&CM Services in T&CM Units (2014 to 2016)**

<b>Modality/Year</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Traditional Massage</b>	18,359	20,819	21,337
<b>Acupuncture</b>	29,722	34,584	35,599
<b>Herbal Therapy as an Adjunct Treatment for Cancer</b>	3,457	5,790	7,489
<b>Traditional Postnatal Care</b>	5,130	5,396	6,526
<b><i>Shirodhara</i></b>	1,084	2,305	697
<b>External <i>Basti</i> Therapy</b>	-	239	2,663

Source: Traditional And Complementary Medicine, MoH

**Figure 40**  
**List of T&CM Services Offered in Public Healthcare Facilities**



Source: Traditional And Complementary Medicine, MoH





**CHAPTER 6**

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**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 (6) 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 Eleventh Malaysian Plan (11MP). Previously known as the Planning and Development Division, it was separated on 1 September 2012 in efforts to enhance each respective branch's functions. There is six (6) sections in the Planning Division:

- i. Health Policy and Plan Planning
- ii. National Health Financing (NHF)
- iii. Malaysia National Health Accounts (MNHA)
- iv. Health Informatics Center
- v. Health Facility Planning
- vi. eHealth Strategic Planning

### **HEALTH POLICY AND PLAN SECTION**

The Policy Planning and Health Planning Unit (PDPK) plans the National Health Policy, coordinate the planning of the 5-Year Malaysia Plan and the monitoring and evaluation of the 5-year MoH Strategic Plan.

## **ACTIVITIES AND ACHIEVEMENTS**

### **MoH STRATEGIC PLAN 2016 TO 2020**

PDPK has published the MoH Strategic Plan 2016 to 2020 which is a reference document for all organisations under MoH and is a continuation of the MoH Strategic Plan 2011 to 2015. The preparation of this strategic plan takes into account the strategic planning of the 11th Malaysia Plan approved by the government in May 2015, the Outcome Based Budgeting (OBB) and Health Services Transformation Plan. The MoH Strategic Plan 2016 to 2020 has outlined 4 Strategic Thrust which are:

- i. Strengthen delivery of healthcare services for each level of disease spectrum, emphasising on primary health care
- ii. Strengthening Health System Governance and Organisational capacity
- iii. Empowering individual, family and community in health matters
- iv. Intensifying Collaboration with Public, Private Sector and NGOs

The key activities contained in this MoH 2016 to 2020 Strategic Plan document have been translated into the MoH Action Plan Document 2016 to 2020. Both of these documents have been distributed to all Divisions, Institutions and State Health Departments for implementation. It can also be accessed from MoH portal.

## **MALAYSIA NATIONAL HEALTH PLAN (MNHP)**

Malaysia has a lot of health policies under different programs/activities that are implemented separately in accordance with their respective functions/agendas. As Malaysia is thriving to become a high-income nation by 2020, there should be a more comprehensive, coordinated and integrated, key policy for a longer period of time to outline policies, direction and strategies according to current and future needs. An initial brainstorming session to discuss the provision of national health policy was held on 8 April 2016. The Technical Committee Members were appointed on 21 July 2016 followed by the first meeting on 26 August 2016. This was followed by the first workshop involving internal stakeholders within the MoH on 17 to 19 October 2016 to come out with the framework for the policy and suggestions on the policy statements and strategies.

## **SUSTAINABLE DEVELOPMENT GOAL (SDG)**

The Sustainable Development Goals (SDGs) [2016 to 2030] which was launched by WHO in January 2016, is a continuation of the Millennium Development Goals (MDGs) [2000 to 2015]. It consists of 17 goals and 169 targets that have been finalized. Centrally it is coordinated by EPU and Prime Minister (PM)'s department and the data collection and information is done by Department of Statistics (DOSM) at the national level. Health and health related indicators coordination was done by MoH. The SDG is also in line with national policies including the Eleventh Malaysia Plan, MoH Strategic Planning and Health Services Transformation Plan. The most relevant SDG goal related to MoH is the Goal 3, which is ensure healthy lives and promote well-being for all at all ages and the other goals which are indirectly related are goals 1, 2, 4, 5, 6, 11 and 16 (**Table 1**).

**Table 1**  
**List of Health or Health Related SDG Goals**

<b>SDG GOALS</b>			
<b>No</b>	<b>Indicators</b>	<b>Number Of Indicators</b>	<b>Indirectly Related To MoH</b>
1.	End poverty in all its forms everywhere	12	2
2.	End hunger, achieve food security and improve nutrition and promote sustainable agriculture	14	2
3.	Ensure Healthy Lives and Promote Well Being for All at All Ages	27	23
4.	Ensure inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities	10	1
5.	Achieve gender equality and empower all women and girls	14	3

SDG GOALS			
No	Indicators	Number Of Indicators	Indirectly Related To MoH
6.	Ensure availability and sustainable management of water and sanitation for all	11	2
7.	Make cities and human settlements, inclusive, safe, resilient and sustainable	15	1
8.	Promote just, peaceful and inclusive societies	23	7
<b>TOTAL</b>		<b>242</b>	<b>41</b>

Source: Health Policy and Plan Unit, Planning Division, MoH

## HEALTH SERVICES TRANSFORMATION PLAN

There were 24 initiatives to be monitored monthly under the *jpamonitor* system for 2016. On 23 August, 2016, Public Service Department (JPA) had invited the MoH to showcase high-impact initiatives during the JPA Monthly Assembly with the presence of the Honorable Tan Sri MoHamad Zabidi Zainal (Director General of Public Service). On 17 to 18 October 2016 JPA once again organized the Sustainable Public Service Transformation Program to develop initiatives that could collaborate with other Ministries. During that event, the MoH Secretary General was invited to share experiences on initiatives that successfully achieved the outcome of the Public Service Transformation Plan. A total of 21 initiatives (87.5 per cent) have achieved the target set for 2016. Three (3) initiatives (12.5 per cent) did not achieve their targets. Reasons given were delay in the process of review and approval of the draft which took a long time by the Attorney General's Chambers, a few activities that were not within MoH controlled and were outside the jurisdiction of the MoH.

## PLANNING OF HUMAN RESOURCES FOR HEALTH (HRH) IN MALAYSIA

Throughout the year 2016, several important activities were done by Health Policy and Planning Unit (PDPK) with regards to the Planning of Human Resource for Health (HRH) which was:

### i. Human Resources for Health Country Profile 2015

This document was published in early 2016 and also uploaded in MoH Postmaster website. It is a series of publication by Planning Division in collaboration with WHO. The document shows the profiles of five (5) main health providers in Malaysia namely doctors, dentist, pharmacist, nurses and assistant medical officers.

### ii. Projection of Human Resources for Health (HRH)

Projection of HRH's requirement identified through need based approach using the "System Dynamic" platform was finalised in year 2016. This research project is a collaborative work between Health Policy and Planning Unit (PDPK), researchers from few local public universities, MoH Research Institutions and program representatives. The findings were presented to MoH top management as well as among others, the business owners within MoH such as the Medical Development Division, Family Health Development Division, Oral Health Divisions and Pharmaceutical Services Division. The HRH projection outcome



involving five (5) professions namely doctor, dentist, pharmacists, nurses and Assistant Medical Officers (AMO) was included in a section within the document of Human Resource for Health (HRH) Master Plan 2016 to 2030.

### **iii. Requirement of Human Resources for Health (HRH) in MoH**

The number of HRH that is required to operate the Ministry of Health Malaysia hospitals and clinics was identified using a method established by WHO. The method is known as the "Workload Indicator for Staffing Need" (WISN). The results of this study can be used to support decision maker to identify the gap between existing number of staff and the required number based on facility's workload, as a guideline to request for a new post from central agencies, guidance for deployment/placement of staffs etc.

Health Policy and Planning Unit (PDPK) with assistance from several stakeholders had successfully conducted several workshops and discussions with informants from various hospitals and clinics as well as Head of Services to obtain relevant information in order to develop department-based templates to calculate health workforce requirement. By the end of 2016, the HRH requirement focusing on number of specialist, medical officers, nurses, AMOs and healthcare assistants for 10 disciplines were successfully analysed. The results were also shared with relevant Divisions to support their decision making. The list of the 10 disciplines successfully analysed using workload data annually published by Health Informatics Centre were:

- i. Family Medicine
- ii. Emergency Medicine
- iii. Anaesthesiology
- iv. Surgery (include all sub-discipline)
- v. Psychiatry
- vi. Orthopaedic
- vii. Internal Medicine (exclude Cardiology)
- viii. Cardiology
- ix. Paediatric
- x. Obstetrics and Gynaecology

Study on another disciplines such as dermatology, ophthalmology, radiology, oncology, pathology and otorhinolaryngology (ORL) were still on going.

### **iv. Human Resource for Health (HRH) Master Plan 2016 to 2030**

Preparation for the production of the HRH Master Plan 2016 to 2030 is on-going. Several engagement sessions were held with relevant stakeholders and top management to discuss and present the results of HRH projections and the draft of HRH Master Plan. The activities are listed as in **Table 2**:

**Table 2**  
**Human Resource for Health (HRH) Master Plan Activities**

Date	Status
<b>Presentation of the HRH Projections and Master Plan Draft to YB Health Minister</b>	
<b>26 September 2016</b>	The outcome of this projection study was presented to YB Minister of Health Datuk Seri Dr. S. Subramaniam and Top Management of MoH. The meeting agreed that the number of HRH in Malaysia should be based on the needs of the health services required by the Malaysian population.
<b>Presentation of WISN result</b>	
<b>30 August 2016</b>	The preliminary results of this study were presented to the MoH Top Management and shared with the Human Resource Division of the Ministry of Public Works and the Public Service Department for SMUK planning for the Ministry of Health Malaysia
<b>12 November 2016</b>	The results of the health workforce needs study was based on the workload of the MoH Cardiology services which was presented at the 7 <sup>th</sup> MOH Cardiology National Conference which was also attended by YBhg. Health Director-General. Datuk Dr. Noor Hisham Bin Abdullah
<b>Establishment of the HRH Master Plan National Committee</b>	
<b>11 November 2016</b>	A meeting was held by Planning Division involving government and non-government agencies to present on the HRH Master Plan. These committees, among others, are to consider and approve proposals submitted by the Human Resource Technical Committee for Health and working groups to address issues involving HRH in Malaysia.

Source: Health Policy and Plan Unit, Planning Division, MoH

### **MoH PLANNING STEERING COMMITTEE (JPPKK)**

The Ministry of Health Planning Steering Committee (JPPKK) met twice in 2016 and a total of 3 papers were tabled as follows (Table 3):

**Table 3**  
**The Ministry of Health Planning Steering Committee**

No	Policy	Status	Program/Activity
<b>JPPKK 1/2016 (22 April 2016)</b>			
<b>1/1</b>	Proposed Draft of Human Resources Master Plan for Health (Human Resources For Health) of Malaysia	Approved	Planning Division
<b>JPPKK 2/2016 (10 December 2016)</b>			
<b>1/2</b>	Proposed establishment of Muallim District Health Office	Approved	Batang Padang District Health Office, Perak
<b>2/2</b>	Proposal upgrading Serian District Health Office To Serian Health Office	Approved	Bahagian Samarahan Health Office, Sarawak

Source: Health Policy and Plan Unit, Planning Division, MoH

## OUTCOME BASED BUDGETING (OBB)

On 15 and 16 of March 2016, PDPK Unit had attended the Outcome Based Budgeting Awareness Workshop at Programme and Activity levels organised by the Finance Division and Malaysian Healthcare Performance Unit (MHPU). PDPK Unit has coordinated the Planning Division's achievement of 2015 and 2018 planning and has uploaded the data into *MyResults* system in April 2016. Quarterly performance was submitted to the NIH Secretariat as a coordinator for the Research and Technical Support Program level.

## NATIONAL HEALTH FINANCING SECTION (NHF)

The Unit for National Health Financing (NHF) was established to formulate, design, implement, evaluate and appraise the policies, strategies and activities related to the Malaysia health system financing. In 2016, several activities were carried out in line with the unit's objectives such as Malaysia Health Systems Research, collaboration activities with the Joint Learning Network, involvement in the ASEAN Health Cluster 3 for strengthening health care systems and access to care, involvement with other international organizations, and participation in various local and international seminars, workshops, and meetings.

## MALAYSIA HEALTH SYSTEMS RESEARCH

The Malaysia Health Systems Research (MHSR) is a collaborative study between the Ministry of Health and the Harvard School of Public Health (HSPH), involving Harvard research team and researchers from MoH divisions, National Institutes of Health, government agencies and local universities.

MHSR study is managed by the Research Management Team (RMT), directed by the Deputy Director General of Health (Research and Technical Support). The Unit for National Health Financing (NHF) is a key part of this collaboration study as well as the Research Management Team. The MHSR Steering Committee which is chaired by the Minister of Health, provides oversight of the planning and implementation of the MHSR study. Members of the Steering Committee include senior officials from MoH and other government agencies including Ministry of Finance, Economic Planning Unit, Central Bank of Malaysia, Performance, Management and Delivery Unit, Public Service Department and Department of Statistics of Malaysia (**Image 1**). Three successful Steering Committee meetings were held in 2016.

**Image 1**

**MHSR Steering Committee Meeting on 6 December 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

MHSR started in December 2014 and is divided into 2 parts. It will continue till June 2018. It has conducted a comprehensive analysis of the Malaysia health system in order to transform the health system functions in an equitable, efficient, effective and responsive to citizen for a better health outcomes, financial risk protection and user satisfaction.

MHSR part 1 was further divided into 2 phases and was started on 14 December 2014 till 14 December 2016. In phase 1, there were nine work packages that assessed various aspects of the health system such as policy analysis, health service delivery, health financing and provider payment. Specific research areas were conducted by 22 analytical teams encompassing 40 research topics and produced 47 sub reports in 2016. At the end of MHSR Part 1 Phase 1, the MHSR Strategic Plan Report was produced. The report provides a comprehensive evidence based analysis of the Malaysia's health system together with the recommendations for health system reform. Phase II study will provide further details the design and implementation plan of the recommendations and will produce the MHSR Implementation Plan Report (**Image 2**).

**Image 2**  
**MHSR Strategic Plan Report was produced at the end of MHSR Part 1 Phase 1, March 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

In 2016, key findings from MHSR were presented to other government agencies as well as MoH divisions and institutions. Many activities conducted to share MHSR outputs with senior officers at MoH headquarters, state health directors, directors of institutions in MoH and hospital directors in 3 states (Kelantan, Terengganu and Pahang). NHF were also involved in MHSR oral presentations during CRC Research Day in Selangor, Negeri Sembilan, Pahang and Sabah. The findings were further presented during the MOH Hospital Director Summit on 26 November 2016 and TGP Inspirational Leadership Podium on 7 March 2016. Posters summarizing the findings of the various research and reports were exhibited during CRC Research Day in National Cancer Institute on 30 August 2016 and Selangor on 8 September 2016.

**Image 3**  
**Sharing of MHSR findings to IPKKM staff at KKM headquarters on 16 May 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

**Image 4**  
**Sharing of MHSR findings by Harvard Team at Institute of Health Management on 7 March 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

The collaboration with Harvard University has enabled MoH and local researchers to acquire new skills and technology. This was done through various means such as experiential learning by joint analysis and synthesis, workshops, courses and problem-solving technical support. One capacity building activity done under MHSR was a scientific seminar in collaboration with the National Institutes of Health (NIH). This was organized by NHF and the Harvard team during the NIH Scientific Research Week on 19 to 20 November 2016, with the theme of 'Transforming Health Systems for Better Outcome'. At least 146 participants attended the seminar including directors and officers from MoH headquarters, representatives from MoH institutions and state health offices. Talks were delivered by international speakers from Thailand, Taiwan, Netherlands, Philippines, Indonesia and Harvard (**Image 5**).

**Image 5**  
**International Scientific Seminar during NIH Scientific Week 2016, Putrajaya**  
**on 19 to 20 November 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

While the main method of transfer of technology from Harvard University was in the actual conduct of the various researches, additional series of capacity building activities conducted under MHSR in year 2016 included:

- i. First Enhanced Primary Healthcare Design Workshop (3 to 6 May 2016)
- ii. Second Enhanced Primary Healthcare Design Workshop (31 May to 2 June 2016)
- iii. Clinical and Prescribing Audit (29 to 31 May 2016)
- iv. Three MoH officers were selected to attend a 'Teaching by Case Method: Principles and Practice for Public Health Educators' at Harvard University (6 to 8 June 2016) and had subsequent case study visits to England, Estonia and Netherlands (18 to 31 July 2016)
- v. Course on Transforming Health Systems and Primary Healthcare for Better Performance (26 to 28 September 2016)
- vi. MHSR Training of Trainers Course (29 September 2016)

In addition to the comprehensive analysis, a significant amount of policy insight was accomplished through the close technical collaboration between all involved, providing strategies to overcome current and future challenges that Malaysia faces.

### **COLLABORATIVE PRACTITIONERS ACTIVITIES WITH THE JOINT LEARNING NETWORK**

Malaysia is an active member of the Joint Learning Network (JLN) since 2010. For local arrangement and coordination of JLN activities, Malaysia has established the Malaysia Country-Core Group (CCG) which is chaired by the Director of Planning Division with NHF as the secretariat. At the same time, the Senior Deputy Director of Planning Division continues to be the Convener of the overall JLN.

Malaysia was given the honour to host the JLN Global Meeting on 20 to 22 July 2016 with the theme of "Building Health Systems to Achieve Universal Health Coverage". It was held at Putrajaya and organized by the Ministry of Health, in partnership with the JLN, the Bill & Melinda Gates Foundation, the World Bank, USAID/Health Financing and Governance

Project, the Rockefeller Foundation and the World Health Organization. The meeting was attended by more than 150 participants, including policymakers and practitioners from 27 countries. This meeting was the first time that representatives from all JLN countries, funder organizations, and technical partners have gathered together (**Image 6**).

The meeting focused on building a stronger health system by strengthening people-centered health system, emphasizing on primary health care, but also involving other JLN activity tracks such as provider payment, population coverage, information technology and quality of care. This was an opportunity to share and learn from practitioners from other countries on technical topics of the highest health policy priority. The meeting involved a wide range of learning modalities from large group presentations to small group discussions. Overall, this was considered as a successful meeting by all participants.

**Image 6**  
**JLN 2016 Global Meeting 2016, Putrajaya on 20 to 22 July 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

At the same time, a high-level roundtable discussion of ministers and senior officials was done and chaired by the Honorary Minister of Health, Malaysia. This session created an opportunity for high-level policymakers to share their Universal Health Coverage (UHC) experiences and commitments, and to learn from one another. Among the participants were the Minister of Health from Kosovo, Vice Minister of Health from Japan, Deputy Minister for Planning, Research and Development from Liberia and State Minister of Health from Sudan.

Among the other international JLN activities involving officers from NHF are:

- JLN Collaborative on Data Analytics for Monitoring Provider Payment System in Ghana (21 to 23 March 2016)
- JLN Steering Group Meeting and Annual Universal Health Coverage Financing forum in Washington (12 to 13 April 2016)
- Medical Audits Collaborative Program in South Korea (29 March to 1 April 2016)
- JLN Financing and Payment for Primary Health Care in Chile (1 to 4 August 2016)
- Claim Management Study Visit to India (29 November to 2 December 2016)

The knowledge and skills gained from these sharing sessions and activities provides a practical guide for Malaysia in moving forward in building stronger health system.



**Image 7**  
**JLN Financing & Payment for PHC at Santiago, Chile on 1 to 4 August 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

### **ASEAN HEALTH CLUSTER 3: STRENGTHENING HEALTH SYSTEM & ACCESS TO CARE**

The ASEAN Community Member Countries believe that efforts and resources of each national health system, geared towards protecting and improving the health of their peoples, will have maximum outcomes when done in a collaborative, complementary and synergistic manner. This collaboration is now conducted through 4 clusters of co-operation, where the Planning Division played a major coordinating and technical role for ASEAN Health Cluster 3-Strengthening Health System & Access to Care.

From the Planning Division, the Unit for National Health Financing (NHF) is the focal point for Universal Health Coverage (UHC) and also for Health Financing and the Unit for Health Policy & Plan Planning (PDPK) is the focal point for the Human Resource for Health (HRH) component. Both units have been actively involved in participating and providing inputs in the related areas. More so because, the Senior Deputy Director of the Planning Division, is the focal person of ASEAN Health Cluster 3 for Malaysia. In 2016, she attended the 1<sup>st</sup> meeting of ASEAN Health Cluster 3 on 26 to 28 July 2016 in Manila, Philippines with a colleague from the National Pharmaceutical Regulatory Agency (NPRA).

Therefore, NHF plays an integral role of coordinating the efforts between many divisions of MOH under the ASEAN Health Cluster 3 umbrella. Those involved are the Institute for Health Systems Research (IHSR), Institute for Medical Research (IMR), Health Technology Assessment Unit (MaHTAS), Malaysia Healthcare Performance Unit (MHPU), Family Health Development Division (BPKK), Disease Control Division, NPRA, Traditional & Complementary Medicine Division (TCM), Global Health Section, Public Health Development Division, Policy & International Relations Division (BDHA) and of course PDPK and NHF.



**Image 8**  
**Meeting of ASEAN Health Cluster 3, Manila on 27 July 2016**



*Source: National Health Financing (NHF), Planning Division, MoH*

## **MALAYSIA NATIONAL HEALTH ACCOUNTS SECTION (MNHA)**

In 2001 Ministry of Health (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.

### **MNHA HEALTH EXPENDITURE REPORT 1997 TO 2015**

In 2016, MNHA published the fifth Malaysia NHA Health Expenditure time series report (1997 to 2015). This time series report captures and reports data for 19 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 (**Image 9**).

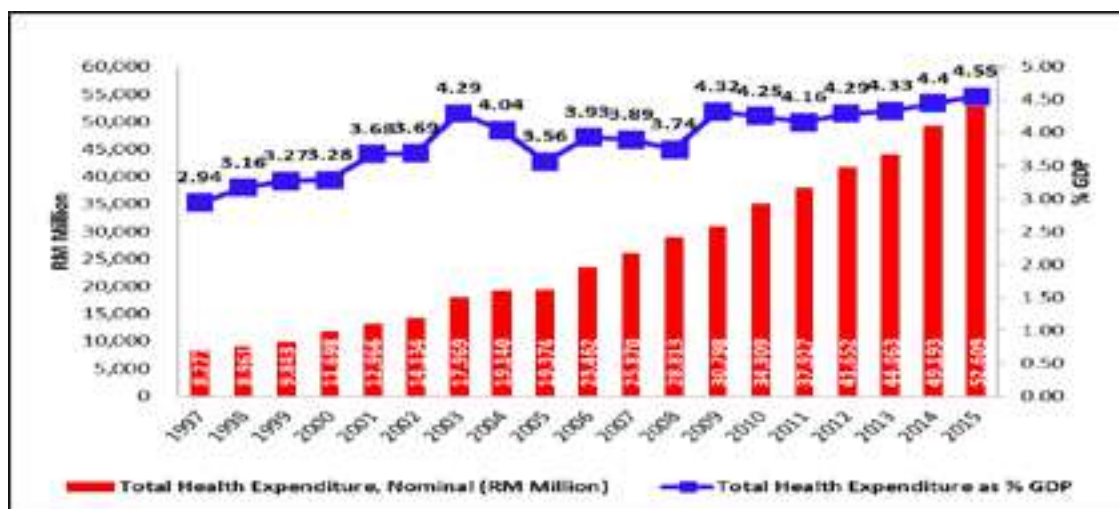
**Image 9**  
**MNHA Health Expenditure Report 1997 to 2015**



Source: MNHA Unit, Planning Division, MoH

Malaysia's total expenditure on health (TEH) ranged from RM8,277 million in 1997 to RM52,608 million in 2015. This expenditure as a ratio to Gross Domestic Product (GDP) for the same period ranged from 2.94 per cent to 4.55 per cent (**Figure 1**). The Total General Government Health Expenditure (GGHE) as percentage of General Government Expenditure (GGE), increased from RM4,318 million in 1997 to RM27,078 million in 2015 or an increase from 4.79 per cent to 6.67 per cent.

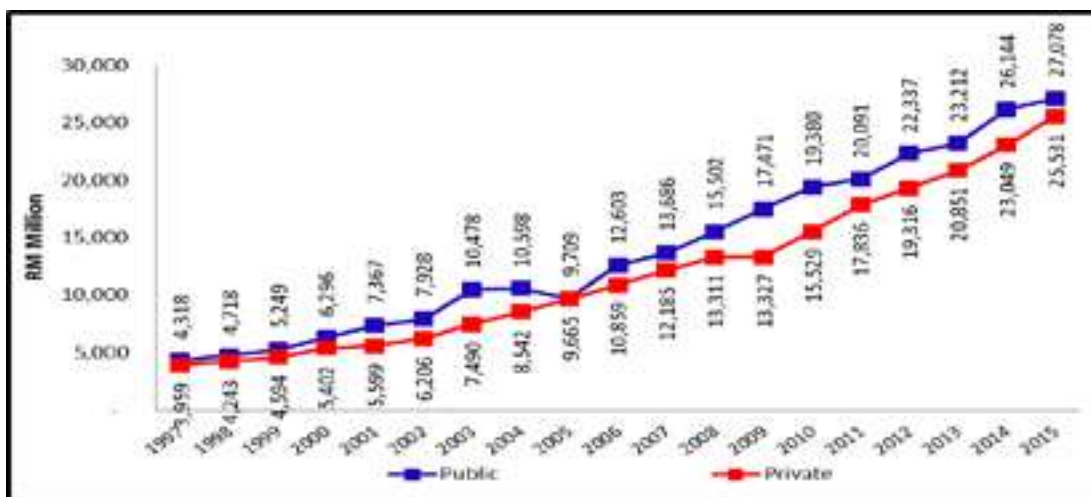
**Figure 1**  
**Total National Health Expenditure, 1997-2015 (RM Million & %GDP)**



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 to 2015 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 (Figure 2). During the same time period MoH was identified as the highest financier followed by private household Out-of-Pocket (OOP).

**Figure 2**  
**Total Health Expenditure by Sources of Financing (Public vs. Private), 1997 to 2015**



Source: MNHA Unit, Planning Division, MOH

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 19 years from 1997 to 2015, highest expenditure for health was at hospitals as providers of health care services followed by providers of ambulatory health care.

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 to 2015 time series TEH by functions/services/medical goods purchased, curative care remain the highest health services expenditure ranging between 51 to 67 percent. This is followed by expenditure for Health program administration and health insurance which ranged between 9-13 percent 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 RM8,967 million and in Kuala Lumpur the health expenditure was RM6,684.

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 to 2015 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 76 per cent of this sector spending which is equivalent to about 31 to 39 per cent of total health expenditure. The OOP health expenditure from 1997 to 2015 has increased from RM2,934 million to RM19,852 million.

The annual publication of NHA technical report provides valuable information for various health transformation endeavours 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**

On behalf of the Planning Division, MNHA continued to be involved with many National and International projects/programmes. MNHA played an important role in analysing and extracting data to assist in several National Projects such as Malaysia Health System Research, MoH's publication: Health Facts, data requests in preparation for Healthcare Sector Transformation activities, 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.

At international level, MNHA actively participated and continue to be involved in international collaborations and data submissions. 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).

As mentioned in earlier MoH reports, MNHA already began to work towards using the revised version of System of Health Accounts (SHA 2011). With the guidance from consultant appointed by WHO, MNHA has progressed in developing the methodology to map and create MNHA 2 classifications/framework. This MNHA 2 classification will be in line with MNHA 1 classifications and local policy needs, while still based on the new international SHA 2011 framework. 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 to 2013 book which contained all MyHDW reports with the expert consultant has been published on September 2013. The Malaysian Health Data Warehouse (MyHDW) 2015 to 2016 Start-up: the first phase of MyHDW involves the incorporation of certain data from each hospitalized patient (inpatient services) and daily treatment covering all hospitals under the Ministry of Health, Private Hospital, University Hospital, and Armed Forces Hospital. This phase was completed on schedule on 16 August, 2016 and it is equipped with a variety of functions that can generate health reports easily, fast, comprehensive and quality.

### **WEB-BASED SMRP**

The in-house developed web-based SMRP continued to be utilised by all MoH hospitals in 2014. Integration between SMRP and National Registration Department (*Jabatan Pendaftaran Negara, JPN*)'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 centralised data collection platform for all hospitals in Malaysia have finally bore fruits of labour. Preliminary agreements have been achieved but system utilisation will only commence after the current web-based SMRP has been upgraded to SMRPv2.0, 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 and Related Health Problems (ICD).**

ICD is an international disease classification endorsed by the World Health Organisation (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 2016 to improve the quality of ICD coding in Malaysia:

- a. ICD-10 Certification Courses. Three (3) certification courses were held.
- b. ICD-9CM Certification Courses. One (1) certification courses were held.
- c. 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). 11 centralized coding workshops were held.
- d. Proper Diagnosis Documentation in PD301 Admission and Discharge Form. The State Health Department were coordinating a 1-hour slot during the pre-service course for all new doctors.
- e. Evaluation of Documentation of Diagnosis workshop. A workshop was conducted to evaluate the Documentation of Diagnosis on PD301 Admission and Discharge Form. Samples of the forms were given by hospitals to be evaluated by the participants of the workshop.

#### **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 2016 focused on coordination of all developed datasets for project development.

#### **iii) Systemized Nomenclature of Medicine-Clinical Terms (SNOMED CT )**

SNOMED CT is a clinical terminology standard owned and maintained by the International Health Terminology Standards Development Organisation (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 in the MyHarmony project to generate health information from unstructured texts to support Big Data Analytics (BDA). Activities in 2016 focuses on development of SNOMED CT Cardiology Reference Set endorsed by Head of Cardiology Service and its implementation in MyHarmony.

#### **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 2016 include stakeholder engagement (high-level managers) with support from IT experts.

#### **v) International Health Terminology Standards Development Organisation (ISO/TC 215: Health Informatic)**

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 organised in 2016 but the Malaysia Delegation were sponsored to attend only one event due to funding issues.

- **Jawatankuasa Kerja Standard Informatik Kesihatan**

One (1) meeting was held in 2016 with the decision to rename the committee to *Jawatankuasa Standard Informatik Kesihatan* and dissolve *Jawatankuasa Kerja ICD* into this committee. This is because *Jawatankuasa Kerja ICD* are more stabilized in its activities and has the same members with *Jawatankuasa Kerja Standard Informatik Kesihatan*.

- **Publication and Health Information Dissemination**

In 2016, 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 Ministry of Health, 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 Immunisation, 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 (2) NHIC meeting were held in 2016.

## **HEALTH FACILITY PLANNING SECTION**

The Health Facility Planning Unit provides medical planning input throughout the process of health facility planning and implementation for the Ministry of Health. This include project identification and selection (macro planning) together with the Development Division as well as providing medical planning input at the various stages of health facility design development.

Provision for medical planning needs of health facility begins with the formulation of the Medical Brief of Requirements (MBoR), followed by participating in the pre-planning project assessment activities to consolidate the project's scope. Those activities include Value Assessment, Value Management and Value Engineering. Subsequently when the design development process takes place the unit, as a member of project team, provide medical planning input to the designers or technical design team (either staff of the Public Works Department or appointed consultants). The Unit is also a member of tender evaluation committee to evaluate design and build projects proposals.



During the construction phase, the unit participates in assessment of contractor's compliance in terms of quality of works and installations. The activities include mock ups assessment, scheduled inspections and pre handing over room to room inspection. As for medical equipment, the unit facilitates and coordinate end users involvement for the approval of proposed technical specifications adherence (TSA) by the contractors. These activities are done to ensure facility adherence to the specified functional and operational requirements.

Apart from the above stated role, the unit also corroborate in the development of health facility planning standards with the project implementing agencies to facilitate and hasten the implementation of future health projects. The unit also provides in-house training for staffs within and outside of the ministry in aspects related to medical planning.

## **ACTIVITIES AND ACHIEVEMENTS**

### **MEDICAL BRIEF OF REQUIREMENTS (MBoR)**

The MBoR specify in brief details on the background and scope of a health facility project from the medical perspective. It's main objective is to guide designers to develop their technical needs statement (architectural, engineering etc.) which would then be incorporated into tender and subsequently contract document. In year 2016, a total of 20 MBoR were issued to the Development Division for projects implementation. The production of MBoR was benchmarked in terms of its production timeframe i.e. within three (3) months for hospital and three (3) weeks for health clinics.

### **PRE PLANNING: VALUE MANAGEMENT**

Value management is conducted for health projects costing more than RM 50 million under the purview of Development Division. Value management of nine (9) new and upgrading projects were successfully concluded in 2016.

### **TENDER EVALUATION**

As part of the technical committee members, the unit issues tender evaluation report for the medical planning aspect to the main technical committee. Tender evaluation reports of eight (8) projects were produced in 2016.

### **DESIGN DEVELOPMENT**

Two (2) main stage in design development requiring medical planning input i.e. early design which includes the Layout Site Plan (LOSP), departmental zonings and layout, and the detail design development which include room data interactions, engineering system evaluation and Group 1 medical equipment requirements. In 2016 the unit has successfully contributed to 17 projects for early design development and 22 projects for detail design development.



## TECHNICAL SPECIFICATION ADHERENCE (TSA)

A total of 307 TSA packages from two projects i.e. Kuala Krai Hospital and Women and Child Hospital Kuala Lumpur were assessed and evaluated for approval. Based on a preset target of 90 per cent of the TSA to be processed within 30 days, an achievement of 99.4 per cent was achieved.

## ROOM-TO-ROOM INSPECTION

A total of 12 projects where room to room inspection were as conducted in 2016,

## TRAINING

In October 2016, a Health Facility Planning Seminar for hospital/health managers was conducted. A total of 90 staffs from all over the country participated.

## DEVELOPMENT OF STANDARD PLAN (PRE APPROVED PLAN)

### STANDARD PLAN OF HEALTH CLINIC: KK TYPE 7

In 2016, the development of the smallest health clinics design namely KK Type 7 Standard Plan was completed. This is in line with the MoH efforts to enhance health services at community level especially in rural areas. Besides that, the facilities provided in KK Type 7 are capable of serving larger population compared to the existing Rural Health Clinics/Klinik Desa which it will eventually replace. There are 2 design options provided:

- a) Tanjung Plan: Single storey building directly accessible from the ground.
- b) Teratai Plan: Single storey building built on stilt suitable for flood prone areas

The basic information of KK Type 7 pre-approved plans are listed in the **Table 4** below:

**Table 4**  
**The Basic Information of Pre Approved of KK Type 7 Plan**

No	Items	Features/Characteristics
1.	Floor Area	1012 square meter (clinic + 4 units Type G Quarters)
2.	Estimated Land Area	(Building + 10 unit car parks) is about 0.5 to 1 acre
3.	Capacity	25 or more patients per day
4.	Spaces main components	Outpatient Clinic, Maternal & Child Clinic, Emergency, Pharmacy
5.	Proposed projects to use the plan	KK Limau Kasturi, Gua Musang, KK Jejawi Pasir Mas, KK Kg Labu, Jerantut
6.	Projects status	Approved projects for implementation in Rolling Plan 2, RMK11

Source: Health Facility Planning, Planning Division, MoH

**Image 10**  
**An Artist's Impression of KK Type 7 (Tanjung Plan)**



*Source: Health Facility Planning, Planning Division, MoH*

**Image 11**  
**An artist's impression of KK Type 7 (Teratai Plan)**



*Source: Health Facility Planning, Planning Division, MoH*

**Image 12**  
**Floor Plan of Level 1 KK Type 7**



*Source: Health Facility Planning, Planning Division, MoH*

**Image 13**  
**Floor Plan of Level 2 KK Type 7 (Staff quarters 2 units)**



*Source: Health Facility Planning, Planning Division, MoH*

## **WAY FORWARD**

In anticipating health projects in the future, there is a need to standardized hospital design. Hence, the collaboration with the Public Work Department (JKR) to come up with standard room data sheets for common rooms is the first step forward. Besides that, the development of a pre-approved plan (PAP) for hospitals will also help to facilitate the implementation of future hospital projects.

## **ENGINEERING SERVICES DIVISION**

The Engineering Services Division (ESD) comprises of:

- i. Services Branch consisting of Project Implementation Section, Hospital Operations Section, Clinic Operations Section and Biomedical Operations Section.
- ii. Regulatory Branch consisting of Environmental Health Control Section and Private Healthcare Facilities and Services Unit.
- iii. Planning Branch consisting of the Technical Unit, Public Health Engineering Unit and Facility Management Unit.

ESD provides:

- i. Engineering and technical support services for medical & 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. Project implementation of new or upgrading healthcare facilities and engineering system replacement in healthcare facilities,

## PROJECT IMPLEMENTATION

In 2016, Ministry of Health through Engineering Services Division (ESD) continues implementing various categories of physical projects under 10<sup>th</sup> (continuance) and 11<sup>th</sup> Malaysian Plan (10 and 11 MP). The projects involving the construction of new facility, clinic and quarters, upgrading of hospitals and clinics, renovation and refurbishment of hospitals and also upgrading and replacing engineering systems in healthcare facilities.

Overall, there were **148** projects implemented by ESD. Out of it, **80** projects have been completed in 2011 to 2015. There are **22** projects completed by end 2016, while the other **28** projects are in progress and **7** projects are under planning phase. Under 11<sup>th</sup> Malaysian Plan, there are 11 new projects to be implemented. Current status is these **11** projects are still under planning phase.

Further to the above projects, there are also special or complex projects managed by ESD namely the construction of *Klinik Kesihatan Kuala Lumpur* (KKKL) and National Institutes of Health (NIH). **Table 5** shows various projects that have been managed and also completed.

**Table 5**  
**List of Some Projects Implemented in 2016**

Type of projects implemented	Year 2016		
	No. Of Projects	CPC issued	Status
<b>(i) Kesihatan Awam (BP 200)</b>			
a. <i>Projek sambungan</i>	35	3	30 projects completed in 2011 - 2014 2 projects in progress
b. <i>Projek baharu</i>	3	-	3 new projects in planning phase
<b>(ii) Kemudahan Hospital (BP 300)</b>			
a. <i>Projek sambungan</i>	35	1	30 projects completed in 2011 - 2014 3 projects in progress 1 project in planning phase
b. <i>Projek baharu</i>	7	-	7 new projects in planning phase
<b>(iii) Kemudahan Anggota/ Kwarters (BP 900)</b>			
a. <i>Projek sambungan</i>	4	-	3 projects completed in 2011 - 2014 1 project in planning phase
b. <i>Projek baharu</i>	1	-	1 new project in planning phase
<b>(iv) Projek Naiktaraf/ ubahsuai Sistem Kejuruteraan (BP 600)</b>			
a. <i>Projek sambungan</i>	27	3	17 projects completed in 2013 - 2015 4 projects in progress 3 projects in planning phase
b. <i>Projek baharu</i>	-	-	
<b>(v) Sinking Fund</b>			
a. <i>Projek sambungan</i>	32	15	17 projects in progress

Type of projects implemented	Year 2016		
	No. Of Projects	CPC issued	Status
<b>b. Projek baharu</b>	-	-	
<b>(vi) Projek Khas</b>			
<b>a. Pembinaan Klinik Kesihatan Kuala Lumpur</b>	1	-	project in progress
<b>b. Pembinaan Institut Penyelidikan Kesihatan Bersepadu (IPKB) Setia Alam</b>	1	-	project in progress
<b>c. Pembaikan Kuarters</b>	2	-	2 projects in planning phase
<b>TOTAL</b>	<b>148</b>	<b>22</b>	<b>80 Projects completed in 2011 to 2015</b>
			<b>Remainder 28 projects in progress</b>
			<b>Remainder 18 new projects in planning phase</b>

Source: Engineering Services Division, MoH

In implementing all the projects, ESD also has to manage 127 consultant firms from various field including architecture, civil and structure, mechanical, 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 2.17 billion** in implementing these various projects.

## HOSPITAL SUPPORT SERVICES MONITORING

The idea of outsourcing the public healthcare of Malaysian Ministry of Health (MoH) was raised in 1996 by the Government while announcing the Seventh Malaysia Plan in which to increase the efficiency of services and to retain its own qualified and experienced manpower.

The Privatised Hospital Support Services (HSS) consists of 5 services that are:

- i. Facility Engineering Management Services (FEMS)**  
Facility Engineering Management Services (FEMS), the Company are required to operate and maintain all installed plants and systems, maintain all assets (non-biomedical), including carry out pest control activities and maintain the grounds and landscapes.
- ii. Biomedical Engineering Management Services (BEMS)**  
Biomedical Engineering Management Services (BEMS) at the Contract Hospital is aimed to ensure biomedical equipment are available, safe, and ready for use at any point of time.
- iii. Clinical Waste Management Services (CWMS)**  
Clinical Waste Management Services (CWMS) regulate the collection, storage, transportation, treatment and disposal of Clinical Waste produced by the Contract Hospital.

**iv. Cleansing Services (CLS)**

Provide the Cleansing Services (CLS) and required to develop appropriate programs within industry standards, which not only comply with various regulations and guidelines of the Government, but also incorporate proper and effective procedures to carry out cleansing activities.

**v. Linen and Laundry Services (LLS)**

Linen and Laundry Services (LLS) is 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 Concession's Laundry Facilities.

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 to 2014) of the number of hospitals and institutions by concession companies are shown in **Table 6**. Meanwhile **Table 7** shows the current statistics of number hospitals and institution based on new contract. **Table 8** shows the comparison of asset numbers of HSS between 1997, 2011 till 2016.

**Table 6**  
**Number of Hospitals & Institutions by Concession Companies (1997 to 2014)**

Concession Company	Numbers of Hospitals and Institutions						
	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
<b>TOTAL</b>	<b>127</b>	<b>147</b>	<b>147</b>	<b>147</b>	<b>148</b>	<b>148</b>	<b>148</b>

Source: Engineering Services Division, MoH

**Table 7**  
**Number of Hospital and Institutions by Concession Companies (2016)**

Concession Company	Numbers of Hospital & Institutions
Radicare Malaysia Sdn Bhd	46
Edgenta Mediserve Sdn Bhd	32
Medivest Sdn Bhd	22
Sedafiat Sdn Bhd	26
One Medicare Sdn Bhd	22
<b>TOTAL</b>	<b>148</b>

Source: Engineering Services Division, MoH

**Table 8**  
**Number of Assets for HSS 1997 to 2016**

ITEM	1997	2011	2012	2013	2014	2015	2016
<b>Number of Hospital &amp; Institution</b>	127	147	148	148	148	148	148
<b>Floor Area (m2)</b>	4,297,523	4,692,089	4,633,788	4,633,788	6,111,210	6,111,210	6,111,210
<b>FEMS Assets</b>	Est. 250,000	420,327	388,198	390,482	431,226	441,620	492,493
<b>BEMS Assests</b>	81,254	210,454	193,590	187,946	197,005	266,697	278,032

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 Programme which includes Energy Management, Indoor Air Quality and 3R (Reduce, Reuse and Recycle) at the respective Contract Hospital in accordance with the requirements.

For 2016, Energy Management, apart from sub-meter installation in 83 hospitals, 33 hospitals have been conducting energy audits and 19 hospitals have been successfully awarded with 1 Star AEMAS Certification. Whereas, the Indoor Air Quality Program, the ministry has determined that no declaration of sick building syndrome for the building. A total of 68 hospitals and institutions have conducted detail IAQ Assessment and 115 hospitals have been conducting monthly walk-through inspection. Meanwhile Reduce, Reuse and Recycle, 3R Program, 45 stores have been built and 895 bins were purchased for the year 2016. The amount of recyclable material that has been collected is 180,868.35 Kg with total revenue of RM 55,451.62.

Fire safety audits have been carried out at 46 hospitals & institutions aged over 50 years to identify risk and danger of fire occurring and to ensure all healthcare facilities under HSS are safe from all fire hazards. Fire safety audits will be continued in the next year for the remaining 102 other hospitals and institutions.

- **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 analysed 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 by the State Operation Engineer in the CPA Report. **Table 9** shows the Contractor’s Performance Assessment (CPA).

**Table 9**  
**Contractor Performance Assessment (CPA)**

Concession Company	CPA Marks (%)
Radicare Malaysia Sdn Bhd	87.46
Edgenta Mediserve Sdn Bhd	89.26
Medivest Sdn Bhd	68.32
Sedafiat Sdn Bhd	87.66
One Medicare Sdn Bhd	77.88

Source: Engineering Services Division, MoH

- **Key Performance Indicator (KPI)**

Hospital Operation Section also develops a KPI which are referring to percentage of equipment, systems, facilities to achieve uptime for Facilities Engineering Maintenance Services (FEMS) and Biomedical Engineering Maintenance Services (BEMS).

Medical equipment and systems, and facilities at the hospital should be ensured to be functional and can be used in the delivery of effective health services. In line with the motto of the “People First, Performance Now”, it is important for the maximum level to prevent the delivery of services to patients and consumers affected.

Achieving maximum uptime of equipment, systems and facilities for the year of 2016 is 98.09 per cent where 92.00 per cent is acceptable for equipment, systems and facilities being monitored. Not achieving the uptime target due to ageing factor, major repairs and other reasonable causes of breakdown. **Table 10** shows “Equipment to Achieve the Specified Uptime for Each Equipment for 2013 to 2016”

**Table 10**  
**Equipment to Achieve The Specified Uptime for Each Equipment for 2013 to 2016**

Items	2013	2014	2015	2016
Number of equipment / systems / facilities achieve uptime	442,695	461,352	417,498	430,595
The total number of equipment / systems / facilities that are monitored in the QAP PSH	477,235	510,752	428,909	438,972
% of equipment / systems / facilities to achieve uptime	92.76	90.33	97.34	98.09
Target % e of equipment / systems / facilities to achieve uptime	92.00	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 expanded and implemented throughout the country by adding 11 more 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 11** provides summary information on the above projects.

**Table 11**  
**Summary Information on Clinic Support Services Pilot Projects (CSS) and Repair & Upgrading Works for Health Clinics**

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 Sep 2014 – 31 Ogos 2015 (Extension)	10
		RM23.1	1 Februari 2016-31 Disember 2018	10
SARAWAK	FEMS, BEMS, CWMS & CLS	RM14.7	15 March 2012 – 14 March 2013 (Pilot)	17
		RM 41.2	15 Ogos 2013 -14 Ogos 2016 (Extension)	17
		RM 14.5	15 Ogos 2016 – 14 Ogos 2017 (Extension)	17
		RM 61.5	1 Disember 2016 – 30 November 2019	21
SABAH	FEMS, BEMS, CWMS & CLS	RM 24.7	15 Nov 2013- 14 Nov 2015 (Pilot)	20
		RM 11.7	15 April 2016- 14 April 2017	20
PERLIS	FEMS, CWMS & CLS	RM 4.5	1 Jul 2015 – 30 Jun 2018	2
KEDAH	FEMS, CWMS & CLS	RM 20.4	1 Jul 2015 – 30 Jun 2018	13
PULAU PINANG	FEMS, CWMS & CLS	RM 19.8	1 Jul 2015 – 30 Jun 2018	9
PERAK	FEMS, CWMS & CLS	RM 24.9	1 Jul 2015 – 30 Jun 2018	14
SELANGOR	FEMS, CWMS & CLS	RM 32.9	1 Jul 2015 – 30 Jun 2018	21
W.P KUALA LUMPUR	FEMS, CWMS & CLS	RM 12.2	1 Jul 2015 – 30 Jun 2018	5
TERENGGANU	FEMS, CWMS & CLS	RM 15.5	1 Jul 2015 – 30 Jun 2018	10
KELANTAN	FEMS, CWMS & CLS	RM 12.6	1 Jul 2015 – 30 Jun 2018	7
JOHOR	FEMS, CWMS & CLS	RM 27.7	1 Jul 2015 – 30 Jun 2018	16
MELAKA	FEMS, CWMS & CLS	RM 15.8	1 Jul 2015 – 30 Jun 2018	8
NEGERI SEMBILAN	FEMS, CWMS & CLS	RM 28.0	1 Jul 2015 – 30 Jun 2018	13

Source: Engineering Services Division, MOH

## MEDICAL EQUIPMENT ENHANCEMENT TENURE (MEET) PROGRAMME

### • Implementation of MEET Programme

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: -

- i. 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.
- ii. Auditing program at these selected clinics in each state to observe the effectiveness of program implementation.
  - a. KK/KP Bukit Jambul, Penang
  - b. KK/KP Tengkeru, Melaka,
  - c. KK/KP Tampoi, Johor,
  - d. KK/KP Port Dickson, Negeri Sembilan,
  - e. Kolej Latihan Pergigian Malaysia, Penang, KK/KP Penampang, Sabah
- iii. Workshop on program implementation to State Engineers and Assistant Engineers. Establishing awareness to Engineers and Assistant Engineers who are involved in the program.
- iv. Visit the clinics which are involved in renovation works.
- v. Workshop on developing the Standard Operating Procedures.

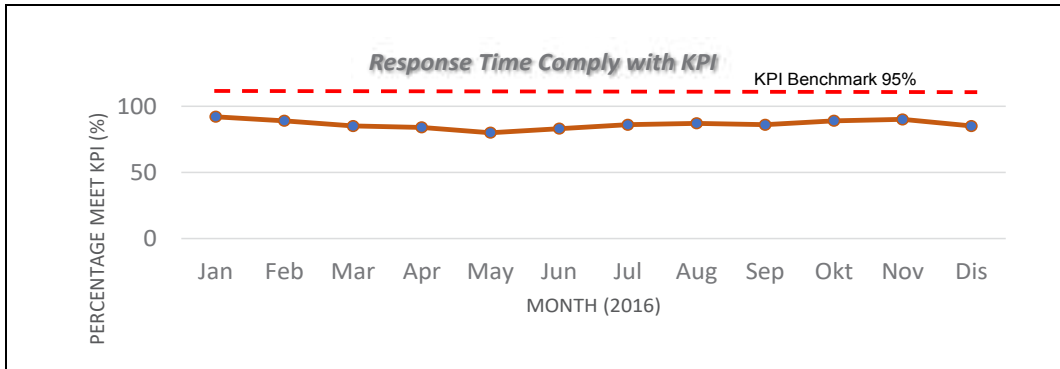
### • Concession Performance Assessment (CPA)

To ensure that the maintenance of biomedical equipment is being carried out properly, QMS has to adhere to 4 agreed Key Performance Indicators (KPI) which are Response Time, Repair Time, Scheduled Maintenance and Uptime Guarantee.

#### i. KPI Response Time

Throughout the year 2016, total of 20,397 work requests were made by the clinics listed under MEET program and total of 17,564 (86 per cent) of the work request were comply with response time KPI. These achievements are still below the KPI target set at 95 per cent. **Figure 3** shows the response time statistics comply with the KPI for the year of 2016.

**Figure 3**  
**Response Time Statistic Comply with KPI for the Year Of 2016**

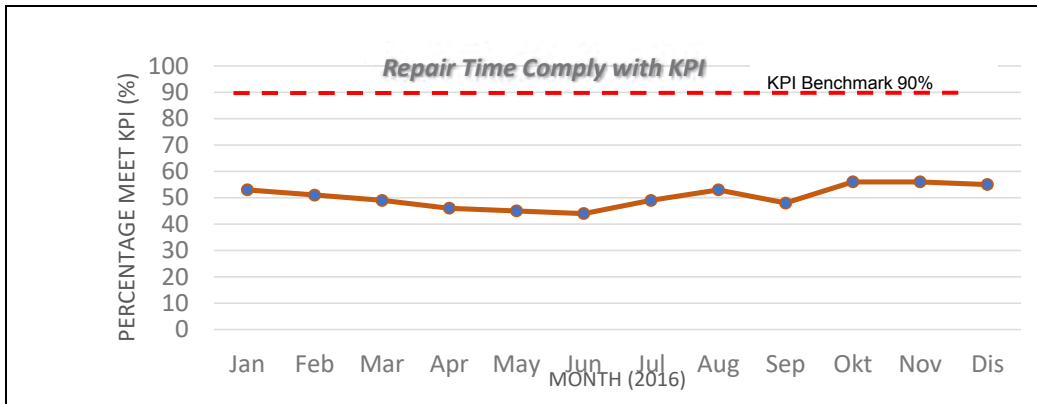


Source: Engineering Services Division, MoH

**ii. KPI Repair Time**

Throughout the year 2016, total of 20,397 work requests were made by the clinics listed under MEET program and total of 10,213 (50 per cent) of the work request were comply with repair time KPI. These achievements are still below the KPI target set at 90 per cent. **Figure 4** shows the repair time statistics comply with the KPI for the year of 2016.

**Figure 4**  
**Repair Time Statistic Comply with KPI for the Year Of 2016**



Source: Engineering Services Division, MoH

**iii. KPI Schedule Maintenance**

Scheduled maintenance (PPM) is the maintenance activities carried out in accordance with a predetermined frequency of maintenance to ensure biomedical equipment is functioning at an optimal level and safe to use.

Total of 69,656 scheduled maintenance has been scheduled in year 2016. A total of 65,435 (93.94 per cent) work orders for scheduled maintenance were successfully completed in the same months which comply with the KPI target (completed within the

scheduled month). **Figure 5** shows the scheduled maintenance activity comply with KPI for year of 2016.

**Figure 5**  
Schedule Maintenance Activity Comply with KPI for the Year Of 2016



Source: Engineering Services Division, MoH

#### iv. KPI Uptime Guarantee

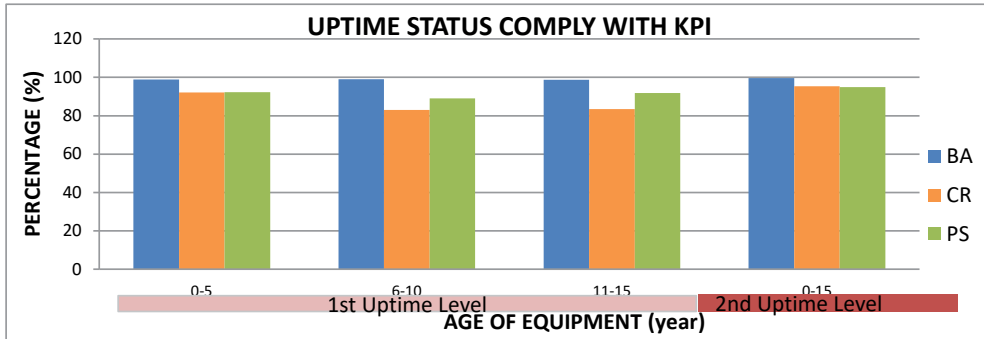
Uptime analysis and calculation is performed based on total of 43,300 equipment after excluding equipment beyond 15 years of age as well as equipment which does not have purchase date information. A total of 9,706 equipment are under the category of Basic Equipment (BA), 1,618 under category of Critical Equipment (CR) and 31,976 equipment under the category of Patient Support (PS). **Table 12** and **Figure 6** show the percentage of achievement (%) complies with KPI Uptime, 1st Level and 2nd Level by equipment group and age of the equipment.

**Table 12**  
Uptime Status for Year 2016

Equipment Group	Total Equipment	Age Of Equipment (Year)	Comply With KPI Uptime 1st Level		Comply With KPI Uptime 2nd Level	
			No. Of Equipment	%	No. Of Equipment	%
BA	9,706	0 to 5	3,452	98.85	9,674	99.67
		6 to 10	4,641	99.02		
		10 to 15	1,508	98.76		
CR	1,618	0 to 5	730	92.17	1,543	95.36
		6 to 10	575	82.97		
		10 to 15	111	83.46		
PS	31,976	0 to 5	7,828	92.21	3,063	94.96
		6 to 10	14,522	89.05		
		10 to 15	6,592	91.82		
<b>TOTAL</b>	<b>43,300</b>					

Source: Engineering Services Division, MoH

**Figure 6**  
**Uptime Status for Year 2016**



Source: Engineering Services Division, MOH

- **GAP Equipment Supply Status**

Under the agreement, QMS is also responsible to supply, deliver, install, testing and commissioning of GAP equipment. The procurement of the GAP 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 within a 3 years period.

For year 2016, the supply of GAP equipment has been started on September to November 2016 for batch 1. **Table 13** shows the total number of equipment being supplied to Government clinics in Batch 1 by state

**Table 13**  
**GAP Equipment Supplied in Batch 1**

State	Total Gap Equipment (12 Batches)	Batch 1	Supply (%)
JOHOR	7,083	386	18.62
MELAKA	1,817	137	25.43
N.SEMBILAN	3,324	240	20.79
PULAU PINANG & KLPM	2,979	198	23.13
PERAK	6,299	241	16.75
SELANGOR	5,625	313	19.75
W.P K.LUMPUR	1,704	182	27.82
SARAWAK	7,412	131	7.61
SABAH	4,631	162	11.25
W.P LABUAN	148	7	15.54
<b>JUMLAH</b>	<b>41,022</b>	<b>1997</b>	<b>16.84</b>

Source: Engineering Services Division, MOH

## RURAL WATER SUPPLY

The oldest programme in Engineering Services Division 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 requirements 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 programme throughout the rural areas in Malaysia are the gravity-feed system, sanitary well, sanitary well with house connection, rainwater collection system and connection to public water supply systems (where available).

The development of rural water supply component in the water supply and rural environmental sanitation programme is planned according to the 5 years Malaysia Development Plan. In 2016, a total number of **1,315** water supply systems were installed and provided clean water to **3,342** houses. At the end of 2016, the overall status of rural water supply coverage is at **95.30 per cent**, which represents **1,497,005** rural houses (**Table 14**).

- **Sanitary Latrines**

Initiated together with Rural Water Supply, the target for the programme 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 odours, 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 2016, MoH has constructed a total number of **59** pour flush latrines only. Due to unavailability of development fund for sanitation projects, a small number of pour flush latrines were constructed by using stocks from previous year. The coverage of sanitary latrines at the end of 2016 was at **95.71 per cent** that represents **1,503,433** rural houses (**Table 15**).

- **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 has also been given to proper management of sullage and solid waste in rural areas so that the disposal of such wastes can be carried out in a sanitary manner. In 2016, a total number of **75** sullage disposal systems (SPAL) and **46** solid waste disposal systems (SPSP) were constructed. Due to unavailability of development fund for sanitation projects, a small number of SPAL and SPSP were constructed by using stocks from previous year. 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 **66.22 per cent (1,040,275)** and **70.25 per cent (1,103,578)** respectively (**Table 15**).

**Table 14**  
**Construction of Rural Water Supply Project by Ministry of Health in 2016**

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	Nos. Built	No. of Houses Supplied		
Perlis	0	0	0	0	0	0	0	0	0	0	205	756	205	205	33,805	98.97
Kedah	4	4	1	2	2	152	0	0	0	0	175	817	182	333	193,676	97.13
P.Pinang	0	0	0	0	0	0	0	0	0	0	105	492	105	105	58,761	95.69
Perak	0	0	0	0	2	138	0	0	0	0	56	257	58	194	123,211	97.27
Selangor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82,390	96.87
N.Sembilan	0	0	0	0	0	0	0	0	0	0	53	203	53	53	60,961	94.07
Melaka	0	0	0	0	0	0	0	0	0	0	13	61	13	13	74,632	100.00
Johor	7	49	0	0	2	77	30	30	30	30	33	172	72	189	149,955	98.11
Pahang	8	21	2	6	4	123	1	4	4	4	49	218	64	203	45,019	96.22
Terengganu	1	1	1	2	0	0	0	0	0	0	91	429	93	94	146,413	97.68
Kelantan	0	0	2	2	4	142	0	0	0	0	358	1,852	364	502	184,603	89.44
Sarawak	0	0	0	0	12	840	13	258	13	258	0	0	25	1,098	191,251	91.48
Sabah	1	14	0	0	4	167	5	101	5	101	71	351	81	353	152,328	95.34
<b>MALAYSIA</b>	<b>21</b>	<b>89</b>	<b>6</b>	<b>12</b>	<b>30</b>	<b>1,639</b>	<b>49</b>	<b>393</b>	<b>49</b>	<b>1,209</b>	<b>5,608</b>	<b>1,315</b>	<b>3,342</b>	<b>1,497,005</b>	<b>95.30</b>	

Source: Engineering Services Division, MoH

**Table 15**  
**Construction of Latrines, Sullage and Solid Waste Disposal System by Ministry of Health in 2016**

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	34,158	6	33,483	98.02	0	21,851	63.97	0	20,961	61.36
Kedah	199,404	0	195,457	98.02	0	134,379	67.39	0	160,709	80.59
P.Pinang	61,407	0	60,607	98.70	10	54,511	88.77	0	57,931	94.34
Perak	126,673	1	122,363	96.60	0	74,778	59.03	0	73,432	57.97
Selangor	85,053	0	78,186	91.93	0	73,221	86.09	0	73,688	86.64
N.Sembilan	64,802	0	60,686	93.65	0	46,578	71.88	0	45,446	70.13
Melaka	74,632	0	74,594	99.96	0	68,134	91.30	0	68,476	91.76
Johor	152,848	9	149,896	98.07	0	145,963	95.50	0	146,250	95.68
Pahang	46,789	6	43,832	93.68	10	28,661	61.26	14	30,161	64.46
Terengganu	149,888	0	149,562	99.78	55	94,140	62.81	32	100,788	67.24
Kelantan	206,390	0	204,482	99.08	0	92,626	44.88	0	113,561	55.02
Sarawak	209,066	37	191,175	91.44	0	115,294	55.15	0	110,866	53.03
Sabah	159,775	0	139,110	87.07	0	90,139	56.42	0	101,309	63.41
<b>MALAYSIA</b>	<b>1,570,885</b>	<b>59</b>	<b>1,503,433</b>	<b>95.71</b>	<b>75</b>	<b>1,040,275</b>	<b>66.22</b>	<b>46</b>	<b>1,103,578</b>	<b>70.25</b>

Source: Engineering Services Division, MoH

- **National Drinking Water Quality Surveillance Programme (NDWQSP)**

Guidelines for the implementation of an effective, systematic and comprehensive National Drinking Water Quality Surveillance Programme (NDWQSP) were formulated with the co-operation of agencies such as World Health Organization (WHO), Public Works Department, Department of Chemistry and Department of Environment in early 1980's. These guidelines were the foundation for the launching of the NDWQSP in 1983.

The principal objective of NDWQSP is to enhance public health standard by ensuring the safety and acceptability of the drinking water provided to the consumer by reducing the incidence of water borne diseases or other effects associated with poor public water supplies through effective surveillance. This programme ensures that public health and water work personnel will be alerted in time if the quality of drinking water is deteriorating. This will enable them to take preventive or remedial measures before any major outbreak of disease or poisoning can occur.

The NDWQSP which has been adopted by all states since 1986 provides a mechanism towards improving drinking water quality through five elements of the programme, i.e., monitoring,



sanitary survey, data processing and evaluation, remedial action and institutional examination. Since the implementation of the programme, the drinking water quality in the country has generally improved and the current status of drinking water can be readily assessed.

To further enhance the effectiveness of the programme, a Quality Assurance Programme (QAP) for NDWQSP was launched in December 1992 and implemented nationwide in January 1993. The QAP standards is set based on 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 2016, a total of 189,054 water samples taken and to which it is divided into Group 1 of 136,761 samples, Group 2 of 30,759 samples, Group 3 amounted to 12,821 and total of 8,713 water samples for Group 4.

This involves monitoring water samples of 500 water treatment plants (source: Malaysian Water Industry Guide 2016) and 538 water courses, while 134 sanitary surveys have been implemented throughout the whole Malaysia. The water sampling performance for 2016 is shown in **Table 16**, while **Table 17** indicates the performance of QAP in 2016.

**Table 16**  
**Summary of Sampling Performance for 2016, Malaysia**

State	Group 1			Group 2			Group 3			Group 4		
	A	B	C (%)	A	B	C (%)	A	B	C (%)	A	B	C (%)
Johor	20,156	18,842	99.42	4,456	4,456	99.2	1,344	1,342	97.18	850	850	100
Kedah	10,220	9,842	99.87	2,170	2,161	99.59	930	924	99.35	605	576	95.21
Kelantan	7,732	7,485	99.69	1,662	1,648	99.16	668	645	96.56	460	430	93.48
Melaka	4,624	4,562	100	954	954	100	442	442	100	259	259	100
Negeri Sembilan	7,008	6,757	99.99	1,458	1,452	99.59	686	664	96.23	441	441	100
Pahang	17,443	16,559	100	3,860	3,842	100	1,446	1,446	100	1,039	1,039	100
Pulau Pinang	3,736	3,737	100.03	726	726	100	452	452	100	262	262	100
Perak	12,256	11,936	99.95	2,566	2,561	99.81	1,176	1,176	100	768	768	100
Perlis	1,304	1,224	100	284	284	100	116	116	100	90	90	100
Selangor	17,132	15,748	97.16	3,772	3,657	96.95	1,800	1,766	98.11	1,318	1,298	97.37
Terengganu	6,636	6,396	100	1,436	1,428	100	500	500	100	304	304	100
Sabah	13,348	11,759	90.19	2,950	2,572	86.69	1,236	1,144	92.41	871	807	92.33
Sarawak	17,092	15,448	93.97	3,672	3,227	87.88	1,624	1,386	85.34	1,217	974	80.03
<b>PEN. MALAYSIA</b>	<b>138,687</b>	<b>130,295</b>	<b>1,280.27</b>	<b>29,966</b>	<b>28,968</b>	<b>1,268.87</b>	<b>12,420</b>	<b>12,003</b>	<b>1,265.18</b>	<b>8,484</b>	<b>8,098</b>	<b>1258.42</b>
WP Kuala Lumpur	2,728	2,537	96.76	558	520	93.19	266	253	95.11	151	151	100
WP Putrajaya	492	468	100	102	102	100	44	43	97.73	24	24	100
WP Labuan	496	464	94.31	106	97	91.51	48	30	62.5	36	20	55.56
<b>TOTAL</b>	<b>142,403</b>	<b>133,764</b>	<b>97.81</b>	<b>30,732</b>	<b>29,687</b>	<b>96.51</b>	<b>12,778</b>	<b>12,329</b>	<b>96.16</b>	<b>8,695</b>	<b>8,293</b>	<b>95.18</b>

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 17**  
**Performance of QAP for National Drinking Water Quality Surveillance Programmes for 2016, Malaysia**

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	16,523	4	0.02	16,534	14	0.08	16,556	5	0.03	16,546	59	0.36	3,909	370	9.47
Kedah	7,927	2	0.03	7,945	5	0.06	7,935	78	0.98	7,935	57	0.72	1,608	91	5.66
Kelantan	5,983	10	0.17	5,991	12	0.20	5,992	584	9.75	5,992	143	2.39	1,294	119	9.20
Melaka	4,042	0	0.00	4,042	0	0.00	4,042	74	1.83	4,042	99	2.45	845	77	9.11
Negeri Sembilan	5,492	2	0.04	5,492	7	0.13	5,590	36	0.64	5,590	98	1.75	1,175	99	8.43
Pahang	12,397	0	0.00	12,397	1	0.01	12,409	316	2.55	12,409	108	0.87	2,820	479	16.99
Pulau Pinang	3,165	0	0.00	3,165	0	0.00	3,165	4	0.13	3,165	8	0.25	546	12	2.20
Perak	9,483	0	0.00	9,554	3	0.03	9,599	2	0.02	9,566	8	0.08	1,890	129	6.83
Perlis	840	0	0.0	840	0	0.00	840	21	2.50	840	7	0.83	188	28	14.89
Selangor	13,543	1	0.01	13,602	6	0.04	13,813	11	0.08	13,811	81	0.59	2,983	139	4.66
Terengganu	5,715	2	0.03	5,715	2	0.03	5,715	34	0.59	5,715	39	0.68	1,265	76	6.01
Sabah	6,652	14	0.21	6,771	14	0.21	7,347	166	2.26	7,342	274	3.73	1,248	170	13.62
Sarawak	6,238	10	0.16	7,340	24	0.33	8,175	208	2.54	9,575	864	9.02	1,380	414	30.00
WP Kuala Lumpur	2,153	0	0.00	2,155	0	0.00	2,161	3	0.14	2,161	15	0.69	465	46	9.89
WP Putrajaya	444	0	0.00	457	0	0.00	457	0	0.00	444	0	0.00	99	1	1.01
WP Labuan	134	0	0.00	140	0	0.00	260	11	4.23	252	4	1.59	43	3	6.98
<b>TOTAL</b>	<b>100,731</b>	<b>45</b>	<b>0.04</b>	<b>102,140</b>	<b>88</b>	<b>0.09</b>	<b>104,056</b>	<b>1553</b>	<b>1.49</b>	<b>105,385</b>	<b>1864</b>	<b>1.77</b>	<b>21,758</b>	<b>2253</b>	<b>10.35</b>

Note: A = Number of samples to be analysed

B = Number of samples violated

C = Percentage of samples violated (%)

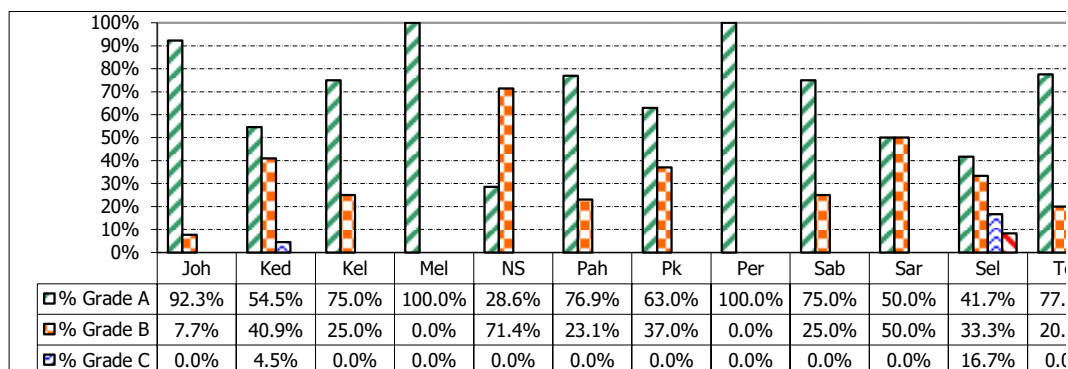
Source: Engineering Services Division, MoH

- **Sanitation Monitoring of Centres in Tourism**

The tourism industry has grown rapidly and has attracted many tourists to come and visit our attractions and resorts around the country. With this development, the Ministry feels that it is necessary to ensure the level of cleanliness and sanitation in these places through routine monitoring of issues related to environmental health at these centres, so that they can be identified and take appropriate actions when needed. Such measures are necessary to ensure the health status of the people who visit these places and can also help in boosting the tourism industry of the country and contribute to the country's economy.

These monitoring activities are carried out through the PEKA (Environmental Health Safety) Program under the Engineering Services Division, MOH. These centres are evaluated and graded based on existing standards on **drinking water quality**, and guidelines on **solid waste management, drainage, sullage and sewage water disposal** and **toilet hygiene**. In 2016, there are about **178 tourism centres or resorts** that were involved with this program. The grading performance of these centres for 2016 is arranged by states and is shown in **Figure 7**.

**Figure 7**  
**Sanitary Performance of Tourism Centres by States for 2016**



Source: Engineering Services Division, MoH

### NATIONAL ENVIRONMENTAL HEALTH ACTION PLAN (NEHAP)

To address the major environmental health problems and needs for action, 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 in 2016 are as follows:

- **Steering Committee Meeting**

Steering Committee Meeting was conducted twice a year and chaired by the Director General of Health, Datuk Dr. Noor Hisham bin Abdullah. The committee members were representatives from 13 relevant technical agencies, Chairmen of Thematic Working Groups (TWGs), Core Team members and the Liaison Officers from Engineering Services Division. The decisions made in the meetings were as follows (**Table 18**).

**Table 18**  
**NEHAP Steering Committee Meeting**

No.	Meetings	Decisions
1.	NEHAP Malaysia Steering Committee Meeting No. 1/2016 Date: 21 April 2016	<ul style="list-style-type: none"> <li>- The Endorsement of TWGs' Work Plan (TWG 1-8).</li> <li>- The endorsement of TWG 9: Urban Drainage's Action Plan.</li> <li>- The implementation status of State Environmental Health Action Plan (SEHAP) – (Jan 2016 until April 2016)</li> <li>- Progress Report on Environmental Health Information System (MyEHIS).</li> <li>- NEHAP's Malaysia Website Launch</li> </ul>
2.	NEHAP Malaysia Steering Committee Meeting No. 2/2016 Date: 1 September 2016	<ul style="list-style-type: none"> <li>- Progress Report on TWGs Work Plan (TWG 1-8).</li> <li>- The endorsement of TWG 9: Urban Drainage's Work Plan.</li> <li>- The implementation status of State Environmental Health Action Plan (SEHAP) – (Mei 2016 until August 2016)</li> <li>- The Proposal on Sanitation Safety Plan (SSP).</li> </ul>

Source: Engineering Services Division, MoH

- **Technical Committee Meeting**

The meetings were conducted on 24 March 2016 at Mardi Training Institute, Serdang, Selangor and 11 August 2016, and chaired by the Director of Engineering Services Division. The committee members were representatives from nine (9) TWGs Chairmen, Core Team members and the Liaison Officers from Engineering Services Division. Both meetings focused mainly on the progress of the TWGs Work Plans. The meetings also discussed on the development of Malaysia Environmental Health Information System (MyEHIS) as preparation before being presented to the Steering Committee for further endorsement.

**Image 14**  
**Technical Committee Meeting No. 1/2016**



*Source: Engineering Services Division, MoH*

- **Thematic Working Groups**

A total of nine (9) TWG meetings were held between January to December 2016 which involved 30 agencies related to environment and health. The main agenda of the TWGs were to discuss and follow up the status of TWGs' work plan implementation which has been approved in early 2016. The TWGs for the respective area of concern were as follows (**Figure 8**):

**Figure 8**  
**TWG and Lead Agency**

TWG & Lead Agency	
	AIR QUALITY – Department of Environment
	WATER, SANITATION AND HYGIENE – Ministry of Energy, Green Technology and Water
	SOLID WASTE – Department of Solid Waste and Public Cleansing
	TOXIC CHEMICALS AND HAZARDOUS SUBSTANCES AND WASTE – Department of Environment
	CLIMATE CHANGE, OZONE DEPLETION AND ECOSYSTEM CHANGE – Ministry of Natural Resources and Environment
	CONTINGENCY PLANNING, PREPAREDNESS AND RESPONSE IN ENVIRONMENTAL HEALTH EMERGENCIES – Ministry of Health
	HEALTH IMPACT ASSESSMENT – Ministry of Health
	INFORMATION COMMUNICATION TECHNOLOGY (ICT) – Ministry of Health
	URBAN DRAINAGE – Ministry of Urban Wellbeing, Housing and Local Government

Source: Engineering Services Division, MoH

- **Workshop for Preparation of TWGs' Work Plan**

A workshop was successfully organized by the Secretariat NEHAP Malaysia on 23 March 2016. This brainstorming session's objective was to prepare the draft of the work plans for all TWGs. The meeting was attended by the TWGs Chairmen and members, Liaison Officers, Core Team members and relevant agencies of the respective areas of concern.

- **NEHAP Conference**

The National Conference on Environmental Health Action Plan (NEHAP) Malaysia 2016 was successfully held on the 29 September 2016 at Putrajaya International Convention Centre (PICC), Putrajaya. This conference has been organized by the Secretariat NEHAP Malaysia with the assistance from Section NEHAP and Environment Control Section (KAS), Planning Branch and the Administration Unit of Engineering Services Division. In addition, the conference also saw the contribution by various Divisions and Units such as the Corporate Communications Unit, Protocol Unit, Division of Nutrition, Health Education Division and Division of Management Services.

With the theme of "Partnership in Environmental Health: Towards Achieving Sustainable Development Goals (SDG)", the conference aim in strengthening collaboration and cooperation among the agencies involved in improving environmental quality and human health in line with the SDG the goals. The conference also provided a platform for papers presentation that is a thematic paper from the Chief Executive Officer of National Water Services Commission (SPAN) and SDG from the MoH's Deputy Director General (P&ST) and technical papers related to the field of environmental health.

NEHAP Conference 2016 created its own history when the Minister of Health, YB Datuk Seri Dr. S. Subramaniam officiated the conference. A total of 150 participants from various federal government agencies including Sabah and Sarawak representatives participated in the conference. Furthermore, calculation of the Carbon Footprint was also done at the end of session of the conference.

**Image 15**  
**NEHAP Conference 2016 (PICC, Putrajaya, 29 September 2016)**



*Source: Engineering Services Division, MoH*

- **NEHAP Sabah Chapter**

On 3 May 2016 and 12 July 2016, Sabah State Government and State Health Department had successfully organised two (2) Steering Committee Meetings for Sabah Chapter. The meetings were chaired by Sabah Deputy State Secretary (Development), Datuk Paunis@Joseph Yuntaavid.

Besides that, a workshop was conducted on 4 to 5 May 2016. The objective of the workshop was to discuss further on the action plan for six (6) 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 to assist the action plan was prepared in accordance to NEHAP Guidance Document.



**Image 16**  
**NEHAP Sabah Chapter Steering Committee Meeting No. 1/2016**  
**(Sabah Deputy State Secretary (Development) Office, 3 May 2016)**



*Source: Engineering Services Division, MoH*

- **NEHAP Sarawak Chapter**

Courtesy call and early discussion on NEHAP Sarawak Chapter was conducted on 14 October 2016 at Sarawak State Government Office, chaired by Deputy Secretary of Sarawak State Government, Dato' Jaul Samion.

Through the meeting, the State Government has agreed to the implementation of NEHAP Sarawak Chapter. Further, the meeting agreed that the implementation stage for Sarawak Chapter will have two (2) levels of committees, the Steering Committee and the TWGs.

**Image 17**  
**Courtesy Call to Sarawak State Government Office (14 October 2016)**



*Source: Engineering Services Division, MoH*

## ENVIRONMENTAL HEALTH PROTECTION PROGRAMME

- **Indoor Air Quality**

In 2016, the Air Quality Unit, NEHAP Section, Engineering Services Division carried out Indoor Air Quality (IAQ) sampling and monitoring activities at the Headquarters (IPKMM) of the Ministry of Health, Putrajaya, involving 5 blocks in Complex E. IAQ sampling and monitoring activities was also conducted at eleven (11) State Health Department (JKN) offices. Besides, the Unit also conducted investigation sampling at KLIA Health office as requested.

The activities are divided into 4 sessions; (i) briefing to the occupants of the building, (ii) walkthrough inspection of the building, (iii) sample taking, and (iv) 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, Malaysia.

**Image 18**  
**Indoor Air Quality, 2016**



**Briefing Activity**



**Walkthrough Inspection**



**Sample Measurement in AHU Room**



**Sample measurement on site**

*Source: Engineering Services Division, MoH*



In total 13 parameters were monitored in IAQ sampling as stated **table 19** below:

**Table 19**  
**IAQ Parameter**

No	Parameter	Acceptable Limit/Range	Reference
1	Carbon monoxide (CO)	10 ppm	Industry Code Of Practice On Indoor Air Quality (ICOP, IAQ) 2010
2	Carbon dioxide (CO <sub>2</sub> )	1000ppm	ICOP, IAQ 2010
3	Temperature	23 - 26 ° C	ICOP, IAQ 2010
4	Relative humidity (RH)	40% - 70%	ICOP, IAQ2010
5	Air movement	0.15 – 0.50 m/s	ICOP, IAQ 2010
6	Ozone (O <sub>3</sub> )	0.05 ppm	ICOP, IAQ 2010
7	Particulate matters PM <sub>10</sub> (inhalable)	0.15 mg/m <sup>3</sup>	ICOP, IAQ 2010
8	Particulate matters PM <sub>2.5</sub> (respirable)	0.035 mg/m <sup>3</sup>	EPA, US 1997
9	Total volatile organic carbon (TVOC)	3.0 ppm	ICOP, IAQ 2010
10	Formaldehyde (HCHO)	0.1 ppm	ICOP, IAQ 2010
11	Total Bacteria Count	500 cfu/m <sup>3</sup>	ICOP, IAQ 2010
12	Total Fungal Count	100 cfu/m <sup>3</sup>	ICOP, IAQ 2010
13	Ventilation per person	8.5 l/s	American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1

Source: Engineering Services Division, MoH

From **Figure 9** for IPKKM blocks, compliance to the 13 parameters showed the highest is for E3 (93.1 percent) followed by E1 (92.3 percent), E7 (85.9 percent), E10 (85.3percent) and E6 (84.6 percent). American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1

**Figure 9**  
**Percentage Of IAQ Compliance Towards Measured Parameters For IPKKM**



Source: Engineering Services Division, MoH

JKN can be categorised into four (4) main categories according to the building types. The four (4) categories are:

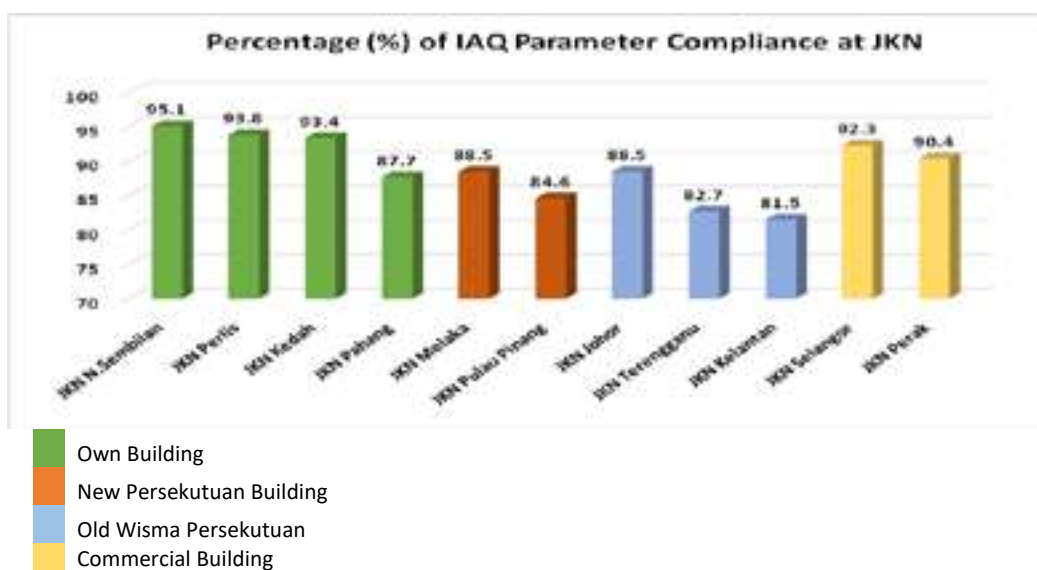
Type of building	List of JKN
Own building	JKN Negeri Sembilan, JKN Perlis, JKN Kedah, JKN Pahang
New <i>Persekutuan Building</i>	JKN Melaka, JKN Pulau Pinang
Old <i>Wisma Persekutuan Building</i>	JKN Johor, JKN Terengganu, JKN Kelantan
Commercial Building	JKN Selangor, JKN Perak

Source: Engineering Services Division, MoH

**Figure 10** showed the percentage of 13 IAQ parameters compliance. The highest compliance for own building is JKN Negeri Sembilan (95.1 per cent). Meanwhile, for New *Persekutuan Building* type, the highest compliance is JKN Melaka (88.5 per cent). JKN Johor (88.5 per cent) showed the highest compliance for category of Old *Wisma Persekutuan Building*. And for the Commercial Building type, the highest compliance is JKN Selangor (92.3 per cent).

In summary, the higher compliance can be related to the age of the buildings. Maintenance of MVAC ducts and AHU rooms of JKN in its own buildings play a role too. Improvement and maintenance works is easier. JKN that rented space from JKR or in a commercial complex needed the cooperation of the owner's building maintenance company to do routine maintenance.

**Figure 10**  
Percentage of IAQ Compliance Versus Measured Parameter by JKN



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 2016, the Unit had received 12 EIA Report 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**

PEKA was established with the following objectives:

- Creating an information system to monitor the health effects of all activities related to solid waste, water pollution, ambient and indoor air pollution to enable the development, planning and implementation of programmes in protecting public health.
- Prevent the pollution of water sources mainly used for water supply by introducing the use of proper waste water management system for all areas of project development, operation and maintenance.

In summary, there are three (3) modules that need to be implemented in PEKA activities:

- Environmental Health Profile Data Collection and Mapping
- Completing Health Risk Assessment (HRA) Matrix and
- Environmental Health Risk Management

In 2016, three (3) pilot states (Melaka, Perak and Sabah) have successfully implemented the first module of PEKA activities by compiling and mapping the environmental health profile of the districts involved.

Efforts have been taken in the development of spatial mapping using GIS tool through a series of discussions with Malaysia Remote Sensing Agency in 2016. This approach will assist PEKA in determining the initial environmental health risk and track how environmental health hazard in our environment impact the health of people and communities. These projects are expected to complete by the end of 2017. Other activities that have been carried out in 2016 are as follows (**Table 20**):

**Table 20**  
**PEKA Activities in 2016**

No.	Activity	Date and Venue	Description
1.	PEKA Road Show (North Zone)	13 April 2016 Alor Setar, Kedah	<ul style="list-style-type: none"> <li>▪ Involved 3 states (Kedah, Penang &amp; Perlis)</li> <li>▪ Introduction and briefing session related to PEKA activities</li> </ul>
2.	HIA Workshop for PEKA Programme (Peninsular Zone)	18 to 19 May 2016 MARDI, Serdang, Selangor	<ul style="list-style-type: none"> <li>▪ Understanding needs of HIA in PEKA Programmes</li> </ul>
3.	HIA Workshop for PEKA Programme (Sabah Zone)	13 to 14 July 2016 Kota Kinabalu, Sabah.	<ul style="list-style-type: none"> <li>▪ Understanding the needs of HIA in PEKA Programmes</li> </ul>
4.	Preparation of HRA Matrix Workshop for PEKA	23 24 August 2016 Ipoh, Perak.	<ul style="list-style-type: none"> <li>▪ Development of HRA Matrix for PEKA Programmes</li> </ul>

Source: Engineering Services Division, MoH

## **WAY FORWARD**

The prominent roles and responsibilities of engineers in the Engineering Services Division together with the medical teams, scientists and expertise realizing the vision of the Ministry of Health, synergized to provide healthcare services to the patients and public thus protecting all involved. There is a need for a continuously long-term apprenticeships for the personnel to improve and upgrade their knowledge, skills and competencies in accordance to global standards and practices. An efficient and effective delivery and processing system for information and services is obligatory in order the Division to fully optimised available infrastructure, equipment and technology in its daily work processes.

## **CONCLUSION**

As a major provider of Engineering and Technical Services to the Medical and Health Programs of the Ministry of Health, the Engineering Service Division will continue to plan, implement, monitor and coordinate preventive health programs through the application of public health engineering principles and methods. The Division 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 area well maintained to appropriate standard.

## **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**

The Institute for Medical Research (IMR), as part of the National Institutes of Health Malaysia, has its core function as the research arm for the Ministry of Health. As a biomedical facility, its main function of conducting research is to identify, elucidate, control and prevent diseases while addressing health issues that may be prevalent in the country.

The other activities of the IMR consist of: diagnostic services, scientific and technical training, and consultative services.

### Research

In 2016, the Medical, Research and Scientific Officers of the Institute were engaged in 59 research projects. The Institute published 113 scientific papers. In addition, staff of the Institute was involved in 152 presentations at local and international conferences and other such events. **Table 21** lists the research projects conducted at the Institute in 2016.

**Table 21**  
**IMR Research Projects 2016**

No	Project Title
1.	Identification of Biomarkers Associated With Disease Severity in Immunoglobulin A Nephropathy Patients
2.	The Identification of Diagnostic Biomarkers to Improve Early Risk Assessment in Malaysian Patients with Ankylosing Spondylitis
3.	Identification and Characterization of Potential Oncogenes and Tumour Suppressor Genes Involved in the Pathogenesis of Oligodendroglioma and Glioblastoma Multiforme Using Next Generation Sequencing
4.	Proteomic Marker of Pyrethroid Resistance in <i>Aedes (Stegomyia) aegypti</i> (Linnaeus) as a Novel Tool in Resistance Detection and Management
5.	Characterization of the Prevailing Sarcocystis Species in Environmental Samples of a Recreational Island: A Preliminary Study
6.	Determination of Antimicrobial Activity of Forensic Fly Larvae via Resazurin-Based Turbidometric Assay
7.	Transcriptomic Analysis of <i>Burkholderia pseudomallei</i> Isolated from Human and Environment Using RNA Sequencing
8.	Gene Expression and Immunomodulatory Studies on Samples from Dengue Virus Infected Mice Treated with <i>Carica papaya</i> Leaf Juice (CPLJ) and <i>Carica papaya</i> Leaf Juice (CPLJ) Freeze Dried Preparation
9.	Influences of Vitamin D Status on Clinical Biomarkers Associated with Metabolic Syndrome (MetS) among Overweight and Obese Housewives
10.	Chemical Constituents in e-Cigarette Liquid Solutions and Aerosols
11.	Sterile Insect Techniques for Dengue Vector Control
12.	Outdoor Residual Spraying for the Control Simian Malaria in Sabah
13.	Zika Virus in Vector Mosquitoes at Selected Sites in Malaysia: Preparedness for Control and Prevention
14.	<i>Orthosiphon stamineus</i> as a Potential Anti-Diabetic Drug in Gestational Diabetes Mellitus
15.	The Effect of <i>Carica papaya</i> Leave Juice (Fresh Juice and Freeze-Dried Preparations) on the Vascular Permeability Level of Dengue Virus Infected AG129 Mice
16.	Epigenetic Studies of Type 2 Diabetes and Diabetic Nephropathy in Malaysian Population
17.	Characterization of Specific microRNAs (has-mir-4301, has-mir-3183, has-mir-324-3p and has-mir-1247-5p) in Latent Tuberculosis Infection Among Healthcare Workers
18.	Molecular Characterization Antifungal Susceptibility Pattern and Taxonomic Studies of Uncommon Fungal Pathogens

No	Project Title
19.	Efficacy of Ethanolic Extract and Freeze Dried <i>Eucheuma denticulatum</i> on in vivo Glucose Tolerance and Diet-Induced Obesity
20.	Detection of pathogenic <i>Leptospira</i> spp. in Environment Samples (Water & Soil), Small Mammals and Ticks Obtained from Selected Recreational Areas in Hulu Langat, Selangor
21.	Evaluating Anti-Infective Compounds from the Extracts of <i>Senna alata</i> and <i>Ocimum basilicum</i> Against Cutaneous Pathogenic Fungi
22.	Determination of Biomarker for Melioidosis and Identification of Specific Antigenic Protein for <i>Burkholderia pseudomallei</i>
23.	Effect of Fresh <i>C. papaya</i> Leaf Juice and Freeze-Dried <i>C. papaya</i> Leaf Juice in Activating Early Response of Dendritic Cells and Immature T-Cells in Thymus and Spleen of Dengue Virus Infected AG129 Mice
24.	Genetic Profiling of <i>P. knowlesi</i> Using Antigenic Molecular Markers and To Study Anti-Malarial Drug Resistance Markers in Human and Macaques Samples
25.	Determination of Volatile and Non Volatile Nitrosamines and Related Compounds in Malaysian Processed and Preserved Foods
26.	Application of Fungal Beta D Glucan as Fungal Biomarker and the Fungal DNA Gene Chip for Detection of Invasive Mycoses in Severely ill and Immunocompromised Hosts
27.	Isolation and Characterisation of Pathogenic <i>Leptospira</i> from Human, Animals and Environment in Various Localities in Selangor and Wilayah Persekutuan
28.	Characterization of Monoclonal Antibodies Against Outer Membrane Proteins of Pathogenic <i>Leptospira</i> as Early Biological Markers of Leptospirosis
29.	Human Leukocyte Antigen (HLA) Associations of Non-Steroidal Anti-Inflammatory Drug Induced Urticaria/ Angiodema
30.	Toxicology Profile of <i>Dioscorea hispida</i> in Rodent and Drug-Herb Interaction
31.	Embryotoxicity Study of <i>Labisia pumila</i> var. <i>alata</i> Extracts in Post-Implantation of ex utero Whole Embryo Culture (WEC) of Sprague Dawley Rats
32.	Enhanced Diagnostic Tool for Diagnosis of Primary Immunodeficiency Diseases in Malaysia
33.	Human Cosavirus Infections in Children Presented with Non-Polio Acute Flaccid Cases
34.	Assessing Tuberculosis Treatment Delay, Treatment Default, Transmission Dynamics and Evaluation of the MyTB Test Kit
35.	Molecular Epidemiological Study of <i>Brucella melitensis</i> Isolated from Human and Animal in Outbreak and Sporadic Cases by Whole Genome Sequencing
36.	Molecular Analysis of Polymixin-Resistant Carbapenemase - Producing <i>Klebsiella pneumoniae</i> from Hospitals in Malaysia
37.	Identification of Novel Genes and Proteins in Host Pathogen Interaction in Pulmonary Tuberculosis and Healthy Contact Persons
38.	Chikungunya Vectorial Capacity of <i>Aedes aegypti</i> and <i>Aedes albopictus</i> in Relation to Disease Transmission and Climate Change
39.	Assessing Effects of Climatic Factors on Dengue Incidence in Malaysia
40.	Assessing the Health Benefits of Air Pollution Reductions Associated With Climate Change Mitigation
41.	Molecular Epidemiological Studies, Virulence Factors and Genomic Diversity of <i>Corynebacterium diphtheriae</i> Isolated in Malaysia
42.	Analysis of Specific Extracellular MicroRNA for Mesenchymal Stem Cell Modification in Liver Cirrhosis
43.	Identification of Novel Biomarkers in B-Cell Lymphoma

No	Project Title
44.	Identification of Clonal Evolution in Relapsed Acute Myeloid Leukaemia Using High Throughput Exome Sequencing
45.	Proteomics and microRNA Profiling for Identification of Putative Biomarkers in Acute Myeloid Leukemia (AML) Patients
46.	Harnessing Whole Exome Sequencing Platform of Mutation Profiling of Cytogenetically Normal Acute Myeloid Leukaemia (CN-AML) in Malaysian Population
47.	Pre-Clinical Efficacy of Engineered Human Adult Stem Cells Expressing Anti-Tumour Agent (TNF-Related Apoptosis Inducing Ligand/TRAIL) Against Lung Cancer
48.	Determination of Loss of Heterozygosity (LOH) for Chromosomes 1p and 19q and Genetic Aberrations for Oligodendroglial Tumours
49.	Cytokines and Chemokines Profiling in Adult Malaysian Acute Myeloid Leukemia (AML) Patients
50.	The Association Between Human Leukocyte Antigen and Nasopharyngeal Carcinoma
51.	Identification of genetic landscape of Childhood Precursor B Acute Lymphoblastic Leukaemia in Malaysia
52.	Identification and Characterization of Cancer Stem Cells in Nasopharyngeal Carcinoma (NPC) Samples
53.	Identification of Markers of Treatment Response and Recurrence in Nasopharyngeal Carcinoma
54.	Sequence Variants of Putative Tumor Suppressor Genes in Nasopharyngeal Carcinoma
55.	In Vitro Evaluation of a Naturally-Occurring Polyphenol for Targeted Therapy of Nasopharyngeal Carcinoma
56.	Production of anthocyanins as chemical markers from <i>Hibiscus sabdariffa</i> L. (Roselle) (Cyanidin-3-O-sambubioside and delphinidin-3-O-sambubioside)
57.	Differentiation of <i>Hibiscus sabdariffa</i> L. (Roselle) Anthocyanin Rich Extract by a Multi Step Infrared Macro-Fingerprint Method for Anti-Obesity Derived Product
58.	Bioavailability of <i>Hibiscus sabdariffa</i> L. (Roselle) in Rats: In Preparation of Tisane as Anti-Obesity
59.	Study on Nutritional Equivalence and Anti-Nutrients of Genetically Modified Food - GM Corn and GM Soya

Source: Institute for Medical Research (IMR), MoH

### Diagnostic Services

As the referral laboratory for the Ministry of Health, the IMR continues to provide and improve clinical laboratory tests. IMR provides specialised and referral diagnostic tests that are generally not carried out in other laboratories. In 2016, IMR provided about 450 tests conducted by 30 laboratories in various Units.

### Scientific and Technical Training

Training activities carried out by the Institute comprise regular courses offered annually as well as *ad hoc* training programmes 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 (DAP&E) and the Diploma in Medical Microbiology (DMM) courses.

The *ad hoc* programmes provided training opportunities for 129 scientists, medical doctors and allied personnel from other departments, locally as well as from foreign institutes. In 2016, the Institute conducted 58 training workshops, 12 seminars and 31 courses.

### **Consultative Services**

Staffs at the IMR provide advisory and consultative services to the Ministry of Health (MoH), other government departments, as well as international organisations. Most Units of the Institute also serve as referral centres to MoH laboratories throughout the country. During the year, 123 staff members provided consultative services at the national level, while 32 staff members provided such services at the regionally and internationally.

The IMR has been designated internationally, regionally and nationally as follows:

- WHO Western Pacific Region Index Medicus (WPRIM) Project - collaborative effort of Western Pacific regional Office (WPRO) with the Global Health Library (GHL) since 2007.
- WHO Regional Centre for Research and Training in Tropical Diseases and Nutrition since 1978.
- WHO Collaborating Centre for Ecology, Taxonomy and Control of Vectors of Malaria, Filariasis and Dengue at the Entomology Unit, IDRC since 1985.
- SEAMEO-TROPMED Regional Centre for Microbiology, Parasitology and Entomology under the South-East Asia Ministers of Education Organization/Tropical Medicine Programme.
- National Influenza Centre at the Virology Unit, IDRC since 1991.
- National Reference Laboratory for the Polio Eradication Programme at the Virology Unit, IDRC since 1992.
- Global Information Hub on Integrated Medicine (*GlobinMed*) at the HMRC.
- Secretariat for the Inter-Islamic Network on Tropical Medicine (INTROM).

## **INSTITUTE FOR PUBLIC HEALTH (IPH)**

Institute for Public Health (IPH) is an organization within the Ministry of Health Malaysia that was established on 1 July 1966. The institute is situated on a 45-acre land along Bangsar Road in Kuala Lumpur. IPH is the first and leading institute in the nation focusing on public health research, training and consultancy for internal and external agencies. In 1997, when the National Institutes of Health (NIH) was formed, IPH became one of its components.

At present, the main function of IPH is population health research that focuses on epidemiological survey research. IPH also provides training and consultancy pertinent to epidemiological survey research.



## RESEARCH ACTIVITY

### NATIONAL HEALTH AND MORBIDITY SURVEY (NHMS) 2016: MATERNAL AND CHILD HEALTH

National Health and Morbidity Survey (NHMS) is a scheduled population-based survey with the aim of supplementing routinely available data on the pattern of health problems, health needs and expenditure in the community. In 2016, the scope on maternal and child health was chosen to identify gaps in the current healthcare delivery for these target population. The survey aimed to assess the health status of under-5 children, particularly immunisation status, their nutritional status including infant feeding, developmental delay and autism. The survey also assessed the care received by women who gave birth in less than two years prior to the survey; which included antenatal, intrapartum and postpartum care, and their morbidities during this period.

A total of 11,845 living quarters (LQ) were selected randomly and all women aged 15-49 years with last child birth in less than two years and their children below five years within the selected LQs were included in the study. Excellent support was provided by all states in the implementation of this survey. Maternal and Child Health officers from all states acted as the state Liaison Officers, provided logistic support and assisted in the publicity of the survey through dissemination of relevant information to various stakeholders, including the public.

Data collection by 62 teams throughout Malaysia started in February 2016 and completed by end of May. Each team comprised of two nurses; who acted as the Team Leader and Clinical Interviewer, two Research Assistants (Q17) as interviewers, and one driver with transport.

Our survey found that 86.4 per cent of children aged 12 to 23 months were verified as completed their primary vaccination, with 4.5 per cent did not complete the schedule and 0.1 per cent were not vaccinated at all. Out of those who did not complete their primary vaccination, 20 per cent gave the reason of 'no time' and 11 per cent due to vaccine refusal. Among children below 5 years old, 4.4 per cent and 0.9 per cent reported having histories of diarrhea and acute respiratory infection respectively two weeks before the survey. While 3.8 per cent of children aged 1 to 5 years experienced injuries in the past one year. Low birth weight was noted among 9.7 per cent of under-5 children, while only 47.1 per cent of infants below six months had exclusive breastfeeding. About 3 per cent (2.8 per cent) of children 6 to 59 months old were found to be developmentally delayed, while 1.6 per cent of under-5 children were suspected as having autism.

One-third of under-5 children were reported as excessively exposed to both television and computers/smartphone. This survey also noted that only 53.1 per cent of children aged 36 to 59 months old attended early childhood education programme. On child disciplinary methods, 5.2 per cent of parents practiced severe physical punishment.

NHMS 2016 also found that 97.4 per cent of women had a minimum of four antenatal visits as suggested by the World Health Organization. On morbidity during antenatal, 29.3 per

cent noted as having anemia, 13.5 per cent having diabetes, and 5.8 per cent having hypertension. Majority of the women (99.5 per cent) had safe delivery and 92.3 per cent of mothers who notified their birth, received at least one postnatal visit. Our survey also noted that 12.7 per cent of postpartum mothers at 6 to 16 weeks were found to have postnatal depression.

Overall, this survey provided a snapshot of health status of mothers and children in Malaysia. The gaps observed, particularly the maternal and child morbidities, should be the focus of relevant agencies to improve the health delivery towards this target population. In addition, these gaps also provide a basis for further in-depth research. As part of present planning, this scope is scheduled as part of regular surveys under NHMS umbrella for monitoring of trends.

**Image 19**  
**National Health and Morbidity Survey (NHMS) 2016**



Questionnaire booklets and manual used in the survey



NHMS 2016 Central Coordinating Team



Anthropometric assessment of a child at a remote village in Sarawak



Sabah team members approaching a respondent's house



Interviewing an Orang Asli respondent in Kelantan  
*Source: Institute for Public Health (IPH), MoH*

## **UNDERSTANDING THE HEALTH, ECONOMIC, AND LONG TERM SOCIAL IMPACT OF INJURIES (HEALS) IN MALAYSIA**

The HEALS project was carried out in collaboration between Institute for Public Health (IPH) and International Injury Research Unit, Bloomberg School of Public Health, Johns Hopkins University (JHU). This study aimed to develop innovative methods to understand health

(disability), social and economic impact of injuries in Malaysia. There were four specific objectives to be achieved in this study. Firstly, to develop and implement a module for data collection and monitoring in order to detect injuries and follow the patients over time. Second objective was to examine the long-term health impact of non-fatal injuries in Malaysia. Thirdly, to examine the long-term social and economic impact of non-fatal injuries in Malaysia. Lastly, to understand social protection mechanisms that are available in Malaysia to alleviate the burden of non-fatal injuries.

This study used a prospective cohort design and has been conducted at two sites: Hospital Sungai Buloh, Selangor and Hospital Sultanah Bahiyah, Alor Setar. Participants in this study included individuals aged 18 years and above, living within a radius of 90km from the two hospitals, and present with non-fatal injuries that were severe enough to require at least 24 hours of hospital admission. Non-Malaysians were excluded from the study. Participants were recruited from the two hospitals, where baseline data were collected. Subsequently, follow-up interviews were conducted at 1, 2, 4, and 12 months post-discharge. Enrolment into the study began in August 2014 and the last follow-up was completed in December 2016.

A total of 880 participants were recruited into the baseline study. Response rates for the subsequent follow-up were 67.6 per cent (n=595), 67.5 per cent (n=594), 65.9 per cent (n=580) and 62.5 per cent (n=550) for 1, 2, 4 and 12 month follow-up respectively.

Through this study, we also aimed to understand social protection mechanisms to alleviate the burden of non-fatal injuries. This was done through an analysis of data from the SOCSO Return-To-Work program.

### Image 20 The HEALS Project





Data cleaning workshop with Dr Abdulgafoor Bachani from JHU

*Source: Institute for Public Health (IPH), MoH*

## **POSTNATAL DEPRESSION: MALAYSIA ASPIRE PROJECT**

Generally, one in five women reports depressive symptoms during pregnancy and the first 12 months postpartum. In Malaysia, using Edinburgh Postpartum Depression Scale (EPDS), the prevalence of postnatal depression (PND) at 4-16 weeks postpartum, ranges from 3.9 to 27.3 per cent, depending on the setting of the studies. The National Health and Morbidity Survey (NHMS) 2016 revealed that the prevalence of postnatal depression at 6 to 16 weeks postpartum was 12.7 per cent. Realizing the importance of addressing psychological wellbeing of mothers by identifying factors associated with PND and effective intervention for PND, the Institute for Public Health (IPH) planned a two-phase study; an in-depth study to determine the factors associated with PND and a randomized controlled trial study to test the intervention package in our setting.

Phase 1 of the study was implemented as a nation-wide clinic based survey. The target population was mothers at postpartum 6-16 weeks under the care of government primary health clinics throughout Malaysia. Two (2) technical working groups were formed to ensure smooth implementation of this survey. The content expert group comprised of Principal Investigator, Public Health Physicians, Psychiatrists, Family Medicine Specialists and other medical professionals from Ministry of Health Malaysia and Public Universities. They were given the task of developing the proposal and other technical documents. This survey also received technical support from The Asia-Pacific International Research and Education (ASPIRE) Network spearheaded by the University of Melbourne, Australia. The implementation group was coordinated by the Principal Investigator and supported by state Maternal and Child Health Officers. The implementation group was responsible for logistic preparation, sound methodology, appropriate sampling methods, training of data collectors and data management process. In this survey, 6,669 postnatal mothers were randomly selected from 106 randomly selected health clinics throughout Malaysia. Data collection started in September and completed by November 2016. Postnatal mothers responded to the self-administered EPDS followed by face-to-face interviews by trained nurses.

Out of 6,669 randomly selected respondents, 5,727 respondents completed all modules resulting in 85.9 per cent response rate. Analysis revealed that the prevalence of postnatal depression among mothers 6 to 16 weeks postpartum in Malaysia was 4.5 per cent (95 per cent CI: 2.9, 6.9). Postnatal depression was higher among young mothers, Bumiputra Sabah and Sarawak, low socio-economic status and those who were unmarried/widowed. Two

significant factors found to be associated with postnatal depression were lack of family support during confinement and current smoking status of the women.

Based on the findings, the intervention package was developed by content experts and programme managers comprised of Psychiatrists, Clinical Psychologists, Family Medicine Specialists, Public Health Physicians, Counselors and Nurses, from Ministry of Health and Universities. Second phase of this project is implemented as randomized controlled trial of Brief Cognitive Behavioral Therapy by nurses in adjunct to management by Medical Officers, as compared to management by Medical Officers alone based on the Clinical Practice Guideline. A total of 54 respondents is planned for 27 respondents in each arms. This phase 2 study is expected to be completed by November 2017.

In general, this research project has shed some light to the mental health problem among postnatal women in Malaysia. It is hope that the intervention package currently being tested in the second phase of the study will benefit mothers with PND as these mothers will have a better access to care and intervention from healthcare providers at the primary care setting.

**Image 21**  
**Malaysia ASPIRE Project**



Training data collectors of Phase 1 study



Training for ASPIRE Phase 2



Intervention package for Phase 2



Brief Cognitive Behavioural Therapy by a trained nurse

Source: Institute for Public Health (IPH), MoH

### **STENO REACH CERTIFICATE COURSE IN CLINICAL DIABETES CARE (SRCC)**

The Steno REACH Certificate Course in Clinical Diabetes Care (SRCC) is a 6-month comprehensive, competency-based educational program that blends e-Learning and classroom-based group work. This training was initiated by Steno Diabetic Centre in



collaboration with the Ministry of Health Malaysia. It aims to improve the capacity of primary care doctors and nurses in delivering high-quality clinical diabetes care. Participants are required to attend three classroom-based sessions (weekend workshops) that are conducted by trained facilitators. These sessions use the flipped classroom model where foundational material is delivered in a self-paced, online platform while classroom time is devoted to reinforcing core concepts through exercises, mini-lectures, case discussions and clinic-based learning activities. As most of the course content is delivered via the interactive e-Learning platform, participants are expected to use the internet book as a self-directed learning tool. Participants are provided with a workbook based on the modules of the curriculum.

This work-based learning is based on three methodologies i.e. (i) reflection journal; (ii) patient-case journal; and (iii) discussions and reviews. A study plan is also provided to participants to support their learning process. The Family Medicine Specialist in their respective clinics would play a key role in facilitating the clinic-based learning that involves self-reflection, medical record reviews and article discussion. All participants are required to participate in a baseline assessment prior to the opening weekend workshop based on the 10 modules of the curriculum. During this time, the participants are also required to answer the Diabetes Attitude Scale questionnaire. The final examination (online examination) is conducted after the closing weekend workshop. Attendance of all three Weekend Workshops is a pre-requisite for the final assessment.

The 10 modules covered in this course are:

- Module 1 - Pathophysiology, Screening, and Diagnosis of Diabetes
- Module 2 - Patient Engagement
- Module 3 - Non-Pharmacological Treatment and Monitoring
- Module 4 - Pharmacological Treatment – Non-insulin therapies
- Module 5 - Pharmacological Treatment –Insulin therapy
- Module 6 - Acute Complications
- Module 7 - Micro vascular Complications
- Module 8 - Macro vascular Complications
- Module 9 - Diabetes and Pregnancy
- Module 10- Clinical Quality

**Image 22**

**The Steno REACH Certificate Course in Clinical Diabetes Care (SRCC)**



Group work during  
Opening Weekend Workshop

Group presentation by the  
participants  
During Middle Weekend Workshop



Learning station activities during Middle Weekend workshop

Source: Institute for Public Health (IPH), MoH

## TOBACCO AND E-CIGARETTE SURVEY AMONG MALAYSIAN ADOLESCENTS (TECMA) 2016

Smoking-related diseases are the major causes of premature death globally. Apart from the burden of cigarettes, the use of electronic cigarettes or e-cigarettes has emerged as a new trend in our society. Smoking habits that are inculcated in the early years of adolescence could be detrimental to their health and their development. With that in mind, The Tobacco and E-cigarette Survey among Malaysian Adolescents (TECMA) 2016 was conducted to investigate the use of tobacco products, e-cigarette/vape and shisha among Malaysian adolescents. This study served as an important database to the stakeholders in supporting policies to curb the growing popularity of e-cigarettes/vape and also to promote quit smoking advocacies among Malaysian adolescents.

TECMA is a cross-sectional study that was designed to represent the school-going adolescents aged 10 to 19 years old at public and private schools in Malaysia. A total of 136 schools with 13,162 students took part in this study. The overall response rate for the survey was 86.6 per cent. A structured questionnaire, which was divided into three (3) modules namely: Tobacco Use, E-cigarette/Vape Use and Shisha Use was used as a tool for data collection. This questionnaire was developed with input from researchers and experts in tobacco and smoking from the Ministry of Health. Field data collection was conducted for about a month starting from the 4-30 April 2016.

Findings from TECMA 2016 were presented to the Director General of Health on 17 August 2016 and to the Minister of Health on 9 September 2016. The report was published in January 2017.

Image 23

### Tobacco and e-Cigarette Survey among Malaysian Adolescents (TECMA)



Southern zone team members

Students busy answering TECMA questionnaires



Questionnaire for TECMA



TECMA Technical Report

Source: Institute for Public Health (IPH), MoH

## WAY FORWARD

In 2012, in line with the planning of relocation of all research institutes under the National Institutes of Health (NIH) to the new 1NIH complex in Setia Alam, Institute for Public Health (IPH), together with other five research institutes were given opportunities to expand their roles through restructuring. The new integrated complex will share administrative and support facilities to enable the institutes to focus on their main roles as research institutes.

IPH is envisaged to be the centre for epidemiological survey research in Malaysia. Based on this vision, there is spacious survey operation centre with state-of-art facilities. The new organization structure of IPH will cater for research priorities of our stakeholders; namely family health, disease control, nutrition epidemiology and burden of disease study. IPH aims to strengthen its role in three main functions: research, training and consultancy in public health. Research findings will be disseminated through publications in international and national peer-reviewed journals, presentations at conferences and producing research highlights to our stakeholders.

## INSTITUTE FOR HEALTH MANAGEMENT (IHM)

### RESEARCH

Research is one of the main functions of the Institute for Health Management (IHM) where the main focus is related to health management for the organization under the Ministry of Health Malaysia (MOH). Most of the researches are based on the requirement of the 10<sup>th</sup> and 11<sup>th</sup> Malaysia Plan as well as directive/request from MOH stakeholders.

#### • Research Project

In 2016 a total number of six (6) projects including the extension projects have been successfully implemented as follows:

1. Exploring The Best Models for Training Structure: Gap Analysis



2. Client Satisfaction on Healthcare Services Quality (SERVQUAL)
3. HO Extension V2: Issues & Challenging
4. Cost Effectiveness of Hospital Cluster in transforming the healthcare service in Malaysia
5. Action Research: Hospital Cluster Initiative
6. Malaysia Health System Research: Health Clinic Costing

- **Publication**

In 2016, IHM had published an article in local journal (**Table 22**).

**Table 22**  
**Articles Published in Local Journal**

No	Title	Authors	Journal
1.	Analysis on Medical Practitioners Under Medical Review Panel (MRP)	Munira I, Nor Haniza Z, Minson M, Noriah B, Nor Izzah AS	Journal of Health Management: 1 December 2016: Vol.13: No.1/2016

Source: Institute for Health Management, MoH

- **Presentation to Stakeholders**

There were a total of 15 presentations to stakeholders by IHM's technical officers in the year 2016 (**Table 23**). This is one way of communicating research findings to stakeholders while enhancing evidence-based decision making.

**Table 23**  
**IHM Presentation for Stakeholders**

No	Title	Stakeholders	Date
1.	Perception Of Supervisors Towards Nurses In Aspect Related To Competency.	<i>Bahagian Kejururawatan</i>	17 March 2016, Putrajaya
2.	Assessing The Level Of Knowledge, Attitude, And Practice Of Assistant Medical Officer In The Ministry Of Health Malaysia Facilities.	<i>Lembaga Pembantu Perubatan</i>	24 March 2016, IPK
3.	Exploring Best Model For Training Structures For MOH (Phase 1).	<i>Yang Berhormat Datuk Seri Menteri Kesihatan</i>	11 January 2016, Putrajaya
4.	Exploring Best Model For Training Structures For MOH (Phase 1 Finding And Phase 2 Framework).	<i>TKPK (P&amp;ST), Bahagian Pengurusan Latihan, Bahagian Kejururawatan, Bahagian Sumber Manusia</i>	28 March 2016, Putrajaya
5.	Exploring Best Model For Training Structures For MOH (Phase 1 Finding And Phase 2 Framework).	<i>Bahagian Pengurusan Latihan</i>	31 March 2016, Putrajaya

No	Title	Stakeholders	Date
6.	Exploring Best Model For Training Structures For MOH (Phase 1 Finding And Phase 2 Framework).	<i>Bahagian Sumber Manusia</i>	1 April 2016, Putrajaya
7.	Perception Of Supervisors Towards Nurses In Aspect Related To Competency.	<i>Bahagian Perancangan KKM Bahagian Kejururawatan</i>	27 April 2016, IPK
8.	Assessing The Level Of Knowledge, Attitude, And Practice Of Assistant Medical Officer In The Ministry Of Health Malaysia Facilities.	<i>Bahagian Perancangan KKM Lembaga Pembantu Perubatan</i>	27 April 2016, IPK
9.	MHSR Health Clinic Costing: Preliminary Result.	<i>MHSR Analytical Team</i>	30 June 2016 , Putrajaya
10.	MHSR Health Clinic Costing: Preliminary Result.	<i>Bhg. Pembangunan Kesihatan Keluarga</i>	5 October 2016, Putrajaya
11.	MHSR Health Clinic Costing: Preliminary Result.	<i>Bahagian Pembangunan Kesihatan Keluarga</i>	5 September 2016, Putrajaya
12.	Cost Effectiveness Analysis Bagi Pelaksanaan Projek Rintis Hospital Kluster.	<i>Bahagian Perkembangan Perubatan</i>	1 September 2016, Putrajaya
13.	Cost Effectiveness Analysis Bagi Pelaksanaan Projek Rintis Hospital Kluster.	<i>Bhg Perkembangan Perubatan, Pengarah-pengarah Jabatan Kesihatan Negeri, Pengarah-pengarah Hospital seluruh KKM dan anggota KKM</i>	21 September 2016, IPK
14.	Talent Grooming Program For Technical Healthcare Professionals (TGP), KKM Bagi Mesyuarat Pemantauan Pelan Transformasi KKM.	<i>Bahagian Transformasi Sektor Awam, JPA</i>	27 June 2016, Putrajaya
15.	Talent Grooming Program For Technical Healthcare Professionals (TGP), KKM Bagi Mesyuarat Penyelarasan Inisiatif Transformasi Berkaitan Pembangunan Sumber Manusia - Inisiatif Subject Matter Expert.	<i>Bahagian Transformasi Sektor Awam, JPA</i>	11 May 2016, Putrajaya

Source: Institute for Health Management, MOH

## HUMAN CAPITAL AND PROFESSIONAL DEVELOPMENT

### • In-Service Training

Annually, IHM conducts training for MoH healthcare professionals. For year 2016, there were seven (7) clusters of training being conducted as follows:

- i. Leadership and Organizational Governance Development
- ii. Research Enhancement
- iii. Supervisory Development Cluster
- iv. Professional and Personal Development

- v. National and International Collaboration
- vi. Generic
- vii. Talent Grooming Programme for Technical Healthcare Professionals Podium

**Table 24** shows a total of 68 courses were conducted under the roof on IHM in 2016. These training sessions help the involved participants to improve their competency and enhance their quality of service, outputs and quality of research.

**Table 24**  
**IHM In-Service Training Achievement 2016**

No	Training Cluster	Course (Total)	Participant (Total)
1.	Leadership Development and Organizational Governance	14	378
2.	Research Enhancement	8	420
3.	Supervisory Development Cluster	7	286
4.	Professional and Personal Development	10	253
5.	National and International Collaboration	15	530
6.	Generic	10	1,086
7.	Talent Grooming Programme for Technical Healthcare Professionals Podium	4	875
<b>TOTAL</b>		<b>68</b>	<b>3,828</b>

*Source: Institute for Health Management, MOH*

- **Talent Grooming Programme for Technical Healthcare Professionals (TGP)**

Talent Grooming Programme for Technical Healthcare Professionals (TGP) is an initiative as a platform in developing the leadership and technical governance of talents to become future leaders of Ministry of Health, Malaysia (MOH). The idea was mooted by the Director General of Health Malaysia (DG) to tackle the emerging concern of talent management and succession planning among the technical officers in the MOH. It is important to create a high performance, sustainable organisation that meets our Ministry's strategic goals and objectives.

TGP is a generic grooming programme that cut across all the six technical programmes in MOH which includes Medical, Public Health, Research and Technical Support, Oral Health, Pharmaceutical Services and Food Safety and Quality. The TGP Professional Development was developed based on five (5) core competency domains which are part of the determinants of what future leaders should be equipped with, as described in the **Figure 11** below:

**Figure 11**  
**TGP Core Competency**



Source: Institute for Health Management, MoH

This programme is also developed as part of the *Pekeliling Perkhidmatan Bil. 3/2006: Panduan Mewujudkan Search Committee dan Proses Pelaksanaan Pelan Penggantian* which was circulated by *Jabatan Perkhidmatan Awam (JPA)*.

The establishment of this programme was approved through several meetings as below:

- *Mesyuarat Pembentangan Kertas Dasar/Cadangan Kepada Ketua Pengarah Kesihatan* on 1 December 2013 which was attended by all Head of Technical Programmes of MoH.
- *Mesyuarat Khas Ketua Pengarah Kesihatan Bil. 1/2014* on 10 February 2014 which was attended by Head of Programmes, State Health Directors, MoH Institution and MoH Division Directors.
- *Mesyuarat Jawatankuasa Perancangan Kementerian Kesihatan* (previously known as *Jawatankuasa Dasar dan Polisi Kementerian Kesihatan*) which was co-chaired by Secretary General of Ministry and the Director General of Health Malaysia on 2 April 2014.

Achievements in 2016, TGP were identified as indicators below:

- An index in the Star Rating System for MoH in accordance with *Pekeliling Perkhidmatan Bil. 03/2006: Panduan Mewujudkan Search Committee dan Proses Pelaksanaan Pelan Penggantian*.
- An initiative under the *Pelan Transformasi Perkhidmatan Awam KKM (JPA): Teras 1 - Mendedayupaya Bakat* for the MoH monitor by *Jabatan Perkhidmatan Awam* monthly.
- Successfully hosted four leadership podiums throughout 2016:
- 1/2016: 7 March 2016 “Healthcare Transformation & Way Forward for Health Sector in Malaysia” by Datuk Dr. Noor Hisham Bin Abdullah
- 2/2016: 25 April 2016 “Is The Sky The Limit?” by Prof Emerita Datuk Dr. Mazlan Othman
- 3/2016: 21 July 2016 “Effective Leadership: Does Culture Matter” by Dato’ Dr Narimah Awin
- 4/2016: 26 October 2016 “Leveraging on Technology For Successful & Effective Leadership” by Dato’ Norman Abdul Halim
- Awarded *Anugerah Inovasi Pentadbiran*, in *Majlis Anugerah Penyelidikan & Inovasi National Institutes of Health (NIH)*.

TGP Talents are from technical healthcare professionals who are selected by the Selection Panel Meeting (attended by panel members from each technical programme within MOH) held twice a year. The intake of talents started in June 2014 whom was chosen from all programmes within MoH. A summary of the total of intakes of talents so far is described in **Table 25** below:

**Table 25**  
**Total Number of Talents Based on Technical Programme**

Programme	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6	Total
Medical	8	4	5	4	4	5	<b>30</b>
Public Health	4	4	6	4	6	2	<b>26</b>
Research & Technical Support	1	1	3	5	4	0	<b>14</b>
Oral Health	2	6	0	3	0	7	<b>18</b>
Pharmaceutical Services	1	4	3	0	1	2	<b>11</b>
Food Safety and Quality	0	0	1	1	0	0	<b>2</b>
<b>Total</b>	<b>16</b>	<b>19</b>	<b>18</b>	<b>17</b>	<b>15</b>	<b>16</b>	<b>101</b>

Source: Institute for Health Management, MoH

**Table 26**  
**Total Number of In-House Courses Held by IHM**

Year	Total number of in-house TGP courses conducted by IHM
2014 (started on June 2014)	10
2015	16
2016	17

Source: Institute for Health Management, MoH

In addition, to enhance and improve the skills and knowledge of each talent, there are several courses or training conducted in collaboration with organization or agency from outside MOH or international organizations such as the National University of Singapore, National Institute of Public Administration (INTAN) and College of Civil Service (CSC) Singapore, as well as the Royal College of Physician, London. Each talent should attend at least 80 per cent of the compulsory courses as scheduled within two to three years.

Besides that, they also need to complete their research project within the stipulated period to enable them to be evaluated by the Assessment Panel from each MOH technical program in the *Mesyuarat Penilaian Calon TGP Tamat Program dan Pembentangan Projek TGP*. The maximum duration of one talent in TGP is three years.

In 2016 as well, we proud to have 11 out of 12 (91.6 per cent) TGP talents sucessfully completed this programme. They will be awarded with the Certificate of Completion during

the *Majlis Perhimpunan Bulanan KKM* in 2017. These successful talents will be enlisted in the pool of talents in MOH.

- **Consultancy**

IHM provides consultation to agencies within and outside 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 2016, a total of 32 consultations was given by officers based on their field of expertise. List of the consultation as stated in **Table 27** below.

**Table 27**  
**Consultation Services 2016**

No	Consultation Services	Total
1.	<i>Kumpulan Inovasi Dan Kreatif (KIK)</i>	<b>15</b>
2.	<i>Budaya Korporat</i>	<b>5</b>
3.	<i>Bengkel Kepimpinan Transformasi dan Pengurusan Strategik Institusi Latihan Kementerian Kesihatan Malaysia</i>	<b>3</b>
4.	<i>Kursus Kepimpinan</i>	<b>2</b>
5.	<i>Promosi Kesihatan</i>	<b>1</b>
6.	<i>Kursus Pengurusan Asas Bagi Pegawai Perubatan Yang Menjaga Klinik Kesihatan</i>	<b>1</b>
7.	<i>Kursus "Nurse: Who Am I"</i>	<b>1</b>
8.	<i>Seminar Penyelidikan Sains Kesihatan Bersekutu Kali Ke-5 (Zon Pantai Timur)</i>	<b>1</b>
9.	<i>Bengkel QA/ DSA Program Kesihatan Awam, JKNS</i>	<b>1</b>
10.	<i>Kursus Penguatkuasaan Softskill &amp; Integriti Anggota Penguatkuasa</i>	<b>1</b>
11.	<i>Pensyarah Jemputan at Perdana University Graduate School of Medicine (PUGSOM)</i>	<b>1</b>

Source: Institute for Health Management, MoH

## **INSTITUTE FOR HEALTH SYSTEMS RESEARCH (IHSR)**

The Institute for Health Systems Research (IHSR), one of the research institutes under the National Institutes of Health, plays a critical role in providing scientific evidence for decision and policy-making. It emphasises on translating research findings in areas of health systems research into practices and policies in our health care system. IHSR was established in 2004 and is generally directed towards solving problems in the organization, management, financing, and service delivering the health systems. As the WHO Collaborating Centre for Health Systems Research and Quality Improvement, the institutes strives to advance the nation's health through Health Policy and Systems Research and translate evidence into policy and practice.

The institute supports the national health systems transformation agenda through innovative research in the areas of economic efficiency in health services and formulating appropriate measures for measuring health systems performance. IHSR also assists in the policy formulation and programme evaluation as the health system is strengthened to

provide quality and more equitable health care. Currently based in Setia Alam, IHSR consists of the QA Secretariat and other divisions namely the Health Outcomes Research, Healthcare Services Research, Health Quality Research, Health Policy Studies and Analysis, Medical Statistics, Data Management & ICT and Health Economics Research divisions.

## ACTIVITIES & ACHIEVEMENTS

In 2016, we continued to conduct research projects, training and consultations in health systems research. Research findings in various health systems-related topics are shared through publications and presentations to our stakeholders.

- **Research**

Most of the researches in IHSR were initiated by stakeholders, from within the MoH or in collaboration with others. A total of 11 research projects including both new and on-going, throughout 2016 are described in **Table 28** below.

**Table 28**  
**IHSR Research Projects, 2016**

No	Project Titles
1.	Jom Mama project: Pre-Pregnancy Intervention to Reduce the Risk of Diabetes and Pre-diabetes
2.	Reviewing and Strengthening of District Public Health Services in Malaysia
3.	Improving Congestion at Emergency Department and Medical Ward at MOH Hospitals: Lean Initiatives
4.	Effectiveness of using Bed-watcher System for Bed Management at Hospital Tengku Ampuan Rahimah (HTAR), Klang
5.	Process Evaluation of a Pre-Pregnancy Intervention to Reduce the Risk of Diabetes and Pre-Diabetes: A Case Study (Jom Mama)
6.	Complex Community Intervention Programme: An Economic Evaluation (EECCIP)
7.	Assessing Pre-Hospital Care: Developing Indicators for Emergency Ambulance Services in HTAR, Klang
8.	An Analysis of Ambulance Accidents in Malaysia
9.	Health Screening at Workplace
10.	Determining Types of Treatment to be Adopted by Patients with Type 2 Diabetes in a Primary Care Setting : A Grounded Theory Approach
11.	An Economic Evaluation of Tuberculosis Algorithms in Malaysia: An Approach using Dynamic Transmission Model

Source: Institute for Health System Research, MoH

- **Disseminations**

- i. **Publications & Research Highlights**

Manuscripts that were published in local and international journals are described in the following **table 29**.

**Table 29**  
**IHSR Publications, 2016**

No	Title of manuscript	Journal
1.	The Jom Mama Project - A complex behaviour change intervention to reduce the risk of diabetes and pre-diabetes in the pre-conception period: study protocol for a randomized controlled trial in Malaysia	Trials Journal BioMedCentral
2.	Health Screening in the Workplace	Journal of Health Management, Insitute for Health Management
3.	Self-Medication among Adult Population in Selangor, Malaysia	International Journal of Pharmacy and Pharmaceutical Sciences
4.	Medication error reporting in primary care: A systematic review of Qualitative and Qualitative Evidences	Drug Safety
5.	Knowledge and Attitude towards Medication Error Reporting in Public Primary Outpatient Care Clinics: A Questionnaire Development and Pilot Testing	Saudi Pharmaceutical Journal
6.	Improving Healthcare Coverage, Equity and Financial Protection Through a Hybrid System: Malaysia's Experience	Journal Health Affairs

Source: Institute for Health System Research, MoH

**Figure 12**  
**Examples of Manuscripts**

**GLOBAL HEALTH**

By Ravindra P Ramnar-Eliga, Chamara Anuranga, Adhish Manasil, Sondi Sararaks, Anis S. Jalani, Akshay J. Ramani, Krasimir M. Gueff, Ka H. Tan, and Ara Devi

### Improving Health Care Coverage, Equity, And Financial Protection Through A Hybrid System: Malaysia's Experience

**ABSTRACT** Malaysia has made substantial progress in providing access to health care for its citizens and has been more successful than many other countries that are better known as models of universal health coverage. Malaysia's health care coverage and outcomes are now approaching levels achieved by member nations of the Organization for Economic Cooperation and Development. Malaysia's results are achieved through a mix of public services (funded by general revenues) and parallel private services (predominantly financed by out-of-pocket spending). We examined the distributional aspects of health financing and delivery and assessed financial protection in Malaysia's hybrid system. We found that this system has been effective for many decades in equalizing health care use and providing protection from financial risk, despite modest government spending. Our results also indicate that a high out-of-pocket share of total financing is not a consistent proxy for financial protection; greater attention is needed to the absolute level of out-of-pocket spending. Malaysia's hybrid health system presents continuing unresolved policy challenges, but the country's experience nonetheless provides lessons for other emerging economies that want to expand access to health care despite limited fiscal resources.

**KEYWORDS:** health care coverage, equity, financial protection, hybrid system, Malaysia, universal health coverage

**RESEARCH ARTICLE**

### Selection of Treatment Strategies among Patients with Type 2 Diabetes Mellitus in Malaysia: A Grounded Theory Approach

Lee Lun Low<sup>1,2\*</sup>, Seng Pin Tong<sup>3</sup>, Wei Yun Low<sup>4</sup>

**ABSTRACT**

**Background** Diabetes Mellitus is a multifaceted chronic illness and its life-long treatment process requires patients to continuously engage with the healthcare system. The understanding of how patients manoeuvre through the healthcare system for treatment is crucial in assisting them to optimize their disease management. This study aims to explore issues determining patients' treatment strategies and the process of patients manoeuvring through the current healthcare system in selecting their choice of treatment for T2DM.

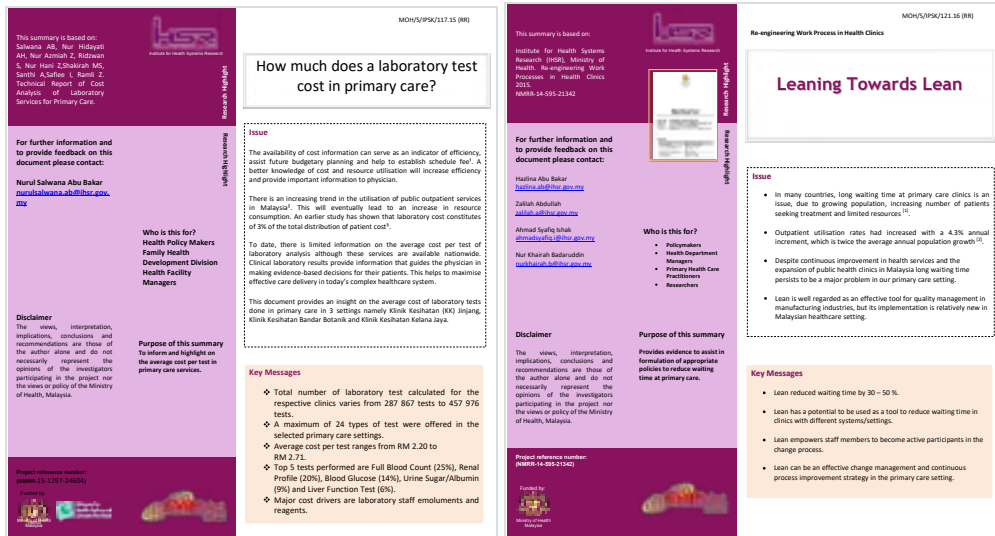
**Methods** The Grounded Theory methodology was used. Twelve patients with Type 2 Diabetes Mellitus, nine family members and five healthcare providers from the primary care clinics were interviewed using a semi-structured interview guide. These focus group discussions were conducted among thirteen healthcare providers from public primary care clinics. Both purposive and theoretical samplings were used for data collection. The interviews were audio-taped and transcribed verbatim. Followed by in-vivo coding and constant comparison to identify the categories and core category.

**Results** The concept of "experimentation" was observed in patients' help-seeking behaviour. The "experimentation" process required triggers, followed by information seeking related to treatment characteristics from treated family members, friends and healthcare providers to enable decisions to be made on the choice of treatment modalities. The whole process was dynamic and iterative through interaction with the healthcare system. The decision-making process in choosing the types of treatment was complex with an element of trial-and-error. The anchor of this process was the desire to fulfil the patient's expected outcome.

Source: Institute for Health System Research, MoH



**Figure 13**  
**Examples of Research Highlights**



Source: Institute for Health System Research, MoH

**ii. Presentations**

In 2016, IHSR technical officers presented oral and poster presentations at various conferences locally and internally as described in **Table 30 and 31** below.

**Table 30**  
**IHSR Oral & Poster Presentations (International), 2016**

No	Title	Event details	Date
<b>International</b>			
1.	Regional Developments in Hospital Quality and Patient Safety -Translating Research to Practice	Third Regional Developments in Hospital Quality and Patient Safety, Saitama, Japan	13 to18 January 2016
2.	Quality and the Role of Good Governance: MoH Malaysia Experience	Product development Rountable Meeting, Dar Es Salaam, Tanzania	29 February to 2 March 2016
3.	Cost-effectiveness Analysis of Xpert MTB/RIF Assay for Diagnosing Tuberculosis in Malaysia using Dynamic Transmission Model	The ISPOR 7 <sup>th</sup> Asia-Pacific Conference, Singapore	3 to 6 September 2016
4.	Implementation of Agile Lean Health Care Initiative in Selected Emergency Department of the Ministry of Health Malaysia Hospitals	3 <sup>rd</sup> International conference on Multidisciplinary Healthcare, Grand Millennium hotel, Kuala Lumpur	25 to 26 May 2016
5.	Universal Health Coverage (UHC) and Primary Healthcare (PHC): Are we well aligned?	Global Health Forum, Taipei, Taiwan	23 to 25 October 2016

No	Title	Event details	Date
6.	A substantive theoretical Model explaining the treatment strategy and its possible applicability to other chronic diseases and in different cultural settings	Pre-ICBM symposium, University of Melbourne, Australia	5to 6 December 2016
7.	Drug utilisation and its cost in diabetes care for ambulatory patients	<i>Persidangan Diabetes Asia</i> 2016, Hotel Istana, Kuala Lumpur	6 to 9 October 2016
8.	Community nurses: knowledge, practice and their role to promote early screening practice for breast cancer detection among women in rural Sarawak	2 <sup>nd</sup> International Nursing Conference, Hotel Promenade, Kota Kinabalu, Sabah	6 to 8 October 2016
9.	Strengthening Primary Healthcare: Exploring the perception of population with diabetes towards healthcare services	<i>Persidangan Diabetes Asia</i> , Hotel Istana, Kuala Lumpur	6 to 9 October 2016
10.	Overweight & Obesity: Prevalence trends in an employed adult population (2013 to 2016)	2 <sup>nd</sup> International Nursing Conference 2016	5 to 7 October 2016
11.	Deciding the Types of Treatment Strategy in Patients with T2DM: A qualitative inquiry	<i>Persidangan Diabetes Asia</i> 2016, Hotel Istana, Kuala Lumpur	6 to 9 October 2016
12.	Recruitment strategies in a community trial to implement a complex intervention to reduce the risk of diabetes in young adults before pregnancy: challenges and key learnings	<i>Persidangan Diabetes Asia</i> 2016, Hotel Istana, Kuala Lumpur	6 to 9 October 2016
13.	Medication expenditure for diabetes mellitus & it's co-morbidities in Serdang hospital	<i>Persidangan Diabetes Asia</i> 2016, Hotel Istana, Kuala Lumpur	6 to 9 October 2016
14.	Selection of Treatment Strategies Among Patients with Type 2 Diabetes Mellitus in Malaysia	International Congress of Behavioural Medicine, ICBM, Melbourne, Australia	10 December 2016

Source: Institute for Health System Research, MoH

**Table 31**  
**IHSR Oral & Poster Presentations (National), 2016**

No	Title	Event details	Date
<b>National</b>			
1.	JOM MAMA - translating the DOHaD theory into action	National Heart Association of Malaysia Annual conference	9 April 2016
2.	Competency at start of internship - the MMC assessment form	<i>Bengkel Perdana Semakan Kurikulum Ijazah Doktor Perubatan (MD), Hotel Bangi, Putrajaya</i>	2 to 3 March 2016
3.	National Quality Assurance Convention: A Good Sharing Platform	11 <sup>th</sup> Allied Health Scientific Conference, Hotel Istana, Kuala Lumpur	6 to 7 September 2017
4.	Are hospitals located nearer to the	10 <sup>th</sup> National Conference for	27 to 28 July

No	Title	Event details	Date
	population?	Clinical Research (NCCR 2016), Hotel Istana, Kuala Lumpur	2016
5.	Prevalence, socio-demographic distribution, treatment and control of type 2 diabetes in a tertiary hospital	10 <sup>th</sup> National Conference for Clinical Research (NCCR 2016), Hotel Istana, Kuala Lumpur	27 to 28 July 2016
6.	Developing a questionnaire to assess the attitudes towards and practices of self-medication in Malaysia	10 <sup>th</sup> National Conference for Clinical Research (NCCR 2016), Hotel Istana, Kuala Lumpur	27 to 28 July 2016
7.	Relationship between socio-demographic characteristics and diabetes mellitus: a retrospective database analysis	10 <sup>th</sup> National Conference for Clinical Research (NCCR 2016), Hotel Istana, Kuala Lumpur	27 to 28 July 2016
8.	Lean Healthcare Initiative to overcome congestion in medical wards of MoH Hospitals	8 <sup>th</sup> National Public Health Conference 2016, Melaka	2 to 4 August 2016
9.	Can Patients Help in Preventing Blood Transfusion Error?	8 <sup>th</sup> National Public Health Conference	3 to 4 August 2016
10.	Does Health Insurance Influence the Choice of Health Facility? Findings from the NHMS 2105	8 <sup>th</sup> National Public Health Conference, Hotel Equatorial, Melaka	2 to 4 August 2016
11.	Motivational interview, an approach to facilitate healthy lifestyle change in the Jom Mama project	8 <sup>th</sup> National Public Health Conference, Hotel Equatorial, Melaka	2 to 4 August 2016
12.	Drug utilisation pattern of anti-diabetic drugs among diabetic outpatients in a tertiary care hospital	NIH Research Week, IHM, Bangsar, Kuala Lumpur	18 to 23 November 2016
13.	Implementation and Challenges of "Toddlers' Adoption Programme": Dental nurses perspectives	NIH Research Week, IHM, Bangsar, Kuala Lumpur	18 to 23 November 2016
14.	Factors influencing women to practice breast self-examination: a qualitative study among women in rural Sarawak	NIH Research Week, IHM, Bangsar, Kuala Lumpur	18 to 23 November 2016

Source: Institute for Health System Research, MoH

**Figure 14**  
Examples of poster presentations



Source: Institute for Health System Research, MoH

- **Training**

Each year IHSR conducts training programs that are open to all colleagues within the NIH. In 2016, the Institute conducted a total of 28 workshops - 23 research research-orientated and self-development training for its staff locally and internationally. In-house courses -oriented and 5 self-development.

- **Consultations**

IHSR provides consultations and technical assistance to agencies within and outside of MoH, according to the divisions and specialties, in areas of in the areas of health systems research, research methodology, quality assurance and improvement and others.

**Image 24**  
**IHSR Consultation Activities**



3rd Hospital Quality & Patient Safety Management Course, Tokyo, Japan



JLN PHC Measurement for Improvement Collaborative, Ghana



Lean Consultancy with Focal Team on Emergency & Trauma and Medical Ward Congestion



Knowledge sharing: Process Evaluation by Prof. Dr. Jens Aagaard-Hansen (Denmark)

Source: Institute for Health System Research, MoH

## **WAY FORWARD**

ISHR aspires to be a premier institute in health systems research and quality assurance in Malaysia by strengthening its capacity in translating evidence into health policy and practice.

## **INSTITUTE FOR HEALTH BEHAVIOURAL RESEARCH (IHBR)**

The Institute for Health Behavioural Research (IHBR) is one of the six institutes which were derived from the structure of the National Institute of Health (NIH) Ministry of Health, Malaysia. The Institute is also under the administration of Research and Technical Support Programme of Ministry of Health. Since its founding in 2006, IHBR has broadened and deepened its capacity and functions which now includes research, training, advisory and consultancy services in the field of health behaviour. This directly provides an effective health promotion research service that caters to the needs of the focus group.

### **Vision**

“To be the national premier research institution on health behavioural research”

### **Mission**

“To set excellent standards on health behavioural research and conduct research that contributes towards national aspiration”

### **Research**

The research projects conducted by IHSR in 2016 are described in **Table 33**

**Table 33**  
**Research Activities**

No	Project Title & NIMMR ID	Investigators	Progress (2016)	Outcome
1.	<i>Kajian Penyertaan Pemeraksanaan Penggunaan Keselamatan Makanan Di Sekolah Rendah Peringkat Kebangsaan Di Bawah Asean Expert Group Food Safety (AEGFS)</i> NIMMR-16-594-29748	Abdul Hadi Ismail (PI) (BKKM) Suraiya Syed Mohamed Mohd Haryadie Mazuki (BKKM) Md Sabtuh Mohd Royali Nor Haryati Ahmad Sanusi	<ul style="list-style-type: none"> <li>• Study Completed</li> <li>• Manuscript in preparation</li> </ul>	Trend of food poisoning in primary school is increasing and there is no research had been done. Thus, the research findings focusing on knowledge, attitude and practice of food safety and cleanliness among primary school community will be used as a based line data for any intervention or health promotion activities in Food Safety and Quality Programme to encounter above matter.
2.	<i>Kajian Keberkesanan Pendidikan Rakan Sebaya Terhadap Pengetahuan, Sikap Dan Amalan Kesihatan Murid Sekolah</i> NIMMR-16-642-30447	Suraiya Syed Mohamed (PI) Kamarul Zaman Salleh Md Sabtuh Mohd Royali	<ul style="list-style-type: none"> <li>• Study Completed</li> <li>• Manuscript in preparation</li> </ul>	The effectiveness of Doktor Muda as peer educator is still unknown. The finding of this study will enable to identify and compare the health knowledge, attitude and practices among peers in schools with and without Doktor Muda. This study also will highlight on peers' perspectives of Doktor Muda as peer educator.
3.	<i>Perception Among E-Cigarette Users And Non-Users On The Use Of E Cigarette: A Qualitative Study</i> NIMMR-16--28913	Norrafidah Jaafar (PI) Zaikiah Mohd Zin Komathi Perialathan Norazilah Md. Roslan Dr. Normawati Ahmad Nik Mansor Ridzwan Zakaria Zabri Johari	<ul style="list-style-type: none"> <li>• Study Completed</li> <li>• Policy brief prepared</li> <li>• In the process of completing study report</li> </ul>	Two main themes were found regards the wide spread of vaping through users experience (to reduce cost of smoking and to gain social conformity within the peer group), 3 main themes developed that defined users perception on vaping effect (varies perception on health, economic expenses and device, and government regulation on e-cigarette usage and trading), and 2 main themes concerns of vapers and vape vendors' awareness on e-cigarette (safety of device and content of e-liquid).
5.	<i>Internet User Survey (Cooperation Between Iptk And Skmm)</i>	En.Abu Bakar Rahman (PI) Dr.Hammed Noor Norddin En.Mohd.Nasir Abdullah Dr.Normawati Ahmad En.Hasnor Hadi Asim Pn.Nurashma Juatan	<ul style="list-style-type: none"> <li>• On-going Study</li> </ul>	This study aims to identify health information seeking thru internet.

No	Project Title & NIMMR ID	Investigators	Progress (2016)	Outcome
6.	A Study Of Acceptance On Wolbachia Project In Section 7, Shah Alam, Selangor And Au2 Taman Keramat	Dr.Normawati Ahmad (PI) En.Mohd.Nasir Abdullah Dr.Hammed Noor Norddin Pn. Hapsah Mohd.Dusa En.Hasnor Hadi Asim En.Abu Bakar Rahman Pn.Nurashma Juatan	<ul style="list-style-type: none"> <li>On-going Study</li> </ul>	To obtain the support and consent/acceptance of the community for the Wolbachia project.

Source: Institute for Health Behavioural Research, MoH

**Table 34**  
**Publication (Scientific Paper)**

No.	Publication Title	Journal Status (✓)		
		International Journal (Impact Factor)	Local Journal	Pending
1.	J. Norrafizah, M. Nor Asiah, S. M. Suraiya, H. I. Zawaha, A. Normawati, B. Mohd Farid, B. Faizal and A. M. Nasir. 2016. Assessment of Health Literacy among People in a Rural Area in Malaysia Using Newest Vital Signs Assessment. British Journal of Education, Society & Behavioural Science 16(2): 1-7.	(✓)		
2.	S.M Suraiya, M. Nor Asiah, Pises B., Shahnaz. M., S.B. Faizal. 2016. School Children As Health Agent in Gombak, Selangor: An Explorative Study on Peers Perspective. Accepted in International Journal of Social and Behavioural Sciences	(✓)0.7658		
3.	Seng Cheong Loke, Wee Shiong Lim, Yoshiko Someya, Tengku A. Hamid and Siti S. H. Nudin. Examining the Disability Model From the International Classification of Functioning, Disability, and Health Using a Large Data Set of Community Dwelling Malaysian Older Adults. J Aging Health June 2016 vol. 28 no. 4 704-725	(✓)1.66		
4.	N.Z.M. Saat, W.A. Nor Malia, A.W. Muhammad Ikram, H. Siti Aishah, I. Zawaha, M.S. Nur Ashikin and M. Siti Norasmarina. Perception of Flood Waste Management Among Stakeholders in Kelantan. Journal of Environmental Science and Technology, 2016 9: 317-322.	(✓)		
5.	Norazilah Mohd Roslan, Norbaidurrah Ithnain, Aziman Mahdi, Zainon Ibrahim, Dr. Sulaiman Che Rus. A Preliminary Study On Consumption Pattern of Carbonated Drinks Among General Public in Malaysia. Journal of Health Management, Vol.13, no 1-2016.		(✓)	

Source: Institute for Health Behavioural Research, MOH



**Table 35**  
**Presentation (Poster & Oral)**

No	Presentation Title	Presenter Name	Date And Place	Type Of Presentation (√)	
				Poster	Oral
<b>Local Presentation</b>					
1.	Sexual Health and Aging Population in Malaysia	Albeny Panting & Pises Busu	6th International Public Health Conference, TH Hotels Convention Centre, Kuala Terengganu	√	
2.	Agreement of Using SMS on Dengue Fever Awareness and in Bandar Baru Uda Prevention, Johor Bahru	Hasnor Hadi, Habel bin Hisham	2-4 Ogos 2016, Public Health Conference, Hotel Equatorial Melaka	√	
3.	Larvicide Usage in Malaysia: Who Did Not Use and Why?	Norzawati Y, Mohd Naim MR, Tee GH, Faizah P, Kalaivaani A, Ahmad Nadzri J, Mohd Hazrin H, Sayan P, Kamarul ZS, Zanariah Z	2-4 Ogos 2016, Public Health Conference, Hotel Equatorial Melaka	√	
4.	Doktor Muda as Health Promotion Agents from Peers Perspectives: An Explorative Study In Sekolah Kebangsaan Gombak Setia, Selangor	Pn. Suraiya Syed Mohamed	12 Ogos 2016, Symposium Guru Penasihat Kelab Dr. Muda Kali Ke-3, Hotel D' Iskandar Perak		√
5.	Association of Self-Management Behavior with Health Literacy in Patients With Diabetes	Normawati Ahmad, Naziela Nazri	30 Ogos 2016 IKN Research Day, Institut Kanser Negara, Putrajaya	√	
6.	Relationship between Negative Life Events and Depression among Students in Moral Rehabilitation Sekolah Tunas Bakti	Normawati Ahmad, Normawati Yusof	6-9 September 2016, 11th Allied Health Science Conference, Hotel Istana Kuala Lumpur	√	
7.	Do Demographic Characteristics Make a Difference to Burnout Level Among Malaysian Health Education Officers?	Muhd Ridzwan Zakaria, Zaikiah Mohd Zin, Norrafizah Jaafar, Norazilah Md. Roslan	6-9 September 2016, 11th Allied Health Science Conference, Hotel Istana Kuala Lumpur	√	
8.	Abilities of Doktor Muda in changing peers' behaviour in dengue prevention	Suraiya S.M, Pises Busu, Sabtuah M.Royali, Kamarulzaman Salleh, Norharyati Sanusi, Siti Nur Farhana	6-9 September 2016, 11th Allied Health Science Conference, Hotel Istana Kuala Lumpur	√	

No	Presentation Title	Presenter Name	Date And Place	Type Of Presentation (v)	
				Poster	Oral
<b>Local Presentation</b>					
9.	Inadequate knowledge, practice and self-efficacy: effects on hand washing demonstration skill among Doktor Muda	Suraiya S.M, Pises Busu, Sabtuah M.Royali, Kamarulzaman Salleh, Norharyati Sanusi, Siti Nur Farhana	6-9 September 2016, 11th Allied Health Science Conference, Hotel Istana Kuala Lumpur	v	
10.	<i>Hubungan antara Tekanan Psikologi &amp; Keadaan Pekerjaan Terhadap Cara Fizikal dan Mental</i>	Siti Nurhanim, Abu Bakar Rahman	27-29 September 2016, 6th Terengganu Scientific Conference, Hotel Permai, Kuala Terengganu	v	
11.	Self Confidence doesn't predict skill in using insulin pen injection among diabetic type 2	Norzilah MR, Hawa Bee, Ismarulyusda I	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
12.	The relationship of health literacy on medication adherence among patients with type 2 Diabetes at Health Clinic in Gombak Selangor	Suraiya S.M, Pises Busu, Sabtuah M.Royali, Kamarulzaman Salleh, Norharyati Sanusi, Siti Nur Farhana	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
13.	Health Seeking Behaviour on Sexual and Reproductive Health Among Adolescents in Samarahan, Sarawak	Albeny Panting	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
14.	Perceived Barriers to Physical Activity Among Universiti Tenaga Nasional Students At Sultan Haji Ahmad Campus	Hasnor HA, Hamed Noor Nordin, Normawati Ahmad, Abu Bakar Rahman, Nurashma Juatan, Nur Azurin R.	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
15.	Electronic Cigarette Use Among Private Tertiary Students in Selangor	Komathi Perialathan, Masliani AB, Zaikiah Mohd Zin, Norrafizah Jaafar, Muhd Ridzwan Zakaria, Wee Lei Hum	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
16.	Utilization of Larvacide as Dengue Prevention Method by Malaysian Public : Findings from NHMS 2015	Norzawati Y, M Naim MR, Tee GH, Faizah P, Kamarul Zaman Salleh, Zanariah Z, Zohara A.	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
17.	How Fast Malaysians Seek Proper Treatment When They Are Suspected of Having Dengue Fever?	A Nadzri J, Tee GH, M Naim R, Norzawati Y, M Hazrin H, Faizah PP, Pan S, Kamaruzzaman S, Zanariah Z	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	

No	Presentation Title	Presenter Name	Date And Place	Type Of Presentation (v)	
				Poster	Oral
<b>Local Presentation</b>					
18.	Knowledge and Attitude on Sexual and Reproductive Health among Adolescents in Samarahan, Sarawak	Albeny Panting	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
19.	Dengue threat : How Malaysians React	Suraiya S.M, Pises Busu, Sabtuah M.Royali, Kamarulzaman Salleh, Norharyati Sanusi, Siti Nur Farhana	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
20.	Dengue in their Neighbourhood but would not take any action: Who are they? Significant demographic characteristics of breast cancer patients with high level inner strength.	A Nadzri J, Tee GH, M Naim R, Norzawati Y, M Hazrin H, Faizah PP, Pan S, Kamaruzzaman S, Zanariah Z	19 - 23 November 2016, NIH Research Week 2016 Incorporating the 19th NIH Scientific Seminar, IHM Bangsar	v	
21.	Perception of Body Mass in Malaysia an initial pilot of a Body Image Scale	Zabri Johari	23 November 2016, Newcastle University, Johor Baru Branch		v
22.	Weight Loss and Weight Maintenance Among Malaysian Ministry of Health Workers	Zabri Johari	27 August 2016, The European Health Psychology Society Conference, Aberdeen UK	v	

Source: Institute for Health Behavioural Research, MoH

**Table 36**  
**Training Activities**

NO	TRAINING	VENUE	DATE	FACILITATOR/LECTURE
1.	Bengkel Penulisan Strategik dan Penerbitan	Kings Green Hotel City, Melaka	5 – 8 April 2016	IPTK & UPM
2.	Bengkel Kualitatif Part 1	Klana Resort, Seremban	24 – 27 Mei 2016	IPTK & UPM
3.	Kursus Pendidikan Pesakit	Hotel Rainbow Paradise, Penang	31 Mei – 3 Jun 2016	IPTK
4.	Kursus Komunikasi Risiko	Langkawi Seaview Hotel	15 – 18 Ogos 2016	IPTK & Bhg. Kawalan Penyakit
5.	Bengkel Penulisan Professional Laporan Kualitatif	Pines Hotel, Melaka	20 – 23 Sept 2016	IPTK & UPM
6.	Team Building	Kuala Tahan National Park, Pahang	30 Sept – 2 Okt 2016	IPTK & Xtree Resources
7.	Excellent Work Culture	Pengkalan Balak, Melaka	26 – 27 Nov 2016	IPTK & TRD EDU
8.	Bengkel Aplikasi Media Sosial Dalam Bidang Promosi Kesihatan	The Straits Hotel & Suites, Melaka	28 Nov – 1 Dis 2016	IPTK & UIITM
9.	Bengkel Analisa Kajian Pendidikan Kesihatan	Hotel Central, Melaka	5 – 8 Disember 2016	IPTK

Source: Institute for Health Behavioural Research, MoH

**Table 37**  
**Other Activities**

No	Activities	Detail	Date
1.	Establishment of IHBR Scientific Committee	<p>IHBR Scientific Committee was reorganized on January 2016. Main function of the committee:</p> <ol style="list-style-type: none"> <li>i. Review all IHBR research proposal before NIMRR registration</li> <li>ii. Review all IHBR scientific paper and report before submission to NIH for publication approval</li> </ol> <p>The members of the committee was appointed by the IHBR Director:</p> <ol style="list-style-type: none"> <li>i. Pn. Suraiya Syed Mohamed (Chairperson)</li> <li>ii. Dr. Sulaiman Che Rus</li> <li>iii. Dr. Normawati Ahmad</li> <li>iv. Dr. Hammed Noor Norddin</li> </ol> <p>Secretariat:</p> <ol style="list-style-type: none"> <li>i. Komathi Perialathan</li> </ol>	January 2016 – December 2016
2.	ASEAN Risk Communication Resource Centre ( RCRC) (Pusat Sumber Komunikasi Risiko ASEAN)	<p>IHBR was chosen as the ASEAN Risk Communication Resource Centre – RCRC and En. Sabtuah Mohd Royali was appointed as the RCRC Operation Head. Main function of RCRC:</p> <ol style="list-style-type: none"> <li>i. Collaboration with Bahagian Kawalan Penyakit</li> <li>ii. Training of Trainers Workshop</li> <li>iii. Compilation of case studies on risk communication from ASEAN Member States and other global experiences.</li> <li>iv. Development on model of e-consultation as and when necessary especially on EID involving regional issues.</li> <li>v. Conduct training needs assessments of countries on risk communication.</li> <li>vi. Develop standardized tools to conduct research for community risk perception in ASEAN Member States.</li> <li>vii. Publish a regular newsletter on risk communication showcasing the research results.</li> </ol> <p>Risk Communication Training, a collaborative project with Bahagian Kawalan Penyakit was conducted on 15-18 August 2017 at Seaview Hotel Langkawi</p>	January – December 2016
3.	NIH RESEARCH WEEK 2016	<p>NIH Research Week 2016 Incorporating 19th NIH Scientific Seminar was a collaborative research event between NIH Research Institutes (IHBR, IMR, IPH, IHM, IHSR, CRC, NIH Secretariat), Planning Division (National Health Financing Unit) &amp; Clinical Research Malaysia whereby IHBR was chosen as the main host. The conference theme was “Transforming Health</p>	19 <sup>th</sup> of November – 23 <sup>rd</sup> November 2016

No	Activities	Detail	Date
		<p>Systems Through Research: Towards Sustainability”.</p> <p>The main objective of this research week was to gather public health professionals and researchers to present and communicate the latest findings of health issues through research. The key features of this event were:</p> <p>Scientific Seminar by the Malaysian Health System Research (MHSR) group titled Transforming Health Systems for Better Outcome on 19th – 20th November 2016.</p> <p>Speakers were from Harvard Schools of Public Health.</p> <p>Research Dialogue Session on 21st November 2016 based on the 11th Malaysia Plan Research Priority Areas:</p> <ul style="list-style-type: none"> <li>● Burden of Diseases</li> <li>● Non-Communicable Diseases</li> <li>● Sustainable Environment &amp; Climate Change</li> <li>● Health Services &amp; Health Management</li> </ul> <p>Research based workshops, seminars and clinics conducted throughout 22nd-23rd November by each institutes under NIH highlighting current health issues and research inputs and policies.</p> <p>This function was officiated by our honourable Health Minister, YB Datuk Seri Dr. S. Subramaniam at Dewan Persidangan Dan Auditorium Cempaka Sari, Kompleks Perbadanan Putrajaya Presint 3. About 700 – 800 participants participated from various backgrounds ie Public Health and Clinical Specialist and Stakeholders, Public Health and Clinical Professionals, Research / Science Officers, Paramedics (Nurses and Assistant Medical Officers), Academicians Students in medical and health sciences.</p>	
4.	Wolbachia Project	<p>IMR collaborated with Lancaster University, Britain, and the Melbourne University, Australia, to work on a project to infect the aedes aegypti mosquito with Wolbachia bacteria. This study was initiated in Jun 2016. The research is fully funded by Wellcome Trust (UK) in collaboration with University of Glasgow, United Kingdom and University of Melbourne, Australia. Institute for Health Behavioral Research was given the responsibilities of promoting and creating awareness of this project among the community of the chosen study location. Several series of successful public engagements was conducted to educate and to inform residence of this new approach to control dengue, zika and chikungunya and to obtain their consensus to ensure smooth implementation of this project in the chosen localities.</p>	Ogos 2016 – Mei 2017

Source: Institute for Health Behavioural Research, MoH

**Table 38**  
**Other Publication (Report/Research Highlight)**

No	Title Research Highlights/ Synopsis/ Briefs/ Executive Summary/ Report	Writers Name
1.	Perception Among E-Cigarette Users And Non Users On The Use Of E-Cigarette: A Qualitative Analysis : Scientific Report (final draft)	Norrafizah Jaafar, Zaikiah Mohd Zin, Norazilah Mohd Roslan, Komathi Perialathan, Ridzwan Zakaria
2.	Awareness, Use, Harm Perception and Behaviours Related to Electronic Cigarettes among Clinic Attendees in Malaysia: Scientific Report (final draft)	Azman Ahmad, Aziman Mahdi, Zaikiah Mohd Zin, Norrafizah Jaafar, Norazilah Mohd Roslan, Komathi Perialathan, Abu Bakar Rahman, Hasnor Hadi Asim, Pises Busu, Nik Mansor Ibrahim

Source: Institute for Health Behavioural Research, MoH

## **WAY FORWARD**

IHBR is determined to become a leading institute in the field of health behavioural research, health promotion, risk communication and health communication. This is to ensure that the institute increases its capacity by strengthening its newly established divisions, as well as recruiting more skilled staff. In addition, the institute also plans to collaborate with a wide range of agencies and organizations in conducting research and getting consultancy from WHO and Health Promotion agencies from developed countries to assist in its operations. These efforts have also met the challenges of the Ministry of Health to form smart partnership with other agencies outside the Ministry of Health.

The globalization era is witnessing changes in lifestyle of the population. Due to these changes, IHBR is entrusted to conduct health behavioural research in various disciplines to determine the behavioural risk factors which could contribute to health problems in the society. Through this research, IHBR could assist the Ministry of Health's programme to implement its activities effectively. This goal can definitely be achieved with the dynamism and expertise of its staff together with the support from the Ministry of Health Management.

## **CLINICAL RESEARCH CENTRE (CRC)**

Clinical Research Centre (CRC) is one of the six research institutes under the umbrella of the National Institutes of Health (NIH), Ministry of Health Malaysia (MOH) and has been operational since August 2000. CRC functions as the clinical research arm of MOH and CRC network presently comprises the National CRC and 33 CRC Hospitals in charge of strengthening the capacity of clinical research at all health facilities in MOH. The main function of the CRC is to manage, provide guidance and conduct high-impact clinical research activities that will improve the quality of Malaysian healthcare.

## **ACTIVITIES AND ACHIEVEMENTS**

### **10<sup>th</sup> NATIONAL CONFERENCE FOR CLINICAL RESEARCH (NCCR)**

The Minister of Health, Datuk Seri Dr. S. Subramaniam officiated the 10<sup>th</sup> NCCR on topics revolving around the theme "Big Data Driving Clinical Research for Health" on 27 to 28 July 2016 at Hotel Istana, Kuala Lumpur. This 10<sup>th</sup> edition of the NCCR celebrates a decade in pioneering and popularising clinical research in Malaysia. For 2016, we are proud to present cutting edge innovations and developments globally and evaluate their applications and aspirations locally.



**Image 25**  
**10<sup>th</sup> NCCR Group Photo with Health Minister**  
**Datuk Seri Dr. S. Subramaniam on 28 July 2016**



*Source: Clinical Research Centre, MoH*

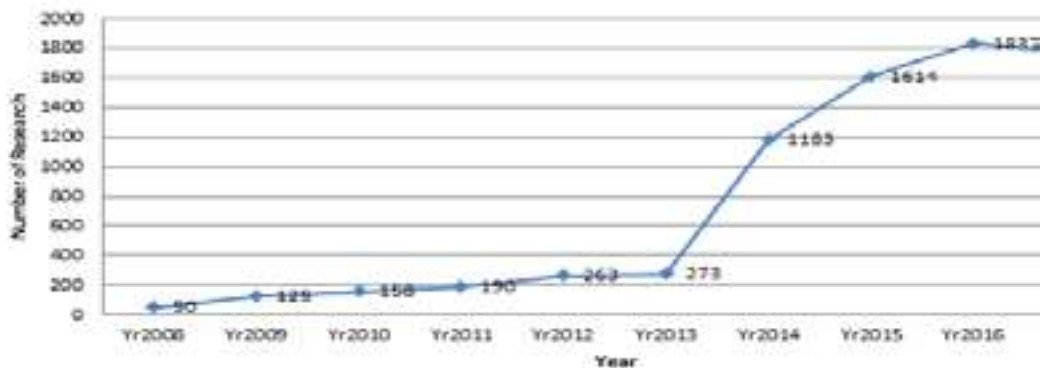
## **RESEARCH PUBLICATIONS**

In 2016, a total of 138 articles were published in scientific journals. Based on journal citation report, 22.1 per cent were published in first Quartile (Q1) with two (2) articles published in Nature and Lancet. In addition, a total of 617 abstracts were presented in local conferences; while 113 abstracts presented in international conferences.

## **INVESTIGATOR INITIATED RESEARCH (IIR) AND INDUSTRY SPONSORED RESEARCH (ISR) APPROVED BY MEDICAL RESEARCH AND ETHICS COMMITTEE (MREC)**

CRC assists, coordinates, conducts and oversees IIR conducted at MOH facilities and the number of IIR approved by MREC has increased for the past 9 years. A total of 1837 IIRs were approved by MREC in 2016 (**Figure 15**) and present data suggest government efforts in promoting and increasing medical research are yielding positive results.

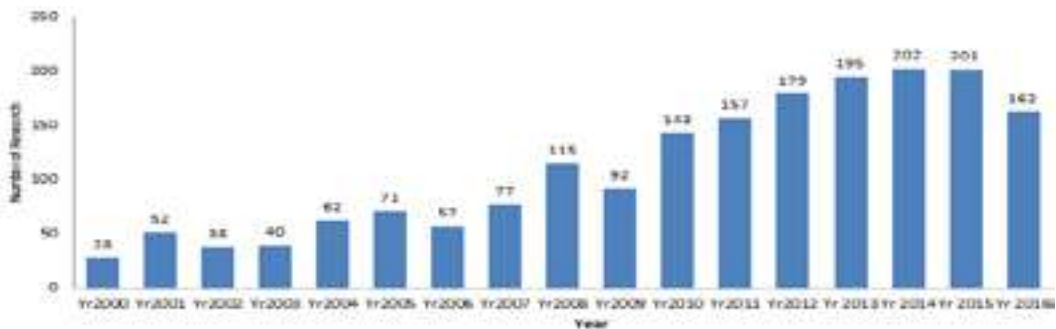
**Figure 15**  
IIR Approved by MREC from 2008 to 2016



Source: NMRR

In addition, CRC also assists, conducts and promotes ISR. ISR is one of the entry point project (EPP) in National Key Economic Area (NKEA) and CRC together with CRM are tasked to drive Malaysia as a preferred global destination for ISR as well to enable and facilitate clinical trials. In 2016, a total of 162 ISRs were approved by MREC (**Figure 16**) and this is in line to achieve 1000 ongoing trials in Malaysia by 2020.

**Figure 16**  
ISR approved by MREC from 2000 to 2016



Source: NMRR

## EXTRAMURAL GRANTS

In 2016, CRC received a total of MYR902,566.40 extramural grant with 67.5 percent (3 studies) funded by international sponsor (**Table 39**) and United State-National Institute of Health (US-NIH) is the largest grant provider for malaria research.

**Table 39**  
**Extramural Grants Received by CRC in 2016**

No	Extramural Grants	Total (MYR)
1.	Local	293,000.00
2.	International	609,566.40
<b>TOTAL</b>		<b>902,566.40</b>

Source: Clinical Research Centre, MoH

### HOSPITAL RESEARCH REVIEW COMMITTEE (HRRC)

In 2016, a total of 1560 protocols were forwarded by NMRR Secretariat to CRC-Research Evaluation Committee (JPPCRC) for risk evaluation, 446 protocols presented with more than minimal risk and were forwarded to Malaysia Research and Ethics Committee (MREC). The remaining 1114 protocols were reviewed by HRRCs and CRC reviewers (**Table 40**).

**Table 40**  
**Overview of Protocol Assigned by NMRR/JPPNIH Sec. to JPPCRC**

No	Actions	Number of Protocol (%)
1.	More than minimum risk, forward to MREC	446 (28.89%)
2.	Assigned to HRRC & NIH Reviewers	1,114 (71.11%)
<b>TOTAL</b>		<b>1,560 (100%)</b>

Source: Clinical Research Centre, MoH

Of the 1114 protocols with minimal risk, 958 were reviewed while 156 protocols still pending HRRC/NIH reviews or amendment by principal investigator (PI). Of the 958 protocols that have been reviewed, 875 protocols were recommended for MREC approval while 58 were forwarded to MREC for further review by MREC members due to other ethical concerns (**Table 41**). Principal Investigator (PI) for 25 protocols withdrew their protocol from NMRR system as they did not want to pursue their research.

**Table 41**  
**Outcomes of Protocol Assigned to HRRC/CRC Reviewers**

No	Outcomes	Number of Protocol (%)
1.	Recommend to MREC for approval	875 (91.34%)
2.	Recommend to MREC for review	58 (6.05%)
3.	Withdraw	25 (2.61%)
<b>TOTAL</b>		<b>958 (100%)</b>

Source: Clinical Research Centre, MoH

Of the 1378 protocols forwarded to MREC for further action, 1173 (85.12 per cent) protocols were forwarded to MREC within 42 days. The remaining 205 (14.88 per cent) protocols that took longer than 42 days were mainly due to delay by PI (**Table 42**).

**Table 42**  
**Time Taken for Protocol to be forwarded to MREC**

No	Action	Number of Protocol (%)
1.	Forwarded to MREC ≤ 42 days	1,173 (85.12%)
2.	Forwarded to MREC > 42 days	205 (14.88%)
<b>TOTAL</b>		<b>1,378 (100%)</b>

*Source: Clinical Research Centre, MoH*

## CONCLUSION

The year 2016 has been one of hard work and fulfilment. Overall, the strategies initiated by CRC from its inception in 2000 have been very encouraging and CRC has always achieved its key performance indicators.

Moving forward, CRC plans to (i) establish more local and international strategic linkages; (ii) secure more competitive extramural research grants; and (iii) actively involves in the translation and dissemination of research findings, especially into policy and everyday clinical practise. Positioning Malaysia as a preferred global destination for research and taking Malaysia closer to become a leading clinical research organization in Asia.

## WAY FORWARD

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 system.



# **CHAPTER 7**

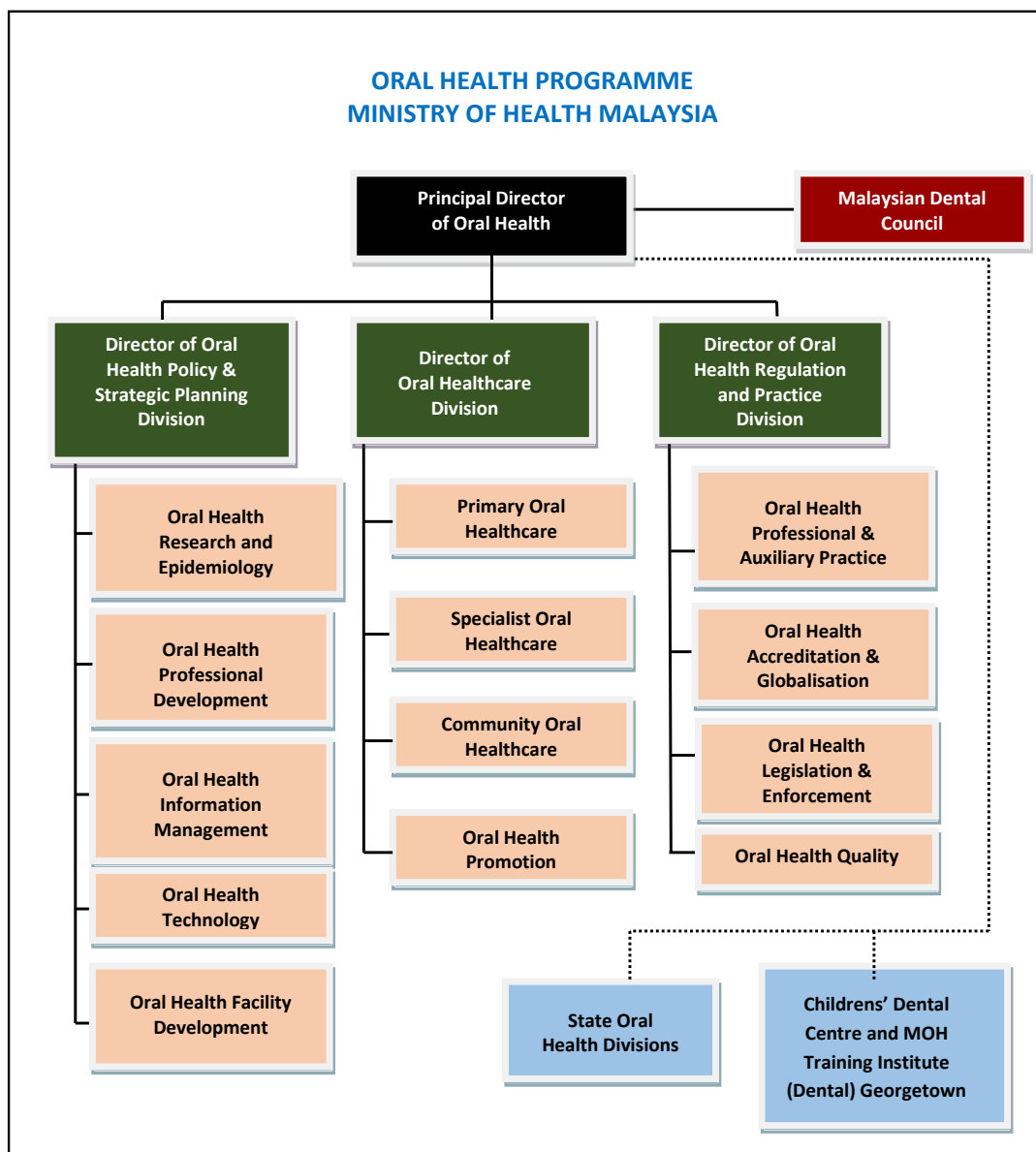
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## **ORAL HEALTH**

## INTRODUCTION

The Oral Health Programme of the Ministry of Health plays a major role in the stewardship and governance for oral health care services in the country. This includes development of oral health policies, management of oral health programmes and services, legislation and regulations pertaining to the practice of dentistry and oral health promotion so as to sustain good oral health among Malaysians. The Oral Health Programme management structure is as below (Figure 1).

**Figure 1**  
**Organisation Structure of Oral Health Programme,**  
**Ministry of Health Malaysia, 2016**



Source: Oral Health Programme MoH, 2016.

In 2016, the total operating expenditure for the Oral Health Programme was RM 852,177,631.76 under the following activities and codes as in **Table 1**.

**Table 1**  
**Total Operating Expenditure of Oral Health Programme, 2016**

Activities and Code	Expenditure (RM)	Percentage (%)
Management (050100)	79,356,429.20	9.3
Primary Oral Healthcare(050200)	603,833,000.94	70.9
Community Oral Healthcare(050300)	47,229,347.71	5.5
Specialist Oral Healthcare(050400)	121,758,853.91	14.3
<b>Total</b>	<b>852,177,631.76</b>	<b>100.0</b>

Source: Oral Health Programme MoH, 2016

## ORAL HEALTH EPIDEMIOLOGY AND RESEARCH

Oral health research activities and management of the oral health research agenda were carried out to support evidence-based policy making. These activities were undertaken in collaboration with various agencies within and outside MoH. The following research activities were carried out in 2016:

1. NHMS 2017: Adolescent Health Survey: Malaysia – input for oral health section.
2. NHMS 2016: Oral Health Module in Maternal and Child Health Survey – analysis and write-up for publication and produced infographics for oral health.
3. NHMS 2017: National Oral Health Survey of School Children – development and finalization of survey protocol, building data dictionary, building data entry file, training of 2 Benchmark Examiners, standardization and calibration of 36 State Examiners for conduct of data collection in 2017, training of 17 State Coordinators and 35 Field Supervisors, trial run for the survey and selection of schools for the actual survey in 2017.
4. National Oral Health Survey of Pre-school Children 2015 (NOHPS 2015) – data cleaning, data analysis and preparation of statistical report.
5. Evaluation of Referral of Diabetes Patients to Dental Clinics in MoH – second draft report for publication.
6. National Health Financing Mechanism Studies – protocol building for “Health Facility Costing Study Clinics” in Dental in collaboration with Harvard Consultancy under the 9 work packages of the Malaysian Health System Reform (MHSR) Project.
7. Dental Care Pathways for Geriatric Populations in ASEAN Countries: Clinicians’ Knowledge, Perceptions and Barriers Faced – data collection for Phase 1 of the Study and preparation of questionnaires for dentist, caregivers, dependent and independent elderly for Phase II study.
8. Public Perception Survey on Increasing Dental Charges at Government Dental Clinics and Willingness to Pay.
9. National Oral Health Research Initiative (NOHRI) – updating oral health research database at country level and engagement with relevant stakeholders.



10. Review of Applications from Other Agencies for Conduct of Research in Dental Facilities in MoH.
11. Monitoring of State Health System Research, Publication of the Compendium of Abstracts 2015 and Preparation of the Compendium of Abstracts 2016.
12. Review of Oral Health Research Manuscripts for Publication and Abstracts for Presentations for dissemination of research findings in the MoH.
13. Ethical Review of Oral Health Research Proposals under the Medical Ethics Committee at the Faculty of Dentistry, University Malaya (the Oral Health Division, MoH is a permanent member of this Committee).
14. Conduct of Collaborative Study “The effectiveness of dental health home visits on caries prevention in young children” with International Medical University and University of Malaya.
15. Conduct of Collaborative Study “Assessing Change in Quality of Life (QoL) by establishing the Minimal Importance Difference (MID) for Removal Partial Denture Therapy” with the University of Malaya.
16. Study on Drinking Water Supplies, Dietary Habits and Oral Health Status of Adults in Kelantan – preparation of draft manuscript for publication.

## ORAL HEALTH PROFESSIONAL DEVELOPMENT

The Oral Health Programme has made significant strides to improve personal development as well as career pathways of all oral health personnel.

Recognition of Dental Specialties and Postgraduate Qualifications Pursuance for recognition of various postgraduate qualifications in MOH is an ongoing process. The following qualifications were given full recognition as specialty courses by *Kementerian Pendidikan Tinggi Malaysia* at the Qualification Assessment and Recognition Standing Committee (*Jawatankuasa Teknikal Pengiktirafan dan Penilaian Kelayakan - JTPPK*) Meeting:

1. Master of Clinical Dentistry (MClinDent) Restorative Dentistry, Newcastle University, United Kingdom
2. Master of Community Oral Health (MCOH), University Malaya
3. Doctor of Dental Public Health (Dr DPH), University Malaya
4. Doctor in Clinical Dentistry (Periodontology), University of Adelaide, Australia
5. Master of Science in Clinical Dentistry (Periodontology), University of Manchester, United Kingdom
6. Doctor in Clinical Dentistry (Periodontology), University of New Zealand
7. Diploma of Membership in Restorative Dentistry (Prosthodontics), Royal College of Surgeons of England
8. Diploma of Membership in Restorative Dentistry (Prosthodontics), Royal College of Physicians and Surgeons, Glasgow
9. Diploma of Membership in Prosthodontics, Royal College of Surgeons, Edinburgh
10. Doctor of Clinical Dentistry in Paediatric Dentistry (DCD) Paediatric Dentistry, University of Melbourne
11. Master of Dental Surgery (Paediatric Dentistry) and Advanced Diploma in Paediatric Dentistry, University of Hong Kong



12. Diploma of Membership in Periodontics, Royal College of Surgeons of Edinburgh (MPerioRCSEd)
13. Diploma of Membership in Restorative Dentistry (Periodontology), Faculty of Dental Surgery, Royal College of Surgeons of England (MRD FDSRCS Eng)
14. Diploma of Membership in Restorative Dentistry (Periodontology), Royal College of Physicians and Surgeons of Glasgow (MRDRCPs Glasgow)
15. Doctor of Clinical Dentistry (DClinDent) Periodontics, University of Sydney, Australia
16. Doctor of Clinical Dentistry (DClinDent) Periodontics, University of Melbourne, Australia
17. Doctor of Clinical Dentistry (DClinDent) Periodontics, University of Western Australia, Australia
18. Doctor of Clinical Dentistry (DClinDent) Periodontics, University of Griffith, Australia
19. Master of Dental Surgery (Paediatric Dentistry), University of Hong Kong

## **ORAL HEALTH FACILITY MANAGEMENT & DEVELOPMENT**

### **DEVELOPMENT PROJECTS UNDER THE ELEVENTH MALAYSIA PLAN (11 MP)**

The Eleventh Malaysia Plan (11 MP) is the five-year development plan for Malaysia and covers the year 2016 to 2020. The Ministry of Health will continue to improve people's health by providing universal access to quality health care through the development of healthcare facilities. In 2016, under the 1<sup>st</sup> Rolling Plan of the 11 MP, six (6) new dedicated oral health development projects were approved as listed below:

1. Standalone Dental Clinic:
  - Dental Clinic Daro, Mukah Sarawak
  - Dental Clinic Pasir Akar, Besut Terengganu
  - Upgrading of Dental Clinic Tronoh, Kinta Perak
2. Health Clinic Type 3 and Dental Specialist Centre Precinct 6, Putrajaya
3. Public Water Fluoridation in Sabah
4. Quarters at Dental Clinic Chiku 3, Gua Musang, Kelantan

In addition there were eleven (11) development projects brought forward from 10<sup>th</sup> MP in various states as follows:

1. Six Standalone Dental Clinic:
  - Dental Clinic Bukit Selambau, Kedah
  - Dental Clinic Kluang, Johor
  - Dental Clinic Beluran, Sabah
  - Dental Clinic Tanjung Karang, Kuala Selangor, Selangor
  - Dental Block at Bukit Changgang, Kuala Langat, Selangor
  - Dental Blok at Health Clinic Sungai Tekam Utara, Jerantut, Pahang
2. Non-Hospital Based Dental Specialist Centre in Jalan Zaaba, Seremban Negeri Sembilan
3. Dental Specialist Centre Sabah
4. Upgrading dental facilities in hospital – Pediatric Dental Department, Hospital Melaka
5. Dental Clinic Sipitang, Sabah
6. Upgrading Dental Clinic Karakit, Pulau Banggi, Sabah

Three (3) Mobile Dental Clinic (MDC) Under the National Blue Ocean Strategy (NBOS) Programme and Mobile Community Transformation Centre (MCTC) initiatives were completed and delivered to Kelantan (1MDC) and to Sabah (2 MDCs).

### **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:

1. Development of new Dental Clinic Dato' Keramat
2. Redevelopment of Dental Clinic Cahaya Suria
3. Brief of Standalone Dental Clinic for 11 MP
4. Standard Brief of Health Clinic Type 2 for 11 MP
5. Standard Brief of Health Clinic Type 4 for 11 MP
6. New development of Health Clinic Kinrara Type 1
7. Other new development projects approved under 1<sup>st</sup> Rolling Plan 11 MP

### **PRIVATIZATION OF HEALTH CLINIC SUPPORT SERVICES OF THE BIOMEDICAL EQUIPMENT MANAGEMENT SERVICES (BEMS) UNDER MEDICAL EQUIPMENT ENHANCEMENT TENURE (MEET) PROGRAM**

Monitoring of maintenance services under MEET by Quantum Medical Solutions (QMS) Sdn. Bhd. is an ongoing activity in collaboration with the Engineering Division, MoH and Procurement & Privatisation Division, MoH. The first batch of delivery and supply of MEET gap equipment commenced on 1 September 2016. One hundred (100) dental clinics in various states under the MEET programme received a total of three hundred and thirty five (335) biomedical equipment under sixteen (16) different categories.

### **PRIVATIZATION OF HEALTH CLINIC SUPPORT SERVICES OF FACILITIES ENGINEERING MANAGEMENT SERVICES (FEMS), CLEANING SERVICES (CLS) AND CLINICAL WASTE MANAGEMENT SERVICES (CWMS) UNDER PERKHIDMATAN SOKONGAN KLINIKAL (PSK)**

The privatization of three (3) health clinic support services namely FEMS, CLS and CWMS in health clinics which also involved dental facilities were continued into 2016. Monitoring of implementation of projects, issues and other related activities were coordinated by Clinic Operation Section, Engineering Division, MoH. The variation to the contract under PSK for 11 states have been finalized with additional of two (2) health facilities i.e Health Clinic Precinct 18 Putrajaya and Health Clinic Kuala Lumpur. PSK contract in Sarawak was also renewed for five (5) new health clinics. Another two (2) PSK contracts in Sabah and Pahang were continued to deliver support services as per contract agreement.

### **PROCUREMENT OF MEDICAL AND NON-MEDICAL EQUIPMENT AND NON-AMBULANCE VEHICLES**

In 2016, the Oral Health Programme received RM16.5 million under the Development Funds for replacement, upgrading and procurement of new non-ambulance vehicles, medical and non-medical equipment.

## TRAINING

*Kursus Pembangunan dan Perkembangan Fasilitas Kesehatan Pergigian* was held from the 29 to 1 December 2016 at Klana Resort Seremban, Negeri Sembilan. The main objective of the course is to review and update the standard Brief of Requirement (BOR) for the following facilities:

- a) Dental Services in Health Clinic (Type 1,2,3,4 & 5)
- b) Standalone Dental Clinic
- c) Non Hospital Based Dental Specialists Centre
- d) Dental Services in Major Hospital
- e) Dental Services in Minor Hospital
- f) Dental Clinic in Urban Transformation Centre

## ORAL HEALTH TECHNOLOGY

The development status of Clinical Practice Guidelines (CPGs) in 2016 as listed in **Table 2**.

**Table 2**  
**Clinical Practice Guidelines (CPG) as of 15 November 2016**

No	Title of CPG	Publication (Year)	Edition	Status
1	Management of Unerupted Maxillary Incisors	2006	2 <sup>nd</sup> edition	Published and distributed
2	Management of Palatally Ectopic Canine	2004	2 <sup>nd</sup> edition	Publication process
3	Antibiotic Prophylaxis in Oral Surgery for Prevention of Surgical Site Infection	2003	2 <sup>nd</sup> edition	Published and distributed
4	Management of Condylar Fracture of the Mandible	2005	Review	In Progress
5	Management of Periodontal Abscess	2003	Review	Publication process
6	Management of Acute Orofacial Infection of Odontogenic Origin in Children	-	New topic	Approved for publication
7	Management of Unerupted and Impacted Third Molar	2005	1 <sup>st</sup> edition	Due for Review
8	Management of Avulsed Permanent Anterior Teeth in Children	2010	2 <sup>nd</sup> edition	Due for Review

Source: Oral Health Programme MoH, 2016.

## APPROVED PURCHASE PRICE LIST (APPL)

Activities in relation to APPL included, attending meetings coordinated by the Procurement and Privatisation Division, MoH to discuss matters related to the supply of items by Pharmaniaga Logistics Sdn. Bhd. and APPL issues including delivery time, penalty on late delivery, product shelf life and products complaints.

## TECHNOLOGY REVIEW

Literature search for scientific papers required for technology review was done for Cone-Beam Computed Tomography (CBCT). The guidelines on “The Use of Cone-Beam Computed Tomography” was approved by the Principal Director of Oral Health on 30 June 2016, distributed to the states on 5 October 2016 and uploaded to the Oral Health Programme official website.

## ACTIVITIES RELATED TO MINAMATA CONVENTION ON MERCURY

The Oral Health Technology Section was also involved in the preparation of *Pelan Tindakan Negara sebagai Persediaan Ke Arah Meratifikasi Konvensyen Minamata Mengenai Merkuri* and in the development of *Garis Panduan Pengurusan Sisa Merkuri di Klinik* which was published by Engineering Services Division MoH.

## ORAL HEALTHCARE INFORMATION MANAGEMENT

### TELEPRIMARY CARE AND ORAL HEALTH CLINICAL INFORMATION SYSTEM (TPC-OHCIS)

TPC-OHCIS comes under the Public Service Delivery Transformation Project undertaken using research fund from Ministry of Science, Technology & Innovation (MOSTI). The project began in December 2015 with MIMOS as the technology provider and MoH as the project recipient. Family Health Development Division, Oral Health Division and Information Management Division were involved directly in the development and pilot implementation of TPC-OHCIS. The system will be piloted in 13 sites (6 Health clinics and 7 Dental Clinics) in Negeri Sembilan. In 2016, TPC-OHCIS project undertook full swing development of the system and two cycles of User Acceptance Test were conducted. Change management which focuses on business re-engineering and new concepts were conducted in November by the train-the trainer approach.

**Image 1**

**Change Management Workshop for TPC-OHCIS Core User Trainers and Echo Training at Pusat Pakar Pergigian Zaaba, Seremban, Negeri Sembilan.**





Source: Oral Health Programme MoH, 2016.

### **CLINICAL DOCUMENTATION SISTEM PENGURUSAN PESAKIT (CD SPP) PROJECT**

CD SPP Project led by the Medical Development Division, MoH aimed to develop the clinical documentation and also to enhance the existing SPP. Dental disciplines involved are the Oral Maxillofacial Surgery, Pediatric Dental, Oral Pathology & Oral Medicine, Special Needs Dentistry and Forensic Odontology and had participated in requirement gathering workshops.

### **PROJECT *PELUASAN* OHCIS**

This is a 10<sup>th</sup> MP project which involves upgrading of the ICT infrastructure of 20 facilities with OHCIS and infrastructure readiness for 54 dental clinics without OHCIS, in preparation for TPC-OHCIS. The project would take 12 months to complete and target completion by 2017.

### **HIS@KKM FASA 1 (LIS, OTMS & CenSSIS)**

The Oral Health Programme was involved in the HIS @ KKM phase 1 project which is led by the Medical Development Division MoH. HIS @ KKM Phase 1 project consists of 3 subsystems namely Laboratory Information System (LIS), Central Sterile Supply Services Information System (CenSSIS) and Operating Theatre Management System (OTMS). The Oral Health Programme was involved in both OTMS and CenSSIS subsystem but not in the LIS as there is no dental laboratory devices that require integration.

### **ROLL-OUT OF OHCIS TO KUALA LUMPUR CLINIC JALAN FLETCHER (KKKL)**

The KKKL Clinic is a new health clinic that will be implementing the electronic patient records in early 2017. Thus training of users and system administrators for OHCIS was held in November 2016 which involved the clinic's personnel.

**Image 2**  
**Training for System Users at WPKL & Putrajaya Health Office**  
**on 21 to 24 November 2016**



*Source: Oral Health Programme MoH, 2016*

**Image 3**  
**Training for OHCIS System Administrators at WPKL & Putrajaya Health Office**  
**on 29 November 2016**



*Source: Oral Health Programme MoH, 2016*

## ORAL HEALTH PROMOTION

Throughout the year 2016, the Oral Health Division continues its effort in empowering the public on the importance of oral health by participating in various health campaigns, exhibitions, media slots and other collaborative efforts.

### MEDIA SLOTS

In 2016, 15 oral health topics were identified for radio/TV slots but only 4 were given the slot. **(Table 3).**

**Table 3**  
**Oral Health Topics for Radio/TV Slots 2016**

Media	Topic	Speaker
Astro 201 & Astro 231	Oral Cancer Awareness	Dr Deeban Dass a/l Moganadass
Traxx FM	Black Market Braces	Dr Elise Monerasinghe

Media	Topic	Speaker
Radio Nasional FM	<i>Doktor Gigi Tidak Berdaftar</i>	Dr Elise Monerasinghe
TV1	<i>Berhenti Merokok Usaha KKM dan Swasta</i>	Dr Sharol Lail Sujak

Source: Oral Health Programme MoH, 2016

## HEALTH CAMPAIGNS AND EXHIBITIONS

Activities such as health campaigns and exhibitions were conducted in collaboration with other Divisions in MoH. The major events were as below:

1. World Oral Health Day 2016 at IOI City Mall Putrajaya on 18 to 20 March 2016
2. *Karnival Raudhah Di Hatiku* at Pulau Warisan, Terengganu on 24 to 26 March 2016
3. *Majlis Perasmian Penutupan Kembara Kebajikan 1Malaysia* at Bagan Datoh, Perak on 10 April 2016
4. *Karnival Jom Heboh* at Pekan, Pahang on 5 to 6 May 2016
5. *Karnival Raudhah Di Hatiku* at Kota Bharu, Kelantan on 27 to 28 May 2016
6. *Karnival Jom Heboh* at Stadium Bukit Jalil Selangor on 30 to 31 July 2016
7. *Karnival Pergigian* at Mydin Mall Bukit Mertajam, Pulau Pinang on 23 August 2016
8. *Karnival Jom Heboh* at Plaza Angsana, Johor Bahru, Johor on 30 September to 1 October 2016
9. *Minggu Keselamatan Dan Kesihatan Pekerjaan* at Block E1, Kompleks E, KKM on 19 to 23 October 2016
10. *Program Singgah Santai @ PNM Relakslah Dulu* at National Library, Kuala Lumpur on 22 October 2016
11. *Karnival Raudhah Di Hatiku* at Stadium Darul Aman, Alor Setar, Kedah on 27 to 29 October 2016
12. *Karnival Jom Heboh* at Stadium Batu Kawan, Pulau Pinang on 26 & 27 November 2016
13. *Majlis Pelancaran iGG Peringkat Kebangsaan* at Dewan Tun Perak, LDHN Melaka on 4 December 2016

## DEVELOPMENT OF CONTENT AND PRINTING NEW MATERIALS FOR ORAL HEALTH EDUCATION AND PROMOTION

Pamphlets and posters were developed, printed and distributed to the states. Some of the titles of the printed materials are:

1. Pamphlet: *Perubahan Warna Gigi*
2. Pamphlet: *Kerjaya Pegawai Pergigian, Juruterapi Pergigian, Juruteknologi Pergigian dan Pembantu Pembedahan Pergigian*
3. Poster: *Penyakit Pergigian Murid Sekolah*
4. Poster: *Penyakit Pergigian Kanak-Kanak*
5. Pocket pamphlet: *Mengesan Awal Kanser Mulut*

## HUMAN RESOURCE DEVELOPMENT IN ORAL HEALTH PROMOTION

1. Infographic Workshop was held at Bilik Mesyuarat Utama, Bahagian Kesihatan Pergigian on 22 & 23 August 2016.
2. *Bengkel Pemantapan Media Sosial* at Regency Hotel, Kuala Lumpur on 7 to 9 December 2016.
3. Workshop Training of Trainer for state iGG facilitators at Bayview Hotel, Melaka on 2 to 4 December 2016.
4. Workshop Training of Trainer for *iGG icon* at Pudu Plaza Hotel, Kuala Lumpur on 6 to 8 May 2016.
5. Training of Trainer for *Program Pencegahan dan Intervensi Merokok Dalam Kalangan Pelajar Sekolah* at Emerald Putri Hotel, Sungai Petani, Kedah on 19 to 21 July 2016.
6. Training of Trainer for *Program Pencegahan dan Intervensi Merokok Dalam Kalangan Pelajar Sekolah* at Seri Malaysia Hotel, Port Dickson, Negeri Sembilan on 4 to 6 April 2016.

## PRIMARY ORAL HEALTHCARE

### EXPANSION AND CONSOLIDATION OF PRIMARY ORAL HEALTHCARE DELIVERY

The outpatient dental services has also been expanded in the following aspects:

1. Number of dental clinics with daily outpatient services increases from 469 (2015) to 479 (2016).
2. Number of dental clinics with permanent dental officers increases from 79.4 per cent (2015) to 82.5per cent (2016).
3. 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 was 75.4per cent (2016) compared to 70.6 per cent (2015).
4. Percentage of denture patients aged  $\geq 60$  years old receiving dentures within 8 weeks was 55.4per cent (2016) compared to 53.9 per cent (2015).

*Klinik Endodontik Perkhidmatan Pergigian Primer (KEPP)* was established in 2013 and offers endodontic treatment at primary care level. Identified dental officers from 21 clinics were trained to undertake endodontic treatment of anterior and posterior teeth using rotary instruments. In 2016, a total of 2,711 endodontic cases were seen and completed at KEPPs compared to 2,127 in 2015.

Dental Officers with Special Interest in Periodontics (DOSIP) has been identified as a group of dental officers to undergo training and to fulfil DOSIP requirements during attachment with periodontic specialists at their locality. A DOSIP would be able to conduct periodontal charting and perform simple periodontal procedures for periodontal patients with BPE score of 1 to 3 and to refer BPE 4 patients for complex periodontal treatment.

Continuous effort was undertaken to ensure safety of patient before commencing dental treatment. This lead to the enhancement of the standard operating procedure for Examination and Diagnosis to include blood pressure taking. This step would assist the



dental providers in decision making such as deferring treatment or referring patient to medical team for further investigation. Training on Medical Problems and Medical Emergencies in Dentistry was conducted on 28 to 30 May 2016 at Eastin Hotel Kuala Lumpur, which involved 60 dental officers (UG41 to 44) from the states.

Several meetings and discussions were held in 2016, aimed to improve the current Health Information Management System (HIMS) data collection format such as inclusion of data requirements on new initiatives such as the Modified MoH International Classification of Dental Caries Assessment System (MMI), Gingival Index Score (GIS) and Oral Health Promotional Programs such as Smoking Intervention Program among Schoolchildren.

## MONITORING AND EVALUATION OF PRIMARY ORAL HEALTHCARE

The provision of oral healthcare to the population has been, and continues to be given priority by certain target groups; toddlers (0 to 4 years), pre-school children (5 to 6 years), schoolchildren (7 to 17 years), children with special needs, antenatal mothers, adults and the elderly. The performance were monitored quarterly and reports presented at Technical and *Jawatankuasa Dasar & Perancangan Kesihatan Pergigian* (JDPKP) meetings once a year.

The overall utilisation of primary oral healthcare in the MOH has reduced from 25.3 per cent in 2015 to 24.3 per cent in 2016 (**Figure 2**).

**Figure 2**  
Coverage of primary oral healthcare by patient category (2012 to 2016)

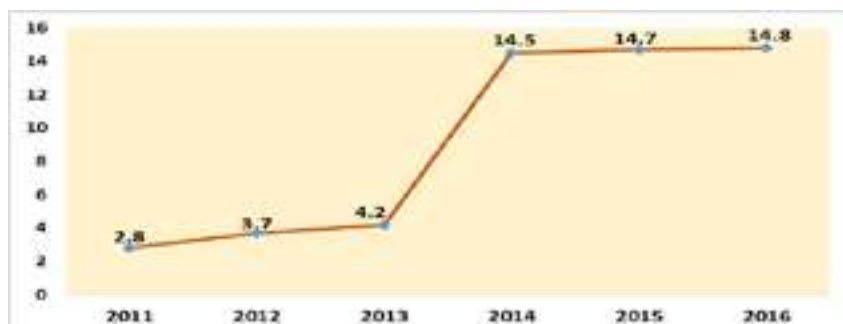


Source: Health Informatics Centre, MoH (preliminary data 2016).

There has been a slight increase in the coverage of toddler population from 14.7 per cent (2015) to 14.8 per cent (2016) (**Figure 3**). cursory examination of the oral cavity of toddlers - 'lift-the-lip' – technique was done at non-dental 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 924,920 (2015) to 1,001,424 (2016) (**Figure 4**). Meanwhile, the percentage of primary schoolchildren receiving primary oral healthcare remains the same

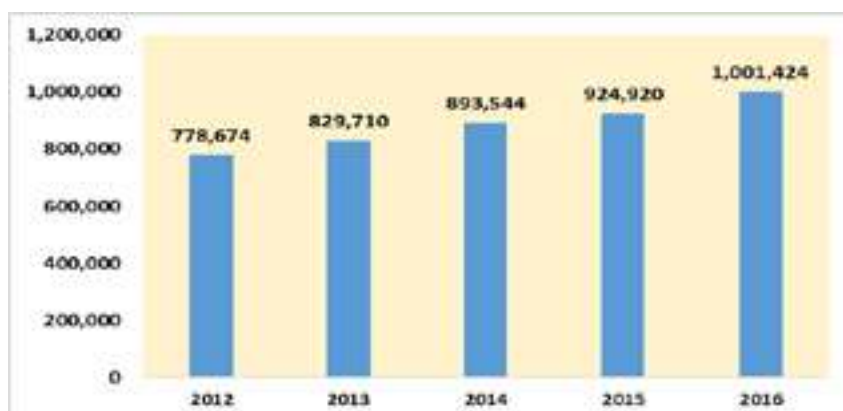
at 98.8 per cent as the previous year (Figure 5). The coverage of secondary schoolchildren increased from 90.5 per cent (2015) to 94.2 per cent (2016) (Figure 6).

**Figure 3**  
Percentage of Toddlers Receiving Primary Oral Healthcare, 2011 to 2016



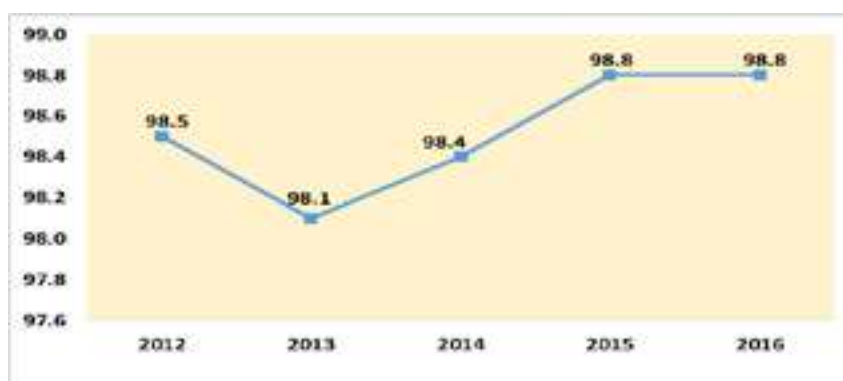
Source: Health Informatics Centre, MoH (preliminary data 2016).

**Figure 4**  
Number of preschool children receiving primary oral healthcare, 2012 to 2016



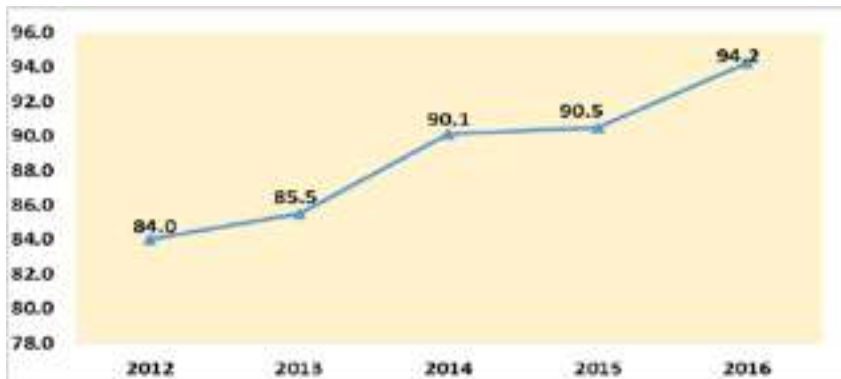
Source: Health Informatics Centre, MoH (preliminary data 2016).

**Figure 5**  
Percentage of primary schoolchildren receiving primary oral healthcare, 2012 to 2016



Source: Health Informatics Centre, MoH (preliminary data 2016).

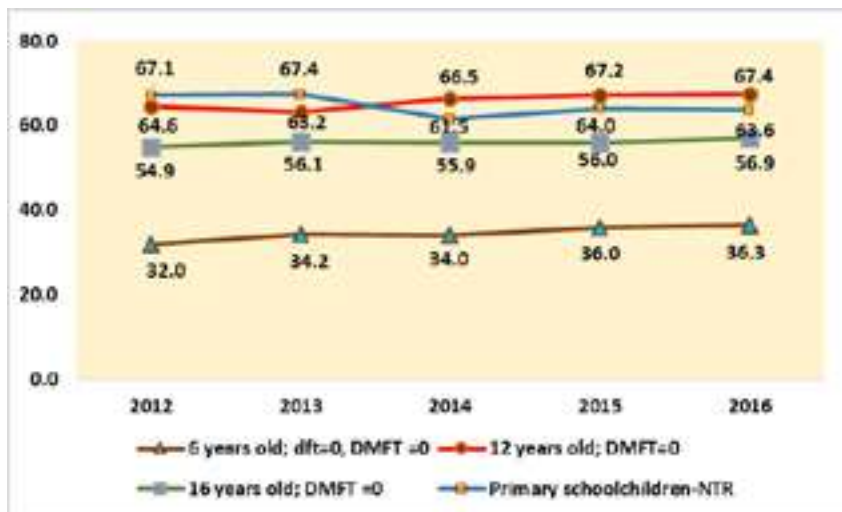
**Figure 6**  
**Percentage of secondary schoolchildren receiving primary oral healthcare, 2012 to 2016**



Source: Health Informatics Centre, MoH (preliminary data 2016).

Impact indicators for school dental service was also monitored. There was a slight 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 to 64.0 per cent (2015) with a slight reduction to 63.6 per cent (2016) (Figure 7).

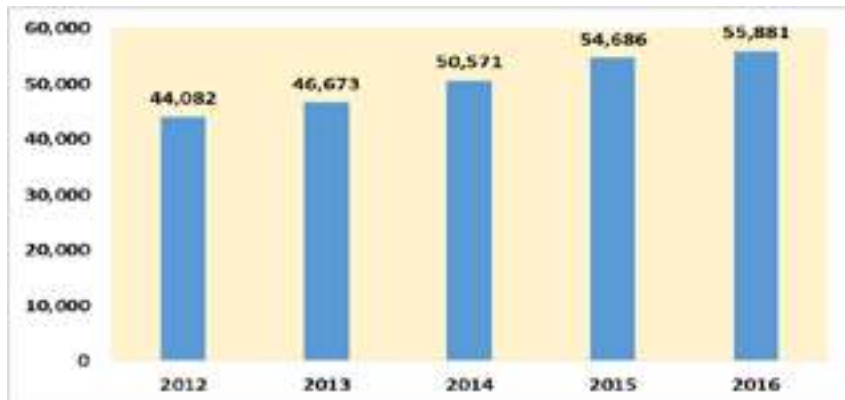
**Figure 7**  
**Impact Indicators for school dental service, 2012 to 2016**



Source: Health Informatics Centre, MoH (preliminary data 2016).

The number of children with special needs receiving primary oral healthcare services has been increasing steadily over the years. Under the National Blue Ocean Strategy 7 (NBOS 7) initiatives, special needs children, the elderly and single mothers are given priorities in healthcare. In 2016, a total of 55,881 special needs children received oral healthcare (Figure 8).

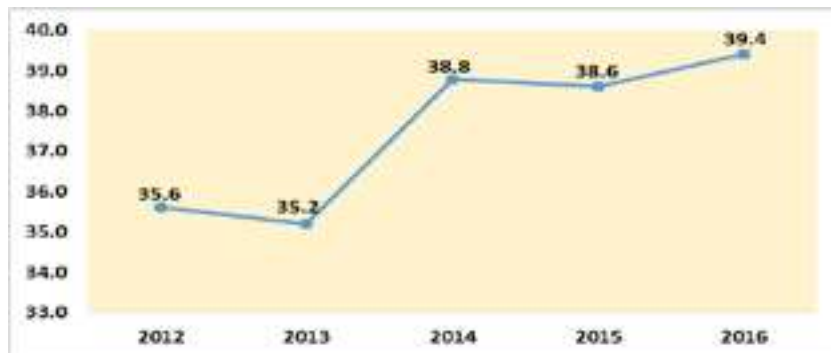
**Figure 8**  
**Children with Special Needs Receiving Primary Oral Healthcare, 2012 to 2016**



Source: Health Informatics Centre, MoH (preliminary data 2016).

Efforts have been made to increase the attendance of antenatal mothers at dental clinics which includes referrals from Health and Maternal & Child Health clinics as part of routine antenatal checkup. In 2016, the coverage of antenatal mothers increases from 38.6 per cent in 2015 to 39.4 per cent in 2016 (Figure 9).

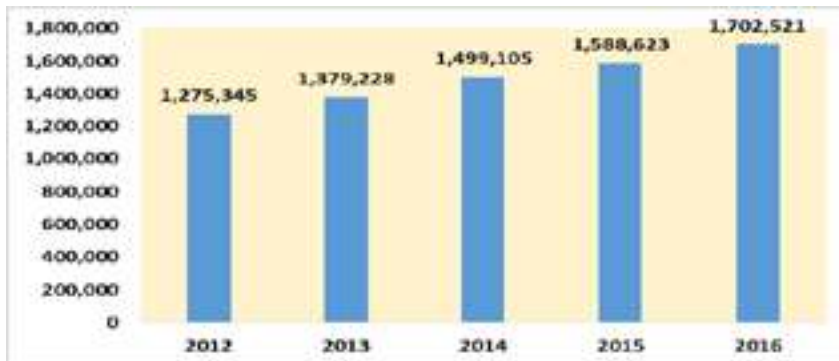
**Figure 9**  
**Coverage of Antenatal Mothers, 2012 to 2016**



Source: Health Informatics Centre, MoH (preliminary data 2016).

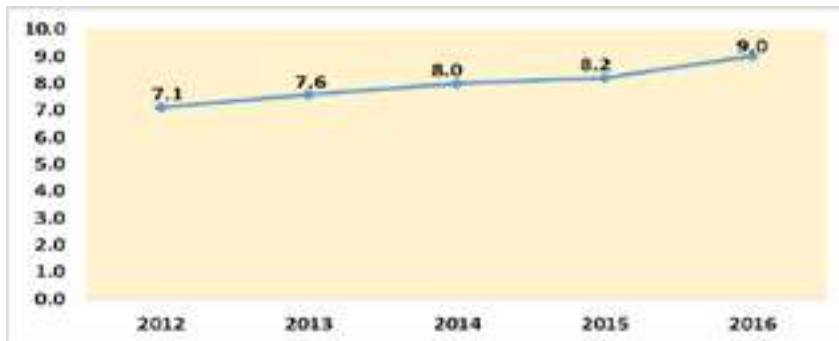
The provision of oral healthcare for adults is provided through various dental facilities and through outreach services which include the Urban Transformation Centre (UTC), Rural Transformation Centre (RTC) and the increasing number of dental clinics providing daily outpatient services. Thus there is an increasing number of adults and elderly receiving primary oral health care in 2016 (Figure 10 and Figure 11).

**Figure 10**  
Adults population receiving Primary Oral Healthcare, 2012 to 2016



Source: Health Informatics Centre, MoH (preliminary data 2016).

**Figure 11**  
Percentage of Elderly Population Receiving Primary Oral Healthcare, 2012 to 2016



Source: Health Informatics Centre, MoH (preliminary data 2016).

## SPECIALIST ORAL HEALTHCARE

There are 9 dental specialties in the MoH namely Oral Surgery, Orthodontics, Paediatric Dentistry, Periodontics, Oral Pathology & Oral Medicine, Restorative Dentistry, Special Needs Dentistry, Forensic Dentistry and Dental Public Health.

Overall in 2016, there are 228 clinical dental specialists in MoH (**Table 4**).

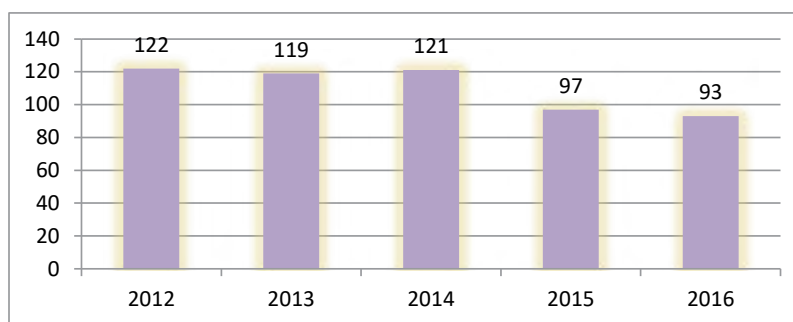
**Table 4**  
Gazetted Clinical Dental Specialists in MoH (2012 to 2016)

Discipline	Year	2012	2013	2014	2015	2016
Oral Surgery		51	55	56	60	64
Orthodontics		40	46	48	47	52
Paediatric Dentistry		29	33	35	39	38
Periodontics		21	24	29	34	24

Discipline	2012	2013	2014	2015	2016
Oral Pathology/ Medicine	9	9	10	11	11
Restorative Dentistry	17	20	20	20	24
Special Needs Dentistry	2	2	3	3	4
Forensic Dentistry	1	1	1	1	1
<b>Total Clinical Specialist</b>	<b>161</b>	<b>190</b>	<b>202</b>	<b>215</b>	<b>228</b>

(Not Inclusive of specialist undergoing gazettement and contract dental specialist).  
Source: Oral Health Division MoH, 2016.

**Figure 12**  
**Dental Public Health Officers in MOH (2012 to 2016)**



Source: Oral Health Programme MoH, 2016.

In addition, there are 93 Dental Public Health Officers in the MoH (**Figure 12**). Mapping of specialists services were done to ensure appropriate distribution of existing specialists according to need and also to identify future training needs of various specialties. The establishment of 4 specialist oral health services in 11 facilities was undertaken in 2016 (**Table 5**).

**Table 5**  
**New Specialty Services Established in 2016**

Specialty	Hospital / Dental Facilities
Special Needs Dentistry	Hospital Raja Perempuan Zainab II Kota Bharu
Orthodontics	KP Taman Universiti, KP Kuala Dungun, KP Bintulu
Periodontics	KP Kurnia, KP Bandar Tun Hussein Onn, KP Kuala Krai, KP Baling, KP Simpang Lima
Restorative Dentistry	KP Tengker, KP Machang

Source: Oral Health Programme MoH, 2016.

Data from services rendered by the various dental specialties are collected through the HIMS e-reporting system. The workload of dental specialists from various disciplines is reflected by the ratio of specialist to patients (**Table 6**).

**Table 6**  
**Workload of Dental Specialist by Disciplines**

Specialty	Specialist: No. of patients seen			
	2013	2014	2015	2016
Oral Surgery	1:3,645	1:3,843	1:3,823	1: 3,954
Orthodontics	1:3,850	1:3,689	1: 4,083	1: 4,055
Paediatric Dentistry	1:3,606	1:2,676	1:2,427	1 : 2,730
Periodontics	1:1,578	1:1,368	1:1,312	1 : 1,491
Oral Pathology & Oral Medicine	1:828	1:848	1:744	1: 869
Restorative Dentistry	1:1,594	1:1,658	1:1,732	1 : 1,439

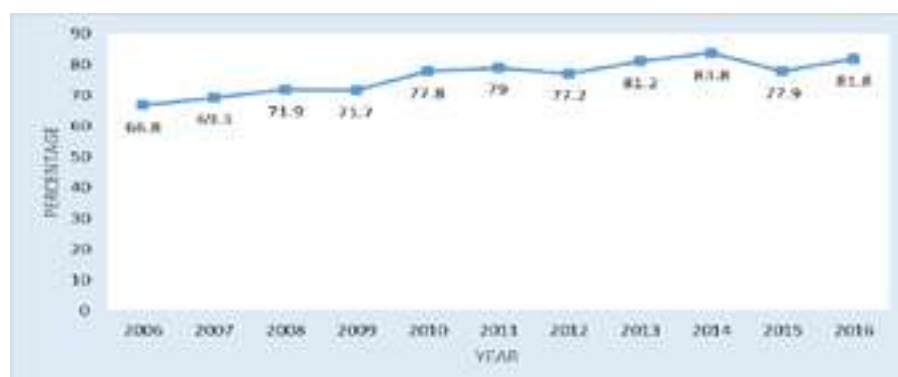
Source: Oral Health Programme MoH, 2016

## COMMUNITY ORAL HEALTHCARE

### WATER FLUORIDATION PROGRAMME

1. There was a total of 493 Water Treatment Plants (WTP) in Malaysia. All WTPs were fully privatized except for those in Perak, Sabah, Sarawak and Federal Territory Labuan.
2. Of 311 WTP (63.1 per cent) which were installed with fluoride feeders, 249 (80.1 per cent) were active while 62 (19.9 per cent) were inactive due to lack of resources to purchase fluoride compound or with technical problems such as fluoride feeders that require repair or replacement.
3. In 2016, an estimate of 76.6 per cent of population received fluoridated water. However fluoridation coverage in Sabah has decreased from 6.7 per cent (2015) to 6.0 per cent (2016).
4. Less than 50 per cent of water treatment plants in Sarawak, Kelantan, Pahang and Sabah produce fluoridated water.
5. 81.8 per cent 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 to 2016**



Source: Oral Health Programme MoH, 2016.

## PRIMARY PREVENTION & EARLY DETECTION OF ORAL PRE-CANCER & CANCER

1. A total of 644 new and 100 repeat high-risk *kampung*/estates/communities were visited and 15,350 residents aged 20 years and above were screened for oral lesion. A total of 77,631 participants were given dental health education.
2. A total of 88,947 patients were screened at the dental clinics under the opportunistic screening for walk-in patients.
3. Among those screened, 337 patients were seen with oral lesion and 229 were referred to Oral Surgeons for further investigation and management. Of the 138 cases seen by the oral surgeon, 37 per cent were diagnosed with malignant lesions.

## HUMAN RESOURCE MANAGEMENT

### PROFESSIONALS AND AUXILIARIES

Activities related to career advancements and welfare of dental professionals and auxiliaries in 2016 were as below:

1. Restructuring of the Oral Health Programme organization was approved and took effect from 1 April 2016 with addition of a third division and one (1) grade JUSA C post to reflect the function of the programme.
2. Implementation of Service Circular 1/ 2016 effective from 1 April 2016:
  - Dental Surgery Assistant scheme upgraded to U19/U24/U26/U28.
  - The nomenclature for Dental Nurse was changed to Dental Therapist.
  - New scheme code UG for dental officer.
3. A total of 485 new dental officers' post created in year 2016 has enabled the new dental graduates to undergo Compulsory Service.
4. A total of 32 dental officers with various post graduate qualifications reported duty and were posted based on the need for specialist service as been mapped.
5. Claims for *Bayaran Insentif Tugas Kewangan* was approved and payment can be made to the qualified Dental Surgery Assistant.
6. Claims for *Bayaran Insentif Merawat Pesakit Jiwa, Tibi dan Kusta* was approved and can be paid to the qualified Dental Surgery Assistant effective from 1 May 2016.
7. System e-Dentist was established to enable new dental officers to choose their posting on-line. The system was open for the first time on 19 December 2016 for 526 newly appointed contract dental officers.
8. 5 out of 11 dental officers cadre post were filled up with full time dental officers to treat inmates at *Penjara Kajang Selangor, Penjara Pokok Sena Kedah, Penjara Maran Terengganu, Penjara pengkalan Chepa Kelantan and Penjara Kota Kinabalu Sabah*.
9. A total of 229 *Pekerja Sambilan Harian* (PSH) was approved for Oral Health Programme to address the shortage of Dental Surgery Assistant nationwide.



## **ACCREDITATION AND GLOBALISATION**

### **ACCREDITATION OF DENTAL PROGRAMMES**

#### **GUIDELINES FOR THE ACCREDITATION OF DENTAL DEGREE PROGRAMME**

Draft of the revised Guidelines for the Accreditation of Undergraduate Dental Degree Educational Programmes has been prepared by the Working Committee led by Professor Emeritus Dato' Dr Wan Mohamad Nasir bin Wan Othman. Starting early 2016, in accordance with the MQA Act 2007, the MQA Council has directed that accreditation of programmes which are not under the jurisdiction of any professional body (which includes Dental Auxiliary programmes) will be managed by MQA. Hence, the guidelines for Dental Auxiliary Programmes were handed over to the MQA for revision.

#### **ESTABLISHMENT OF THE RATING SYSTEM**

The draft of the rating system for each of the (7) 'Areas of Quality Assurance' for accreditation of undergraduate dental degree programmes has been developed by the working committee led by Professor Dr Mohamed Ibrahim bin Abu Hassan. The draft is expected to be completed by next year and piloted.

#### **DENTAL MORATORIUM REVIEW**

A workshop was conducted at the Royale Bintang Hotel, Seremban Negeri Sembilan on 6 to 8 November 2016. Six (6) working groups were formed to review the status of actions taken as outlined in the Dental Moratorium paper. At the end of the workshop, a draft report based on the groups' findings was prepared. The report of the proceeding will be presented at the Joint Technical Accreditation Committee meeting.

#### **ACCREDITATION VISITS TO INSTITUTIONS OF HIGHER EDUCATION CONDUCTING DENTAL PROGRAMME**

- **Provisional Accreditation for approval of a new dental programme**

Starting early 2016, in accordance with the MQA Act 2007, the MQA Council has directed that accreditation of programmes which are not under the jurisdiction of any professional body (which includes Dental Auxiliary programmes) will be managed by MQA. Hence, the accreditation process for INSAN DSA Diploma Programme and MAHSA DSA Diploma Programme has been handed over to MQA. The final draft of the Standards and Criteria for Accreditation of DSA Diploma Programme has been developed and sent to the MQA Council for endorsement.

- **Second Accreditation Monitoring Visit**

The Second Accreditation Monitoring Visit for Lincoln University College Doctor of Dental Surgery programme was conducted on the 26 to 27 January (at Kelana Jaya and Mayang campus) and 4 February 2016 (at Kota Bharu Learning Centre). LUC was instructed to take corrective actions on the areas of concern raised in the panel's report.

- **Full Accreditation**

Full Accreditation evaluation visit for SEGi University Bachelor of Dental Surgery programme was conducted on 7 to 8 March 2016. The programme was given Full Accreditation status for a period of 3 years starting from 2 June 2016 to 1 June 2019

- **Additional/Follow up monitoring visit**

Follow up evaluation visit to AIMST University was conducted on the 5 April 2016 to evaluate the remedial actions taken by AIMST University on the areas of concern raised by the panel. The Full Accreditation period for AIMST BDS programme was extended for 3 years from 12 February 2016 to 11 February 2019.

- **Evaluation visit for Increase Student Intake**

Application for increase of student intake from 75 to 100 students per year was received from MAHSA University with the addition of 25 students specifically for international students. An evaluation visit by the panel of assessors was conducted on 2 December 2016. Based on the panel's finding, the MDC on the 113<sup>th</sup> Meeting on 22 February 2016 rejected the application.

## **JOINT TECHNICAL ACCREDITATION COMMITTEE (JTAC) MEETINGS**

A total of five meetings were held in 2016. Six (6) panel assessment reports were presented at the JTAC meetings for opinion and recommendations from JTAC members. Following JTAC recommendations 6 proposal papers were prepared to be presented at MDC meetings for approval.

## **SUBMISSIONS OF DECISIONS ON ACCREDITATION BY THE MALAYSIAN DENTAL COUNCIL TO THE MALAYSIAN QUALIFICATIONS AGENCY**

In 2016, a total of 5 decisions on HEP accreditation applications made by the MDC were submitted to the MQA.

## **STUDENT ATTACHMENTS AT MOH DENTAL FACILITIES**

### **MEMORANDUM OF AGREEMENT WITH HIGHER EDUCATION PROVIDER ON THE USE OF MOH FACILITIES FOR STUDENTS FIELD TRAINING**

In 2016, five MoAs (renewal) were signed between IMU, AIMST, UIAM, MMMC and USIM thus allowing them to continue using MOH dental facilities for the next 5 years for the training of their undergraduate dental degree students.

### **PLACEMENTS OF UNDERGRADUATE STUDENTS FOR FIELD TRAINING**

In 2016, (4) applications received from local institutions of higher education for posting of their undergraduate students at MOH dental facilities were processed and approved:- UiTM, SEGi, UKM and UIAM.

## **ELECTIVE POSTINGS BY UNDERGRADUATE STUDENTS FROM FOREIGN UNIVERSITIES**

In 2016, a total of 45 applications received from foreign university students for elective posting at MOH dental facilities were processed.

## **ATTACHMENTS OF POSTGRADUATE DENTAL STUDENTS FOR TRAINING AT MOH FACILITIES**

In 2016, a total of (4) applications received from UM, USM and UKM for postgraduate posting were processed.

## **GLOBALISATION AND LIBERALISATION OF HEALTHCARE SERVICES**

### **ASEAN JOINT COORDINATING COMMITTEE ON DENTAL PRACTITIONERS**

3 AJCCD Meetings were held in 2016:

- a) 16<sup>th</sup> AJCCD Meeting – Bangkok, Thailand from 27 to 29 January 2016.
- b) 17<sup>th</sup> AJCCD Meeting – Vientiane Lao PDR on 18 May 2016.
- c) 18<sup>th</sup> AJCCD Meeting – Ho Chi Minh City, Viet Nam on 26 to 27 September 2016.

Technical inputs were given on the following:

- a) AEC 2025 Strategic Action Plan (AJCCD-related parts)
- b) AJCCD Work Plan 2016 to 2025
- c) ASEAN Minimum Common Competency Standards for Dental Undergraduate Education
- d) ASEAN Dental Practice Standards
- e) Mechanism to enhance mobility of ASEAN dentists
- f) Updating of AJCCD database

## **HEALTH TOURISM**

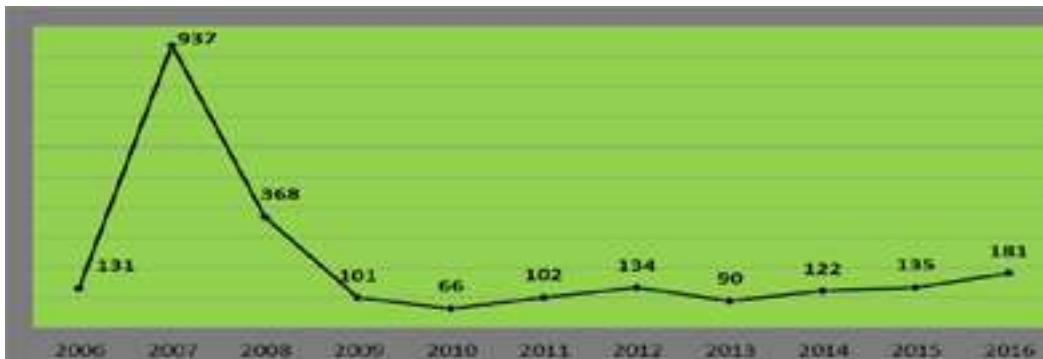
Technical input has been provided during meetings held by MSQH for the development of Dental Clinics Accreditation Standards and the Operational Policies for implementation of dental clinic accreditation programme.

## **ORAL HEALTH LEGISLATION & ENFORCEMENT**

### **REGISTRATION OF NEW DENTAL CLINIC**

In 2016, there was a total of 181 applications for new dental clinic registration and complied to the Private Healthcare Facilities & Services Act 1998 requirements. Recommendations for registration of these dental clinics were made to the Evaluation of Applications for Licensing and Registration of Private Healthcare Facilities and Services Committee (**Figure 14**).

**Figure 14**  
**Applications for Registration of New Dental Clinic 2016**



Source: Oral Health Programme MoH, 2016.

Activities of post-registration inspections for compliance of registered dental clinics were also undertaken. Following which surveillance was conducted on dental clinics which did not comply with the registration requirements.

**Figure 15**  
**Inspections for Compliance and Surveillance 2016**



Source: Oral Health Programme MoH, 2016.

#### **ENFORCEMENT PROVISION IN THE DENTAL BILL**

A proposal paper for enforcement provisions in the Dental Bill was finalized in the following areas:

- Application for new posts; and
- Appointment and training of enforcement officers.

## DENTAL BILL

In 2016, there were discussions held at legal advisor's office and eight (8) discussions at the Attorney General's office. The Memorandum for Cabinet and various other documents were prepared. The Dental Bill was also translated from English to Bahasa Malaysia by officers of the Oral Health Division.

## DENTAL REGULATIONS

The draft of the Dental Regulations was completed in June 2014. However, it requires further review to ensure it is in line with the new Dental Bill.

## INVESTIGATION ON COMPLAINTS

In 2016, a total of 61 complaints were received. These complaints were referred to the respective state enforcement officers for investigation and 34 enforcement activities were carried out.

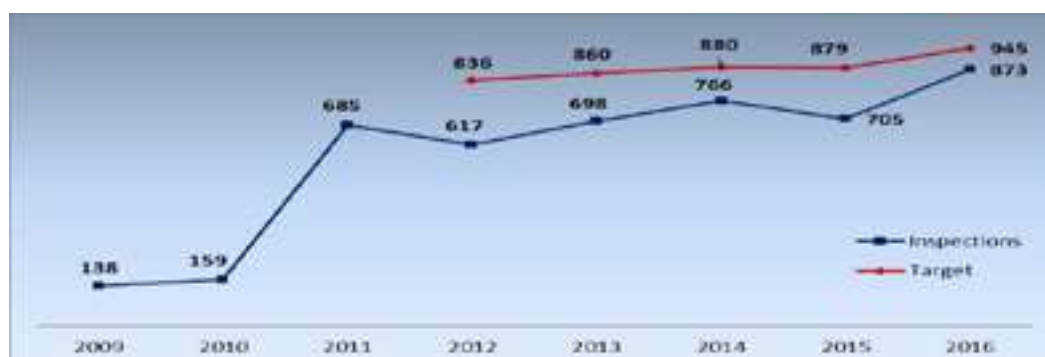
## SAFETY AND HEALTH AUDIT IN GOVERNMENT DENTAL CLINICS

Safety and health audits for government dental clinics were carried out throughout 2016, with 1121 clinics audited.

## INSPECTION OF PRIVATE DENTAL CLINICS

In 2016, 873 (46.6 per cent) of registered dental clinics in all states were inspected, which was 92.4 per cent of the target.

**Figure 16**  
**Inspection of Private Dental Clinics 2016**



Source: Oral Health Programme MoH, 2016.

## MEETING OF ENFORCEMENT OFFICERS

Enforcement Officers meeting was held in February 2016. The areas discussed were:

- Enforcement Report 2015.
- Cross-border activities.
- Issues in the implementation of the new Dental Act.
- Illegal practitioners and practises.

## ORAL HEALTH QUALITY

### QUALITY ASSURANCE PROJECTS/STUDIES

In 2016, a total of 19 projects were completed and 55 projects to be continued in 2017. Perak had the most number of completed QA projects/studies (5 studies) followed by Johor (3 studies). Many of these studies were presented at various conventions at state and regional level.

### TRAINING

*Ekosistem Kondusif Sektor Awam (EKSA)* training were 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 2016, 562/664 (84.6 per cent) dental clinics with primary oral healthcare were ISO-certified. Sarawak is the only state that is having the original district certification approach.

### INNOVATION

In 2016, a total of 39 innovation projects were completed and 40 projects to be continued in 2017. Several dental projects had received awards at various levels. Among the top achievers were:

1. Denture Penuh 1 Hari- won category *Anugerah Usahasama Penyelidikan dan Perniagaan* at Malaysia Commercialisation Year 2016, co-organized by Ministry of Science, Technology & Innovation and Ministry of Finance.
2. *Peningkatan Kes Tertusuk Jarum Suntikan Semasa Rawatan Pergigian di Klinik Pergigian Negeri Perlis*- first place (technical category) at *Majlis Persada Inovasi Perkhidmatan Awam Peringkat KKM 2016 (MPIPA)*.
3. *Proses Dentur Sebahagian yang Cepat dan Mudah* - second place (process category) at *Anugerah Inovasi Peringkat Kebangsaan KKM 2016*.
4. The MOH National Innovation Awards 2016 was held at Institute for Health Management, Bangsar from 8 to 10 November 2016.
5. A total of 14 Innovative & Creative Circle (ICC) projects were completed and another 34 projects to be continued into 2017. Several dental ICC projects had won awards at state and national level.

**Image 4**  
**Anugerah Inovasi Peringkat Kebangsaan 2016, Institute For Health Management, 8 to 10 November 2016.**



*Source: Oral Health Programme MoH, 2016*

## **CHALLENGES AND FUTURE DIRECTIONS**

Health promotion and disease prevention remains the most important activities so as to get more people keeping healthy. The contemporary health education and its relationship with empowerment has to be enhanced at every level of care. There is a need to be more creative not only to deliver knowledge but also to develop confidence of the people to act on the knowledge and to support others through more personalised communication as well as community based education outreach.

Efforts in improving personnel development and career pathways requires attention. The introduction of open system will provide more opportunity for training of dental specialist. Vocational attachment for New Dental Officers Programme (NDOP) are being proposed to enable these officers to gain experience from private dental facilities. The upgrading of the Dental Surgery Assistant qualification from certificate to diploma is currently undertaken.

The community outreach services are to be enhanced to become a more structured programme in line with the National Strategic Plan. The oral cancer prevention and management programme are being reviewed where a structured referral pathway, identification of risk habits and training modules on awareness and recognition of early lesion are to be develop. The Modified Ministry of Health Malaysia (MOH) International Caries Detection and Assessment System (MMI) are being developed and to be tested to help identify appropriate preventive action to be undertaken

With the new Dental Bill to be tabled at parliament, new post for enforcement officers and the required training need to be continuously undertaken. Meanwhile, the governance system will be further strengthened with the conversion to MS ISO 9001:2015 this year.

Being the lead agency for oral healthcare services to the population, the Oral Health Division undertakes the responsibility for the development of policies, governance and monitoring of outcomes. Networking with stakeholders involved in pursuing the goal towards good oral health of the population are being continually undertaken.





# **CHAPTER 8**

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## **PHARMACY**

## INTRODUCTION

The Pharmacy Programme is one of the programmes 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.

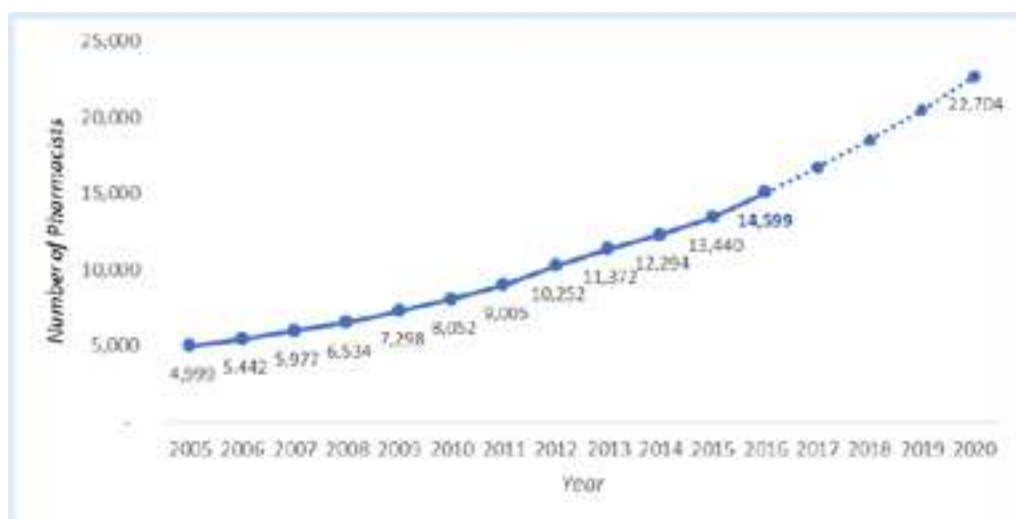
In 2016, the Pharmacy Programme restructuring resulted in the establishment of two new divisions: Pharmacy Policy and Strategic Planning Division and Pharmacy Board Malaysia. Currently, the Pharmacy Programme consists of 5 main divisions, respectively as follow :

1. Pharmacy Policy and Strategic Planning Division
2. Pharmacy Practice and Development Division
3. Pharmacy Enforcement Division
4. National Pharmaceutical Regulatory Agency
5. Pharmacy Board Malaysia

## ORGANISATIONAL AND HUMAN RESOURCE MANAGEMENT

Until the year 2016, 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. As at 31 December 2016, a total of 14,599 pharmacists are registered with the Pharmacy Board Malaysia (**Figure 1**).

**Figure 1**  
**Number Of Registered Pharmacist (Year 2005 to 2016) And**  
**Cumulative Projection Into Year 2020**



Source: Pharmacy Board Malaysia Division

## THE MoH's MEDICINES EXPENDITURE AND PROCUREMENT 2016

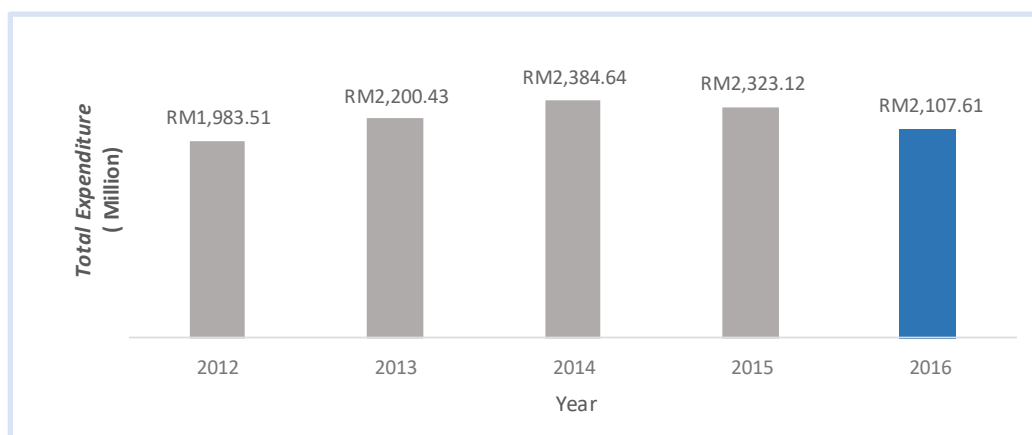
The total cost of medicines procured in 2016 for all MoH facilities was RM2,107,609,943.25. This shows a decrease of 9.28% in medicines expenditure compared to 2015 (**Table 1** and **Figure 2**). The value of the closing stock for medicines in December 2016 was RM260,891,217.16, which is approximately 1.48 (median) months of stock holding. Medicines were procured through the concessionaire company, MoH central contract and direct purchase & quotations (**Figure 3**).

**Table 1**  
**MoH Medicines Expenditure, 2012 to 2016**

Year	Total Expenditure (RM Million)	Percentage of Expenditure Differences Over the Previous Year (%)
2012	1,983.51	12.21
2013	2,200.43	10.94
2014	2,384.64	8.37
2015	2,323.12	-2.58
2016	2,107.61	-9.28

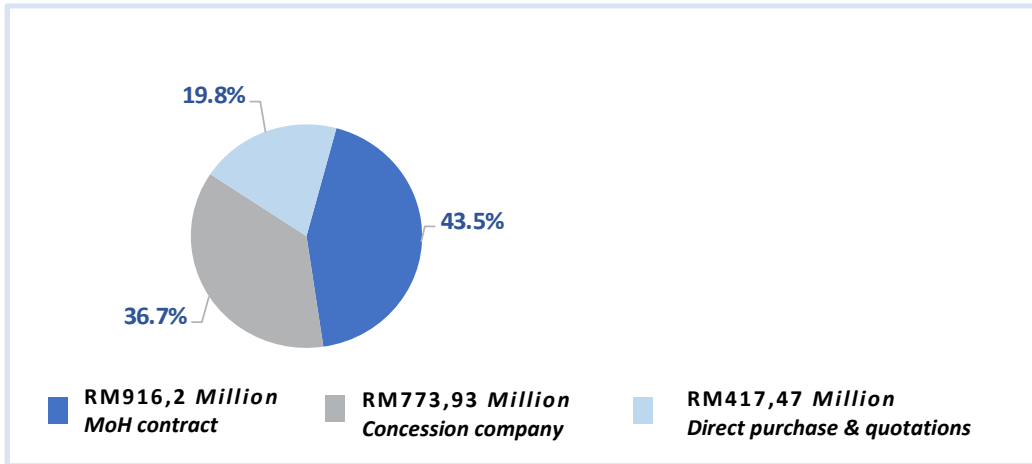
Source: Pharmacy Practice & Development Division, MoH

**Figure 2**  
**MoH Medicines Expenditure, 2012 to 2016**



Sumber: Pharmacy Practice & Development Division, MoH

**Figure 3**  
Types of MoH Medicines Procurement, Year 2016

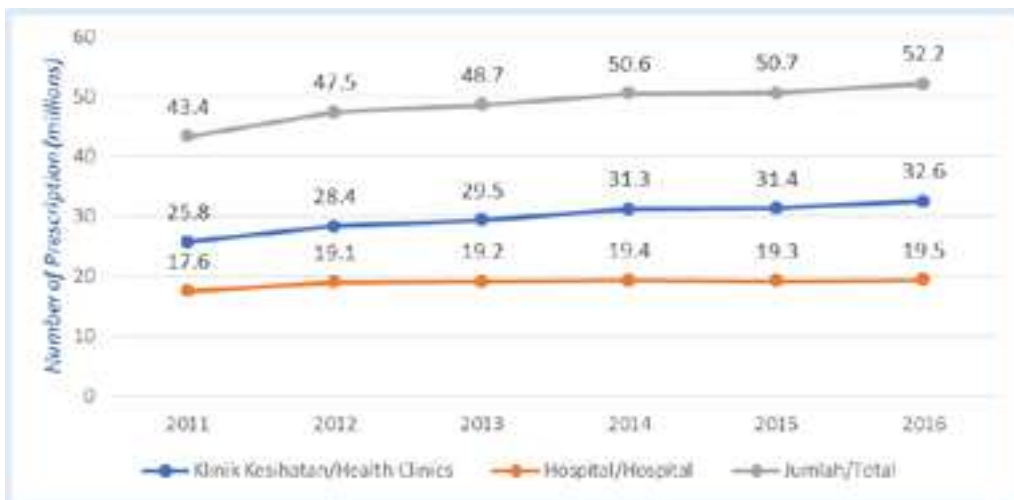


Source: Pharmacy Practice & Development Division, MoH

#### DISPENSING OF MEDICINES IN MOH AND HEALTH CLINICS

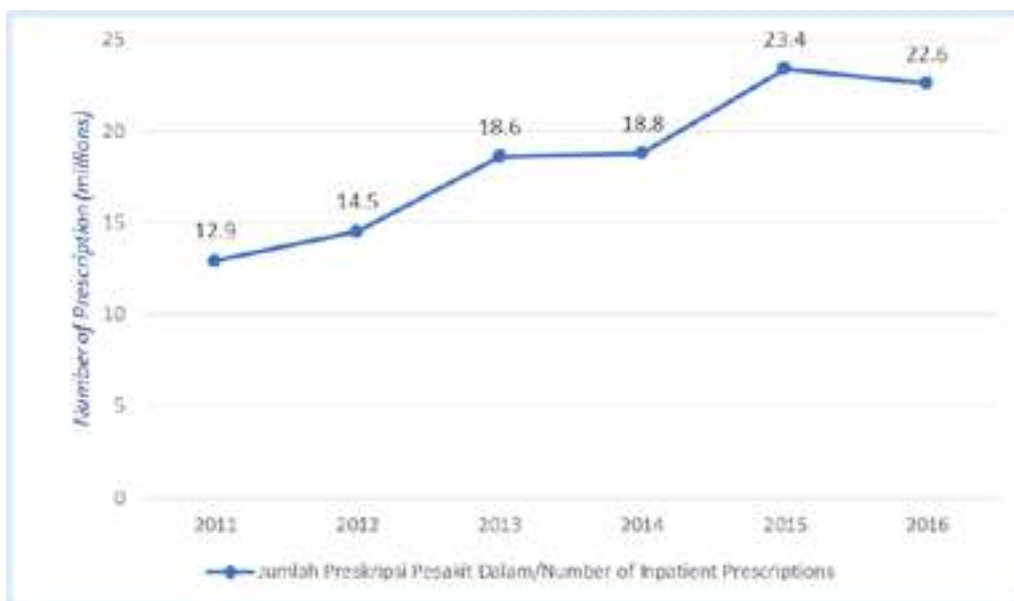
The number of prescriptions received at ambulatory and inpatient settings are shown in **Figure 4** and 5 respectively. Both figures show an increasing trend over the years, indicating a substantial demand for healthcare in MoH facilities.

**Figure 4**  
Number of Outpatient Prescriptions Received, 2011 to 2016



Source: Pharmacy Practice & Development Division, MoH

**Figure 5**  
**Number of Inpatient Prescriptions, 2011 to 2016**



Source: Pharmacy Practice & Development Division, MoH

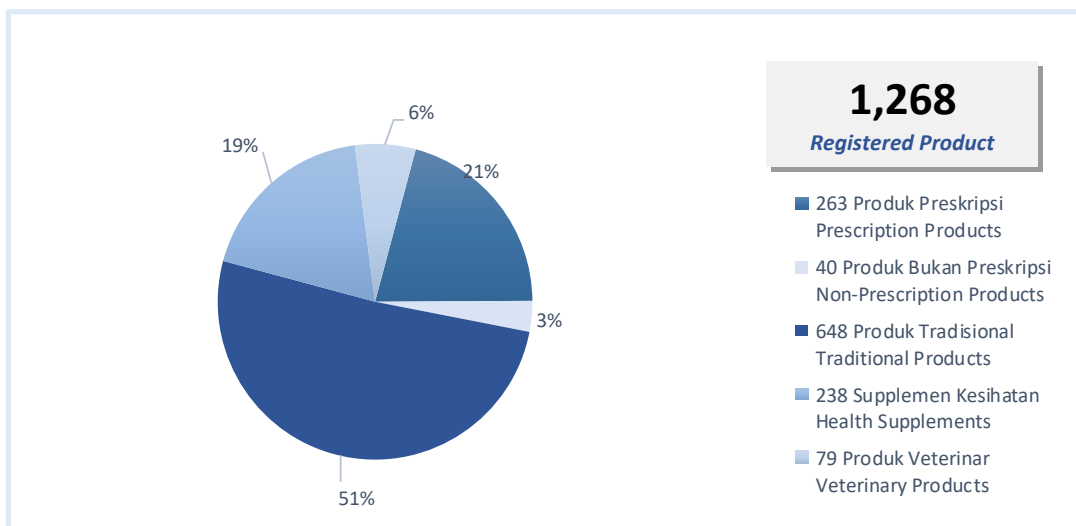
## ZERO-RATED MEDICINES

As announced by the Malaysian Prime Minister during the 2016 Government Budget, medicines with zero-rated under the GST will be introduced in Malaysia with an effective date of 1 January 2016. Referring to the Goods and Services Tax (Zero-Rated Supply) (Amendment) (No.2) Order 2015, all Scheduled Medicines i.e. medicaments under the Poisons List of Group A, B, C and D under Poisons Act 1952 which are registered with suffix 'A' by Drug Control Authority (DCA) will be given zero-rated. Besides that, there is also a list of registered product in the National Essential Medicine List (Suffix X and Suffix N) which is approved by the Ministry of Finance to be under the Goods and Services Tax (Zero-Rated Supply) Order 2014.

## PRODUCT REGISTRATION

In 2016, a total of 1,268 products were registered out of 2,054 applications comprising of 57% local products and 43% imported products (**Figure 6**). The cumulative number of registered products up to December 2016 is 50,813 products.

**Figure 6**  
**Number Of Registered Products In 2016**



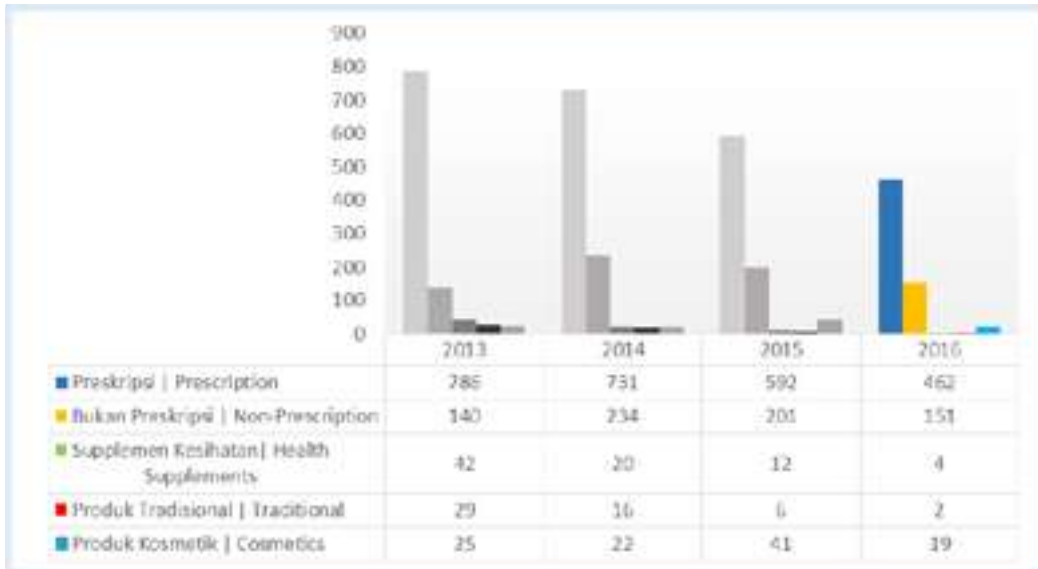
Source: National Pharmaceutical Regulatory Agency

### PRODUCT POST REGISTRATION

Market surveillance and handling of product complaints are in place to monitor registered medicinal products and notified cosmetics in Malaysia. This is to ensure that they comply with the quality and safety standards set by the MoH. Products complaints received were evaluated, investigated, and necessary actions are taken based on the findings. The actions taken are as follow:

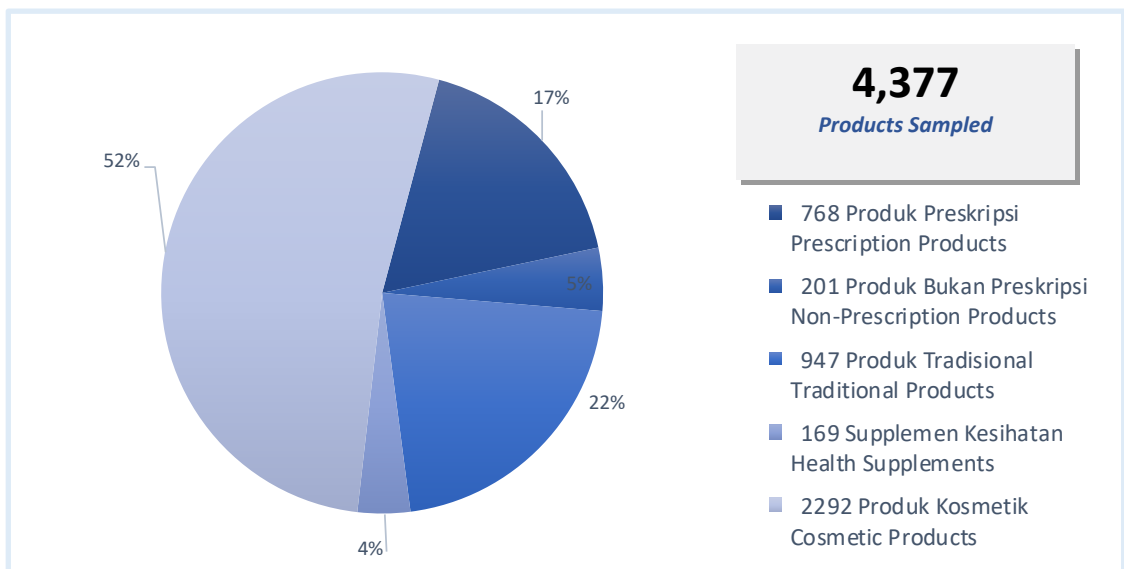
- 4 warning directives were issued due to label incompliance
- 6 products/batches were voluntarily recalled from the market by the product registration holders.

**Figure 7**  
**Number Of Product Complaints Received, 2013 to 2016**



Source: National Pharmaceutical Regulatory Agency

**Figure 8**  
**Number Of Products Sampled For Post-Registration, 2016**

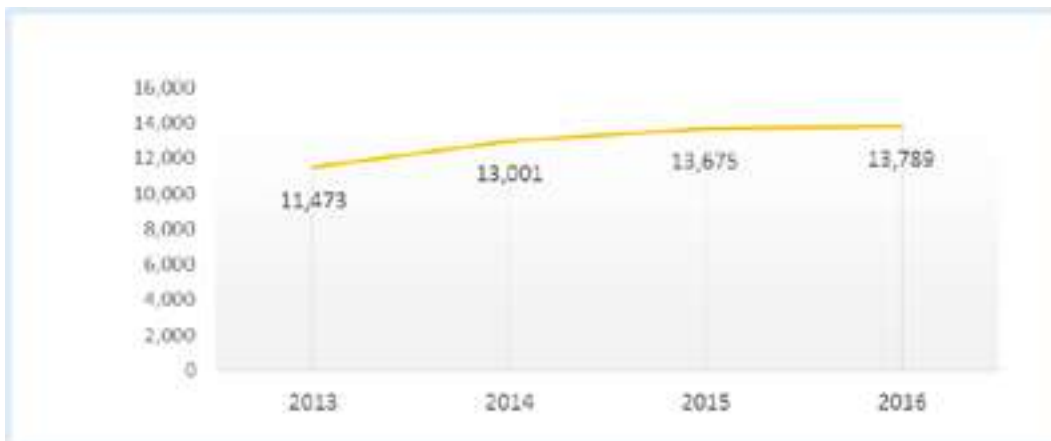


Source: National Pharmaceutical Regulatory Agency

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. The total number of adverse drug reaction reports received per year has

been increasing steadily throughout 2013 to 2016. In 2016, the Malaysian Adverse Drug Reaction (ADR) Monitoring Program had received a total of 13,789 reports, with an increase about 0.8% compared to 2015 (**Figure 9**).

**Figure 9**  
**Number Of Adverse Drug Reactions Reports 2013 to 2016**



Source: National Pharmaceutical Regulatory Agency

## LICENSING AND COMPLIANCE

Good Manufacturing Practice (GMP) inspections on the manufacturer of registered products and notified cosmetics is to ensure their compliance towards the current GMP requirements. Good Distribution Practice (GDP) inspections are performed to ensure the adherence of importers and wholesalers towards the current GDP requirements (**Figure 10**). In 2016, a total of 200 manufacturer’s licences and 430 import licences were issued (**Figure 11**)

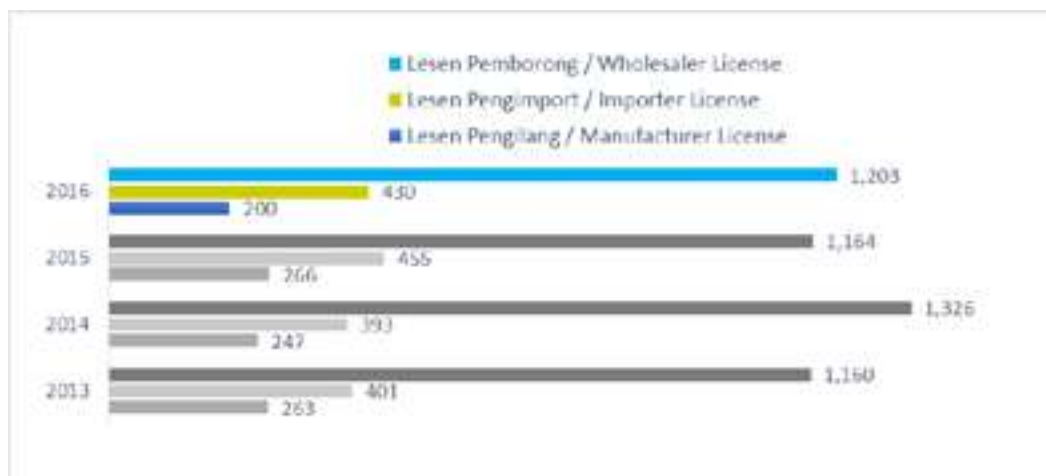
**Figure 10**  
**Number Of Premises Inspected, 2013 to 2016**



Source: National Pharmaceutical Regulatory Agency



**Figure 11**  
**Number Of License Issued, 2013 to 2016**



Source: National Pharmaceutical Regulatory Agency

## MINISTRY OF HEALTH MEDICINE FORMULARY (MOHMF)

### NEW PROCESS OF MOHMF DRUG LISTING

Starting 2016, the submission of MOHMF listing for a new medicine, new indication and new formulation/strength/dosage form category must be applied by pharmaceutical companies. The processing fees are imposed upon the application. The new submission for listing process guideline has been prepared and distributed to every MOH facilities and related pharmaceutical societies (**Figure 12**).

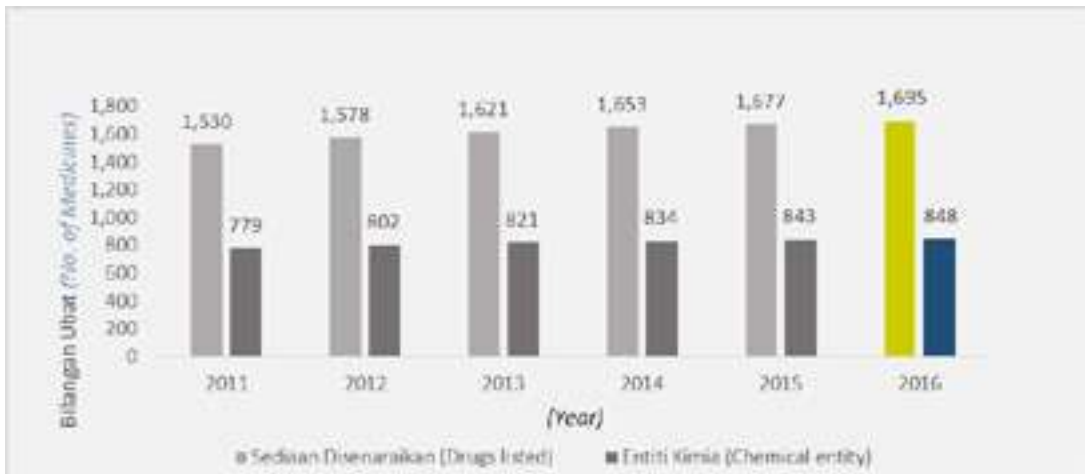
**Figure 12**  
**The Dossier Received For MOHMF Drug Listing, 2016**



Source: Pharmacy Practice & Development Division, MoH

In 2016, 71 proformas/dossiers were presented in three Panel meetings. Thirty drugs were approved to be listed while 11 were removed from the MOHMF. By the end of 2016, there are a total of 1,695 preparations comprising of 848 chemical entities in the MOHMF (**Figure 13**).

**Figure 13**  
**Number Of Drugs Listed In The MOHMF (2011 to 2016)**



Source: Pharmacy Practice & Development Division, MoH

Special approval is required to obtain and to use any registered or unregistered drug that is not listed in the MOHMF, as an alternative treatment after all options in the MOHMF have been exhausted. In 2016, a total of 3,766 (90.1%) special approvals were issued from 4,182 applications received, incurring a purchasing cost of RM62.7 million (**Figure 14**). Nevertheless, these total approvals and purchasing cost had reduced by 21.2% and 34% respectively as compared to 2015.

**Figure 14**  
**Applications For Special Approval Drugs (2011 to 2016)**



Source: Pharmacy Practice & Development Division, MoH

## THE IMPLEMENTATION OF PHARMACY INFORMATION SYSTEM (PhIS AND CPS)

PhIS and CPS are among those project contributing to the achievement of implementation of e-Health application to 500 facilities.

**Image 1**  
**The Launching Ceremony Of PhIS And CPS Implementation ,2016**



Source: Pharmacy Practice & Development Division, MoH

**Table 2**  
**The Type of PhIS and CPS Implementation**

Type of facilities	Implemented	Implementation Type			
		Full Based	Pharmacy Based	Inventory Based	Indent Based
Hospital/Institut	142	4	113	25	0
Klinik Kesihatan	863	11	555	119	178
PKK/PKD/PK	105	0	0	105	0
MUS/PBFN	8	0	0	8	0
<b>JUMLAH</b>	<b>1118</b>	<b>15</b>	<b>668</b>	<b>257</b>	<b>178</b>

Source: Pharmacy Practice & Development Division, MoH

## POISONS BOARD AND MEDICINE ADVERTISEMENT BOARD REPORTS

### POISONS BOARD

The Poisons Board serves as an advisory board, authorised to evaluate the classification of medicines/chemical substances and thereby to advice the Minister in accordance with the provisions stipulated under the Poisons Act 1952. The Board met for the 82<sup>nd</sup> meeting on 21 June 2016 and 83<sup>rd</sup> meeting on 28 November 2016 to decide on the followings:

**i. Classification of new poisons**

The Board has agreed with the classification of new chemicals as shown in **Table 3**.

**ii. Poison reclassification**

- a. Exemptions as poison for food, medicine and cosmetic preparations containing phosphorus

- b. Exemptions as poison for Arbutin used in notified cosmetic formulations classified under Hydroquinone.
- c. Reclassification of Mitragynine as Group A Poison for "All preparations unless in Group D" and as Group D Poison for "Preparations for laboratory use.

**Table 3**  
**The List of New Poisons Classification**

Medicines/Chemical	Group	Medicines/Chemical	Group
Pembrolizumab	B	Idarucizumab	B
Cerebrolysin	B	Tetracaine	B
Panobinostat	B	Toksin botulinum	B
Nivolumab	B	Simeprevir	B
Sildenafil	B	Citicoline	B
Luseogliflozin	B	Alirocumab	B
Lenvatinib	B	Evolocumab	B
Pirfenidone	B	Ramucirumab	B
Fimasartan	B	Cobimetinib	B
Pomalidomide	B	Cimicoxib	B
Umeclidinium	B	Rufinamide	B
Palbociclib	B	Imidafenacin	C
Vedolizumab	B	Gadolinium Based Contrast Agents (GBCA)	B
Levetiracetam	B	25B-NBoMe	B dan bahan psikotropik
Blinatumomab	B	25C-NBOMe	B dan bahan psikotropik
Olaparib	B	25I-NBOMe	B dan bahan psikotropik
Acridinium bromide	B	AM-2201 (JWH-2201)	B dan bahan psikotropik
Ezetimibe	B	JWH-018 (AM-678)	B dan bahan psikotropik
Darifenacin	C	3,4-Methylenedioxypropylvalerone (MDPV)	B dan bahan psikotropik
Pitavastatin calcium	B	Mephedrone	B dan bahan psikotropik
Eptacog alpha	B	Methylone (3,4-Methylenedioxypropylmethcathinone)	B dan bahan psikotropik
Afoxolaner	B	N-Benzylpiperazine (BZP)	B dan bahan psikotropik

Source: Pharmacy Enforcement Division MoH

## MEDICINE ADVERTISEMENT BOARD (MAB)

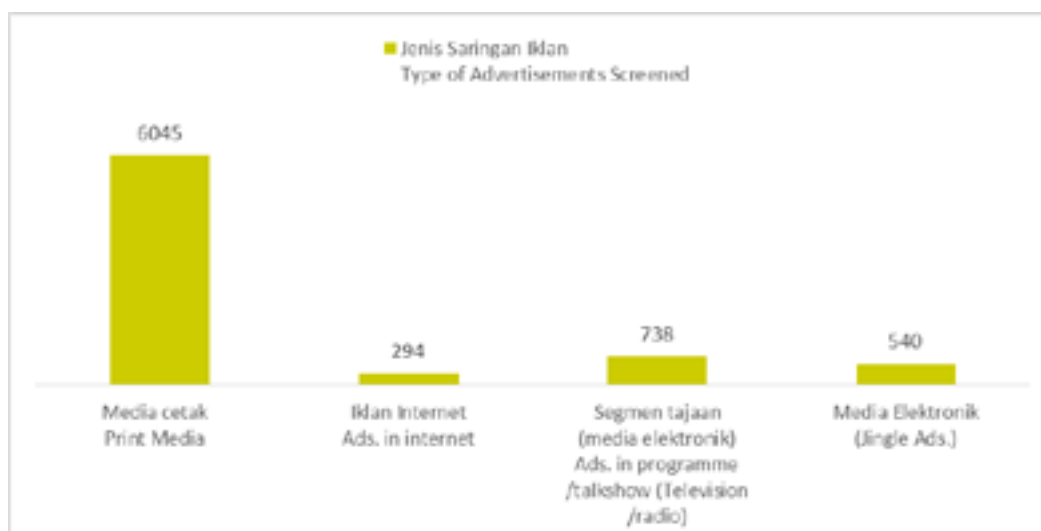
Medicine Advertisement Board (MAB) was established under Regulation 2 of the Medicine Advertisements Board Regulations 1976. The MAB Secretariat plays a role in the processing of medicines advertisement. In addition, LIU also processes advertisements of medical services provided by private hospitals, private clinics, private radiology clinics and medical laboratories. This is to ensure that the information contained in the advertisement is accurate and verifiable. It should not be exaggerated, false, misleading or deceptive.

**Table 4**  
**Advertisement Application, Year 2016**

Keterangan	Medicines Advertisement	Medical Services Advertisement	Total
Application Received	2034	892	<b>2926</b>
Approved	1937	8179	<b>2756</b>
Not Approved	8	8	<b>16</b>
Does not require approval	18	21	<b>39</b>
Application cancelled (after the applicant failed to follow up on the enquiry)	32	36	<b>68</b>
Pending	42	10	<b>52</b>
<b>Fee collected</b>	<b>RM 203,400</b>	<b>RM 89,200</b>	<b>RM 292,600</b>

Source: Pharmacy Enforcement Division MoH

**Figure 14**  
**The Number of Advertisement Screened, 2016**



Source: Pharmacy Enforcement Division MoH

**Figure 15**  
**The Actions Taken Against Unlawful Advertisement, 2016**



Source: Pharmacy Enforcement Division MoH

## STORM OPERATION NETWORK IN COMBATING COUNTERFEIT PHARMACEUTICALS

**Table 5**  
**The Estimated Value of Seized Item in Storm Operation**

Operation	STORM VI [2015]	STORM VII [2016]
Overall Seized Quantity	2,486,896 unit	3,953,737 unit
Estimated Value (USD)	USD 1,117,930	USD 1,697,413

Source: Pharmacy Enforcement Division MoH

Operation Storm is coordinated by INTERPOL, World Health Organization (WHO) and the World Customs Organization (WCO) that brought together customs agencies, drug regulatory agencies and the police force from each participating country with the aim of combating counterfeit pharmaceuticals. In 2016, STORM VII was carried out on 29 February to 27 March. The operation's results were presented at the Operational Meeting of Storm Enforcement Network on 19 to 23 April 2016 in Hanoi, Vietnam. The number of seized items in Storm VII increased by 59 per cent compared to the number of seized items in Storm VI.

## ANTIBIOTIC POINT PREVALENCE SURVEY 2016

Antibiotic Point Prevalence Survey was conducted at selected MoH hospitals on 4 October 2016, simultaneous with the execution of Point Prevalence Survey for Healthcare Associated Infection Surveillance by Medical Development Division, MoH. 14 state hospitals and 5 tertiary hospitals participated in this survey. The objective of the study was to measure the prevalence of hospitalised patients prescribed with antibiotics.

## A NATIONAL SURVEY ON THE USE OF MEDICINES (NSUM) BY MALAYSIAN CONSUMERS

A cross-sectional national survey for a period of 3 months (June to August 2015) was conducted among 3,081 consumers across the country in order to get in-depth data and information on issues related to medicines use among Malaysian consumers. The survey

report can be downloaded from the official portal of PSD MoH. ([www.pharmacy.gov.my/v2/ms](http://www.pharmacy.gov.my/v2/ms))

**Image 2**  
**A National Survey On The Use Of Medicines (NSUM), 2016**



Source: Pharmacy Practice and Development Division, MoH

## EVENT HIGHLIGHTS 2016

### IMPROVEMENT ON MEDICATION INFORMATION DISSEMINATION AND PROMOTION TO COMMUNITY

Various initiatives were made to increase the dissemination of information regarding medicine. The initiatives include publishing articles on newspapers, interviews on television and radio, publication of short educational video clips as well as collaboration with pharmacy societies in both public and private universities.

**Image 3**  
**Activities on Dissemination of Medication Information and Promotion to Community, 2016**



Source: Pharmacy Practice and Development Division, MoH



**Image 4**  
**Events Highlights, 2016**



23 Februari 2016  
A dialogue with advertising Standards Authority  
Malaysia



9 to 10 Mac 2016  
Collaborative Regulatory Training Seminar 2016:  
Challenges & Issues with Registrations and Variation  
Applications



Mac 2016  
Training Programme for Drug Regulatory  
Authorities



Dialogue with Drug Distributors (Controlled  
Substances)



23 Jun 2016  
The Renewal of MoU between MOH and IMS  
Health Sdn. Bhd.



National Law Enforcement Inter-Agency  
Conference 2016

*Source: Pharmacy Practice and Development Division, MoH*



## **SUMMARY**

The Pharmacy Programme's activities were successfully carried out in 2016 by five leading divisions namely, the Pharmacy Policy and Strategic Planning Division, Pharmacy Practice and Development Division, Pharmacy Enforcement Division, National Pharmaceutical Regulatory Agency (NPRA) and Pharmacy Board Malaysia. The programme remains committed to the original pharmaceutical policy objectives which ensure safe and high quality of medicines are available and accessible to the public, improve equitable access of medicines, encourage appropriate use of medicines and improve the quality of pharmaceutical services towards health transformation.





# **CHAPTER 9**

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## **FOOD SAFETY AND QUALITY**

## INTRODUCTION

The Food Safety and Quality Programme 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. Regulations made under the Food Act 1983, are:

- i. Food Regulations 1985 that ensures food and its labelling conform to the requirements of food safety and quality standards;
- ii. Food Hygiene Regulations 2009 that ensures food is prepared in a hygienic and safe manner;
- iii. Food Regulations (Amended) 2009 (Issuance of Health Certificates for Export of Fish and Fish Products to European Union) to control the safety and production of fish for export to the European Union; and
- iv. Food Irradiation Regulations 2011 that manages food irradiation.

In addition, the Food Analysts Act 2011 and the Food Analysts Regulations 2013 register food analysts and regulates the practice of food analysts. This act is also under the purview of the Food Safety and Quality Programme, MoH. In order to ensure national food control system for all food products marketed including those for export, a number of strategies have been formulated as follows:

- i. Formulating, reviewing and updating food legislation
- ii. Delivering effective riskbased inspection and enforcement
- iii. Surveillance, monitoring and assessment of food supply chain for riskreduction and/or intervention strategies
- iv. Establishing and strengthening food safety infrastructures including laboratory facilities
- v. Establishing effective and cooperative partnerships with relevant stakeholders including government agencies, food industry, consumer groups and academia
- vi. Establishing scientific linkages with national and international organisations
- vii. Developing human resource capabilities and competencies
- viii. Educating consumers in making informed clean and safe food

The Food Safety and Quality Programme consists of two (2) Divisions, namely the Policy, Strategic Planning and Codex Standard Division and the Compliance and Industry Development Division. There are 10 Branches under the two (2) divisions as follows:

- a. Policy, Strategic Planning 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. PretoMarket Approval Branch
  - iv. Import Branch
  - v. Export Branch

## ACTIVITIES AND ACHIEVEMENTS

### FOOD PREMISES INSPECTION 2016

The MoH carries out routine inspection of food premises throughout the country apart from conducting scheduled "Operasi Premis Makanan Bersih" twice a month. In 2016, a total of 2,703 (2.1per cent) food premises were closed under Section 11, Food Act 1983 from 131,165 food premises that were inspected. In addition, a total of 12,770 compounds were issued to food premises operators and food handlers who failed to comply with the requirements of the Food Hygiene Regulations 2009 under Food Act 1983.

**Image 1**  
**Inspection Of Food Premises, 2016**



*Source: Food Safety & Quality Division, MoH*

## ENFORCEMENT OF REGULATIONS REGARDING WATER TOVENDING MACHINES

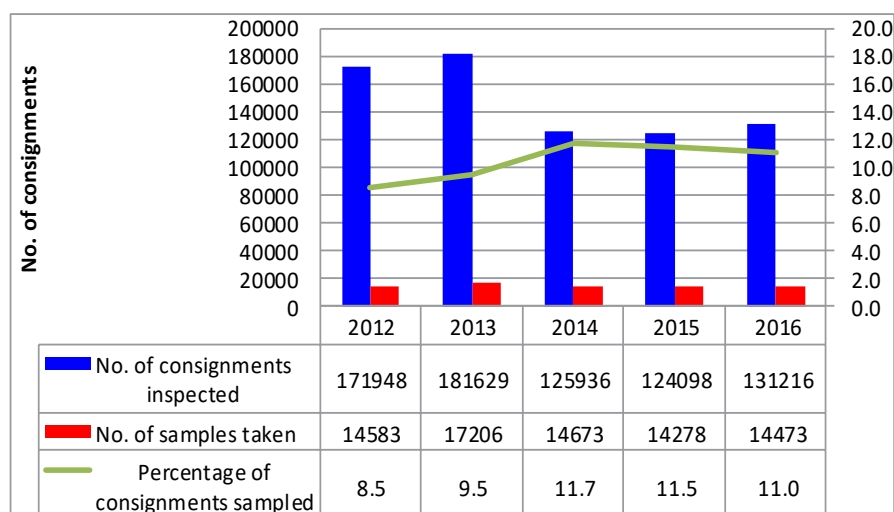
Enforcement of Regulation 360C(4), Food Regulations 1985 regarding licensing of watertovending machine was initiated on 1 January 2016. As a result of monitoring and inspection conducted, a total of 669 watertovending machines valued at RM1,768,000.00 were seized and detained for offences under Regulation 360C(4), Food Regulations 1985.

## FOOD IMPORT CONTROL

The main objective of food import control is to ensure that food imported into this country comply with the provisions under the Food Act 1983 and its regulations. The food import control activities carried out at the entry points include inspection and sampling of food consignments as well as enforcement activities such as detention, recall rejection, prosecution and destruction of consignments that contravene such food legislation. In 2016, 131,216 consignments were inspected and 14,473 samples (11per cent) were taken for analysis (**Figure 1**). From the total samples taken for analysis, 132 samples (0.9per cent) were found to contravene the Food Act 1983 and the Food Regulations 1985 (**Figure 2**).

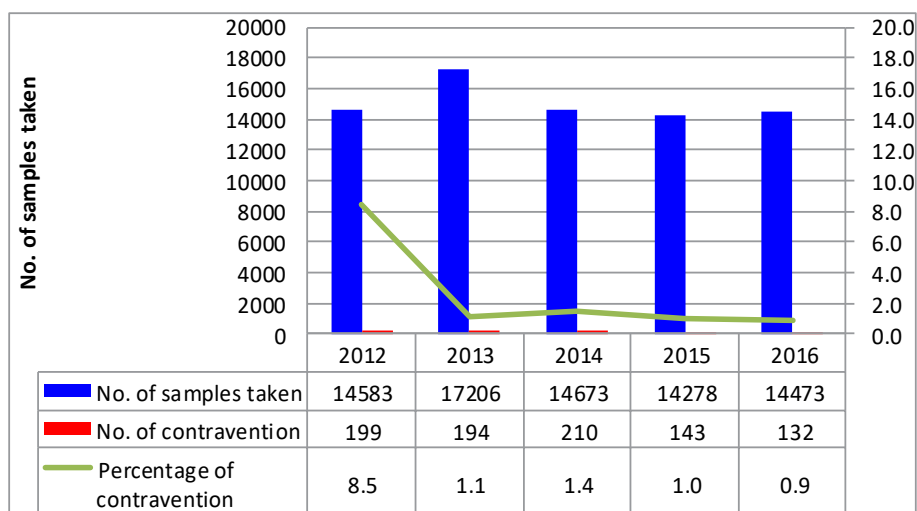
There were 91 food alerts on contravening food consignments imported from 15 countries in the year 2016. The food alerts were then notified to all states and entry points for further action. The food import control activities carried out at the entry points are effective in ensuring that the food imported into the country are safe and comply with the Food Act 1983 and its regulations. This is evidenced by the lowest contravention rate of 0.9per cent of imported food consignments in 2016 compared to the achievements over five (5) years (2012 to 2016).

**Figure 1**  
**Inspection and Sampling of Consignments of Imported Foods 2012 to 2016**



Source: Food Safety & Quality Division, MoH

**Figure 2**  
**Contravention of Imported Food 2012 to 2016**



Source: Food Safety & Quality Division, MoH

## LAUNCHING OF FOOD AUTHENTICITY CERTIFICATION SCHEME

The Food Authenticity Certification Scheme was launched on 19 January 2016. This scheme was introduced to recognise food industries that produce food product using raw materials from authentic sources. Currently, the scheme is only offered to four (4) food products namely; honey, coffee, meat and edible bird's nest. The authentic logo was also launched at the ceremony. The logo can be used by the food industries that had been certified, on the label of food products.

**Image 2**  
**Authenticity Certification Logo**



Source: Food Safety & Quality Division, MoH

## FOOD DEFENSE CERTIFICATION

In line with global needs, the Food Defense Certification Scheme was developed to recognise food industries that implement controls from intentional contamination that could jeopardise food products as well as the organisation. The scheme was also developed to fulfil the regulatory requirements under the Food Safety Modernization Act 2011, USFDA. The Food Defense Certification Certification Scheme was launched on 10 May 2016. About 200 food industries attended the event. A new logo on food defense was also launched and it can be used by the food industries that had been certified, on the label of food products.

**Image 3**  
**Food Defense Certification Logo**



*Source: Food Safety & Quality Division, MoH*

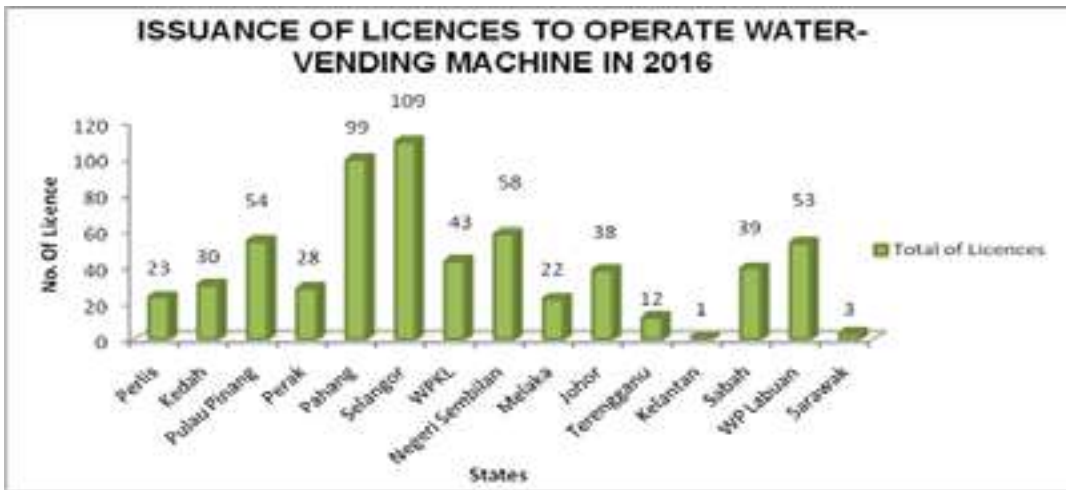
## LICENSING OF WATER VENDING MACHINES

Water vending machines are vending machines that will dispense water automatically when coins, tokens or any other similar means are inserted. The water in the water vending machines has undergone treatments such as filtration, distillation, reverse osmosis, ionization and disinfection depending on the type of machine in the market. Regulation 360C, Food Regulations 1985 stipulates that all water vending machines must be licenced before they are used for the purpose of trade or business.

Licensing activities of water vending machines involved the verification process of the machine and sampling of the water from the water vending machines. In 2016, a total of 612 Licences to Operate WatertoVending Machine were issued. The list of licence holders is available at <http://fsq.moh.gov.my>. The amount of licences issued by states is shown as in the **Figure 3**.



**Figure 3**  
**Issuance of Licences to Operate Water Vending Machines by States 2016**



Source: Food Safety & Quality Division, MoH

**VIDEO SAMPLING TECHNIQUES FOR THE PURPOSE OF LICENCING OF WATER VENDING MACHINES, PACKAGED DRINKING WATER, NATURAL MINERAL WATER AND ICE**

A video entitled Visual Guide Series - SOP Sampling for the Purpose of Licensing of Water Vending Machine (MJA), Packaged Drinking Water (AMB), Natural Mineral Water (AMS) and Ice was developed. The Visual Guide Series consisted of the three (3) main components of the licensing activities namely; licencing of MJA, AMB, AMS and Ice. The documentary video was developed to standardise the sampling techniques at the District Health Office throughout the country in order to improve the competency and efficiency of the officers at the ground, especially new officers involved in sampling activities.

**Image 4**  
**Guidelines Of Sampling Techniques**



Source: Food Safety & Quality Division, MoH

## FOOD SAFETY VERIFICATION ALONG THE SUPPLY CHAIN

Food safety verification along the food supply chain is an approach to ensure that all food premises comply with the Food Act 1983 and its regulations. In 2016, the focus was given to storage of food at ambient temperatures to ensure compliance with the provisions under the Food Hygiene Regulations 2009. A total of 214 food storage at ambient temperatures were verified. Elements identified during the verification process were the Food Safety Assurance Programme (PJKM) elements such as cleanliness and registration of premises, vaccination of employees and attendance of Food Handlers Training as well as pest control programme.

In addition, food safety verification was carried out on mobile food outlets such as foodtrucks. Throughout 2016, 427 mobile food outlets were verified. *Garis Panduan Penyediaan dan Penjualan Makanan di Premis Outlet Makanan Bergerak* was also developed as a guide for mobile food outlet operators to fulfil the food hygiene requirements as prescribed under the Food Hygiene Regulations 2009.

## FOOD SAFETY SURVEILLANCE ACTIVITIES

### i. FOOD TRACEABILITY AND SCIENTIFIC STRATEGIES TO VERIFY FOOD ORIGIN AND AUTHENTICITY OF EDIBLE BIRD'S NEST SEMINAR

The Food Safety and Quality Programme in collaboration with the Malaysian Nuclear Agency hosted the Food Traceability and Scientific Strategies to Verify Food Origin and Authenticity of Edible Bird's Nest Seminar on 30 August 2016 at Putrajaya. The objective of this seminar is to share information among producers, exporters, government agencies and local authorities on the importance of traceability and authenticity of bird's nest as it is one of the key elements in food safety control of the commodity. Profesor Dr. Russell David Frew, an expert on food traceability and authenticity from the University of Otago, New Zealand was invited to present the paper.

**Image 5**  
**The Food Traceability and Scientific Strategies To**  
**Verify Food Origin and Authenticity of Edible Bird's Nest Seminar, 2016**



Source: Food Safety & Quality Division, MoH

## ii. ASEAN RISK ASSESSMENT CENTRE FOR FOOD SAFETY (ARAC)

The ASEAN Risk Assessment Centre for Food Safety (ARAC) was officially launched by the Honourable Minister of Health Malaysia on 22 March 2016 at Pullman Hotel, Putrajaya Malaysia. This event aims to officially introduce ARAC which been hosted by the Food Safety and Quality Programme, MoH as well as to increase the visibility of ARAC in the ASEAN region and internationally. The launching ceremony was attended by various stakeholders at the international, regional and local levels including the Secretary General of ASEAN, representative ASEAN sectoral bodies, the representative of the Directorate General for Health and Food Safety (DG SANTE) European Commission, Senior Officials from the ASEAN, Member States, media and others.

**Image 6**

### **The Official Launch Of ASEAN Risk Assessment Centre For Food Safety, 2016**



*Source: Food Safety & Quality Division, MoH*

The 1<sup>st</sup> Scientific Committee Meeting of ARAC was held on 23 to 24 March 2016 in ARAC Office, Putrajaya. The Meeting reviewed and evaluated risk assessment requests on food safety submitted by the ASEAN sectoral bodies and agreed to conduct risk assessment on Total aflatoxins (AFT) and Aflatoxin B1 (AFB1) in peanut and corn, including their products.

Following the decision of the Scientific Committee Meeting, the 1<sup>st</sup> Scientific Panel Meeting of ARAC was held on 26 to 27 October 2016 at the ARAC Office, Putrajaya. The Meeting was attended by members of the Scientific Panel of ARAC, ARAC Secretariat and observers. The meeting reached a consensus on the approaches to conducting risk assessment on Total aflatoxins (AFT) and Aflatoxin B1 (AFB1) in peanuts and corn and has produced a work plan for the implementation of this risk assessment activity. The risk assessment work is expected to be completed in the 3rd quarter of 2017.

## FOOD SAFETY AND QUALITY LABORATORY (FSQL) ACTIVITIES

### i. RECOGNITION OF PRIVATE LABORATORIES FOR THE ANALYSIS OF FOOD FOR ISSUANCE OF HEALTH CERTIFICATE

In 2016 a total of 45 private laboratories were recognized by MoH for food analysis for the issuance of health certificates.

### ii. FRESH FOOD OF PLANT ORIGIN (FFPO)

Starting on 17 February 2016, all countries intending to export FFPO to Indonesia must obtain approval from the Indonesian Agriculture Quarantine Agency (IAQA) prior to exportation to that country. To fulfill the requirements for the export of FFPO products to Indonesia, a guideline was developed as a guide on the services offered for the analysis of food samples and the issuance of Certificate of Analysis (COA) by the FSQ.

Currently, the scope of analysis that is recognised by IAQA are pesticide residues and microbiology.

In order to fulfill the requirements for the exportation to Indonesia, four (4) FSQs are involved in analysing the FFPO samples, namely FSQ Selangor, FSQ Pulau Pinang, FSQ Perlis and FSQ Sarawak.

## FOOD SAFETY PROMOTION ACTIVITIES

### i. MAJLIS ANUGERAH KANTIN SEKOLAH BERSIH, SELAMAT DAN SIHAT PERINGKAT KEBANGSAAN 2016

The *Majlis Anugerah Kantin Sekolah Bersih, Selamat dan Sihat Peringkat Kebangsaan 2016* for the primary school category was officiated by the Honourable Minister of Health, Datuk Seri Dr. S. Subramaniam on 18 October 2016 at the Shah Alam Convention Center (SACC), Selangor. The ceremony was also attended by YB. Dato' P. Kamalanathan a/l P. Panchanathan, Deputy Minister of Education, a total of 500 participants and guests attended the ceremony

Image 7

### *Majlis Anugerah Kantin Sekolah Bersih, Selamat Dan Sihat, 2016*



Source: Food Safety & Quality Division, MoH

ii. **BERSIH, SELAMAT DAN SIHAT (BeSS) FOOD PREMISES PROMOTION CAMPAIGN**

The BeSS promotion campaign was carried out through social media and news portals to encourage food premises operators to apply for BeSS Recognition. The campaign is also targeted to consumers to choose food premises with the BeSS logo. In conjunction with this campaign, BeSS video doodles were developed and uploaded into social media and news portals including the official Food Safety and Quality Programme Facebook (FB). These doodles were produced in two (2) versions, that is the Malay and English languages.

In addition, the BeSS campaign was also undertaken at the *Hentian Rehat dan Rawat* (R&R), utilising the electronic display infoboard.

iii. **FOOD SAFETY INFOGRAPHICS**

A total of 46 sets of infographics related to tips on food safety were developed with the purpose of preventing food poisoning and contamination. These infographics were shared in FSQD FB and other social sites. Infographic is the latest trend and effective communication tools in conveying information in social media and mass media as well.

**Image 8**  
**Food Safety Infographics, 2016**



Source: Food Safety & Quality Division, MoH

iv. **PROMOTION OF FOOD SAFETY IN THE MONTH OF RAMADAN**

To avoid food poisoning during festivals, especially in the month of Ramadan, food safety promotion activities were conducted. These include sharing tips to avoid food poisoning through the *KetuktoKetuk Ramadan* programme on TV1, *Radio Television*

Malaysia (RTM) as well as advertising messages via radio and buntings at Ramadan bazaars.

Image 9

Promotion Of Food Safety: Ketuktoketuk Ramadhan Tv1, 2016



Source: Food Safety & Quality Division, MoH

## WAY FORWARD

The Food Safety and Quality Programme 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**

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## **DEVELOPMENT**

## INTRODUCTION

The Ministry of Health (MoH)'s Development Division was previously part of the Planning and Development Division. It was separated on 1 September 2012 into two separate divisions in efforts to enhance the functions of each respective branch. It is now headed by a Senior Under-Secretary and directly responsible to MoH's Secretary General.

## ACTIVITIES AND ACHIEVEMENTS

### DEVELOPMENT EXPENDITURE PERFORMANCE FOR 2016

The Division is the custodian of the Ministry's Development Expenditure (DE). In 2016, the initial DE allocation that was approved for the ministry was RM1.6 Billion. However, after the warrants restrictions ("Waran Sekatan") approved by the Ministry of Finance, the DE allocation is then reduced to RM1.375 Billion. At year-end 2016, MoH's **Development Expenditure performance is 95.8 per cent** of the adjusted DE allocation, or equivalent to RM1.317 Billion. The breakdown of Expenditure versus Allocations by *Butiran Peruntukan* (BP) is as follows:

**Table 1**  
**MoH's Expenditure Performance, 2016**

PROJECT	ALLOCATION (RM)	EXPENDITURE (RM)	%
<b>BP 100 – TRAINING</b>	<b>99,431,702</b>	<b>78,502,487</b>	<b>78.95%</b>
101 Development of New College	17,528,000	14,760,756	84.21%
104 Outsourcing	254,250	254,250	100.00%
105 In-Service Training	81,649,452	63,487,481	77.76%
<b>BP 200 – PUBLIC HEALTH</b>	<b>131,294,915</b>	<b>120,728,431</b>	<b>91.95%</b>
201 Public Health Services - Rural Areas	66,505,958	58,994,722	88.71%
202 BAKAS	-	-	0.00%
203 Public Health Services - Urban Areas	64,788,957	61,733,708	95.28%
204 Mobile Clinic	-	-	0.00%
<b>BP 300 – UPGRADING OF HOSPITAL FACILITIES</b>	<b>176,227,799</b>	<b>170,742,273</b>	<b>96.89%</b>
<b>BP 400 – NEW HOSPITALS</b>	<b>202,501,123</b>	<b>201,888,520</b>	<b>99.70%</b>
<b>BP 500 – RESEARCH &amp; DEVELOPMENT (R&amp;D)</b>	<b>36,395,170</b>	<b>36,001,168</b>	<b>98.92%</b>
<b>BP 600 – UPGRADING &amp; MAINTENANCE</b>	<b>162,613,662</b>	<b>154,978,955</b>	<b>95.31%</b>
<b>BP 700 – LAND ACQUISITION &amp; MAINTENANCE</b>	<b>9,102,843</b>	<b>8,618,597</b>	<b>94.68%</b>
<b>BP 800 – INFO. &amp; COMMUNICATION TECHNOLOGY (ICT)</b>	<b>49,113,897</b>	<b>45,678,786</b>	<b>93.01%</b>
<b>BP 900 – QUARTERS MAINTENANCE</b>	<b>100,000</b>	<b>74,188</b>	<b>0.00%</b>
<b>BP 900 – STAFF FACILITIES</b>	<b>13,952,098</b>	<b>13,050,872</b>	<b>93.54%</b>
901 Quarters fo Rural Areas	1,009,623	937,437	92.85%
902 Quarters fo Urban Areas	10,648,906	10,242,720	96.19%
904 Office of the State Health	2,293,569	1,870,715	81.56%
<b>BP 1000 – PROMOTION</b>	<b>-</b>	<b>-</b>	<b>0.00%</b>
<b>BP 1100 – EQUIPMENT &amp; VEHICLES</b>	<b>494,531,191</b>	<b>487,470,902</b>	<b>98.57%</b>
<b>BP 9400 – NKEA</b>	<b>-</b>	<b>-</b>	<b>0.00%</b>
<b>TOTAL</b>	<b>1,375,264,400</b>	<b>1,317,735,177</b>	<b>95.82%</b>

Source: Development Division, MoH



## PROJECTS IMPLEMENTATION

The Development Division is responsible for the identification of programmes and projects that are to be implemented under each particular Rolling Plan for the Eleventh Malaysia Plan. For the 1<sup>st</sup> Rolling Plan in the year 2016, the Ministry was approved **116 new programmes and projects** by the Economic Planning Unit (EPU), which comprised of 96 physical projects and 20 non-physical projects. For the 96 physical projects, 65 projects were assigned to JKR for implementation, 10 projects to JKR Sabah, 8 projects to JKR Sarawak, 12 projects to the Engineering Services Division and 1 project to JPS.

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 EPU JPM. If the PDA exceeds the budget allocations, approval from EPU JPM 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 JPM's approval is needed, before the project account can be closed.

The 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 2016, the PDA/ATDA Meeting is held monthly, and a total of **111 PDA and ATDA submissions were approved** out of 135 received, which is equivalent to 82 per cent 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 2016, **12 projects were identified to undergo the VM process**. The projects includes: *Pembinaan Blok Wanita Dan Kanak-kanak Hospital Pulau Pinang* (RM296,978,525.00); *Naiktaraf Hospital Tawau, Sabah* (RM253,000,000.00); *Blok Pakar Hospital Port Dickson, Negeri Sembilan* (RM152,890,000.00); *Pusat Kardiologi Hospital Serdang, Selangor* (RM311,000,000.00); *National Centre Food Safety, Sepang, Selangor* (RM155,000,000.00); *Naiktaraf Hospital Segamat Fasa I, Johor* (RM90,500,000.00); *Perkhidmatan Perubatan Nuklear Dan PET Hospital Sultan Ismail, Johor* (RM73,666,300.00); *Hospital Kemaman, Terengganu* (RM500,000,000.00); *Naiktaraf Hospital Kajang, Selangor* (RM300,000,000.00); *Naiktaraf Hospital Miri, Sarawak* (RM340,000,000.00); *Naiktaraf Hospital Tanah Merah, Kelantan* (RM153,220,200.00) and *Naiktaraf Hospital Baling, Kedah* (RM80,000,000.00).

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 the year 2016, the Development Division had managed and issued SST for 11 projects, as listed in Table 2. Apart from that, 9 Contract documents were coordinated and signed, as listed in Table 3.

**Table 2**  
**SSTs that were Issued in the Year 2016**

No.	Project Name
1.	Replacement Equipment for Centralized Air Conditioning System Includes Related Other Work At Tengku Ampuan Afzan Hospital, Kuantan, Pahang
2.	Proposed Build of Kota Setar Dental Expert Clinic
3.	Proposed Upgrading of Air Operation Unit (AHU) Includes Related Equipment in The Surgical Hall of Selayang Hospital, Selangor
4.	Installation of Hybrid Solar System Works at Pensiangan Health Clinic, Nabawan District, Sabah
5.	Upgrading of Electricity Supply System at Hospital Sultanah Aminah, Johor Bahru
6.	Implementation of Electrical Wiring and Upgrading Projects of Kajang Hospital, Selangor
7.	Upgrading of Block A and B, Taiping Hospital, Perak
8.	Proposed Upgrade of Electrical Supply System at Segamat Hospital, Johor
9.	Proposed Upgrade of Surgery and Hemodialysis Hall, Papar Hospital, Sabah
10.	Repair and Upgrading of Office Space for Penang Department of Health At Level 7, Mara Building, Northeast District of Penang
11.	Upgrading and Repairing of Kajang Hospital Water Supply System, Selangor

Source: Development Division, MoH

**Table 3**  
**Contracts Signed in the Year 2016**

No	Project Name
1.	Proposed Repair Works at Kuala Krai Hospital, Kelantan
2.	Equipment Replacement Works for Centrifugal Air Conditioning Systems Including Related Works at Tengku Ampuan Afzan Hospital, Kuantan, Pahang
3.	Proposed Establishment of Kota Setar Dental Expert Clinic
4.	Proposed Upgrading of Air Operation Unit (AHU) Includes Related Equipment in The Surgical Hall of Selayang Hospital, Selangor
5.	Installation of Hybrid Solar System Works at Pensiangan Health Clinic, Nabawan District, Sabah
6.	Upgrading of Electricity Supply System at Hospital Sultanah Aminah, Johor Bahru
7.	Implementation of Electrical Wiring and Upgrading Projects of Kajang Hospital, Selangor
8.	Upgrading of Block A and B, Taiping Hospital, Perak
9.	Proposed Upgrade of Electrical Supply System at Segamat Hospital, Johor

Source: Development Division, MoH

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 the year 2016, there were two (2) on-going projects as in Table 4 below:

**Table 4**  
**Public-Private Partnership Projects, 2016**

Project	Method of Implementation
Women and Child Hospital, Kuala Lumpur	Built-Lease-Maintain-Transfer (BLMT)
<i>Kompleks Institut Penyelidikan Kesihatan Bersepadu (IPKB)</i>	Land Swap

Source: Development Division, MoH

## PROJECT MONITORING

Under the directive, *Arahan* No.1, 2010 issued by the Implementation and Coordination Unit of Prime Minister's Department (ICU JPM), it is mandatory that all physical projects implementation are monitored through a committee named *Jawatankuasa Tindakan Pembangunan Kementerian* (or 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 Ministry of Health. 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. In the year 2016, the JTPK meetings were held on every month and chaired by the Ministry's Secretary-General.

An important mechanism for project monitoring that is considered effective is through project site visits. For MOH, this involves visits by the High-Level Management of the Ministry, particularly the Minister of Health, as well as by the Secretary-General (KSU) of the Ministry. It is mandated that the Minister of Health must visit at least one project per month, while the KSU must visit at least 3 projects per month, and these visits form part of the KPI's of the Minister and KSU respectively, that are diligently monitored by ICU JPM. The Development Division is responsible to coordinate and manage the visits by the Minister and KSU. In 2016, the minister had visited a total of 17 projects as depicted in **Table 5**, while the KSU visited a total of 45 projects nationwide, as depicted in **Table 6**.

**Table 5**  
**List of Projects Visited by YBMK In 2016**

No.	Project Name	Date of Visit
1.	<i>Hospital Melaka</i>	10.03.2016
2.	<i>Pejabat Kesihatan Bahagian Miri, Sarawak</i>	26.02.2016
3.	<i>Unit Kebakaran Hospital Bintulu, Sarawak</i>	25.02.2016
4.	<i>Hospital Bintulu, Sarawak</i>	25.02.2016
5.	<i>Klinik Kesihatan Siburan, Kuching, Sarawak</i>	11.01.2016
6.	<i>Klinik Kesihatan Kota Sentosa, Kuching, Sarawak</i>	11.01.2016
7.	<i>Klinik Kesihatan Jalan Masjid, Kuching, Sarawak</i>	11.01.2016
8.	<i>Klinik Kesihatan Kota Samarahan, Sarawak</i>	12.01.2016

No.	Project Name	Date of Visit
9.	<i>Pusat Jantung, Hospital Umum Sarawak</i>	12.01.2016
10.	<i>Hospital Miri, Sarawak</i>	26.02.2016
11.	<i>Klinik Kesihatan Tanah Puteh, Kuching, Sarawak</i>	30.03.2016
12.	<i>Hospital Betong, Sarawak</i>	31.03.2016
13.	<i>Klinik Kesihatan Spaoh, Betong, Sarawak</i>	31.03.2016
14.	<i>Klinik Kesihatan Debak, Betong, Sarawak</i>	31.03.2016
15.	<i>Hospital Taiping, Perak</i>	06.04.2016
16.	<i>Klinik Kesihatan Sungai Besar, Selangor</i>	14.06.2016
17.	<i>Hospital Ampang, Selangor</i>	05.12.2016

Source: Development Division, MoH

**Table 6**  
**List of Projects Visited by Secretary-General In 2016**

No.	Project Name	Date of Visit
1.	<i>Hospital Bera, Pahang</i>	23.09.2016
2.	<i>Klinik Kesihatan Temerloh, Pahang</i>	23.09.2016
3.	<i>Hospital Jengka, Pahang</i>	22.09.2016
4.	<i>Hospital Sultan Haji Ahmad Shah, Temerloh, Pahang</i>	22.09.2016
5.	<i>Hospital Jerantut, Pahang</i>	22.09.2016
6.	<i>Hospital Kuala Lipis, Pahang</i>	22.09.2016
7.	<i>Unit Kebakaran, Hospital Bintulu, Sarawak</i>	17.09.2016
8.	<i>Klinik Kesihatan Batu Niah, Sarawak</i>	17.09.2016
9.	<i>Hospital Miri, Sarawak</i>	17.09.2016
10.	<i>Hospital Langkawi, Kedah</i>	30.08.2016
11.	<i>Pejabat Kesihatan Daerah Langkawi, Kedah</i>	30.08.2016
12.	<i>Klinik Kesihatan Ibu Dan Anak Bandar Sik, PKD Sik dan Tapak Projek Klinik Kesihatan Bandar Sik, Kedah</i>	29.08.2016
13.	<i>Hospital Sik, Kedah</i>	29.08.2016
14.	<i>Hospital Sultan Abdul Halim, Sungai Petani, Kedah</i>	29.08.2016
15.	<i>Hospital Kuala Kangsar, Perak</i>	23.08.2016
16.	<i>Hospital Taiping, Perak</i>	23.08.2016
17.	<i>Hospital Sungai Siput, Perak</i>	23.08.2016
18.	<i>Klinik Kesihatan dan Kuarters Hutan Melintang, Perak</i>	22.08.2016
19.	<i>Hospital Teluk Intan, Perak</i>	22.08.2016
20.	<i>Klinik Kesihatan Setiawan, Perak</i>	22.08.2016
21.	<i>Hospital Seri Manjung, Perak</i>	22.08.2016
22.	<i>Hospital Duchess Of Kent, Sandakan, Sabah</i>	05.08.2016
23.	<i>Klinik Kesihatan Sungai Manila, Sabah</i>	05.08.2016
24.	<i>Hospital Lahad Datu, Sabah</i>	05.08.2016
25.	<i>Klinik Kesihatan Ulu Dusun, Sabah</i>	05.08.2016

No.	Project Name	Date of Visit
26.	<i>Hospital Kinabatangan, Sabah</i>	05.08.2016
27.	<i>Hospital Tawau, Sabah</i>	10.06.2016
28.	<i>Klinik Kesihatan Parit Haji Yusof, Batu Pahat, Johor</i>	28.05.2016
29.	<i>Blok Tambahan, Hospital Batu Pahat, Johor</i>	28.05.2016
30.	<i>Hospital Alor Gajah, Melaka</i>	28.05.2016
31.	<i>Jabatan Kecemasan HTAA, Kuantan, Pahang</i>	26.05.2016
32.	<i>Hospital Kemaman, Terengganu</i>	26.05.2016
33.	<i>Jabatan Pembedahan Plastik, Rekonstruktif Dan Rawatan Kebakaran, Hospital Sultanah Nur Zahirah, Kuala Terengganu</i>	25.05.2016
34.	<i>Klinik Kesihatan Dan Kuarters, Pulau Redang, Johor</i>	25.05.2016
35.	<i>Hospital Pulau Pinang</i>	10.05.2016
36.	<i>Hospital Sultanah Aminah, Johor</i>	31.03.2016
37.	<i>Hospital Sultan Ismail, Johor</i>	31.03.2016
38.	<i>Blok Bersalin Hospital Putrajaya</i>	28.03.2016
39.	<i>Klinik Kesihatan Kepala Batas, Pulau Pinang</i>	15.03.2016
40.	<i>Institut Kesihatan Awam</i>	09.03.2016
41.	<i>Bangunan Tambahan Bagi Dewan Bedah, Klinik Pakar, Wad Kelas 1 Dan 2, Hospital Mersing, Johor</i>	22.01.2016
42.	<i>Hospital Kluang, Johor</i>	21.01.2016
43.	<i>Johor Disaster Management Recovery Vehicle</i>	21.01.2016
44.	<i>Hospital Segamat, Johor</i>	21.01.2016
45.	<i>Hospital Serdang, Selangor</i>	13.01.2016

Source: Development Division, MoH

## 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, mobilisation of resources and operations of the facility will follow. In 2016, a total **20 physical projects were successfully completed and handed over** to MoH for utilisation and operations of the facilities. The list of projects is enclosed in **Table 7**.

**Table 7**  
**List of Projects Completed and Handed Over to MoH, 2016**

No.	PROJECT NAMES
1.	<i>Kolej Bertam, Pulau Pinang</i>
2.	<i>Blok Tambahan Hospital Jeli, Kelantan</i>
3.	<i>TPN HPRZ II, Kelantan</i>
4.	<i>Klinik Desa Keroh, Kuala Krai Kelantan</i>
5.	<i>Klinik Desa Lendu, Melaka</i>
6.	<i>Klinik Kesihatan Kuala Sungai Baru, Melaka</i>
7.	<i>Klinik Kesihatan Tawau, Sabah</i>
8.	<i>Pejabat Kesihatan Tawau, Sabah</i>
9.	<i>Klinik Kesihatan Nabawan, Sabah</i>
10.	<i>Klinik Kesihatan Pulau Redang, Terengganu</i>
11.	<i>Bumbung Hospital Setiu, Terengganu</i>
12.	<i>Klinik Kesihatan Bayu Damai, Johor</i>
13.	<i>Kuarters Bandar Tun Razak, Pahang</i>
14.	<i>Klinik Kesihatan Sri Jaya Maran, Pahang</i>
15.	<i>Klinik Kesihatan Sibujaya, Sarawak</i>
16.	<i>CRC Hospital Umum Sarawak, Sarawak</i>
17.	<i>Unit Kebakaran Bintulu, Sarawak</i>
18.	<i>Kuarters HTAR, Selangor</i>
19.	<i>Klinik Kesihatan Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur</i>
20.	<i>Obstetrik Putrajaya, Wilayah Persekutuan Putrajaya</i>

Source: Development Division, MoH

## PROJECT OUTCOME EVALUATION

ICU JPM, 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 ministry's 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 2016, the Development Division received a total 25 submissions from all over the country, for participation in the outcome evaluation process. The list of the 25 projects is enclosed in **Table 8**.

**Table 8**  
**List of Projects for Outcome Evaluation Workshop**

No	States/Ptj	Projects Proposed For Outcome Evaluation
1.	Sabah	<i>Blok Menara Hospital Queen Elizabeth Kota Kinabalu, Sabah</i>
2.	Perak	<i>Program Community Feeding RPS, Hulu Perak</i>
3.	Kelantan	<i>Klinik Kesihatan Jenis 3 Dengan Kuarters Tumpat, Kelantan</i>
4.	Terengganu	<i>Klinik Kesihatan Jenis 3 Jerteh, Besut Dengan Kuarters, Terengganu</i>
5.	Melaka	<i>Klinik Kesihatan Jenis 3 Dengan Kuarters , Tengker, Melaka Tengah</i>
6.	W.P. Putrajaya	<i>Cadangan Membina dan Menyiapkan Klinik Kesihatan Jenis 2 Putrajaya Presint 18, WPKL</i>
7.	Johor	<i>Klinik Desa Linggiu, Kota Tinggi, Johor</i>
8.	Terengganu	<i>Pengubahsuaian dan Naik Taraf Jabatan Kecemasan Hospital Nur Zahirah, Terengganu</i>
9.	Selangor	<i>Pembinaan Kuarters Integrasi Di Tapak PKKN Bagi Kakitangan Kementerian Kesihatan, Selangor</i>
10.	Kedah	<i>Klinik Kesihatan Jenis 3 Dengan Kuarters Changlun , Kubang Pasu, Kedah</i>
11.	Perak	<i>Menaiktaraf Unit Cytotoxic Drug Reconstitution (CDR) Unit Farmasi, Hosp.Raja Permaisuri Bainun, Ipoh, Perak</i>
12.	Pulau Pinang	<i>Klinik Kesihatan Jenis 3 Bukit Minyak, Seberang Perai Tengah, Pulau Pinang</i>
13.	Selangor	<i>Klinik Kesihatan Jenis 3 dan Kuarters Bestari Jaya, Kuala Selangor, Selangor</i>
14.	Sarawak	<i>Klinik Kesihatan Petra Jaya, Sarawak</i>
15.	Pahang	<i>Klinik Kesihatan Bandar Kuantan, Pahang</i>
16.	Sarawak	<i>Klinik Pergigian Daerah Bau, Sarawak</i>
17.	Kelantan	<i>Membina dan Menaiktaraf Wad Lelaki dan Wad Kanak-Kanak Hospital Machang, Kelantan</i>
18.	Sabah	<i>Membina Hospital Tuaran Fasa 2, Sabah</i>
19.	Johor	<i>Hospital Kluang, Johor</i>
20.	Melaka	<i>Klinik Desa Dengan Kuarters Nyalas, Jasin Melaka</i>
21.	Perak	<i>Klinik Kesihatan Jenis 4, Lenggong, Hulu Perak</i>
22.	Pahang	<i>Hospital Rompin, Pahang</i>
23.	Melaka	<i>Klinik Desa Dengan Kuarters Pulau Sebang, Alor Gajah Melaka</i>
24.	Kedah	<i>Klinik Desa dengan Kuarters Kampung Sungai Limau, Baling, Kedah</i>
25.	Perlis	<i>Bangunan Pejabat Jabatan Kesihatan Negeri Perlis</i>

Source: Development Division, MoH2016

Out of the 25 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 JPM. Members of the committee include representatives from EPU JPM, 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 90.0 per cent and above, and categorised as “Significantly Exceed Target”, as depicted in **Table 9**. In terms of the overall performance among the 24 ministries, MOH is **awarded 7<sup>th</sup> placing**, with a total marks of 91.4 per cent.

**Table 9**  
**List of 5 Projects Presented in JKPO at ICU JPM**

No.	Project Name	Marks (%)
1	Queen Elizabeth Hospital Tower Block, Kota Kinabalu, Sabah	91.7
2	Community Feeding Program RPS, Hulu Perak	93.3
3	Type 3 Health Clinic with Quarters, Tumpat, Kelantan	90.6
4	Proposed Building and Completing Type 2 Health Clinic, Putrajaya	90.0
5	Klinik Desa Linggiu, Kota Tinggi, Johor	91.7
<b>Overall Performance at 7<sup>th</sup> Placing</b>		<b>91.4</b>

Source: Development Division, MoH

## 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-Generals, the 3 Deputy Director-Generals, 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 ministry's health facilities development must go through the JPPT for approval. In 2016, a total of 6 JPPT meetings were convened, with a total of 91 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. In 2016, the Programme/Project Outcome Evaluation Workshop was conducted on the 17 to 20 April 2016. The Project and Land Management training was held on the 1 to 3 December 2016. Participants from health facilities throughout the country attended and benefitted from the training session/workshop.



## **WAY FORWARD**

Program/project development activities will continue to be enhanced, to support MoH and other relevant sectors towards achieving the best in all health related endeavors. Human resource development and capacity building activities will also be a focus, following the separation of the planning and development aspects to obtain a more focused function.





# **CHAPTER 11**

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## **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 coordinates matters related to the Cabinet, acts as the focal point for the Ministry of Health (MoH) with respect to the international relations including the World Health Organization (WHO), and responsible for promoting the local healthcare industry as well as the Delivery Management Office (DMO) for the Healthcare National Key Economic Area (NKEA). This Division is also the designated national focal point for the WHO.

Activities are carried out by three Sections of the Division, as listed below:

- i. Policy and International Relations Section;
- ii. Health Services Industry and Secretariat Section; and
- iii. Delivery Management Office, Healthcare NKEA.

## **ACTIVITIES AND ACHIEVEMENTS**

### **CABINET RELATED MATTERS**

In 2016, this Division prepared and coordinated 13 Cabinet Notes and 31 Memorandums for tabling at the Cabinet Meeting. This Division also provided inputs and facilitated the preparation of 70 comments on Memorandums received from other ministries as well as 53 feedbacks to decisions made by the Cabinet throughout the year 2016.

### **HIGH LEVEL MEETINGS WITHIN MoH**

The Division also serves as the secretariat for three (3) high level meetings in the Ministry. In 2016, 31 Post-Cabinet Meetings, four (4) Management Meetings and nine (9) Special Management Meetings were held.

### **COURSE OF INTRODUCTION TO THE HEALTH ECONOMY FOR YEAR 2016**

The course is held for three days from 5 to 7 October 2016 at Dorsett, Putrajaya. The purpose of the course is as follows:

- i. Provide exposure to MoH officers on the concepts in the Health Economics as well as Health Financing;
- ii. Disclosing MoH officers to the tools used when making decisions on source distributing and improving the service delivery; and
- iii. Provide opportunities for MoH officers to share experiences in the management of public health facilities in an effort to enhance the delivery of public health services.

A total of 39 participants consisting of Grade M41 to M52 Management Officers who are currently serve at the Ministry level, State Health Department and hospital participated in this course.

### **AS COORDINATOR FOR 10 KEY POINTS YB MINISTER OF HEALTH**

In line with the second thrust of the 11<sup>th</sup> Malaysian Plan to enhance the well-being of the people, the Ministry of Health Malaysia Strategic Plan 2016 to 2020 was created with one of its objectives being to strengthen the delivery of health services at all levels of the disease. The main focus of this objective is to establish primary health care. In that regard, a 'fast-track' policy has been established to accelerate the achievement of the objectives which outlined 10 key points of YB Minister of Health. This implementation policy is based on the direction and objectives of the MoH Strategic Plan, among others, by increasing the level health and reducing health risk factors as well as improving healthy lifestyle practices.

10 key points of YB Minister of Health (Fast-track policy) is as follows:

1. Primary Care as Focus of NCD Agenda;
2. Transformation of ICT;
3. Promote and Support Non-Profit Organisation;
4. Develop Cluster Hospitals;
5. Establishment of Low Risk Birthing Centre (LRBC);
6. Transformation of Pre-Hospital Care (Emergency Services);
7. Reformation of Housemen's Training;
8. Career Pathway for Medical Officers;
9. Private Practice for Senior Consultants; and
10. Voluntary Health Insurance (VHI) Scheme.

The Division is responsible for coordinating the 10 Key Points of the Minister of Health by holding meetings with Departments at the Ministry, State Health Department, hospitals, private sectors and NGOs and reporting progress status of 10 items on a monthly basis to the Office of Advisor YB Minister of Health.

### **COORDINATOR AND SECRETARIAT FOR MoH CORPORATE CULTURE**

MoH Corporate Culture comprises three (3) main elements which are Caring, Teamwork and Professionalism. The Division serves as the Coordinator for the Corporate Culture Working Committee, application of the Corporate Culture includes the following:

- i. Monitoring of course/training of Corporate Culture in MoH headquarters and at the State Health Department level;
- ii. Promotion and application of the Corporate Culture through posters, announcements, MoH portal and social media; and
- iii. To review the effectiveness of the program and level of Corporate Culture practice by MoH.

Throughout 2016, a total of 12 Corporate Culture posters, public address announcements through the MoH portal, and through social media.

## **INTERNATIONAL RELATIONS**

### **• WORLD HEALTH ORGANIZATION (WHO)**

Throughout 2016, the Division coordinated placements of 22 WHO fellows in various institutions in Malaysia. In addition, the Division also coordinated and processed applications from 54 participants and four (4) advisors comprising Malaysian professionals to attend 31 meetings/workshops/study visits overseas under WHO sponsorship.

The Division also coordinated the participation of MoH delegation in WHO main meetings as follows:

- i. 69<sup>th</sup> World Health Assembly, 22 to 28 May 2016, Geneva, Switzerland;
- ii. 4<sup>th</sup> Ministerial Regional Forum on Environment and Health in Southeast and East Asia Countries, 7 to 8 October 2016, Manila, Philippines; and
- iii. 67<sup>th</sup> Session of the WHO Regional Committee for the Western Pacific, 10 to 14 October 2016, Manila, Philippines.

### **• OTHER INTERNATIONAL BODIES**

In the year 2016, the Division coordinated MoH top management's participation in various meetings, amongst others, as follows:

- i. 83<sup>rd</sup> ASEAN Coordinating Committee on Services (CCS), 25 to 27 January 2016; Bangkok, Thailand;
- ii. Bioregional Technical Consultation on Antimicrobial Resistance in Asia and Tokyo Meeting of Health Ministers on Antimicrobial Resistance in Asia, 14 to 16 April 2016, Tokyo, Japan;
- iii. Asia Pacific Leaders Malaria Alliance (APLMA) Senior Officials Meeting, 13 May 2016, Bangkok, Thailand;
- iv. 84<sup>th</sup> ASEAN Coordinating Committee on Services (CCS), 17 to 21 May 2016, Vientiane, Lao PDR;
- v. Commonwealth Health Ministers' Meeting, 21 May 2016, Geneva, Switzerland;
- vi. United Nations General Assembly High-Level Meeting on Ending AIDS, 8 to 10 June 2016, New York, United States;
- vii. 11<sup>th</sup> ASEAN Senior Officials Meeting On Health Development (SOMHD) and Related Meetings, 9 to 11 August 2016, Brunei Darussalam;
- viii. APEC High Level Meeting on Health and Economic, 18 to 26 August 2016, Lima, Peru;
- ix. 85<sup>th</sup> ASEAN Coordinating Committee on Services (CCS), 26 to 29 September 2016, Ho Chi Minh City, Viet Nam;
- x. 20<sup>th</sup> Brunei Darussalam-Indonesia-Malaysia-Singapore-Thailand (BIMST) Public Health Conference, 13 to 14 October 2016, Singapore;

- xi. High-Level Convening on Cervical Cancer Prevention and Control, 16 to 17 October 2016, New Delhi, India; and
- xii. 5<sup>th</sup> Responsible Business Forum on Sustainable Development, 23 to 24 November 2016, Singapore.

- **COORDINATION**

- i. coordinated Malaysia's participation of the "Eighth High Level Officials' Meeting, Regional Forum on Environment And Health In South-East Asia and East Asian Countries" by video conference on 21 June 2016 in MoH; and
- ii. coordinated Malaysia's participation in the "ASEAN Health Ministers Special Video Conference on the threat of Zika Virus" on 19 September 2016 in MoH.

- **BILATERAL TECHNICAL WORKING GROUP MEETING ON HEALTH**

**Bilateral Technical Working Group Meeting between National Pharmaceutical Control Bureau (NPCB) and Thai Food and Drug Administration (FDA), Nonthaburi, Thailand, 8 August 2016**

The Bilateral Meeting between National Pharmaceutical Control Bureau (NPCB) and Thai Food and Drug Administration (FDA) was convened in Nonthaburi, Thailand on 8 August 2016. The bilateral meeting was primarily led by Director, NPCB and Ministry of Health Malaysia.

- **WORKING VISIT/MEETING ON COOPERATION/SEMINAR/FORUM**

- i. **Joint Avian Influenza Field Simulation Exercise Across Border of Malaysia and Thailand 2016, State of Kedah, border with Songkhla Province, Thailand, 30 March to 1 April 2016**

The simulation exercise was held in Kedah, border with Songkhla Province, Thailand from 30 March to 1 April 2016 and Malaysian delegation was led by the Kedah State Health Department.

- ii. **Bilateral Meeting On Cross-Border Health Collaboration during 67th Session Of The World Health Organization (WHO) Regional Committee For The Western Pacific Meeting, Philippines, 9 October 2016**

The meeting was held in Manila, Philippines on 9 October 2016 and Malaysian delegation was led by the Honourable Minister of Health Malaysia.

- iii. **Bilateral Meeting between Minister of Health Malaysia and State Minister of Health, Labour and Welfare (Senior Vice Minister) of Japan, Putrajaya, Malaysia, 22 July 2016**

The meeting was held in Putrajaya on 22 July 2016 and Malaysian delegation was led by the Honourable Minister of Health Malaysia.

- iv. **Study Visit to Brunei Nursing Board, Brunei Darussalam, 7 August 2016**  
The study visit was held in Brunei on 7 August 2016 and Malaysian delegation was led by Deputy Director, Nursing Division.
- v. **Tokyo Meeting of Health Ministers on Antimicrobial Resistance (AMR) in Asia, Tokyo, Japan, 16 April 2016**  
The meeting was held in Tokyo, Japan on 16 April 2016 and the delegation was led by Honourable Minister of Health Malaysia.
- vi. **39th Public Service Games and 8th Joint Seminar Programme for Malaysia and Singapore Public Sector Leaders 2016, Singapore, 15 to 16 October 2016**  
The program was held in Singapore and was led by the Chief Secretary to the Government of Malaysia with the participation of the Secretary General of Health.
- vii. **High Level Convening on Cervical Cancer Prevention and Control in India and Beyond: A Comprehensive Approach Towards Elimination, New Delhi, India, 16 to 18 October 2016**  
The meeting was held in New Delhi, India from 16 to 18 October 2016 and the delegation was led by Honourable Deputy Minister of Health Malaysia.
- viii. **1st China - ASEAN Forum on Health organized by People's Republic of China (PRC), Nanning, Guangxi, PRC, 26 to 29 October 2016**  
The forum was held in Nanning, Guangxi, China from 26 to 29 October 2016 and the delegation was led by the Secretary General of Health Malaysia.

- **COURTESY CALL**

- i. Courtesy Call upon Honourable Minister of Health Malaysia by H.E. Christophe Penot, Ambassador of France in Malaysia, 18 January 2016;
- ii. Courtesy Call upon Honourable Minister of Health Malaysia by H.E. Mohammed Nasim, Minister of Health and Family Welfare Bangladesh, 28 January 2016;
- iii. Courtesy Call upon Honourable Minister of Health Malaysia by Dr Ali Hyasat, Minister of Health Hashemite Kingdom of Jordan, 15 February 2016;
- iv. Courtesy Call upon Honourable Minister of Health Malaysia by H.E. Ambassador of Brazil in Malaysia, 17 February 2016;
- v. Courtesy Call upon Honourable Minister of Health Malaysia by Ms. Hanna Mantyla, Minister of Health Finland, 1 March 2016;
- vi. Courtesy Call upon Secretary General of Health Malaysia by H.E. Ambassador of Denmark in Malaysia, 18 March 2016;
- vii. Courtesy Call upon Director General of Health Malaysia by H.E. Ambassador of Japan in Malaysia, 25 March 2016;
- viii. Courtesy Call upon Director General of Health Malaysia by Prof. Derek Bell, President Royal College of Physicians of Edinburgh, 25 March 2016;



- ix. Courtesy Call upon Director General of Health Malaysia by H.E. High Commissioner of New Zealand in Malaysia, 29 April 2016;
- x. Courtesy Call upon Undersecretary, Policy & International Relations Division by Dr. Shu-Ti Chiou, Director General of Health Promotion Administration, Ministry of Health and Welfare Taiwan, 29 April 2016;
- xi. Courtesy Call upon Secretary General of Health Malaysia by H.E. Ambassador of France in Malaysia, 4 May 2016;
- xii. Courtesy Call upon Director General of Health Malaysia by Commercial Counselor, Embassy of Egypt in Malaysia, 19 May 2016;
- xiii. Courtesy Call upon Secretary of Malaysia Medical Council by Professor Duck-Sun Ahn, Korean Health Industry Development Institute (KHIDI), 30 May 2016;
- xiv. Courtesy Call upon Honourable Minister of Health Malaysia by H.E. Taro Kono, Minister of State, Japan, 21 July 2016;
- xv. Courtesy Call upon Honourable Minister of Health Malaysia by H.E. Dr. Imet Rrahmani, Minister of Health, The Republic of Kosovo, 22 July 2016;
- xvi. Courtesy Call upon Undersecretary, Policy & International Relations Division by Minister, Embassy of Japan in Malaysia, 4 August 2016;
- xvii. Courtesy Call upon Honourable Deputy Minister of Health Malaysia by H.E. Mr. Lu Junhua, Vice Governor of The People's Government Of Hainan Province, 2 September 2016; and
- xviii. Courtesy Call upon Secretary General of Health Malaysia by H.E. Ambassador of Cuba in Malaysia, 22 September 2016.

- **OFFICIAL VISIT/STUDY VISIT TO MINISTRY OF HEALTH MALAYSIA**

Coordination of official and study visit by foreign officials and delegation to the Ministry of Health Malaysia and the facilities under MoH. In 2016, total of 160 visitors from 10 countries were received by MoH. **Table 1** below indicates the total of visitors received by MoH for year 2016.

**Table 1**  
**Total of Visitors from 10 Countries Received by MoH for Year 2016**

No	Countries	Total Visitors/ Person
1.	Bangladesh	6
2.	Brazil	5
3.	Indonesia	55
4.	Myanmar	10
5.	Sri Lanka	31
6.	Sudan	18
7.	Tanzania	10
8.	Thailand	10
9.	United States of America	5
10.	Vietnam	10
<b>TOTAL</b>		<b>160</b>

Source: Policy and International Relations Division, MoH

## PHARMACEUTICAL

- **OFF-TAKE AGREEMENT (OTA)**

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 programme is to provide additional incentive for the local manufacturing of new pharmaceutical and medical devices products for exports and to encourage new investments. The Policy and International Relations Division acts as a focal point in coordinating OTA application from pharmaceutical companies with Entry Point Project (EPP) status.

In 2016, the MoH signed an OTA agreement with Biocon Sdn. Bhd. For Insugen-R/Insugen-N/Insugen 30/70 (treatment for diabetes).

MoH had also signed an OTA contract agreement with Kotra Pharma (M) Sdn. Bhd. for Trimetazidine 35mg MR, Gliclazide 60mg MR and Cefobactam 1g Injection.

- **EXPORT GROWTH OF PHARMACEUTICAL PRODUCTS**

This Division has been entrusted to monitor the export growth of pharmaceutical products. Target is set based on global pharmaceutical industry growth forecasts of between 8 per cent to 10 per cent annually.

### **2016 (Dashboard Monitoring)**

Target 2016 : RM678,028,784.00 (8 per cent growth compared to 2015)

Achieved 2016 : RM737,309,453.00 (108.74 per cent)

## **ORGANISING INCOMING BUYING MISSION (IBM)**

MoH and *Malaysia External Trade Development Corporation* (MATRADE) jointly organised the *Incoming Buying Mission* (IBM) from 31 May until 3 June 2016 at the Kuala Lumpur Convention Centre. This program was organised in conjunction with the Association of Private Hospitals of Malaysia (APHM) International Healthcare Conference and Exhibition 2016 (AIHCE).

The main objective of organising IBM is to boost the potential of local medical device and pharmaceutical companies and products in international market. IBM served as a platform to convene international and local companies in establishing strategic collaboration, hence assisting local companies to build network with international companies. As such, it is prominent to note that IBM plays a vital role in supporting the efforts to encourage the promotion and growth of exports of medical device and pharmaceutical industry in Malaysia as

a whole. The main IBM's program is one-to-one business meeting between local and international companies.

IBM 2016 was participated by eight (8) countries including Japan, India, Vietnam, Nepal, Indonesia, Fiji Islands, Mauritius and also Australia. There were 17 representatives from 13 companies involved. About 56 local companies were in attendance in one-to-one business meetings session. The two-days business meetings recorded a total of 225 business meetings. Trade deals worth an estimated USD9.35 million for gloves and latex products were concluded and the biggest contributors were two companies from Nepal and each company from Vietnam and India.

Overall, the IBM participants conveyed a good response towards IBM 2016. They were in view that this program is a good platform to promote on their products and services. Moreover, they stated their confidence to deal with local companies due to the credibility as well as variety of products and services offered by them.

**Image 1**  
**IBM 2016 Gallery**



Participants Attending Opening Ceremony of APHM International Healthcare Conference and Exhibition 2016  
Officiated by The Honourable Minister of Health on 2 June 2016



IBM 2016 Participants with Officers from Policy and International Relations Division, MoH



Business Meeting Session



Translation Service Provided for Japanese Participants

*Source: Policy and International Relations Division, MoH*

## COORDINATION OF MEETINGS FOR MoH SPECIAL MANAGEMENT AND MoH MANAGEMENT

These meetings pave the way for the flow of information from top to bottom. It is a platform to discuss on the latest crucial matters pertaining to the ministry and a session to update the work progress of each division within the ministry. These meetings are specially arranged every fortnight with the top management team of the ministry to sit together and discuss on constructive ideas for the betterment of the organization. **Table 2** is the number of meetings held for the year 2016.

**Table 2**  
**Number of The Meetings Held for the Year 2016**

No	Meetings	2016
1.	Special Management	15
2.	MoH Management	4

*Source: Policy and International Relations Division, MoH*

## COORDINATE AND PREPARE MINISTRY OF HEALTH CALENDAR

The Division takes the pleasure in compiling the events for the entire year which are related to participation and officiating events by the top members of the ministry namely the Minister, Secretary General and Director General. The planner functions as a guide book in systematically arranging events and meetings throughout the year to ease preparatory process of an event.

## HEALTHCARE NKEA

### • HEALTHCARE NKEA STEERING COMMITTEE MEETING

The Division through the Delivery Management Office (DMO) and PEMANDU/Civil Service Deliver Unit (CSDU) continued to closely monitor the progress of implementation of Entry Point Projects (EPPs) through a total of three Healthcare NKEA Steering Committee Meetings conducted in 2016. Apart from solving issues related to the implementation of projects, the committee also discussed and endorsed new projects.

### • THE LIST OF PROJECTS FOR 2016

- i. Lucenxia
  - For APD patients under Public Service Department (JPA) receiving APD to be able to receive treatment benefits using Lucenxia's APD treatment modality.

- For Medical Development Division to develop criteria for APD treatment.
- ii. CRM
  - to employ nurses as clinical researchers.
  - to establish criteria/guidelines in Development of Phase 1 Clinical Trials.
- iii. PAHFAS
  - Eden on the Park - An Integrated Senior Active Lifestyle Private Senior Living facility
  - MIDA - To look into fiscal incentives for Private Aged Healthcare Facilities
- iv. Biocon (Insulin)
  - for OTA
- v. Winthrop/ Xepa (Pharmaceutical drugs)
  - for EPP application
- vi. PEMANDU
  - to inform of and proceed with withdrawal of Inactive EPP's
- vii. Biocare
  - to proceed with procurement process
- viii. CCM
  - HAPI plant locally
  - production of EPO Biosimilars locally
- ix. Decided that NKEA be the platform with regards to - Medical Tourism
  - Medical Devices
  - Pharmaceuticals
- x. Hovid
  - production API's and Biosimilars locally
- xi. MHTC
  - to create Speciality hospitals with niche areas of expertise
- xii. Pfizer/Pharmaniaga
  - to manufacture T. Celebrex 200mg locally when patent expires in 2020

## CONCLUSION

In conclusion, throughout 2016, 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.



The background of the page is a soft, abstract pattern of teal and light blue waves, creating a sense of movement and depth. The colors transition from a vibrant teal at the top to a lighter, almost white blue at the bottom.

# **CHAPTER 12**

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## **INTERNAL AUDIT**

## INTRODUCTION

The Internal Audit Division (IAD) was established in 1980 under Treasury Circular No. 2/1979. The roles and responsibilities of IAD were further reinforced by Treasury Circular *1Pekeliling Perbendaharaan* (1PP) PS 3.1 and PS 3.2. Internal audit forms part of the Ministry's internal control components and to ensure its independence, is directly responsible to the Secretary General of the Ministry. IAD independently conducts its audits and reports to the Ministry of Health (MoH)'s Secretary General and relevant parties.

The sustainability of excellent financial management and an effective delivery service system depends significantly on the personnel that are involved in the financial management system. The existence and establishment of Internal Audit through internal auditing activities enabled management to improve on their financial management performances and the implementation of their planned programmes/activities by using optimum resources.

## ACTIVITIES AND ACHIEVEMENTS

In line with the entrusted position of internal audit as stipulated in Treasury Circular 1 (*1Pekeliling Perbendaharaan* (1PP)) PS 3.1 and PS 3.2 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 Centres (RCs) and rated them accordingly to determine whether assets, liabilities, revenue and expenditure have been managed accordingly. 70 per cent of the selected RCs audited were rated 5 star (excellent) whilst 27 per cent and 3 per cent were rated "4 star (good)" and "3 star (satisfactory)" respectively.

Besides financial management audits, IAD has also carried out performance audits on selected programmes/activities to evaluate whether the programmes/activities were implemented according to rules and regulations and achieved their purposes. A total of 12 performance audits were carried out and seven (7) of them were related to procurement as this formed the most potential risk area that can be exposed to mismanagement. Material issues raised from IAD's audits were tabled at the quarterly Audit Committee meetings chaired by the Secretary General of Ministry of Health (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.







MINISTRY OF HEALTH  
MALAYSIA

Blok E1, E3, E6, E7 & E10 Kompleks E  
Pusat Pentadbiran Kerajaan Persekutuan  
62590 Putrajaya, Malaysia

Tel: 03-8000 8000 / Fax: 03-888806187

E-mail: [kkm@moh.gov.my](mailto:kkm@moh.gov.my)

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