



# HUMAN RESOURCES FOR HEALTH COUNTRY PROFILE 2015-2018 MALAYSIA



PLANNING DIVISION  
MINISTRY OF HEALTH MALAYSIA





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HUMAN RESOURCES FOR HEALTH COUNTRY PROFILES MALAYSIA (2015-2018)

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Data were obtained from:

- Allied Health Sciences Division, Ministry of Health
- Health Informatics Centre, Ministry of Health
- Human Resource Division, Ministry of Health
- Malaysian Dental Council
- Malaysian Medical Assistant Board
- Malaysian Medical Council
- Malaysian Nursing Board
- Medical Development Division, Ministry of Health
- Ministry of Higher Education
- Oral Health Programme, Ministry of Health
- Pharmacy Service Programme, Ministry of Health
- Pharmacy Board Malaysia
- Traditional and Complementary Medicine Division, Ministry of Health



## LIST OF ABBREVIATIONS

<b>AIMST</b>	Asian Institute of Medicine, Science and Technology
<b>AMO</b>	Assistant Medical Officer
<b>A&amp;E</b>	Accident and Emergency
<b>AN</b>	Assistant Nurse
<b>AUCMS</b>	Alliance University College of Medical Sciences
<b>CRC</b>	Clinical Research Centre
<b>CN</b>	Clinical Nurse
<b>CN</b>	Community Nurse
<b>CUCMS</b>	Cyberjaya University College of Medical Science
<b>FANZCA</b>	Fellow of the Australian and New Zealand College of Anaesthetists
<b>FAI</b>	Fellowship of College of Anaesthetists of Ireland
<b>FRCR</b>	Fellow of the Royal College of Surgeons
<b>FRCS</b>	Fellowship of the Royal College of Surgeons
<b>HIC</b>	Health Informatics Centre
<b>HRH</b>	Human Resource for Health
<b>HRMIS</b>	Human Resource Management Information System
<b>ICT</b>	Information Communication Technology
<b>IT</b>	Information Technology
<b>IHM</b>	Institute of Health Management
<b>IMU</b>	International Medical University
<b>KD</b>	<i>Klinik Desa</i>
<b>KK</b>	<i>Klinik Kesihatan</i>
<b>KKIA</b>	<i>Klinik Kesihatan Ibu dan Anak</i>
<b>K1M</b>	<i>Klinik 1 Malaysia (now known as Klinik Komuniti)</i>
<b>GDP</b>	Gross Domestic Product
<b>GHO</b>	Global Health Observatory
<b>MDC</b>	Malaysian Dental Council
<b>MMC</b>	Malaysian Medical Council
<b>MMed</b>	Master of Medicine
<b>MMMC</b>	Melaka Manipal Medical College
<b>MOD</b>	Ministry of Defence
<b>MOH</b>	Ministry of Health
<b>MOHE</b>	Ministry of Higher Education
<b>MQA</b>	Malaysian Qualifications Agency
<b>MRCP</b>	Membership of the Royal College of Physicians
<b>MRCPC</b>	Membership of Royal College of Paediatrics and Child Health
<b>MRCOG</b>	Membership of Royal College of Obstetricians and Gynaecologists
<b>MSU</b>	Management and Science University
<b>MYR</b>	Malaysian Ringgit
<b>MW</b>	Midwifery

<b>NGO</b>	Non-Governmental Organisation
<b>NHEWS</b>	National Health Establishment and Workforce Survey
<b>NMCS</b>	National Medical Care Statistics
<b>NUMed</b>	Newcastle University Medicine Malaysia
<b>PMC</b>	Penang Medical College (rebranded as RUMC)
<b>RCMP</b>	Royal College of Medicine Perak
<b>RUMC</b>	Royal College of Surgeon in Ireland and University College Dublin Malaysia Campus
<b>STPM</b>	Sijil Tinggi Pelajaran Malaysia
<b>UCSI</b>	University College Sedaya International
<b>UIAM</b>	Universiti Islam Antarabangsa Malaysia
<b>UKM</b>	Universiti Kebangsaan Malaysia
<b>UM</b>	University of Malaya
<b>UMS</b>	Universiti Malaysia Sabah
<b>UNIMAS</b>	Universiti Malaysia Sarawak
<b>UNISZA</b>	Universiti Sultan Zainal Abidin
<b>UPM</b>	Universiti Putra Malaysia
<b>UPNM</b>	Universiti Pertahanan Nasional Malaysia
<b>USM</b>	University of Science Malaysia
<b>USIM</b>	Universiti Sains Islam Malaysia
<b>UTAR</b>	Universiti Tunku Abdul Rahman
<b>UiTM</b>	Universiti Teknologi MARA
<b>OECD</b>	Organisation for Economic Co-Operation and Development
<b>O&amp;G</b>	Obstetrics and Gynaecology
<b>T&amp;CM</b>	Traditional and Complementary Medicine
<b>WHO</b>	World Health Organisation
<b>WPRO</b>	Western Pacific Regional Office



## EXECUTIVE SUMMARY

**HRH Country Profile provides a situational analysis of the Health Human Resource in the country, until 2018. This report provides a profile of key features pertaining to health workforce from 2015 until 2018, including recent trends in supply and distribution. The main objectives of the report are to establish better understanding of issues relating to Health Human Resource in the country, to establish National Health Workforce Account data formation required by WHO and to spearhead the strategic planning process for HRH to meet the future needs and aspiration of the country.**

In May 2014, the sixty-seventh World Health Assembly adopted the Global Strategy on Human Resources for Health: Workforce 2030 the Global Strategy on Human Resources for Health: Workforce 2030 with the overall goal to ensure universal availability, accessibility, acceptability, coverage and quality of the health workforce through adequate investments to strengthen health systems, and the implementation of effective policies.

The Human Resource for Health Country Profiles report provides a situational analysis of the human resource for health (HRH) in the country, until 2018. This report discloses the profile of key features on health workforce from 2015 until 2018, including recent trends in supply and distribution. The information available in the report shall assist policymakers and all relevant stakeholders in the health sector in decision making and formulation of strategies to address human resource for health related issues and challenges. Additionally, the information shall also partially support the implementation of National Health Workforce Account in Malaysia.

Malaysia's current health plan is in 11th Malaysia Plan and Mid-Term Review (MTR)

of the 11th Malaysia Plan where new priorities and emphases, for 2018 – 2020 are outlined (Economic Planning Unit, 2018). Several of these strategies have implications for human resources for health (HRH), including developing new health facilities and services to be aligned with human resource requirements to ensure the right number of health workforce able to provide the highest attainable standard of health to the public.

Malaysia in 2018 has 18.88 doctors per 10,000 population, which is lower if compared to the average of upper middle-income countries (21.52 doctors per 10,000 population) and the average of OECD countries (38.64 doctors per 10,000 population) in 2018. The density of dentists in 2018 is 2.99 per 10,000 population, which is lower than the average of upper middle-income countries in 2017 (4.11 per 10,000 population) and lower than the average of OECD countries in 2018 (7.61 dentists per 10,000 population).

On the same note, the density of pharmacists is 4.14 pharmacists per 10,000 population in 2018. This is marginally lower than average upper middle-income countries in 2017 (5.80 pharmacists per 10,000 population) and far-off average OECD countries in 2018

(9.56 pharmacists per 10,000 population). Nurses in Malaysia has a density of 32.85 per 10,000 population in 2018 which is also lower than upper middle-income average countries and much lower than OECD average countries (35.55 nurses per 10,000 population and 75.13 nurses per 10,000 population respectively) in 2018.

Comparison was also carried out between Malaysia and Western Pacific Regional (WPRO) countries, which consist of different income status country. Malaysia's doctors, dentists and pharmacists are observed to be slightly lower than WPRO average. However, the nurse's density per 10,000 population seems far lower than WPRO average.

It is important to note that, comparison of Malaysia's HRH density to other countries especially higher income countries only serves as a benchmark. However, these countries' disease burden, population growth and healthcare delivery system might vary.

In Malaysia, the figures on HRH density show that there have been improvements in the trend for all five professions, namely doctors, dentists, pharmacists, nurses and AMO's. In the span of ten (10) years, the density of doctors improved from 9.11 per 10,000 population in 2008 to 18.88 per 10,000 population in 2018. The density for dentists, on the other hand, improved from 1.32 per 10,000 population to 2.99 per 10,000 population within the same period.

As for pharmacists, there is an improvement from 2.32 per 10,000 population in 2008 to 4.14 per 10,000 population in 2018. Nurses density shows noticeable improvement from 19.68 per 10,000 population to 32.85 per 10,000 populations within the same duration. Meanwhile, Assistant Medical Officers (AMO) recorded an increased from 3.30 per 10,000 population in 2008 to 5.53 per 10,000 population in 2018.

In recent years, the country saw a rapid expansion in new graduates entering the workforce, and this trend has caused pressure on the public sector, as job placements or posts are limited. Consequently, there is a prolonged waiting time for new graduates to be employed and absorbed into the system resulting in delays of up to 6 months to 1 year.

The bottleneck in employment is markedly obvious for doctor, dentist and pharmacist, as the new graduates must undergo a period of compulsory training or service in the public sector. As a solution, in 2016, the Public Service Department introduced the contract scheme for House Officers, New Dental Officer and Provisionally Registered Pharmacists (PRP) during their period of compulsory training or service.

Measures such as the moratorium on new medical and nursing programmes are continued to control and manage the increase of new medical and nursing graduates. In 2018, the majority of healthcare providers are female, with the exception of AMOs and the overall specialists. In Malaysia, nurses are almost entirely female, while more than 70% of pharmacists, 69% of dentists and 53% of doctors are female. AMO recorded only 16% female in 2018. Among specialists, Family Medicine recorded the highest number of females (72%) followed by Public Health Medicine (59%). The predominance of female health workers has many implications in future strategic HRH planning. For example, work from home or flexible hour's options must be seriously considered to enable women to continue working while raising a child.

In 2018, the majority of healthcare personnel are in the public sector except for optometrists and opticians; 79% of optometrists are in the private sector, and 100% of opticians are working in the private sector. In the same year, 76% of doctors are in the public sector and the



remaining 24% are in the private sector. For dentists, 67% are in the public sector and 33% in the private sector. Similarly, 61% of pharmacists are in the public sector and 39% are in the private sector. The higher percentage in public sector trend is also seen for both nurses and AMOs where 67% of nurses are in the public sector and 33% in the private sector and for AMOs 83% are in the public sector and 17% in the private sector.

In terms of age and sector distribution, data was made available only for dentists and specialists. The data illustrated that dentists in the public sector are majority below the age of 40 as compared to dentists >40 who are predominant in the private sector. Among the specialists, it is observed that the majority of specialists are in the 30-39 age group are in the public sector while specialists in the private sector are majority above the age of 40.

Doctors, pharmacists, nurses, assistant pharmacist, and specialists in the west coast region of Peninsular Malaysia continues to have the highest density. However, in the east coast region, the density is highest for dentists and community nurses. Meanwhile, AMOs and dental nurses are observed to be higher in Sarawak than in the west coast region. This report also present analysis and trend on other allied health personnel working in MOH in the Annex section.

Hence, this report serves as Human Resources for Health Country Profiles for Malaysia, which provides information on the HRH status from 2015 to 2018 depending on availability of data. This report also serves as baseline knowledge to guide future HRH policy development, including formulating measures on HRH supply and distribution in the country.



## PREFACE

**M**alaysia produced its first profile of human resources for health (HRH) report in 2013 in collaboration with World Health Organisation, Western Pacific Regional Office (World Health Organisation, 2014). The report relied on HRH data for 2011 and earlier. It served as a particularly useful tool providing an overview of the HRH situation in the country and highlighting existing strengths and gaps. As a result, it served as a springboard to stimulate a strategic planning process for HRH over a medium-term horizon.

The second report was published in 2015, and its analysed HRH situation in 2014 and before. This report, Malaysia Human Resource for Health Country Profile 2015 - 2018, presents mainly data and analysis from 2015 until 2018 and in some cases, data comparison was taken from data since 2002.

### STRUCTURE OF THIS REPORT

In the main part of this report, each chapter provides a brief analysis and illustrative description of the stock HRH, trends, age and gender profiles and geographic distribution. For items on which data for the private sector is not available, the analysis and description are limited to the health workforce employed by the MOH.

This report ends with a summary of the data limitations to provide the basis for developing a plan to improve HRH data quality.

The annexes provide annual data up to the latest year for which data is available, as well as a list on legislation governing HRH.

In the Human Resources for Health Country Profiles: Malaysia (World Health Organisation, 2014), HRH educational systems, HRH financing and governance in Malaysia are discussed in depth, thus in this report, topics pertaining to these topics will not be elaborated. However, data on training and education such as entrants, enrolment and graduates are available in [Annex 1](#) and

data on key legislation governing the HRH is shown in [Annex 4](#).

### DATA SOURCES

The previous report, Human Resources for Health Country Profiles: Malaysia (World Health Organisation, 2014) noted that there were issues of inadequate quality and timeliness of data that arose from inadequate coordination between various units in the Ministry of Health, and also with other related agencies. Subsequently there has been some improvements in the data availability due to the efforts of Planning Division of the Ministry of Health which has spearheaded efforts to improve coordination.

The sources that provide primary data include:

- Statutory Councils or Boards that under various laws, licensed seven of the health professions, namely Medical, Dental, Pharmacy, Nursing and midwifery, Assistant Medical Officers, Optical and Food Analysts. Licensing covers both public and private sectors. Additionally,

although allied health professionals and Traditional and Complementary Medicine practitioners are not required as yet by law to register themselves with their respective Boards, they are encouraged to register on a voluntary basis, and data on those who have registered themselves are included in this report.

- Human Resources Division of the MOH maintains data on all MOH's employees.
- Programme Divisions in the MOH, maintain their own records of HRH employed by the MOH and placed in their respective Programmes. They use such data for purposes of deployment, training and credentialing.

### LIMITATIONS IN DATA ANALYSIS AND UTILIZATION

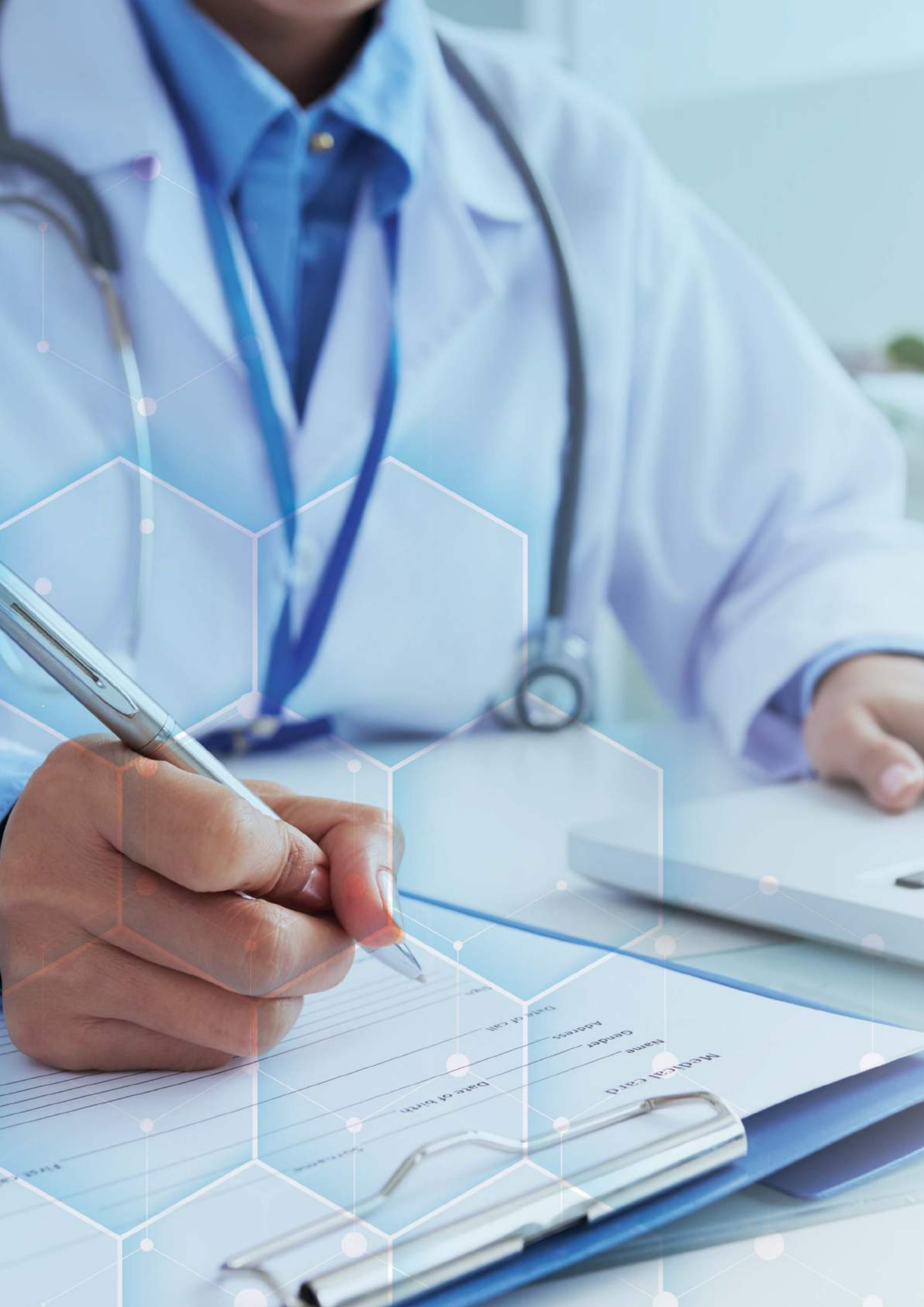
**Data discrepancies:** The data from all the sources listed earlier are not linked resulting in data discrepancies in the human resource information systems. For instance, the MOH workforce data are recorded and managed manually in spreadsheet formats

that belong to the Division as well as in the Human Resources Management Information System (HRMIS). The HRMIS records personnel data of the Federal Government and all civil servants. Furthermore, data for distribution by states and districts are kept by the State Health Department and this information will be updated or collected from the sources according to their requirement. This leads to inefficient and inaccurate data analysis and utilisation.

Inadequate data management due to limitations in technology and/or human resources managing each system, resulted in most of the data that is collected not being analysed routine and systematically especially in the following areas:

- Age, gender, and geographic distribution
- HRH density in relation to population

**Inadequate utilization:** Most of the relevant information on HRH is difficult to access and not compiled routinely in a single user-friendly publication. This contributes to limited utilization of the data compiled.



Hand holding a silver pen writing on a medical form.

Medical card  
Name \_\_\_\_\_  
Gender \_\_\_\_\_  
Address \_\_\_\_\_  
Date of birth \_\_\_\_\_  
Date of call \_\_\_\_\_



# INTRODUCTION

## 1.0 INTRODUCTION

Malaysia, with a land area of 330, 289 square kilometre is in Southeast Asia and is in central position of two (2) landmasses separated by South China Sea. The neighbouring countries are Singapore, Thailand, Indonesia, Philippines, and Brunei Darussalam. Malaysia is part of the Western Pacific Region country and a member of the Association of Southeast Asian Nations (ASEAN). Malaysia Practices Parliamentary Democracy with Constitutional Monarchy and Yang di-Pertuan Agong is the head of state of Malaysia. Parliament is the most important institution in the country, which practices the principle of democracy.

### 1.1 DEMOGRAPHY

[Figure 1](#) shows the trend in Malaysian population demography from 2000 to 2030.

As shown in [Figure 1](#), Malaysia's population is projected to reach 40 million by 2030. Based on the trend, the percentage of population aged 60 and above, doubles up to almost 15% of total population and it is

observed that there is a gradual decrease in percentage of population for those age 0 to 14 by 2030.

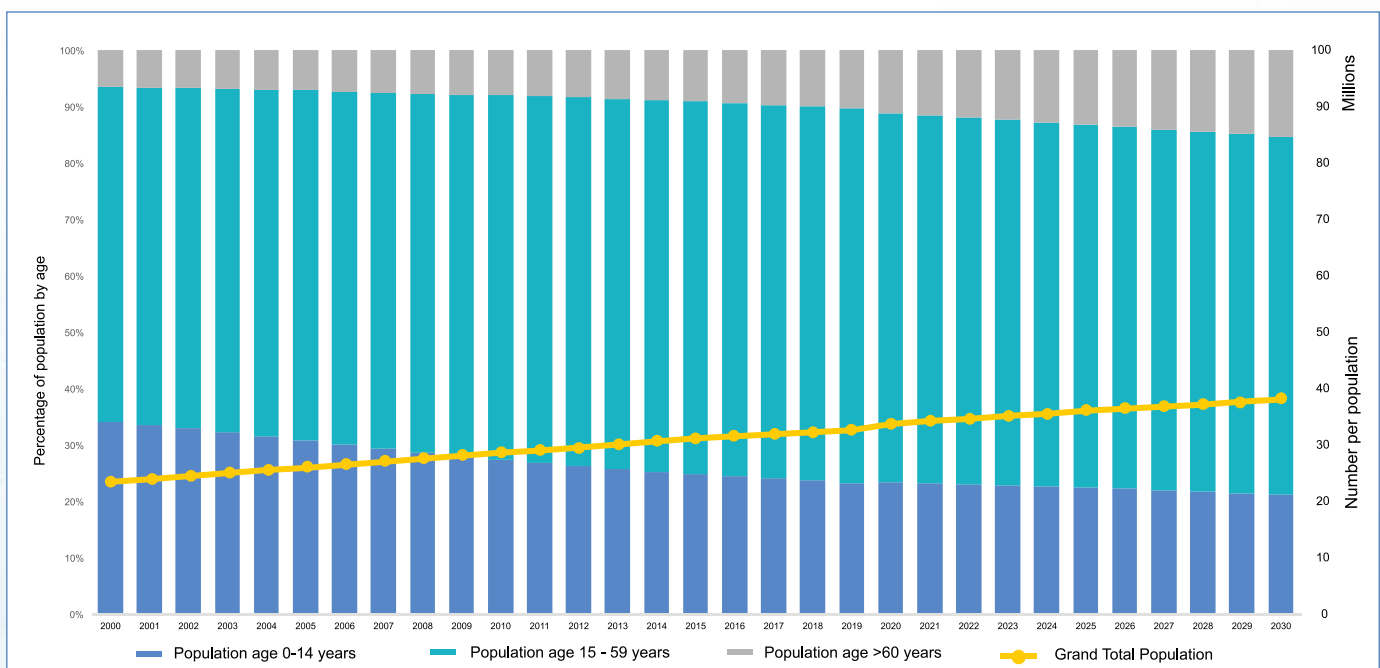
### 1.2 ECONOMIC SITUATION

Malaysia sustained a strong economic growth for the past three decades and achieved real Gross Domestic Product (GDP) of MYR 1447.50 million in 2018 (Economic Planning Unit 2019). The GDP growth rate is t 4.7% in 2018. Per capita income is MYR 42,627 for 2018 (Economic Planning Unit 2019). Poverty rates have declined dramatically from 50% in 1970 to 0.4 % in 2016 (Economic Planning Unit 2019). The GINI coefficient decreased from 0.431 in 2012 to 0.399 in 2016 (Department of Statistic, 2020). The unemployment rate increased slightly from 3.1% in 2012 to 3.3% in 2017 (Economic Planning Unit 2019). Female unemployment rate is 3.5% in 2017 (Economic Planning Unit 2019).

### 1.3 HEALTH EXPENDITURE

Health expenditure is 4.16 % of GDP in 2018, with public expenditure being 51.9% of total

**Figure 1:** Malaysia's Population Trend, 2000 – 2030



Source: Department of Statistics Malaysia (2016)

health expenditure (Malaysia National Health Accounts, 2019). According to budget 2018, 9.6% of the national budget was allocated for health, compared to 21.9% for education and 1.07% for Defence. (Ministry of Finance, 2018).

#### 1.4 HEALTH STATUS

Since independence, Malaysia has achieved great improvements in health as reflected by certain key health indicators. Life expectancy for both genders has increased over the years, rising from 56 years for male and

58 years for female in 1957 to 72.7 years and 77.6 years respectively in 2018. Infant mortality rate and maternal mortality rate, which is a proxy indicator of overall health system performance reduced drastically to levels comparable to developed countries. The maternal mortality rate decreased from 280 per 100,000 live birth in 1957 to 23.8 per 100,000 live birth in 2018. Likewise, the infant mortality rate reduced from 76 per 1,000 live birth in 1957 to 7.2 per 1,000 live births in 2017. [Table 1](#) provides a summary of key health indicators.

**Table 1:** Key Indicators of Health Status

Key Indicators of Health Status	YEARS					
	2013	2014	2015	2016	2017	2018
Total Expenditure on Health	44,748,000	50,278,000	52,609,000	51,742,000	57,361,000	60,147,000
Life Expectancy at Birth (in years) (Male)	72.6	72.5	72.5	-	72.7	72.7
Life Expectancy at Birth (in years) (Female)	77.2	77.2	77.4	77.2	77.4	77.6
Life Expectancy at Birth (in years) (Total)	74.7	74.7	74.8	74.7	74.8	75.0
Infant Mortality Rate (death per 1000 live births)	6.6	6.2	6.2	6.7	6.9	7.2
Under 5 Mortality Rate (death per 1000 live births)	8.0	7.6	7.5	8.1	8.4	8.8
Maternal Mortality Ratio (death per 100,000 live births)	21.4	22.7	23.8	29.1	25.0	23.5

Source: Life Expectancy at Birth, Infant Mortality Rate, Under 5 Mortality Rate and Maternal Mortality Ratio data from Ministry of Health (2013-2019); except 2018 Infant Mortality Rate, 2018 Under 5 Mortality Rate and 2018 Maternal Mortality Ratio data from Department of Statistics Malaysia (2019). Total Expenditure on Health data from MNHA (2019)

According to the report published by Institute of Public Health (2017), the Disability-Adjusted Life Years (DALYs) which represents the total burden of diseases and injuries affecting Malaysians from 2009 to 2014 was initially led by Road Traffic Injuries (2009 – 2011), but this is subsequently replaced by Ischaemic Heart Disease (2012-2014). Ischaemic Heart Disease contributed to the highest overall DALY for a period of

six years, followed by Road Traffic Injuries and Cerebrovascular Diseases ([Table 2](#)).

It is shown that non-communicable disease is the leading health problem among the Malaysian population. However, it is equally alarming that road traffic injuries persistently appear as the second leading cause of DALYs and remained in this position from 2009 to 2014. Refer to [Table 2](#).

**Table 2:** Malaysia's Overall Leading Causes of Total Burden (DALYs), 2009 – 2014

Rank	Malaysia Leading Causes of Total Burden (DALYs)	2009	2014
		% of total	% of total
1	Ischaemic Heart Disease	8.8	9.3
2	Road Traffic Injuries	9.3	8.4
3	Cerebrovascular Diseases (Stroke)	7.6	7.9
4	Diabetes Mellitus	6.8	7.8
5	Lower Respiratory Infections	5	4.8
6	Chronic Obstructive Pulmonary Disease	2.9	3.0
7	Asthma	2	1.9
8	Unipolar Depressive Disorder	1.6	1.6
9	Anxiety Disorders	1.6	1.4
10	Trachea, Bronchus and Lung Cancers	1.5	1.5
11	Schizophrenia	1.4	1.4
12	Diarrhoeal Diseases	1.5	1.3
13	Nephritis and Nephrosis	1.3	1.4
14	Skin and subcutaneous diseases	1.2	1.3
15	HIV	1.4	1.0
16	Tuberculosis	1.2	1.2
17	Hearing Loss	1.2	1.1
18	Breast Cancer	1.2	1.2
19	Nutritional Anaemia	1.1	NA
20	Falls	1.1	NA

Source: Institute of Public Health (2017)

The overall leading cause of death from 2009 to 2014 was Cerebrovascular Disease followed by Ischaemic Heart Disease and Lower Respiratory Infections. Refer to [Table 3](#).



**Table 3:** Malaysia's Leading Causes of Death, 2009-2014

Rank	Malaysia Leading Causes of Death	2009	2014
		% of total	% of total
1	Cerebrovascular Disease (Stroke)	15.4	15.2
2	Ischaemic Heart Disease	15.2	14.8
3	Lower Respiratory Infections	9.5	9.3
4	Road Traffic Injuries	6.9	6.8
5	Chronic Obstructive Pulmonary Disease	6.4	6.1
6	Diabetes Mellitus	5.9	5.8
7	Trachea, Bronchus and Lung Cancers	3	3.1
8	Nephritis and Nephrosis	2.1	2.2
9	Colon & rectum cancer	1.9	2
10	Breast Cancer	1.5	1.6
11	Liver cancer	1.3	1.3
12	Hypertensive Disease	1.1	1.3
13	Tuberculosis	1.3	1.2
14	Falls	1.1	1.2
15	Skin and subcutaneous diseases	0.7	1.0
16	Asthma	1	0.8
17	Other Neurological Conditions	NA	NA
18	Leukaemia	0.7	NA
19	HIV	0.9	NA
20	Stomach Cancer	0.6	0.7

Source: Institute of Public Health (2017)

## 1.5 THE MALAYSIAN HEALTHCARE SYSTEM

Malaysia has a two-tiered healthcare system in which the public health sector (MOH & non-MOH) is funded by government tax, while the other is private health sector which are mostly physician-owned clinics and hospitals. There are other types of non-government owned healthcare facilities that are registered as private healthcare facilities under the Private Healthcare Facilities and Services Act 1998.

The Ministry of Health has overall responsibility for the health sector which includes, formulating policies, legislation, strategic planning, resource mobilization and allocation, monitoring, evaluation, research, training and coordination with external agencies and ministries.

Malaysia's current health plan is outlined in the 11th Malaysia Plan and Mid-Term Review (MTR) of the 11th Malaysia Plan where new priorities and emphases, for 2018 – 2020 are outlined (Economic Planning Unit, 2018). Under pillar II (Enhancing Inclusive Development and Wellbeing), Priority Area B: Improving wellbeing for all, Strategy B3: Enhancing the healthcare delivery system, several initiatives have been identified, which are:

- a) Creating a sustainable healthcare system
- b) Optimising financial resources for healthcare
- c) Strengthening population health
- d) Pursuing greater collaboration among stakeholders

Several of these strategies have implication on HRH. For example, under creating a sustainable healthcare system, one of the initiatives are the development of new facilities and services to be aligned with human resource requirement. Besides that, to improve coverage of primary healthcare services, the facilities and services are extended to provide healthcare services closer to communities, homes and individuals. As mentioned earlier these initiatives will directly and indirectly involve management of HRH in the country.

### 1.6 HEALTH FACILITIES IN MALAYSIA

The Malaysian health sector is served by both public and private providers, that delivers a range of services that compliment each other. In this section,

[Table 4](#) and [Table 5](#) show the trend of number of public and private healthcare facility in Malaysia (2011 -2018). Under the public healthcare facilities, the number of health clinics in the public sector are the highest and they are widely distributed in the urban and rural areas across the country.

There are over eleven (11) types of private healthcare facilities and services that are

either registered or licensed by the Ministry of Health under the provisions provided in the Private Healthcare Facilities and Services Act 1998 (Act 586). This includes among others, medical clinics, dental clinics, hemodialysis centres, maternity homes, hospice, ambulatory care centres and hospitals. To date, there are over 11,000 of these private facilities across the nation with private medical clinics making up the largest number with over 7,000 registered clinics in operation today.

The public sector provides a range of primary care services through health and community clinics, including outreach services through mobile clinics and remote villages. It also delivers secondary care and tertiary care through hospitals.

The private sector provides health services through medical and dental clinics and hospitals. In addition, private medical clinics carry out many outreach programs on a regular basis. In many instances, they collaborate with NGO's and engage many private practitioners into the program. Palliative and hospice care are also provided in some facilities of the public and private sector for profit and not-for-profit.

**Table 4:** Number of Public Healthcare Facility in Malaysia (2011-2018)

Public Healthcare Facility	2011	2012	2013	2014	2015	2016	2017	2018
Hospitals & Medical Institutions	138	140	141	142	143	144	144	144
Non-MOH Hospitals	8	7	8	8	9	9	10	10
Health Clinics* (KK, KD, KKIA, K1M)	2,958	3,034	3,114	3,178	3,213	3,220	3,223	3,224
District Health Officer	141	141	141	141	136	137	138	138
<b>Total Public Healthcare Facility</b>	<b>3,245</b>	<b>3,322</b>	<b>3,404</b>	<b>3,469</b>	<b>3,501</b>	<b>3,510</b>	<b>3,515</b>	<b>3,516</b>

Source: Ministry of Health (2011-2019)

**Table 5:** Number of Private Healthcare Facility in Malaysia (2011-2018)

Private Healthcare Facility	2011	2012	2013	2014	2015	2016	2017	2018
Private Medical Clinic	6,589	6,675	6,801	6,978	7,146	7,335	7,571	7,718
Private Hospital	220	209	192	184	183	187	200	210
Private Ambulatory Care Centre	46	49	54	66	63	73	100	117
Private Nursing Home	14	15	14	19	16	17	22	21
Private Maternity Home	25	23	16	16	14	16	16	18
Private Hemodialysis Centre	344	363	343	366	407	423	450	479
Private Blood Bank	5	5	5	4	3	4	4	5
Private Community Mental Health Centre	1	0	0	1	1	1	1	1
Private Hospice	4	4	4	3	3	2	2	2
Private Healthcare Premises Incorporating Any Two or More of the Facilities or Services	1	1	1	1	2	2	2	2
<b>Total Private Healthcare Facility</b>	<b>7,249</b>	<b>7,344</b>	<b>7,430</b>	<b>7,638</b>	<b>7,838</b>	<b>8,060</b>	<b>8,368</b>	<b>8,573</b>

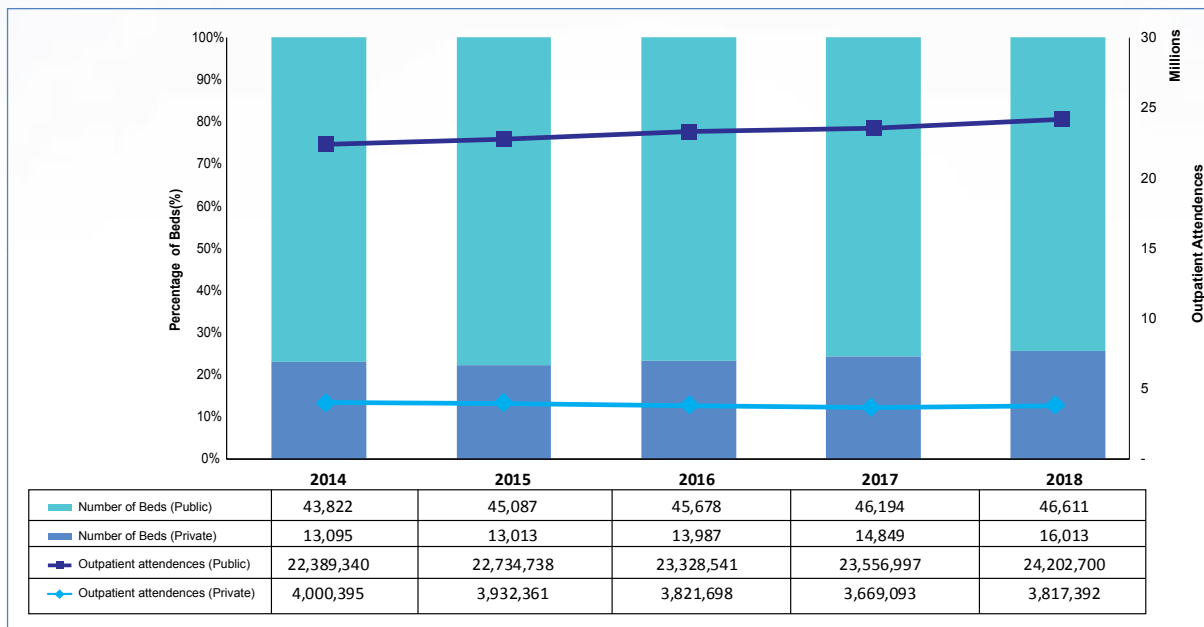
Source: Medical Practice Division (2020)

**Table 6:** The Number of Hospitals, Beds, Hospital Outpatients Attendances and Admission in Public and Private Sector, 2014-2018

Year	2014		2015		2016		2017		2018	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Number of Hospital	150	200	152	197	153	203	154	216	154	228
Number of Beds	43,822	13,095	45,087	13,013	45,678	13,987	46,194	14,849	46,611	16,013
Outpatient Attendances	22,389,340	4,000,395	22,734,738	3,932,361	23,328,541	3,821,698	23,556,997	3,669,093	24,202,700	3,817,392
Admission	2,613,612	1,083,201	2,677,037	1,064,718	2,731,579	1,073,039	2,539,708	1,045,592	2,791,939	1,099,045

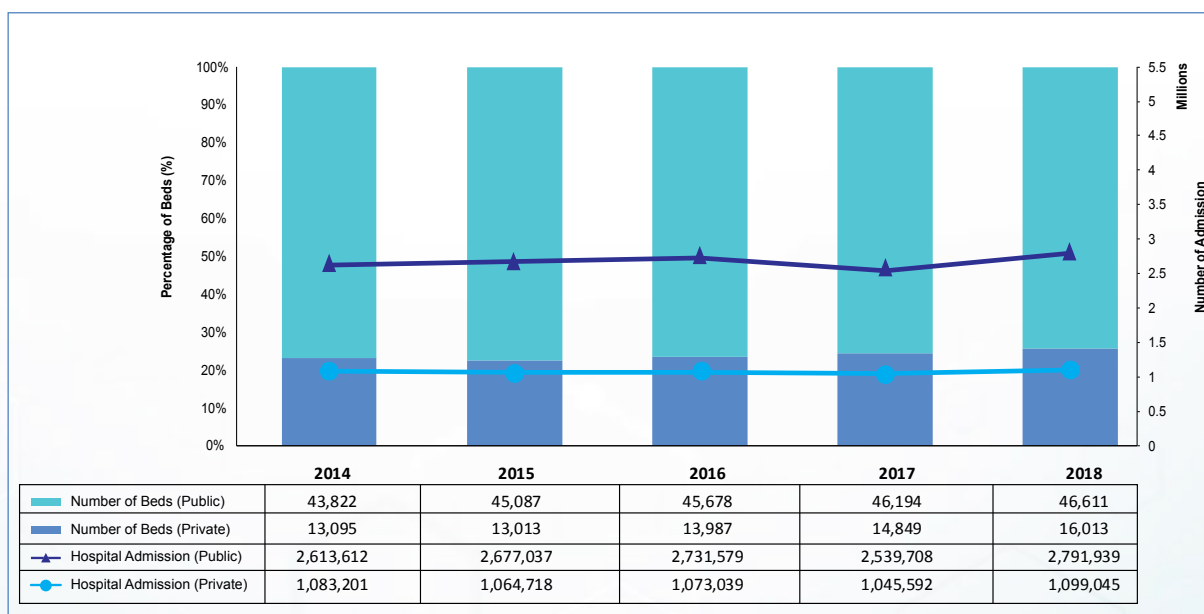
Source: Ministry of Health (2015-2019)

**Figure 2:** Percentage of Hospital Beds (Public & Private) and Trend of Hospital Outpatient Attendances, 2014-2018



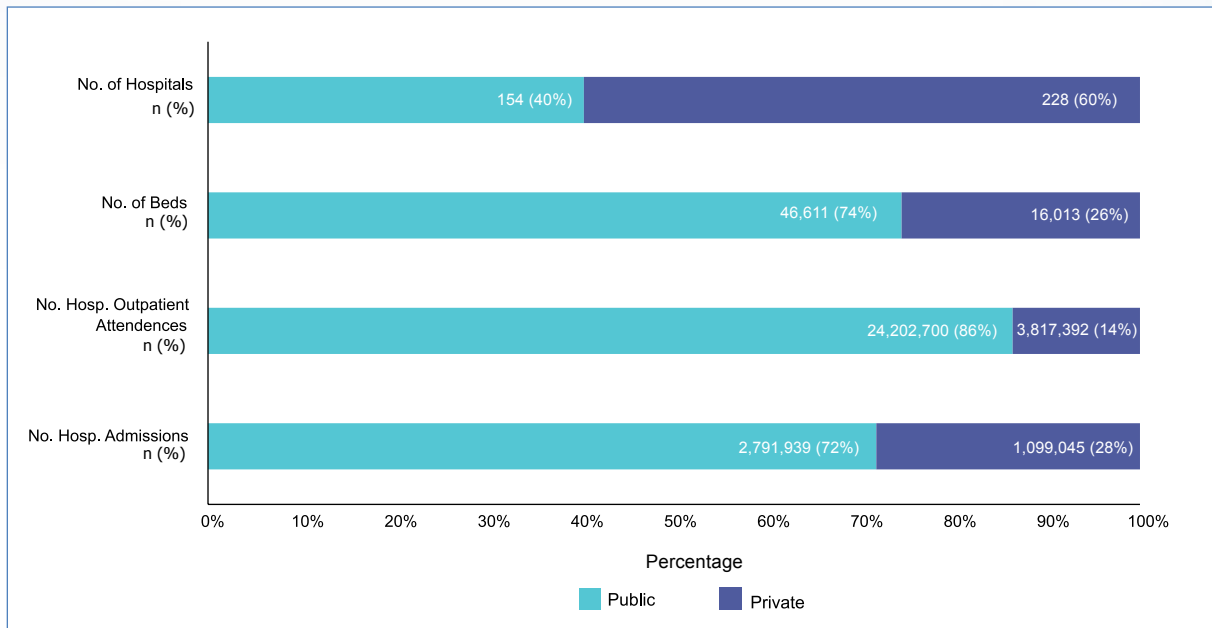
Source: Ministry of Health (2015-2019)

**Figure 3:** Percentage of Hospital Beds (Public & Private) and Trend of Hospital Admission, 2014-2018



Source: Ministry of Health (2015-2019)

**Figure 4:** Number of Hospitals, Beds, Hospital Outpatients Attendances and Admission in Public and Private Sector, 2018



Source: Ministry of Health (2019)



The background features a blurred image of a microscope on the left side, with a white hexagonal grid pattern overlaid on a light blue background. The grid consists of interconnected white lines forming hexagons, with small white circles at the vertices. The overall aesthetic is clean, modern, and scientific.

# HEALTH WORKFORCE SUPPLY AND TRENDS

## 2.0 HEALTH WORKFORCE SUPPLY AND TRENDS

### 2.1 HUMAN RESOURCES FOR HEALTH (HRH) SUPPLY

#### HRH SUPPLY

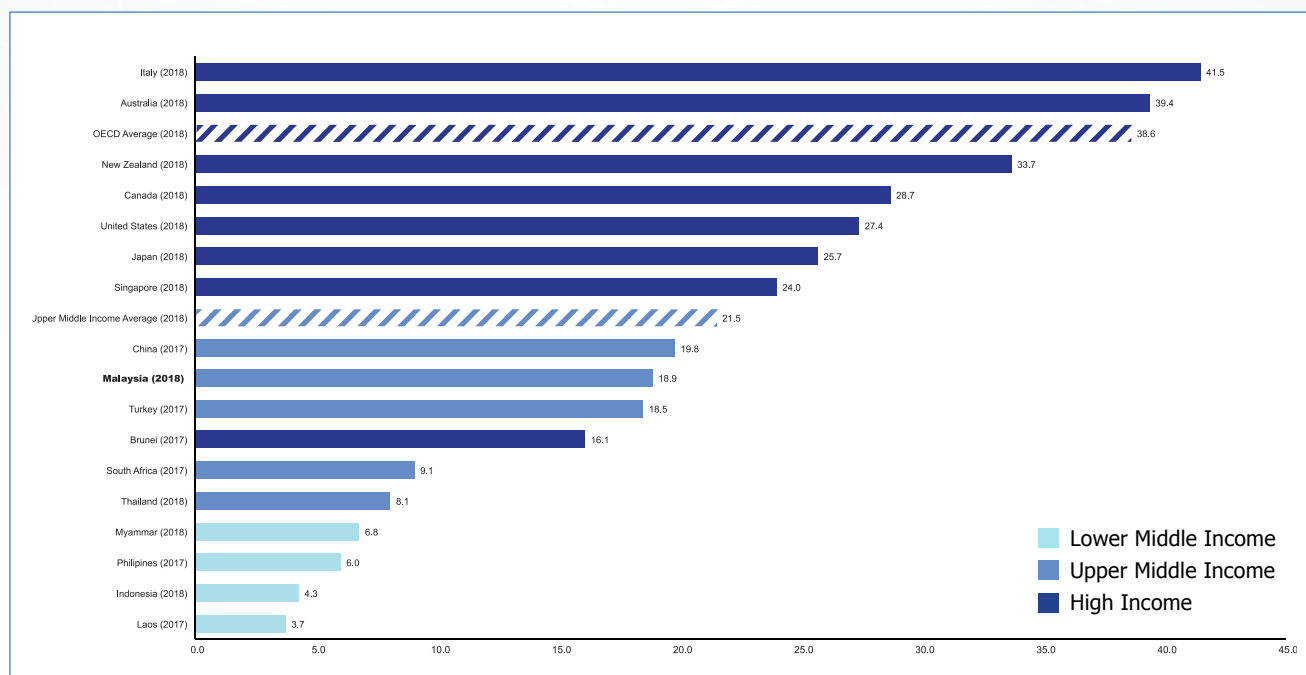
In the context, that Malaysia aims to attain high-income status, the country's HRH stock can be compared to two groups of countries based on the country's 2017 income (World Bank, 2020). First, to selected upper-middle income countries that has a range of gross national income (GNI) per capita similar to Malaysia. The countries are Brazil, Turkey, Chile, Mexico, Argentina, South Africa, and Thailand according to availability of data from Global Health Observatory. Second, it is compared to high-income countries such as Australia, Canada, Germany, Japan, Republic of Korea, Singapore, United Kingdom, and United States of America. Some of these high-income countries are also members of the Organisation for Economic Co-Operation and Development (OECD) group and information was obtained from the official website. Besides that, comparison were also carried out with selected neighbouring countries such as those in the Western Pacific Region (WPRO) and selected Association of Southeast Asian Nations (ASEAN) member states (AMS) countries to produce a situational analysis.

[Figure 5](#) to [Figure 8](#) show the comparative doctor, dentist, pharmacist and nursing personnel density per 10,000 population. The current density (number per 10,000 population) of doctors, nursing personnel, pharmacists and dentists to population ratio is at the lower end compared to the selected countries. For doctors, the density of Malaysian doctors is lower than, upper middle-income average countries, and OECD average countries. However, Malaysia has more doctors as compared to most AMS countries and South Africa and almost the same in number with Turkey, and China. The density of Dentists, Pharmacists and Nurses are different and it is illustrated in [Figure 6](#), [Figure 7](#) and [Figure 8](#).

In interpreting the comparative analysis, it is important to recognise that the age structure and illness patterns in Malaysia differ from those of comparison countries, as does the healthcare delivery and financing system.

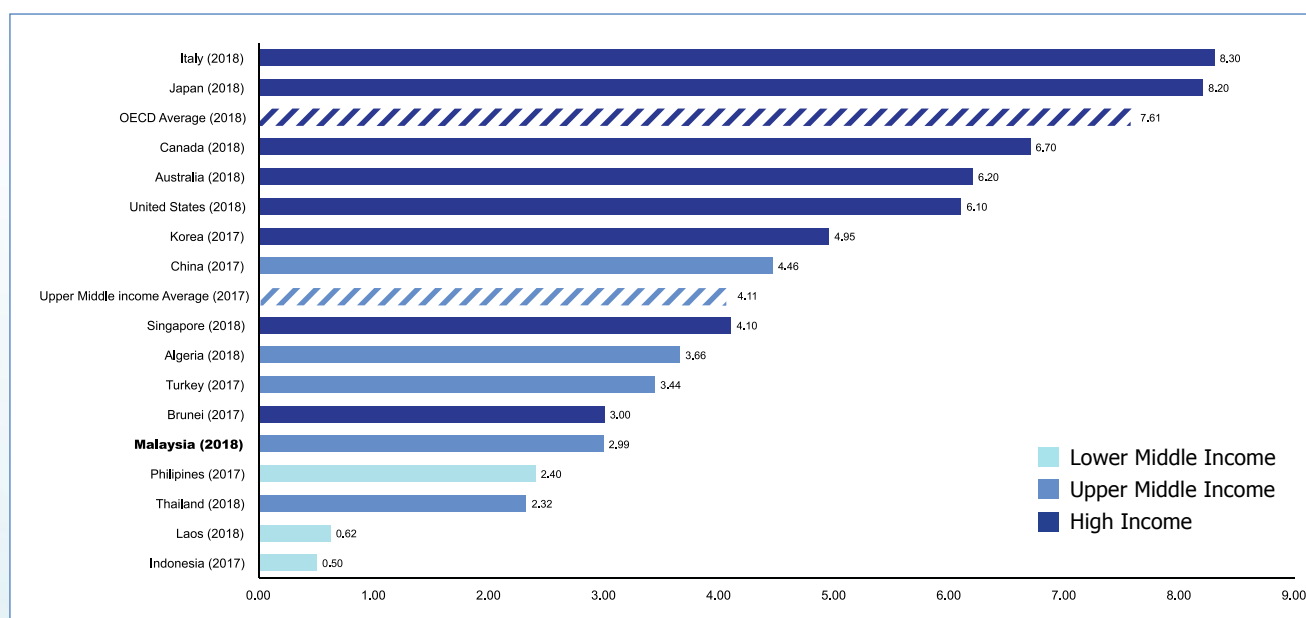


**Figure 5:** Number of Doctors per 10,000 Population in Selected Countries, 2017 and 2018



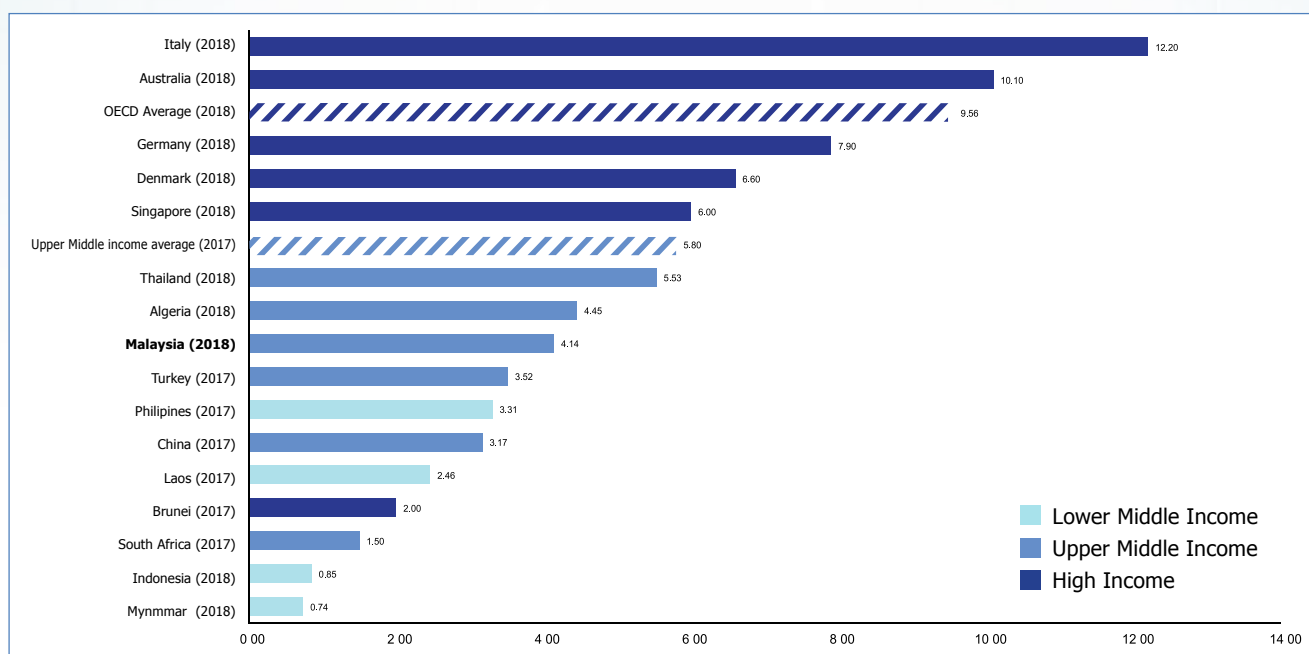
Source: Data for Malaysia data from Ministry of Health (2018); Organisation for Economic Co-operation and Development countries retrieved from <https://stats.oecd.org/>; other countries retrieved from World Health Organisation (2018) <http://www.who.int/hrh/statistic/hwfstats/>

**Figure 6:** Number of Dentists per 10,000 Population in Selected Countries, 2017 and 2018



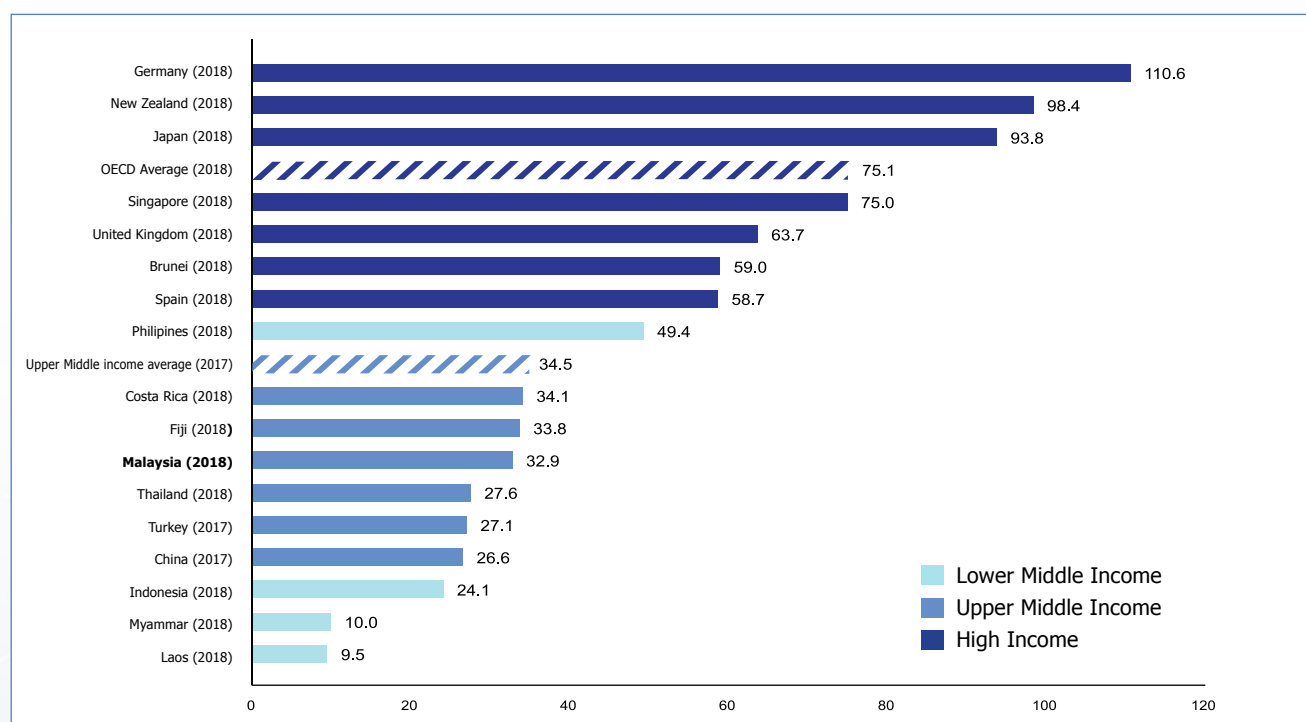
Source: Data for Malaysia from Ministry of Health (2019); Organisation for Economic Co-operation and Development countries retrieved from <https://stats.oecd.org/>; other countries retrieved from World Health Organisation (2018) <http://www.who.int/hrh/statistic/hwfstats/>

**Figure 7:** Number of Pharmacists per 10,000 Population in Selected Countries, 2017 and 2018



Source: Data for Malaysia from Ministry of Health (2019); Organisation for Economic Co-operation and Development countries retrieved from <https://stats.oecd.org/>; other countries retrieved from World Health Organisation (2018) <http://www.who.int/hrh/statistic/hwfstats/>

**Figure 8:** Number of Nurses per 10,000 Population in Selected Countries, 2017 and 2018



Source: Data for Malaysia from Ministry of Health (2019); Organisation for Economic Co-operation and Development countries retrieved from <https://stats.oecd.org/>; other countries retrieved from World Health Organisation (2018) <http://www.who.int/hrh/statistic/hwfstats/>

**Note (Figure 5 - Figure 8) :**

- OECD average was calculated from data available from OECD. Stat website up to 28 September 2020 as in [Annex 1](#). Countries other than OECD countries was sourced from Global Health Observatory (GHO) in WHO website. Singapore, data was taken from Singapore MOH website, 2020.
- Upper middle-income average is calculated from data available from GHO, WHO website up to 28th September 2020 as in [Annex 1](#).

**Figure 9:** Number of Doctors, Dentists, Pharmacists and Nurses per 10,000 Population in Malaysia and Selected Western Pacific Region Countries, 2017 and 2018



Source: World Health Organisation (2018) Retrieved from <http://www.who.int/hrh/statistic/hwfstats/>

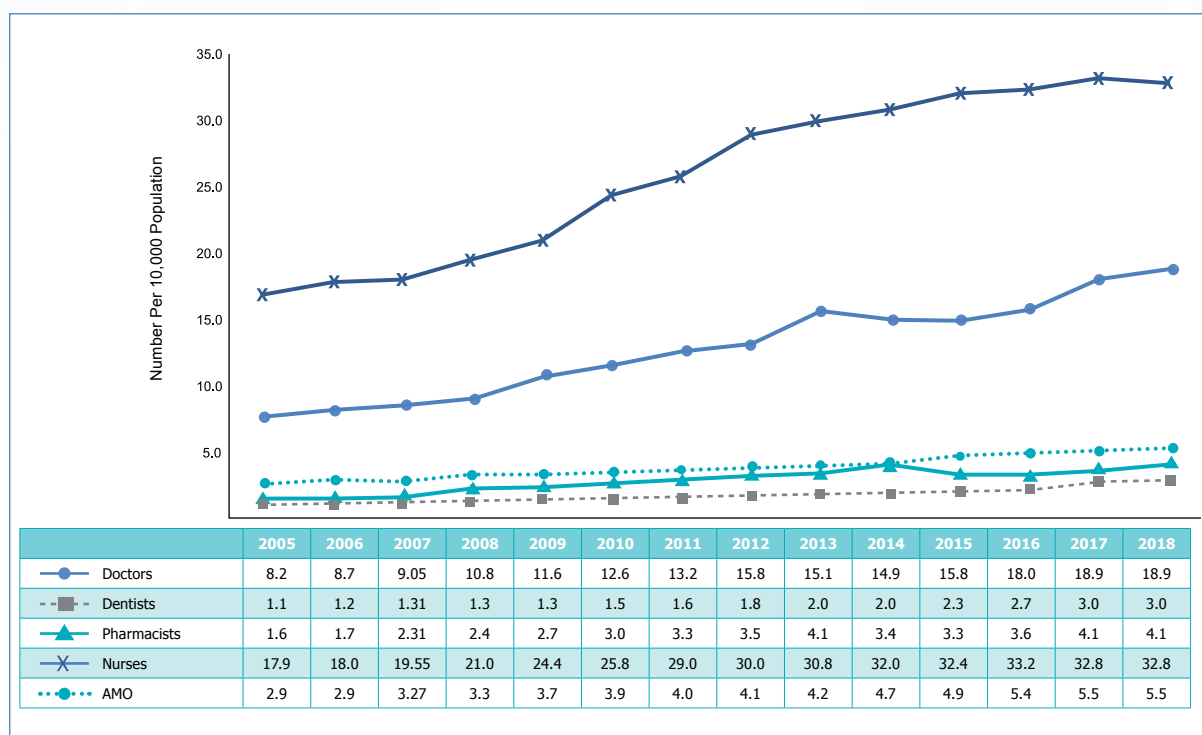
**Note:**

a) WPRO countries was taken from GHO, WHO website as reported up to 28th September 2020. WPRO average was calculated base on the number reported in year 2017, and for nurses for year 2018.

## 2.2 RECENT TRENDS

Since 2008, the increase in numbers for each category has rapidly outstripped population growth, resulting in rapidly increasing stock numbers in a few categories of HRH ([Figure 10](#)).

**Figure 10:** Trends in Health Workforce in Malaysia, 2005 -2018



Source: Ministry of Health (2006 – 2019)

[Figure 10](#) illustrates the gradual increase for all the profession in the period of 14 years. Since last reported, the increasing trend in Malaysia's HRH density has continued for all the five profession. There was steady increase in total number of pharmacists until 2014, but it later dipped in 2015 followed by a slow increase in years after that. The possible explanation in the reduction of pharmacist density in 2015 is because the

application processes of Annual Certificate (AC) were done manually prior to June 2014. Due to technical issues encountered by the Pharmacy Board Malaysia (PBM), the data of AC was not available for year 2015. The 2015 data comprises of pharmacists in both public and private sectors. In the earlier part of implementing BLESS, due to several technical issues with the system, PBM has exempted pharmacists in the public

sector from applying AC for 2015 and 2016 until all the issues have been resolved. Thus, this explains the reduced total number of registered pharmacists for 2015 and 2016 as compared to 2014.

In the span of ten (10) years, the number of

dentists in Malaysia increased by 127%, which is the highest as compared to the other four professions. The number of doctors doubled within the same period, while the number of pharmacists, AMO and nurses increased by 78%, 68% and 67% respectively ([Table 7](#)).

**Table 7:** Percentage of Increase in Malaysia Health Workforce, 2008 -2018

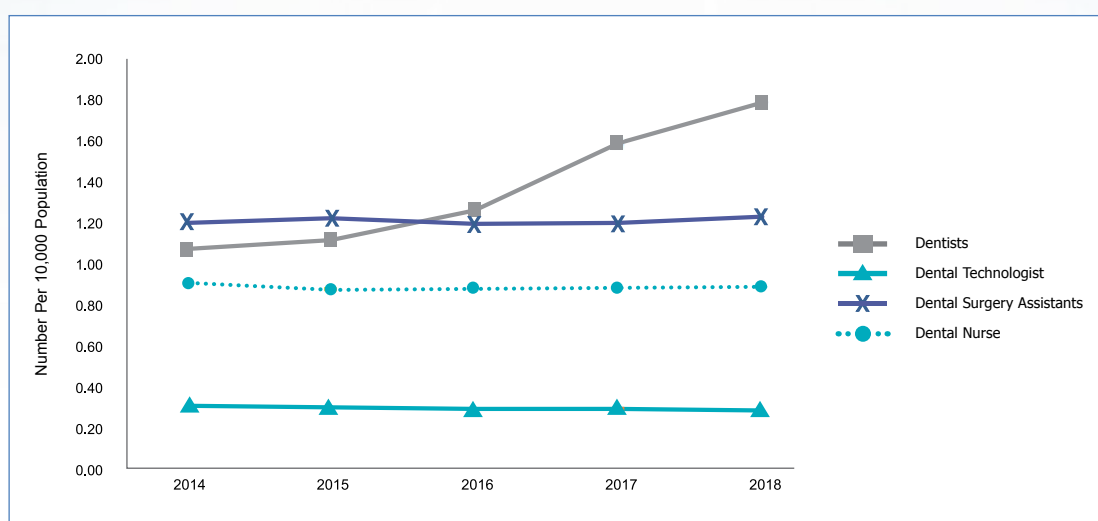
Personnel	2008 (per 10,000 population)	2018 (per 10,000 population)	Percentage of increase
Dentists	1.32	2.99	127%
Doctors	9.11	18.88	107%
Pharmacists	2.32	4.14	78%
Assistant Medical Officer (AMO)	3.30	5.53	68%
Nurses	19.68	32.85	67%
Community Nurses	6.77	7.25	7%

Source: Ministry of Health, 2009 – 2019

[Figure 11](#) shows the trend of dentists and the relevant allied health professionals in MOH oral health services. It can be seen the changes for most of the Dental personnel and assistants are minimal or almost no

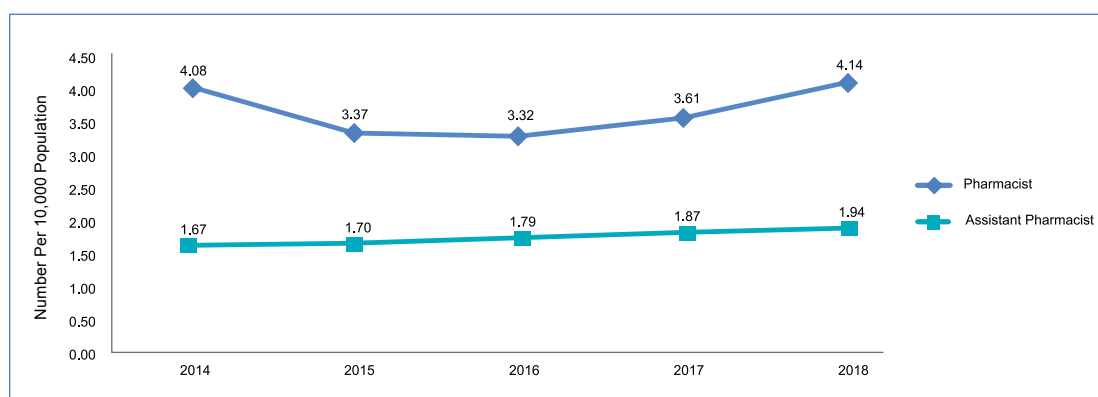
change or increment over the past 4 years. However, the percentage of increase for dentists in MOH from 2016 to 2018 is very substantial.

**Figure 11:** Trends of Selected Professions in MOH Oral Health Services, 2014-2018



Source: Ministry of Health (2015 – 2019)

**Figure 12:** Trends in Pharmacist and Pharmacist Assistant, 2014 -2018



Source: Ministry of Health (2015 – 2019)

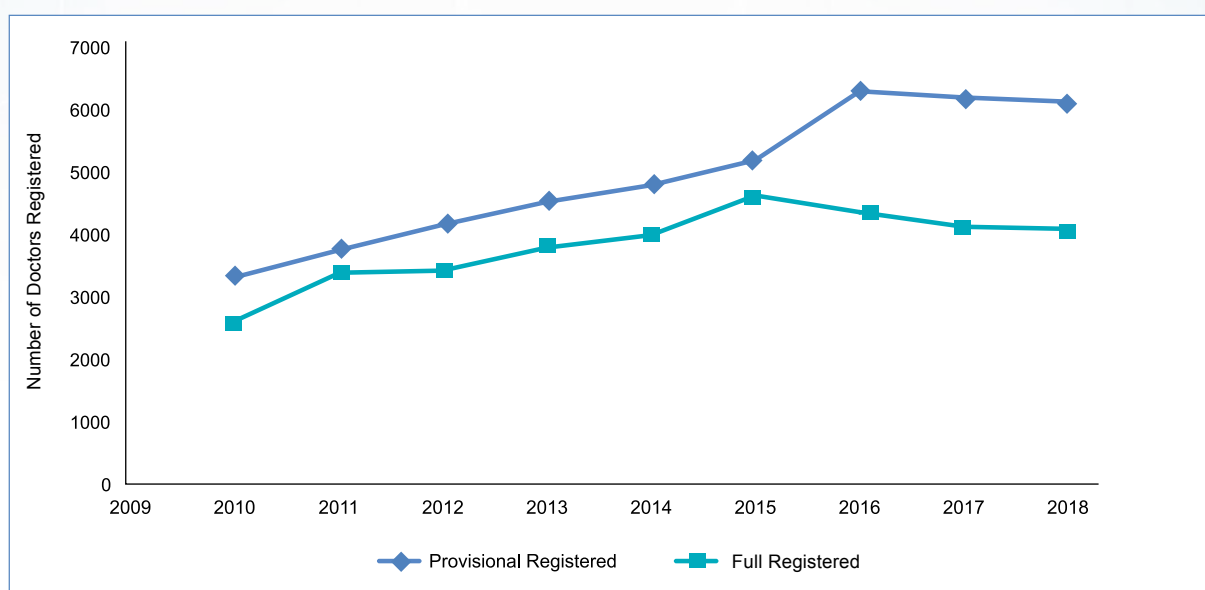
Although there were changes in the number of pharmacists over the years, there was no marked difference in the number of Pharmacist Assistant for the past four years ([Figure 12](#)).

### 2.3 ISSUES ARISING FROM THE RAPID INCREASE OF NEW GRADUATES ENTERING THE WORKFORCE

The rapid expansion of the workforce in recent years which is illustrated in Figure 10 earlier is due to the large number of new graduates entering the workforce. The trend of new medical graduates (provisional registered) and new fully registered doctor in the medical fraternity is illustrated in [Figure](#)

[13](#). In 2015, there was a slight decrease in total number of doctors obtaining full registration correspond with the initiative by Public Service Department (PSD) in controlling the size of public service began in 2015 (Public Service Department, 2019).

**Figure 13:** Number of Doctors Obtaining Provisional and Full Registration, 2010-2018

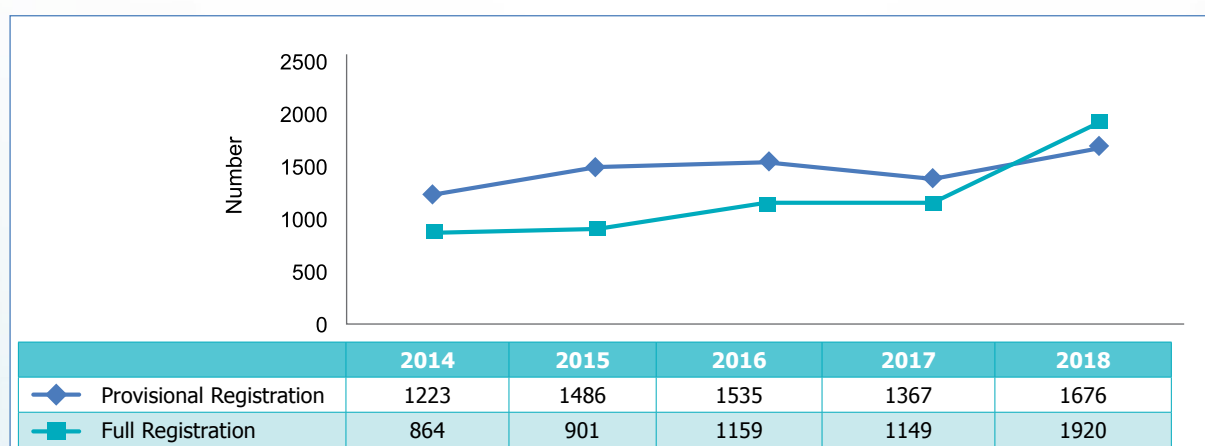


Source: Malaysian Medical Council (2019)

As discussed in the previous report (World Health Organisation, 2014), the rapid increase of new graduates for example house officers who require a period of training has placed a serious pressure on the specialists especially in the public sector who are responsible for supervising them.

[Figure 14](#) Illustrates the number of pharmacists gaining their provisional registration as opposed to number of pharmacists gaining full registration in that year. It shows that the number is almost similar every year except for 2018, where the number of fully registered pharmacist is higher than the number of provisional registered pharmacist.

**Figure 14:** Number of Pharmacists Obtaining Provisional and Full Registration, 2014-2018

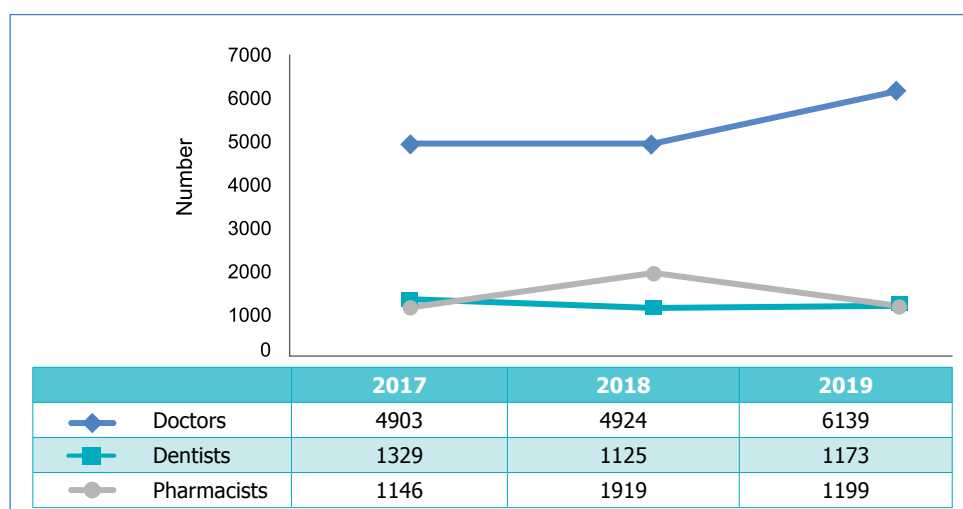


Source: Pharmacy Board Malaysia (2019)

MOH together with local universities have increased healthcare training positions for new graduates. The reason being, not only is the training mandatory as stated in the relevant Acts, it will also provide the nation with the number of trained healthcare workers to meet the healthcare needs of the population. In 2017, Public Service

Departments through MOH has introduced a contract scheme for House Officers, Provisionally Registered Pharmacists and New Dental Officers. The contract service allows the mandatory training to be carried out without the hindrance of waiting for a vacant post that creates bottleneck in recruitment of the new graduates.

**Figure 15:** Number of New Intake of Contract Officers for Compulsory Training in Ministry of Health, 2017 - 2019



Source: Human Resource Division (2020)



## KEY MESSAGES

1. The current number of specialists, doctors, dentists, pharmacists, nurses in Malaysia is comparatively low as compared to high-income countries. However, differences in population profile, morbidity patterns and health service delivery patterns need to be taken into account.
2. From the statistics, pharmacist and nurses recorded the lowest growth rate for the period 2014 to 2018 as compared to other professions.
3. In recent years rapid increase in the number of new graduates entering the workforce is causing great pressure on staffs as well as clinical facilities thus affecting the rate of deployment of new permanent healthcare worker. It also causes delay in training and compulsory service in government. Therefore, in 2016 the government agreed to introduce contract of service for doctors, dentists, and pharmacist to undergo training and compulsory service in government healthcare facilities.





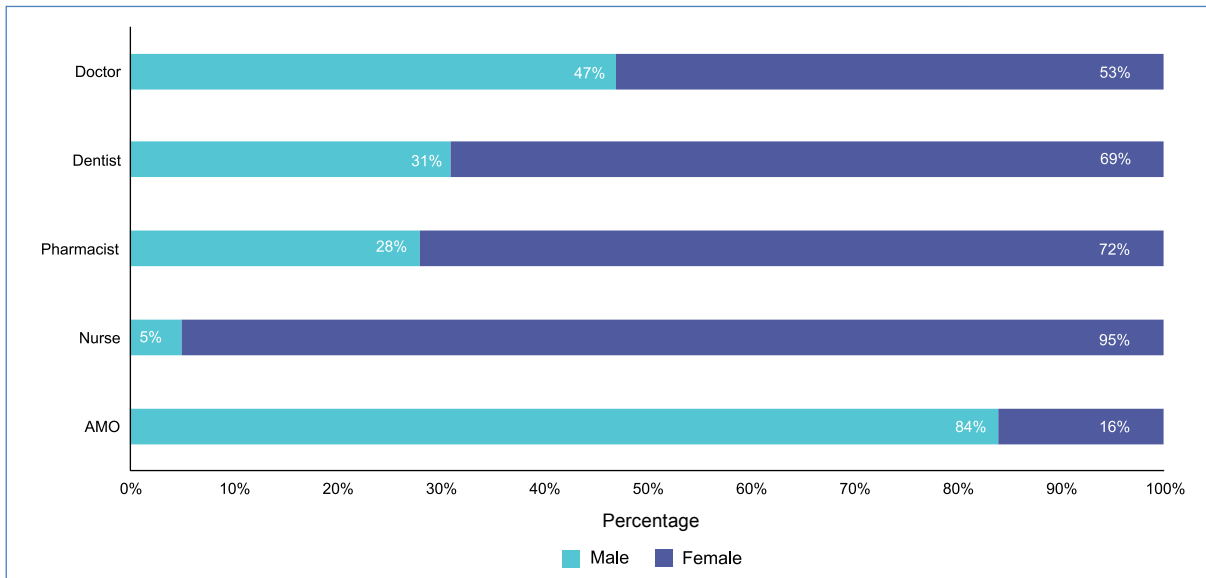
# HEALTH WORKFORCE DISTRIBUTION

## 3.0 HEALTH WORKFORCE DISTRIBUTION

### 3.1 GENDER DISTRIBUTION

In Malaysia the health workforce is predominantly female in most professions except Specialist and AMO (Figure 16). Nurses are almost entirely female (95%), while 72% and 69% of pharmacists and dentists respectively are majority female.

**Figure 16:** Healthcare Personnel Distribution by Gender, 2018



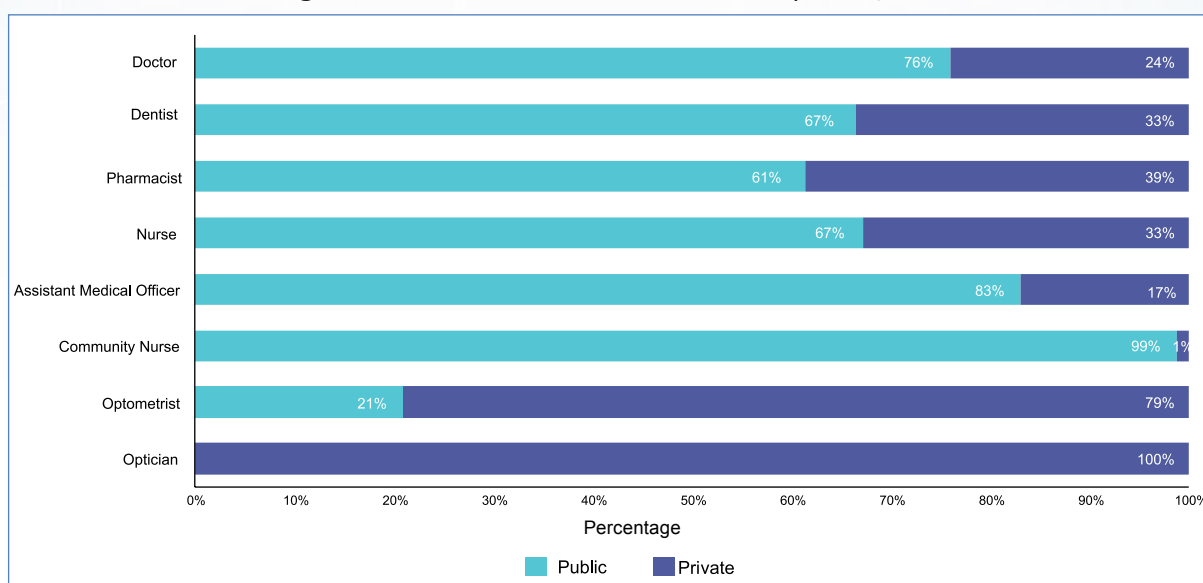
Source: Data for doctor from Malaysian Medical Council (2019); dentist from Malaysian Dental Council (2019); pharmacist from Pharmacy Board Malaysia (2019); nurse from Nursing Board Malaysia (2019); Assistant Medical Officer from Medical Assistants Board (2019).

### 3.2 PUBLIC AND PRIVATE DISTRIBUTION

Distribution of HRH according to the two sectors - public and private, is based on HRH's principal place of practice. The Malaysian government allows the public healthcare worker to do private practice at their own time or at a specified time (MOH, 2017) as well as allowing sessional services in government by private practitioners. Therefore, the practising certificate of the HRHs may contain more than one establishment.

As illustrated in Figure 17, it can be seen that majority of the selected HRH i.e. doctors, dentists, pharmacists, nurses, community nurses and AMO are employed in the public sector. On the other hand, Optometrist and opticians are predominantly employed in the private healthcare facilities.

**Figure 17:** Healthcare Personnel Distribution by Sector, 2018



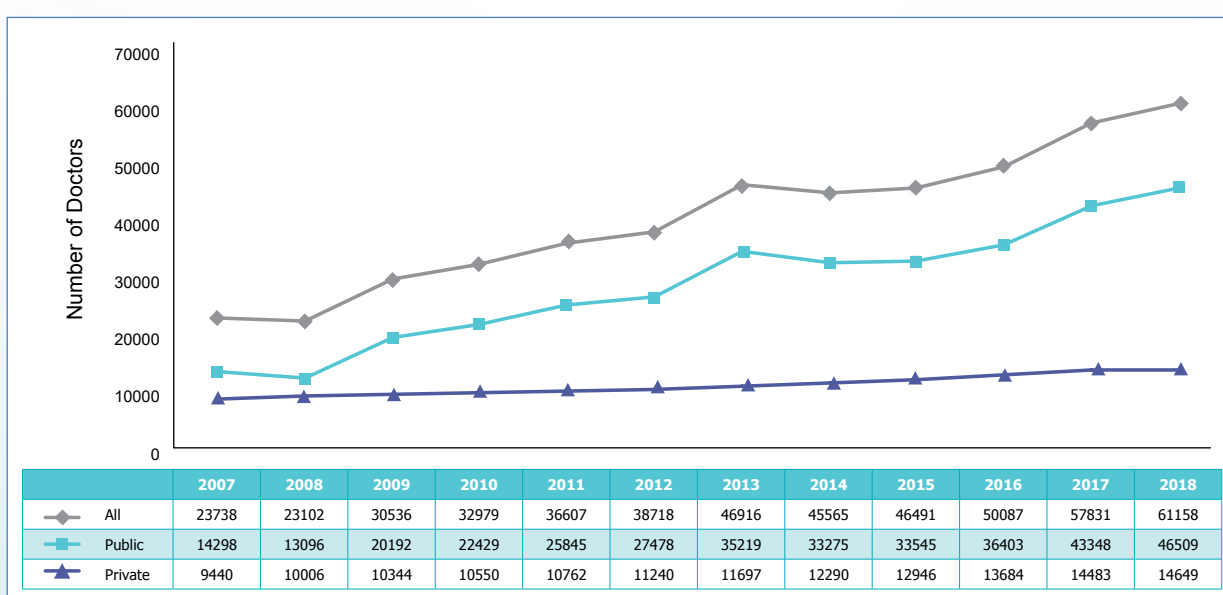
Source: Ministry of Health (2019)

### 3.2.1 Distribution of Doctors by Sector

Since 2007 to 2018 there was a gradual growth in the number of doctors in the country. From [Figure 18](#), it is shown that the rise in the number of doctors is in the public sector. In 2018, the ratio of doctors in public sector to private sector was 3:1, compared to 2:1 in 2009. The changing pattern is due

to large number of new medical graduates entering the workforce during 2008 – 2014, mainly because regulation requires them to work in the public sector for two years as house officers (i.e. housemanship) and they have to continue for another two years of compulsory public sector service. The housemanship period was increased from one year to two years in 2008.

**Figure 18:** Trend of Doctors by Sector, 2007 – 2018



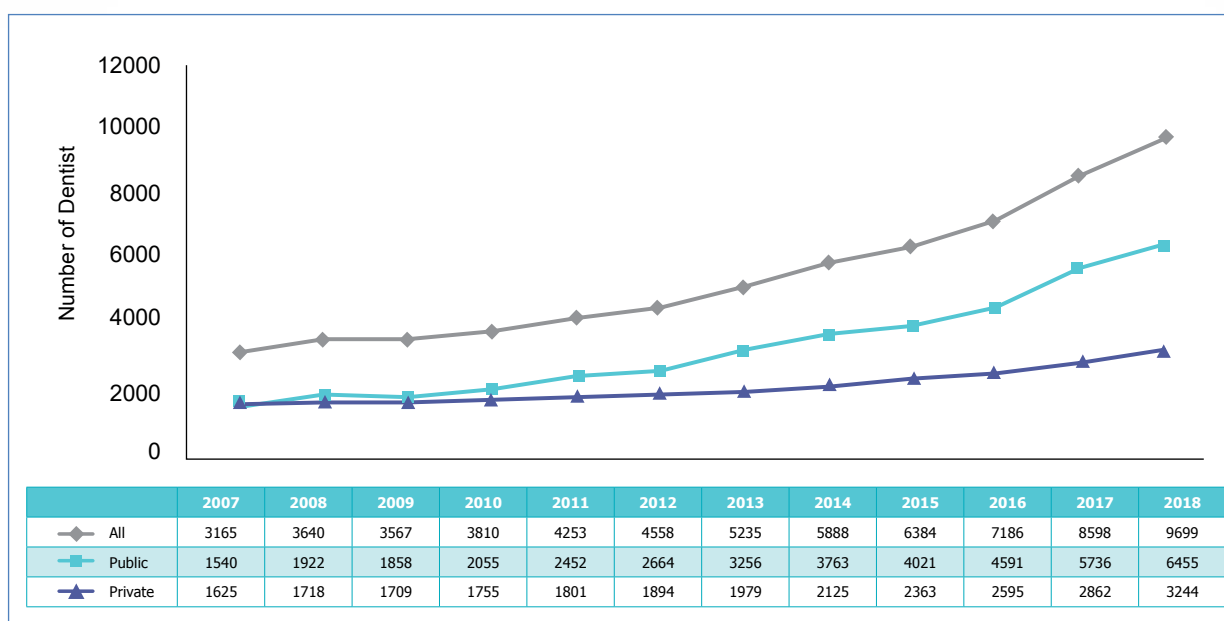
Source: Ministry of Health (2008 – 2019)

### 3.2.2 Distribution of Dentist by Sector

In 2018 the public and private ratio for dental practitioners was 2:1 as compared 1:1 in 2009. Over time, there is a steady increase in the number of dentists in the country with public sector having double the number of dentists as compared to the private sector. Similar to new medical graduates, the

increasing trend of dentists in the public sector is contributed by the increase in the number of new dental officers entering the workforce. A newly registered dentist under Section 12 of Dental Act 1971 is required to serve as dental officer in public sector for a continuous period of not less than a year.

**Figure 19:** Trend of Dentists by Sector, 2007 - 2018



Source: Ministry of Health (2008-2019)

### 3.2.3 Distribution of Pharmacists by Sector

Back in 2007, the number of pharmacists was almost three times higher in the private sector compared to the public sector. However, over time there is steady increase in the number of pharmacists in the public sector as seen in the [Figure 20](#). In 2018, the public / private ratio for pharmacist was 3:2. The rapid growth of pharmacists in the public sector is due to large number of graduates entering the workforce and the regulation requires them to serve an initial period in the public sector.

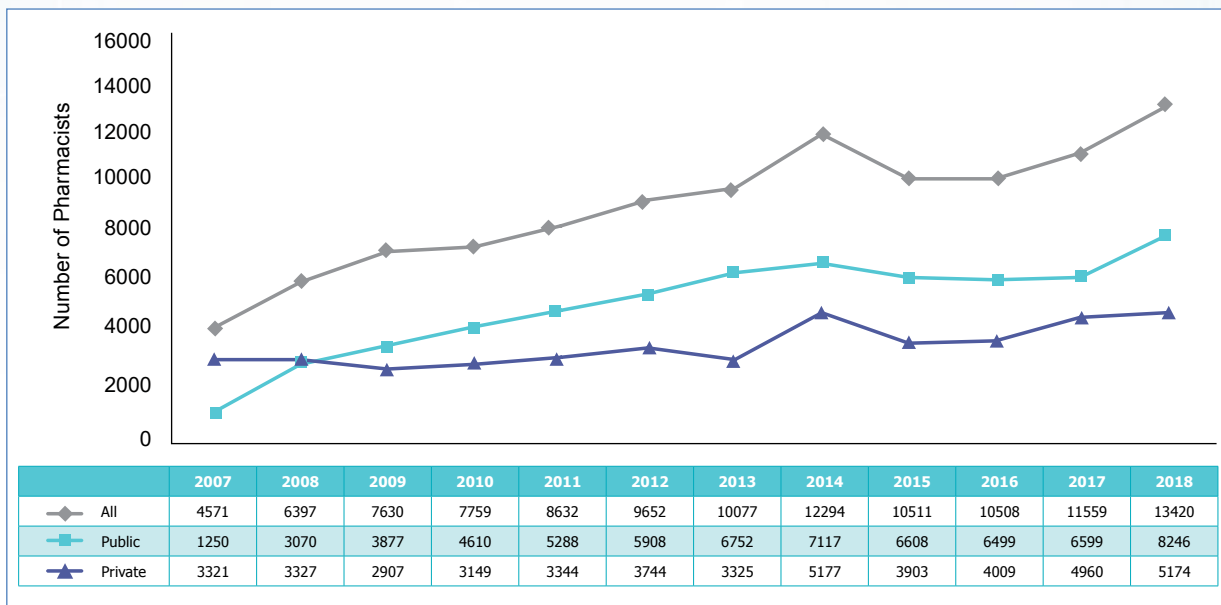
The implementation of three (3) years of compulsory service for Fully Registered Pharmacists (FRP) in 2004 has caused an

overcapacity saturation in the government sector and has led to a reduction of FRP supply to the private sectors. Hence, initiatives are taken to:

- i) Reduce the compulsory service from 3 years to 1 year in 2011 and
- ii) Introduce liberalised provisional training for PRP in the year of 2012

Although the main aim of liberalisation of PRP training is to fulfill the need of pharmacists in local pharmaceutical industry, it also addresses the training capacity of PRP in MOH facilities.

**Figure 20:** Trend of Pharmacists by Sector, 2007-2018



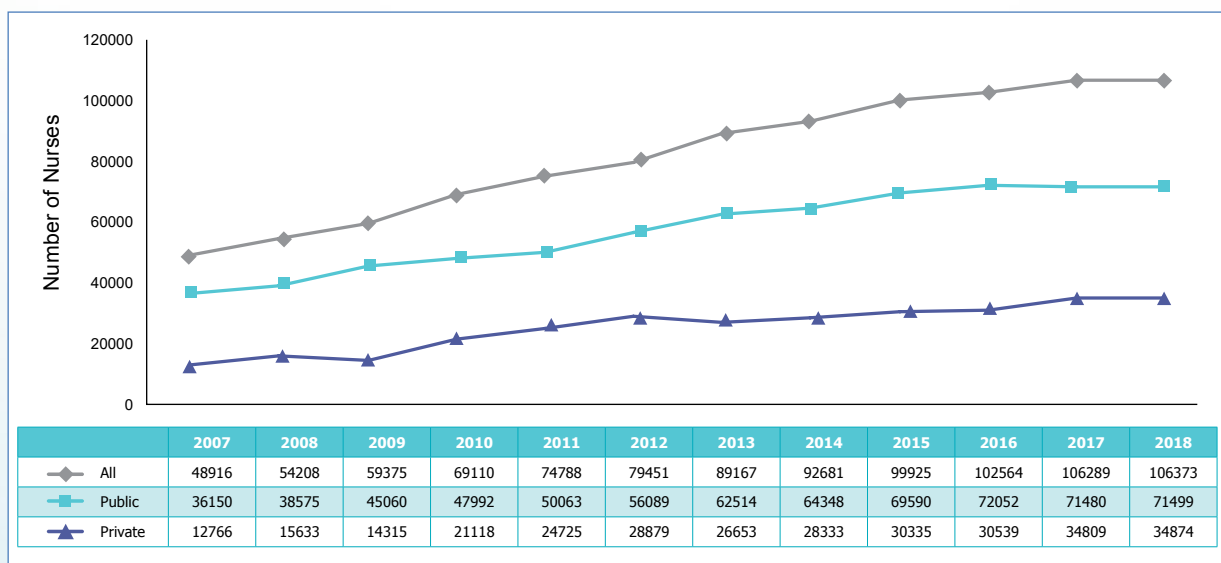
Source: Ministry of Health (2008-2019)

### 3.2.4 Distribution of Nurses by Sector

For Nurses, the public to private ratio is about 3 to 1 in 2007. In 2018, the public private ratio is 2 to 1, where gradual improvement is seen over the years in terms of sector distribution. However, in 2017 and

2018 there is a reduction by five hundred nurses annually in MOH. In contrast, there is minimal increment in the number of nurses in non – MOH facilities and private sector within the period mentioned (Figure 21).

**Figure 21:** Trend of Nurses by Sector, 2007 – 2018



Source: Ministry of Health (2008-2019)

### 3.3 AGE DISTRIBUTION

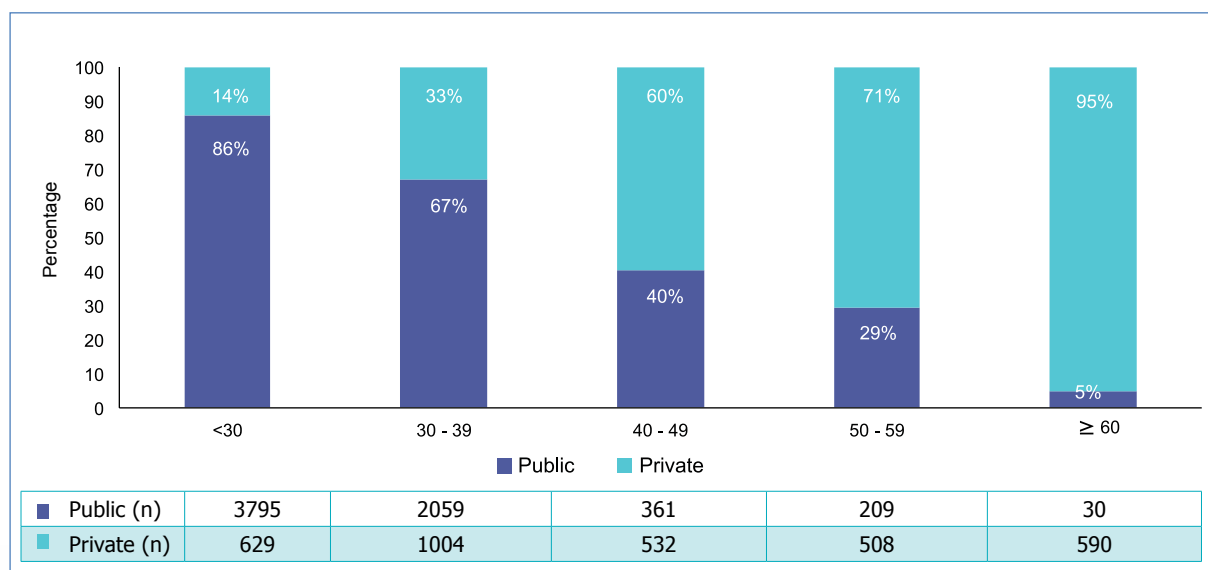
In this section, data availability on age distribution by sector is limited to dentist and specialists. For the other professions, data are available for HRH employed by MOH only.

#### 3.3.1 Dentist

Figure 22 illustrates the distribution of dentist in Malaysia by age group and sector. In 2018, majority of dentists working in the public sector are below age 40, as compared to dentists age above 40 and above which

are predominantly working in the private sector. However, when total number of dentists is calculated in 2018, about 66% of dentists are serving the public sector and 34% in the private sector.

**Figure 22:** Dentists Distribution by Age Group and Gender, 2018



Source: Malaysian Dental Council (2019)

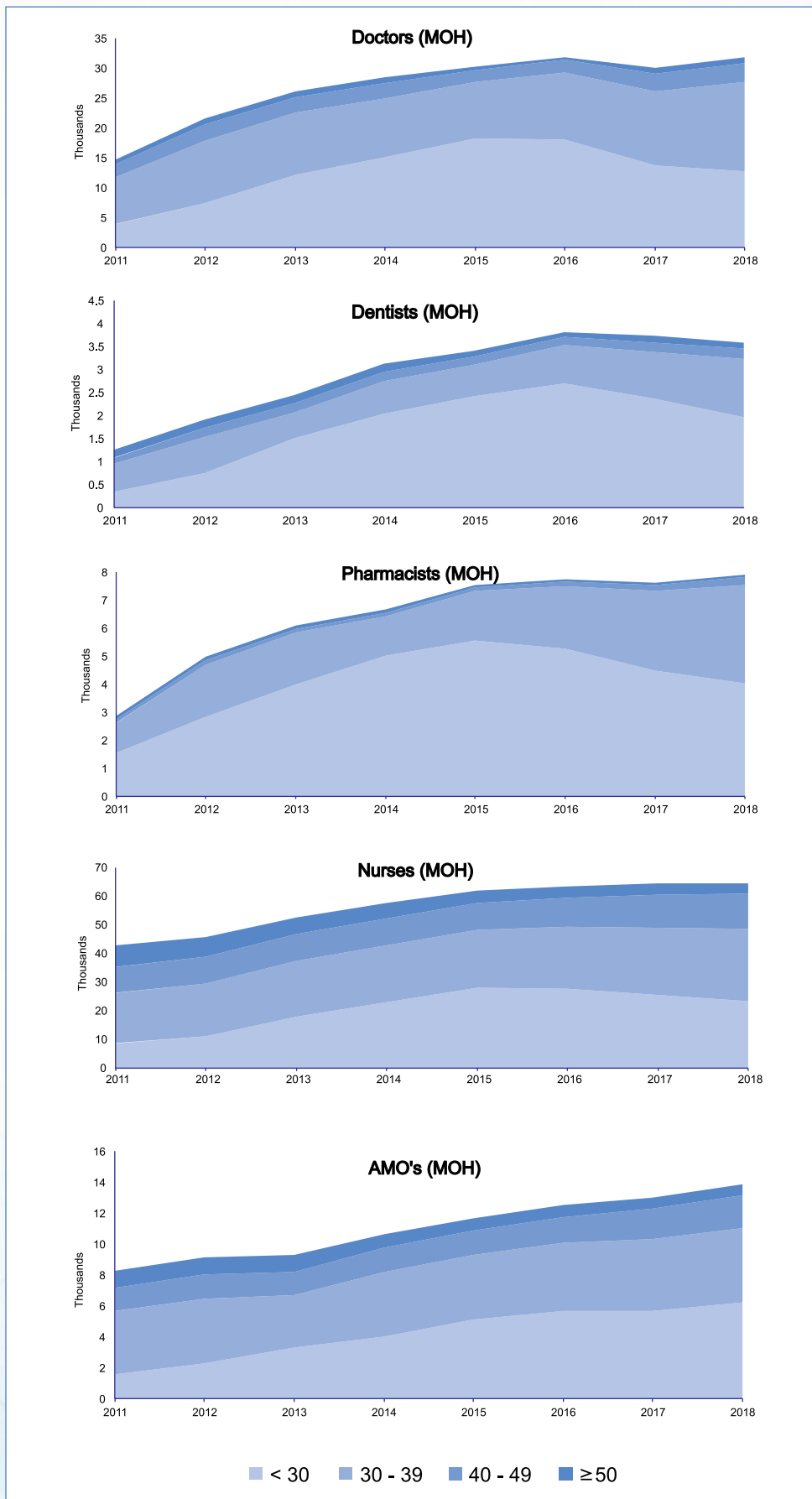
#### 3.3.3 HRH Employed by Ministry of Health: Recent Trends in Age Distribution

The health workforce employed by MOH is essentially / predominantly young in age especially the doctors, dentists, pharmacists and Figure 23 shows the increasing trends of employment of workforce younger than 30 years old across professions. However, it is evident that the trends start declining in the past 3 years. Besides that, there is a gradual increase in age of health workforce over these 4 years period.

These changes correspond with the initiative introduced in 2015 by Public Service Department (PSD) to control the size of the public service (Public Service Division, 2019). Among the AMOs, it can be seen that there is a slight increase in the number of those who are below 30. Besides that, while there is a slight decrease in the amount of HRH age less than 30, it is observed that there is an increase in number of HRH between age 30 – 39 for doctors, dentists, pharmacists and nurses.



**Figure 23:** Trends in Age Group Distribution of MOH Healthcare Personnel, 2018



### 3.4 GEOGRAPHIC DISTRIBUTION

Aggregate data of healthcare professional by regions is essential to determine the sustainability of healthcare provider by region and state. This is in line with SDG target 3.8 (United Nations Development Programme, 2015) which is achieving universal health coverage through accessibility to quality essential health-care services for all. This is to ensure adequate access to healthcare is available for all. This section discusses the number of healthcare personnel per 10,000

populations by region. Ideally, each region should have an equal density of health care workers to enable fair access to all. However, health human resource should be distributed fairly by the number of densities per 10, 000 population to enable fair health access to all. It is interlinked with the standard of health facilities available in order for the human resource to be able to practice and provide healthcare. Therefore, there is a tendency to have higher number of healthcare personnel in regions that are more developed

#### 3.4.1 Regional distribution of selected healthcare personnel in 2018

The west coast region of Peninsular Malaysia has the highest number of personnel per 10,000 population for Doctors, Pharmacists, Nurses and assistant pharmacists. However,

dentists and community nurses are highest in the east coast region. On the other hand, AMO's and dental nurses are highest in Sarawak than in the west coast region.

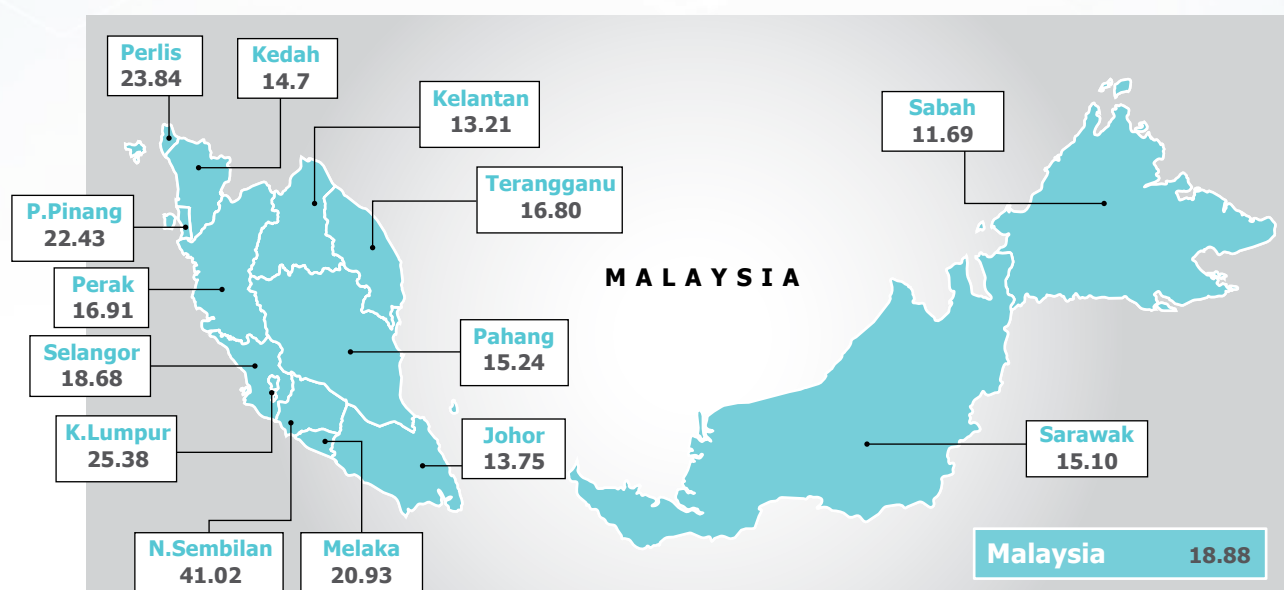
**Table 8:** Number of Healthcare Personnel Per 10,000 Population by Region, 2018

Profession	Malaysia	West Coast	East Coast	Sabah Region	Sarawak Region
Doctors	18.88	21.68	14.85	11.73	15.10
Dentists	2.99	3.37	3.49	1.23	1.89
Pharmacists	4.14	4.85	3.19	2.00	3.55
Nurses	32.85	36.68	6.65	22.28	25.66
AMO's	5.53	4.93	1.65	4.90	7.98
Community Nurses	7.25	5.86	10.13	9.53	9.52
Dental Nurses	0.88	0.73	1.17	0.99	1.43
Assistant Pharmacists	1.94	2.08	1.96	1.42	1.88

Source: Ministry of Health (2019)

Figure 24 illustrates the geographical distribution of doctors in Malaysia (per 10,000 population).

**Figure 24:** Geographical Distribution of Doctors in Malaysia, 2018



Source: Ministry of Health (2019)

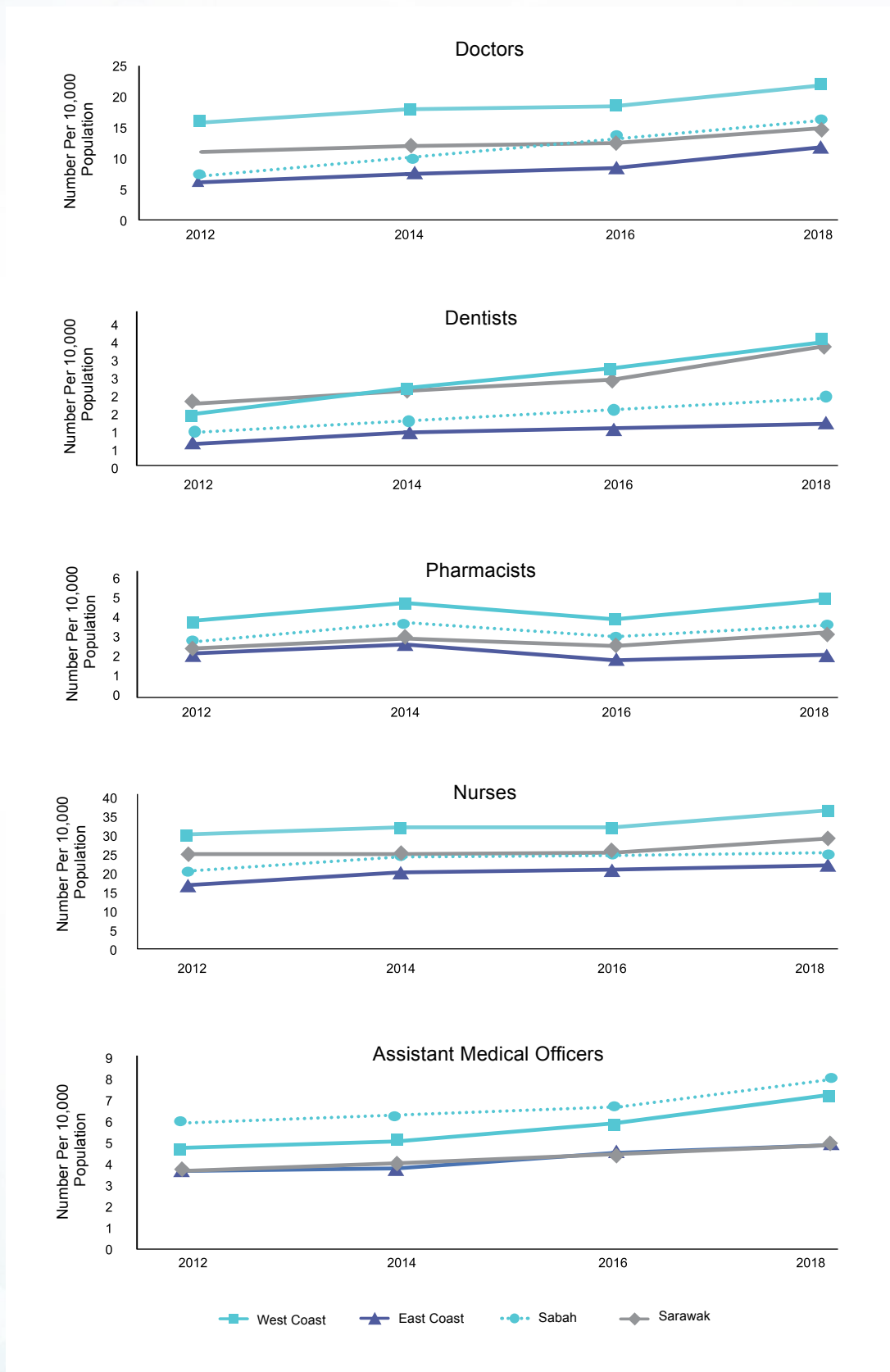
### 3.4.2 Recent trends in regional distribution of 5 selected HRH Professions

Planning of regional distribution of human resources for health is an ongoing process and the aim is to ensure fair and balance distribution of health resources and to ensure all levels of society have good access to healthcare. In this report, Malaysia is geographically divided into four (4) regions, namely west coast, east coast, Sabah and Sarawak. The west coast consists of ten states, which are Johor, Negeri Sembilan, Melaka, Selangor, Perak, Penang, Kedah, Perlis and Federal territories of Kuala Lumpur and Putrajaya. The east coast is represented by Kelantan, Terengganu, and Pahang while Sabah and Sarawak is on its own due to the sheer size of the land. In the analysis, WP Labuan is included under Sabah. Although some of the states have higher economic growth as compared

to the others (Department of Statistic, 2020), it is believed that developments of healthcare facilities and services in the states are also influenced by the states' geographical characteristics and available mode of transportations. These factors may contribute to the distribution of HRH across states or regions.

Overall, during the period 2012 – 2018, there was a steady increase in the number of doctors, dentist, pharmacist, and nurses per 10,000 population in the west coast region. However, from 2014 onwards, number of dentists in east coast increased at a greater pace and outnumbered dentists in the west coast. Besides that, AMO's are seen higher in Sarawak and east coast when compared to west coast and Sabah. Refer to [Figure 25](#).

**Figure 25:** Trends in Regional Distribution of MOH Healthcare Personnel, 2012- 2018



Source: Ministry of Health (2013 – 2019)

### 3.5 SKILL MIX

In the earlier part of this report, it is noted that the number of healthcare workers has increased considerably during the past few years. However, there has been little change in the skill mix for several key categories as shown in [Table 9](#).

**Table 9:** Ratio of Selected Healthcare Professionals to Allied Health Categories

Healthcare Profession	2011	2014	2016	2018
Doctors to nursing personnel ratio	1:2	1:2	1:2	10:17
Doctors to AMO ratio	10:3	10:3	10:3	10:3
Dentist to dental nurse ratio	10:6	10:5	10:4	10:3
Pharmacist to assistant pharmacist ratio	10:4	10:4	10:5	10:5
Dentist to dental technologist ratio	10:4	10:3	10:3	10:1

Source: Data from Ministry of Health (2012, 2015, 2017, 2019)

## KEY MESSAGES

1. The health workforce is predominantly female. The implication of this trend on future policies is that options that are “female friendly” such as part-time work, work from home, flexi-hours and availability of childcare facilities close to the workplace which have been implemented but need to be improved further. Female workers are in the reproductive age at their young age therefore the system needs to support them by allowing them to extend maternity leave without jeopardizing their future career.
2. The age of MOH health workforce is predominantly younger. Policy implication of this trend is that their career plans should be considered in terms of promotion, training and opportunities for postgraduate studies.
3. Majority of the healthcare personnel are in the public sector. Among them are doctors, dentists, pharmacists who are doing housemanship and compulsory service in the public sector. Although since 2011, several policy decisions have been amended such as reduction in the number of years of compulsory service and introduction of contract slots for new graduates since 2016, there is still a large number of healthcare personnel in the public sector.
4. Despite an overall increase in the number health workers per 10,000 population for every region and for almost most categories, there is an apparent gap between west coast and other regions especially regions in Borneo. The exception is made for dentist; in 2018 the number of dentists in east coast almost matched the number in the west coast. Besides that, for AMO’s, community nurses and dental nurses, the number is seen higher in Sabah & WP Labuan and Sarawak.
5. Despite increasing number of workers in the healthcare profession, the skill mix between key categories remains unchanged. Skill mix is fundamental in terms of strengthening team approach and in providing holistic access to better healthcare.



The background of the image is a light blue gradient. In the bottom-left corner, there is a close-up, out-of-focus view of a microscope's objective lens. The lens has some technical markings, including '53', '10x', and 'S.P.' visible. Overlaid on the background is a white hexagonal grid pattern, with small white circles at the vertices of the hexagons, resembling a molecular or network structure. A dark teal rounded rectangle is positioned in the upper right quadrant, containing the text 'SPECIALISTS IN MALAYSIA' in white, bold, uppercase letters.

# SPECIALISTS IN MALAYSIA

## 4.0 SPECIALISTS IN MALAYSIA

### 4.1 THE NUMBER OF SPECIALISTS IN COMPARISON TO HIGH-INCOME COUNTRIES

This chapter serves to illustrate the trend in the number of specialists over the years until the current year. Planning Division did most of the analysis by obtaining data and information from relevant key stakeholders, namely MMC, NSR and Human Resource Division, MOH. However, some data may differ from the actual data due to the complex system of data keeping by data owners.

In Malaysia, The Medical (Amendment 2015) Act 1971 came into force on 1st July 2017 when the Medical Regulations 2017 was adopted. The amended Act requires that doctors who fulfil the criteria entitling them to register as a specialist must be registered under this Act to practice in their registered field legally. The Malaysian Medical Council (MMC) has established the National Specialist Register (NSR) as a body responsible for handling specialist registration and for managing the database. The registry contains information about specialists, their specialties, and sub-specialties if applicable, basic as well postgraduate qualifications, and place of practice upon registration. A practising specialist is responsible for obtaining an annual practising certificate with MMC and renewing their specialist registration five-yearly.

In [Figure 26](#) and [Table 10](#), the density of Malaysia's specialists in 2018 is compared to the average density of specialists in selected OECD countries based on specialisation. Although there are 29 specialities listed in NSR ([Annex 2: List of specialties in Malaysia](#)), for comparison, the specialisations are categorised into groups according to the categorisation of physicians as defined in OECD Health Statistics 2019 (Organisation for Economic Co-operation and Development, 2019). Additionally, only registered specialists that obtained their annual practicing certificate (APC) in Malaysia for the relevant years are considered in the analysis.

Noticeably, there are vast differences between densities of specialist in Malaysia as compared to the average OECD countries, across specialties. The OECD countries have an average density of specialists almost six times higher than Malaysia. In 2018, Malaysia, on average, has 3.23 specialists per 10,000 populations whilst in selected high-income countries; there are 18.86 specialists per 10,000 populations. The density of psychiatrists in high-income countries is 15 times higher than Malaysia.

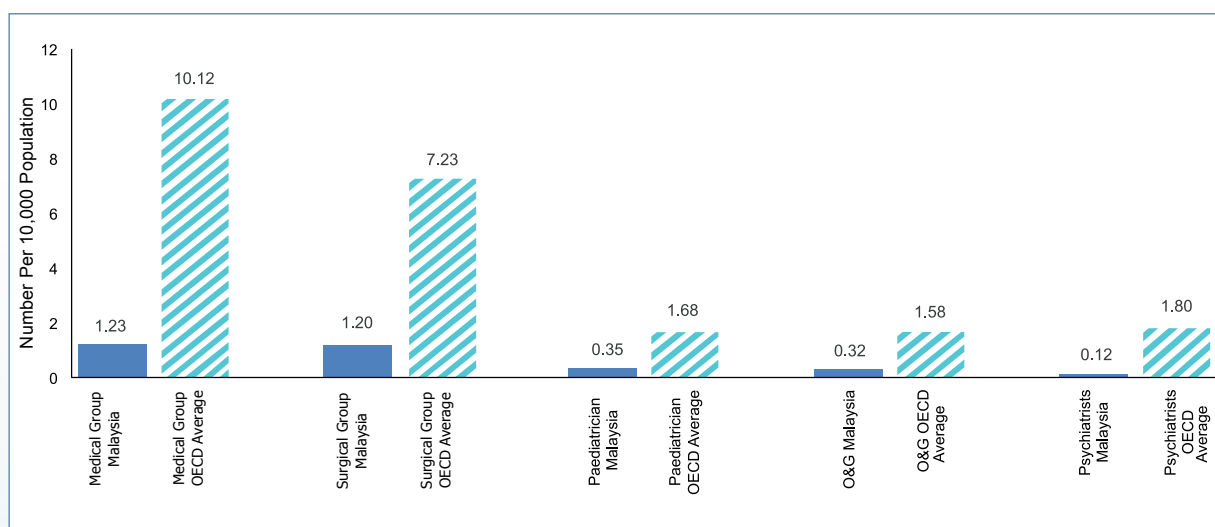


**Table 10:** Comparison of Specialist Density in Malaysia to the Average Density of Specialist in Selected High-Income Countries, 2018.

Specialty Group		Number of specialists per 10,000 Population (2018)
Medical Group of Specialist	Malaysia	1.23
	Selected OECD Average	10.12
Surgical Group of Specialist	Malaysia	1.20
	Selected OECD Average	7.23
Paediatricians	Malaysia	0.35
	Selected OECD Average	1.68
Obstetricians & Gynaecologist (O&G)	Malaysia	0.32
	Selected OECD Average	1.58
Psychiatrists	Malaysia	0.12
	Selected OECD Average	1.80
Combined Total	Malaysia	3.23
	Selected OECD Average	22.40

Source: Organisation for Economic Co-operation and Development countries retrieved from <https://stats.oecd.org>

**Figure 26:** Average Specialist in Malaysia in Comparison with High-Income / OECD Average Countries (per 10,000 population), 2018



Source: Data for Organisation for Economic Co-operation and Development countries retrieved from <https://stats.oecd.org/>

**Note:** OECD average was calculated from data available from OECD. Stat website up to 28th September 2020 as in [Annex 1](#).

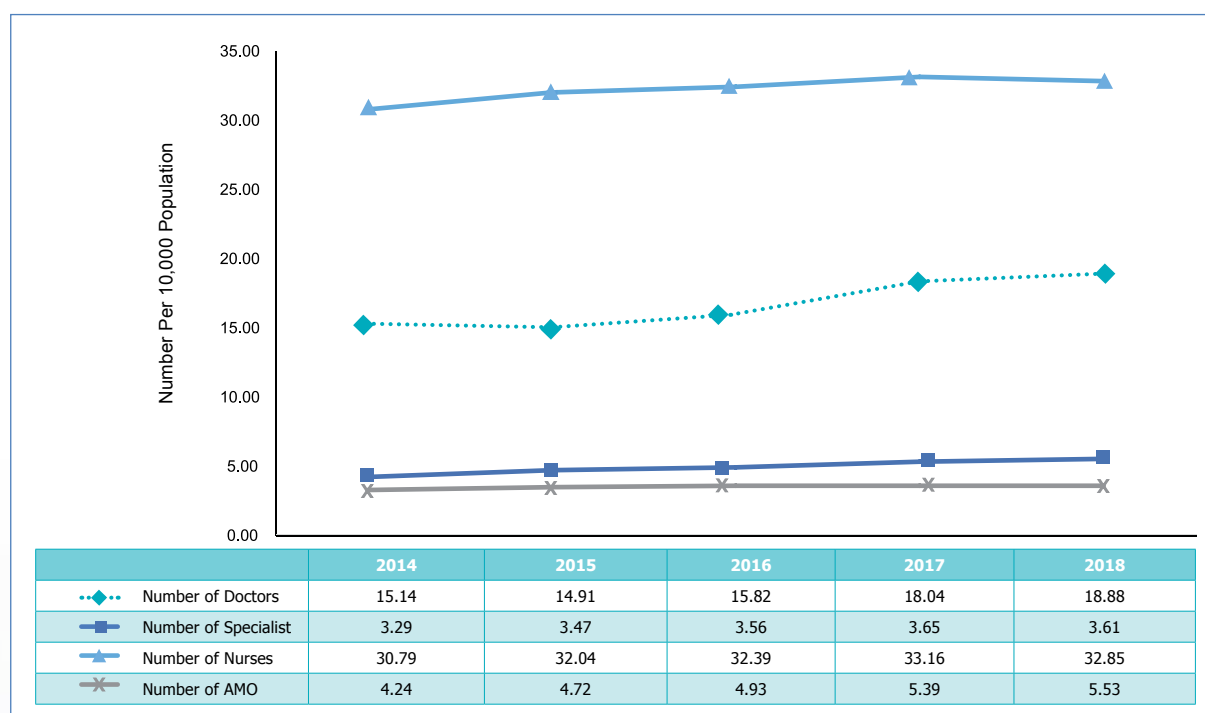
## 4.2 TRENDS OF SPECIALISTS IN MALAYSIA

In 2018, there were a total of 11,686 registered specialists with valid 2018 APC. Upon further mapping of the specialist registry with APC data, it was noted that 156 specialists had not obtained their APC for five years consecutively. It can be anticipated that these values may vary over the years, depending on the number of specialists registered at that point in time.

The doctors in the report refer to the three categories of doctors in Malaysia which

includes House Officer, Medical Officer (non-specialist) and specialists. Unlike the trend of doctors, only minimal changes are seen in the density of specialists over the years. This situation may be related to the limited postgraduate training opportunities offered by the local universities, limited sponsorship quota for postgraduate study, as well as limited specialities that have a recognised parallel training. However, supporting data on this situation is not available in this report.

**Figure 27:** Trends of Specialist, Doctors, Nurses and AMO in Malaysia, 2014-2018

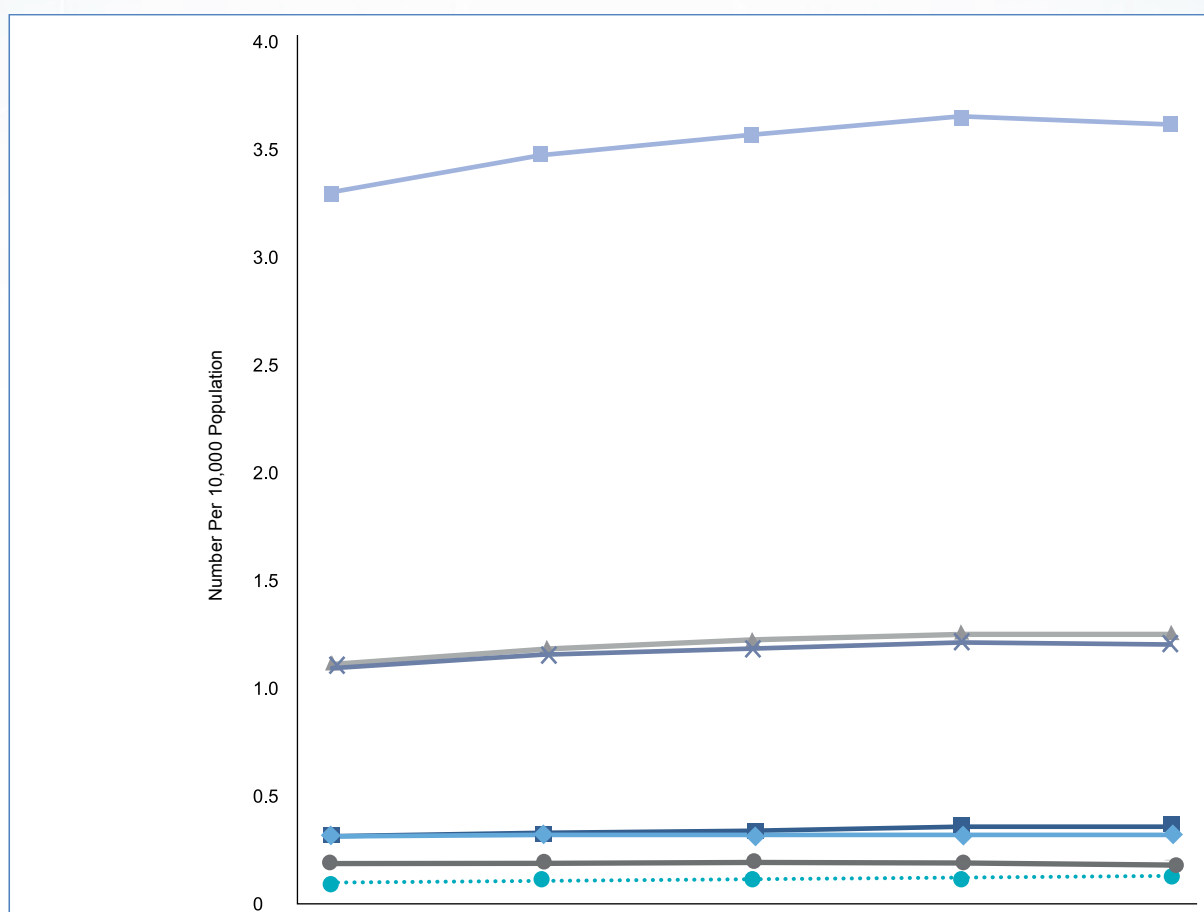


Source: Data for AMO, doctor and nurse from Ministry of Health (2014-2019)

In contrast to the 25% increase in the number of doctors per 10,000 population within four years, the increase in specialist was lower (10%) for the same period (see [Figure 27](#)).

The highest increase in density of specialists by specialty is seen in Psychiatry (20%) and lowest in Obstetrics & Gynaecologist. Refer to [Table 11](#).

**Figure 28:** Number of Specialists per 10,000 Population by Specialty in Malaysia, 2014 - 2018



	2014	2015	2016	2017	2018
—■— Total Specialist	3.29	3.47	3.56	3.65	3.61
—▲— Medical Group of Specialist	1.12	1.19	1.22	1.24	1.23
—✕— Surgical Group of Specialist	1.09	1.15	1.18	1.21	1.20
—■— Paediatric	0.31	0.33	0.33	0.35	0.35
—◆— Obstetrics & Gynaecology (O&G)	0.31	0.31	0.32	0.32	0.32
—●— Public Health Medicine	0.19	0.19	0.19	0.19	0.18
—●— Psychiatry	0.10	0.10	0.11	0.12	0.12

**Table 11:** Growth Rate of Specialists by Specialty, 2014 - 2018

Profession	2014 (per 10,000 Population)	2018 (per 10,000 Population)	Growth rate from 2014 to 2018 (%)
Medical Group of Specialist	1.12	1.23	+ 9.8
Surgical Group of Specialist	1.09	1.20	+ 10.1
Obstetrics & Gynaecology (O&G)	0.31	0.32	+ 3.2
Psychiatry	0.10	0.12	+ 20.0
Paediatric	0.31	0.35	+ 12.9
Public Health Medicine	0.19	0.18	- 5.3
Total Specialist	3.29	3.61	+ 9.7

Note: (+) increase, (-) decrease

Table 12 shows the growth rate of selected professions including specialists from 2014 to 2018. The highest growth rate is dentists followed by AMO. However, the lowest growth rate is seen in pharmacists and nurses. The minimal growth for pharmacists among others is due to the reduction in

total number of pharmacists from 2014 to 2018. Besides that, this is further supported by the number of provisional registered pharmacists which illustrates that there is not much difference over the period of four years.

**Table 12:** Growth Rate of Selected Profession, 2014 - 2018

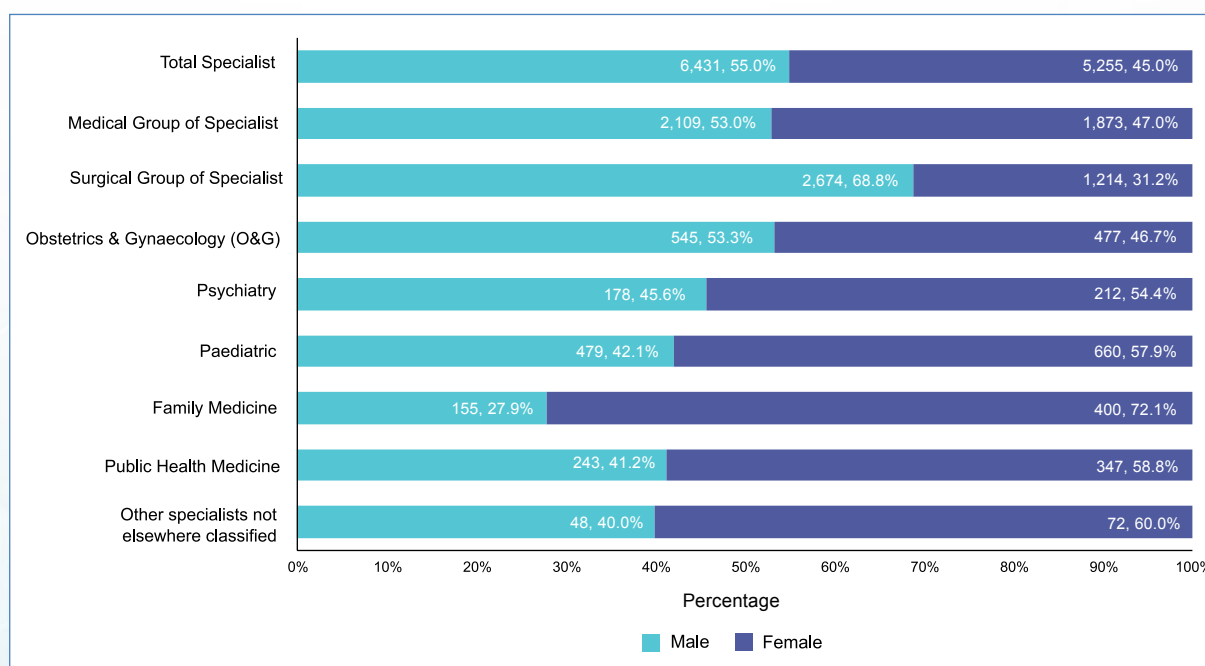
Profession	2014 (per 10,000 Population)	2018 (per 10,000 Population)	Growth rate from 2014 to 2018 (%)
Total Specialist	3.29	3.61	+ 9.7
Doctors	15.4	18.88	+ 22.6
Nurse	30.79	32.85	+ 6.7
AMO	4.24	5.23	+30.4
Pharmacist	4.08	4.14	+ 1.47
Dentist	2.0	3.0	+ 50.0

Source: Data for AMO, dentist, doctor, nurse and pharmacist from Ministry of Health (2015-2019)

### 4.3 SPECIALISTS GENDER DISTRIBUTION

Figure 29 illustrates the gender distribution of specialists in 2018. Although 53% of doctors are female, their subset, which is specialists, are mostly male. It is quite noteworthy that more than 70% of family medicine specialists are female, and almost 70% of surgical group specialists are male.

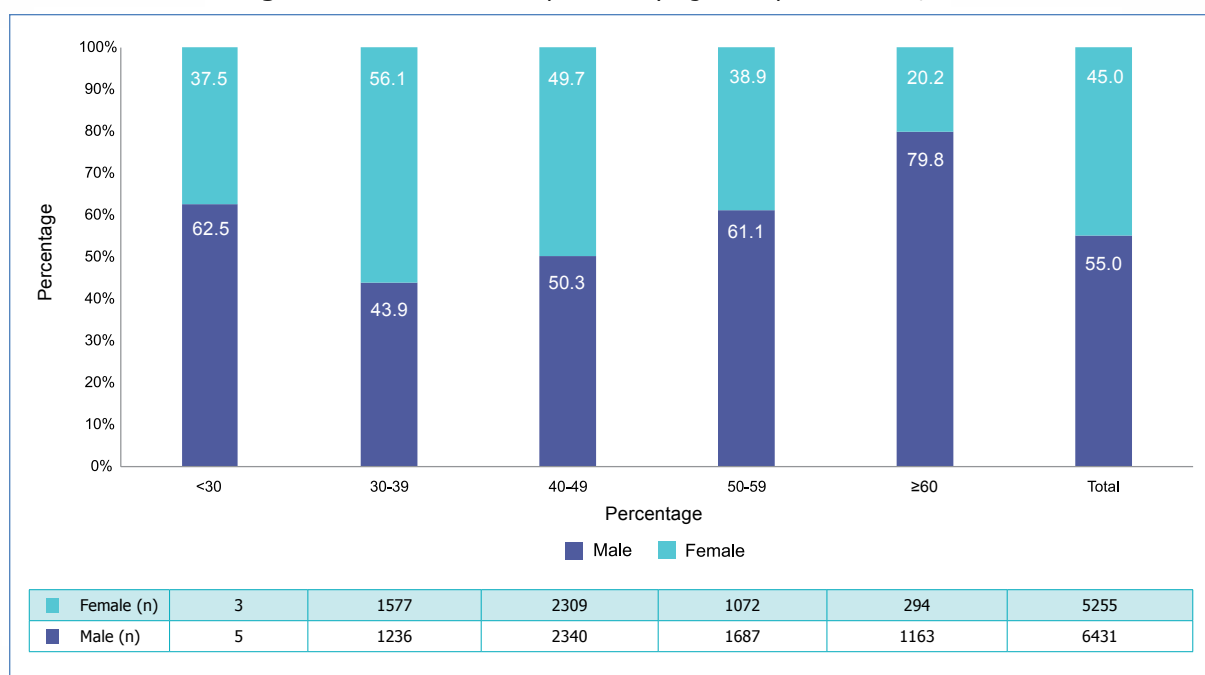
**Figure 29:** Malaysia Specialist Distribution by Gender, 2018



In 2018, the analysis by Planning Division (2019) identified that the largest age group of specialists is within the 40-49 year-old (39.9%); followed by 30-39 year-old (23.9%), 50-59 year-old (23.6%) and 12.5% are those more than 60 years old. It is recognised that less than 0.1% of the specialists belong to the youngest age

group. Based on [Figure 30](#), it is shown that among the specialists, there are more males in the older age groups, but in the younger age group (30 – 39), there are slightly more female than male. This shows that there are a large number of female doctors interested in pursuing specialisation, especially in certain areas.

**Figure 30:** Distribution of Specialist by Age Group and Gender, 2018



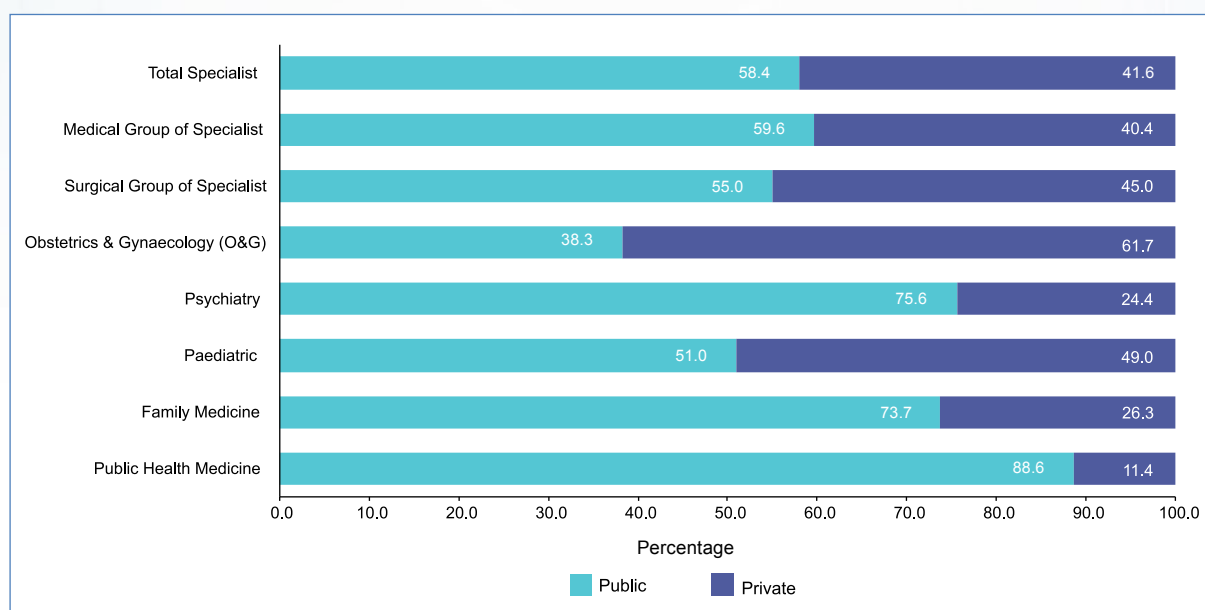
For the other categories of HRH employed by the Ministry of Health, the information is available in [Annex 2](#).

#### 4.4 DISTRIBUTION OF SPECIALISTS IN THE PUBLIC AND PRIVATE SECTORS

Majority of the specialists in all the specialties served in the public sector. As depicted in [Figure 31](#), more than 70% of family medicine specialists and psychiatrists are in the public sector. As for public health

physicians, almost 90% are working in the public sector, which reflects the government role and responsibilities in the provision of public health services.

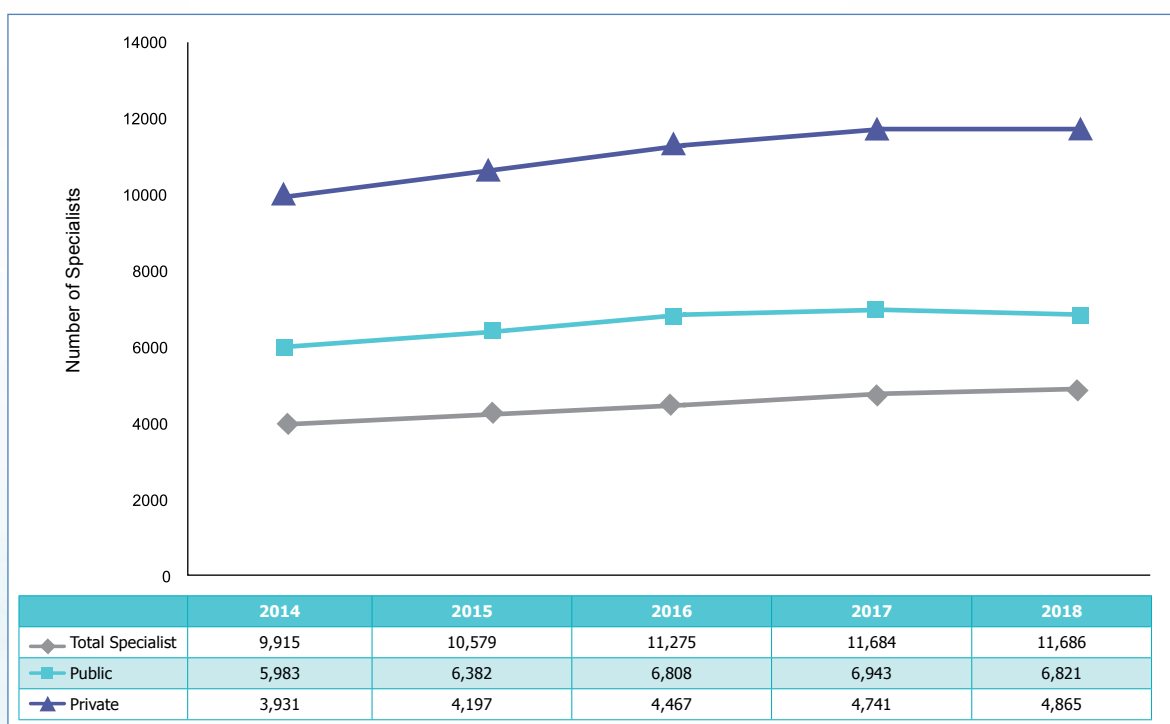
**Figure 31:** Specialists Distribution by Sector, 2018



Specialists in Malaysia are almost evenly distributed in the public and private sector. Majority of Specialists receive scholarships for postgraduate studies or subspecialty training from the government, and they are bounded to serve a contractual period in the public sector. This contributes to the higher proportion of specialists in the public sector

([Annex 1](#)). In 2014, 60% of the specialists were in the public sector and 40% in the private sector. Although the total number of specialists in the public sector is higher than the private, the rate of increment across specialties from 2014 to 2018 is higher in the private sector ([Table 13](#)).

**Figure 32:** Specialists in Malaysia by Sector, 2014 – 2018



**Table 13:** Growth Rate of Specialists by Sector, 2014 - 2018

Specialty	Number of Specialist				Growth rate of specialist by sectors, 2014 - 2018	
	2014		2018		Public	Private
	Public	Private	Public	Private		
Public Health Medicine	548	36	523	67	-4.6%	+86.1%
Obstetrics & Gynaecology	391	539	391	631	0.0%	+17.1%
Medical Group of Specialist	2,066	1,299	2,373	1,609	+14.9%	+23.9%
Surgical Group of Specialist	1,863	1,416	2,138	1,750	+14.8%	+23.6%
Psychiatry	231	70	295	95	+27.7%	+35.7%
Paediatrics	480	452	581	558	+21.0%	+23.5%
Family Medicine	322	113	409	146	+27.0%	+29.2%
Others	82	7	111	9	+35.4%	+28.6%
<b>Total Specialist</b>	<b>5,983</b>	<b>3,932</b>	<b>6,821</b>	<b>4,865</b>	<b>+14.0%</b>	<b>+23.7%</b>

Note: (+) increase, (-) decrease

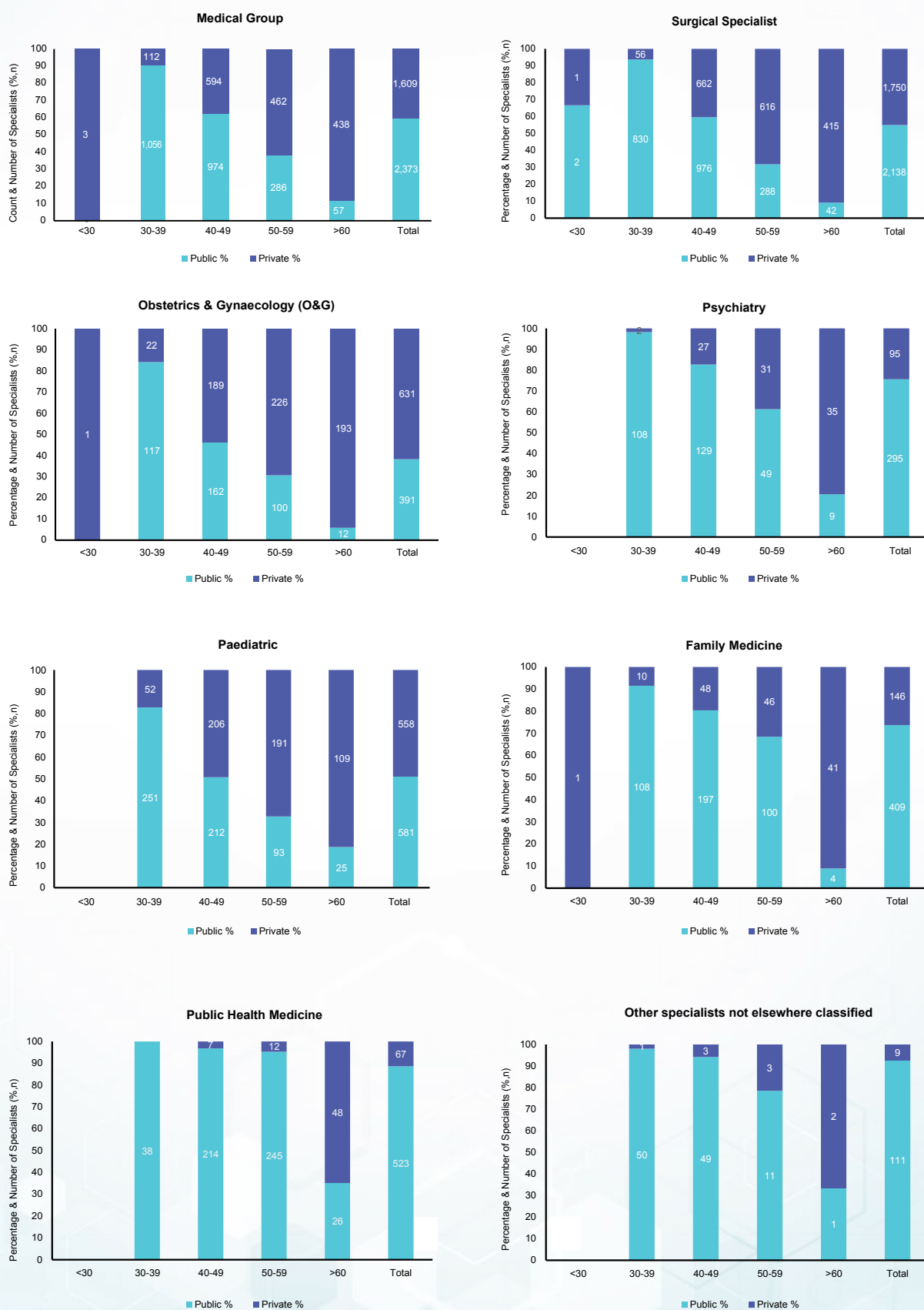
#### 4.5 SPECIALISTS AGE AND SECTOR DISTRIBUTION

Figure 33 exhibit the distribution of specialist by age group and its percentage by sectors in 2018. Numbers derived from the total number of specialists are for medical group specialists, surgical group specialists, Obstetricians & Gynaecologists, Psychiatrist, Paediatricians and Family Medicine specialists. For each category mentioned, younger specialist is mostly based in the public sector. Almost all category of specialization below the age 30-39 is based in the public sector and majority of specialist older than 39 years old are in the private sector.

Since retirement age for the public sector is 56 to 60, it is anticipated that in the private sector specialists will be predominantly above the age of 50. Among the specialists,

it is seen Psychiatrists, and Family Medicine Physicians are very high in number in the public sector across age group. This pattern changes markedly for those above 60 years old in favour of the private sector. This is again aligned with the presumption on the retirement age of public servant. As for the other four (4) specialisations (medical group, surgical group, O&G specialist and paediatric), the percentage of specialists in the public sector lessens as their age increases. There is a gradual reduction in the public sector in these four major specializations as age increases. By the age >60, majority of the specialists are in the private sector, however, the numbers are minimal, as not many specialists opt to practice after the age of 60.

**Figure 33: Specialist Distribution by Sector and Age Group, 2018**



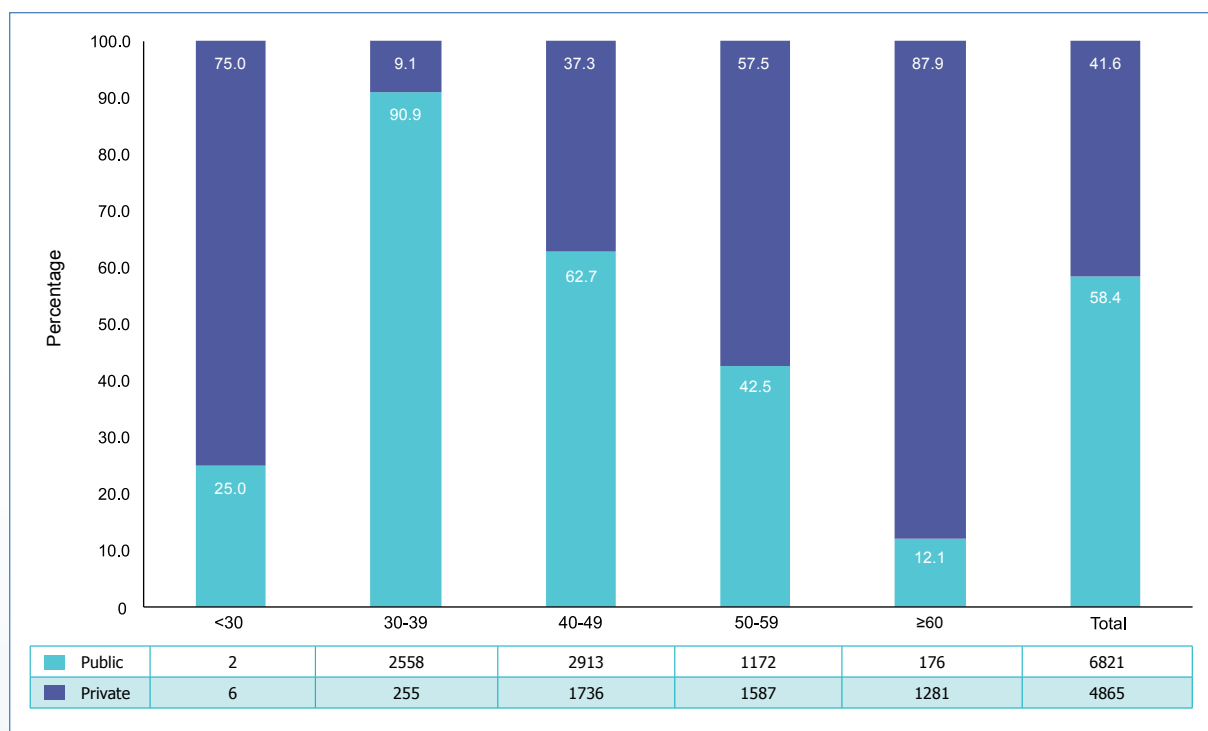


[Figure 34](#) illustrates the distribution of specialists by age group and sector in 2018. The distribution reflects the career path of a specialist in Malaysia. Typically, the specialists begin their service before the age of 30 and obtain their postgraduate qualification within the age of 30-39.

As a majority of the specialists receive scholarships from the government to pursue their studies ([Annex 1](#)), together with the age limit to apply for a scholarship and the contractual period to serve, these factors contribute to the high percentage of specialists within the age group of

30 – 39 in the public sector. Once they are recognised as specialists, a sizeable proportion takes the option of moving to the private sector. A three-year trend from MOH service data showed that a large number of MOH specialists within the 30-39 years old resigned from government services. Although some of the specialists may join public universities, majority, it is believed, joined the private sector. In addition, most of the specialists within the 30-39 years old served in MOH as specialists less than three years before they resigned ([Table 14](#))

**Figure 34:** Total Number of Specialists by Sector and Age Group, 2018



**Table 14:** Resignation of MOH Specialists and Average Years of Service Upon Resignation, by Age Group, 2016 - 2018

MOH Specialists resigned, by age group and year	Percentage of specialist resigned, by age group (%)			Average years of service as specialist in MOH upon resignation (year)		
	2016 (n=158)	2017 (n=170)	2018 (n=198)	2016	2017	2018
<30	0	0	0	-	-	-
30-39	61.4	58.2	59.6	2.4	2.8	3.2
40-49	38.0	41.8	38.4	8.0	6.8	7.4
50-59	0.6	0.0	2.0	14.0	-	12.5
≥60	NA	NA	NA	NA	NA	NA

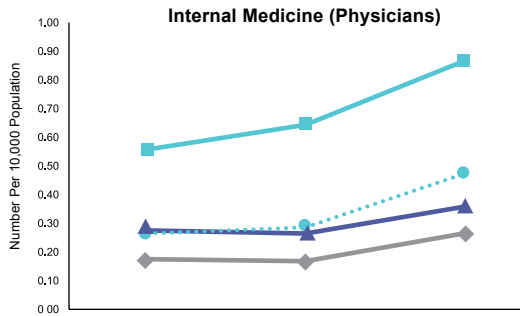
Note: Calculation of years of service as specialist based on year of gazette.

#### 4.6 GEOGRAPHICAL DISTRIBUTION OF SPECIALISTS

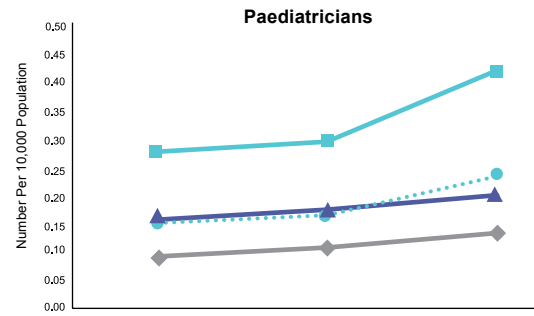
A balanced distribution of specialist across regions is essential to ensure better access to specialize care. The west coast region of Peninsular Malaysia generally has a higher number of specialists per 10,000 population across specialisations than other regions in Malaysia, as seen in [Figure 35](#). For most specialisations, the second highest in number of specialists per 10,000 population is in the east coast except for Internal Medicine specialists and Paediatricians

where the number of specialists in Sarawak surpass the east coast. Sabah & WP Labuan has the lowest number of specialists per 10,000 populations for all specialities as seen in [Figure 35](#). However, it is observed that there is an increase in the number of Orthopaedic surgeons in Sarawak in 2018 where their number is higher as compared to Orthopaedic Surgeons in Sabah & WP Labuan.

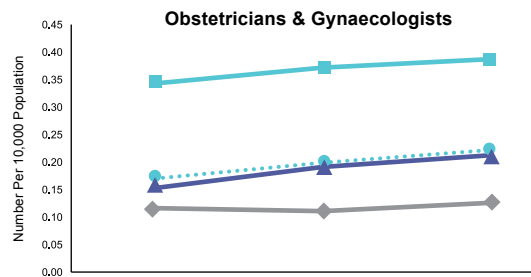
**Figure 35: Number of Specialists per 10,000 Population by Region, 2010 - 2018**



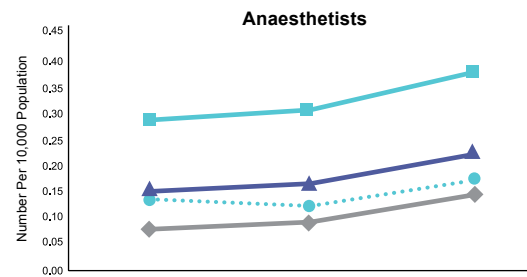
	2010	2013	2018
West Coast	0.56	0.64	0.87
East Coast	0.27	0.26	0.36
Sabah	0.18	0.17	0.26
Sarawak	0.26	0.29	0.47



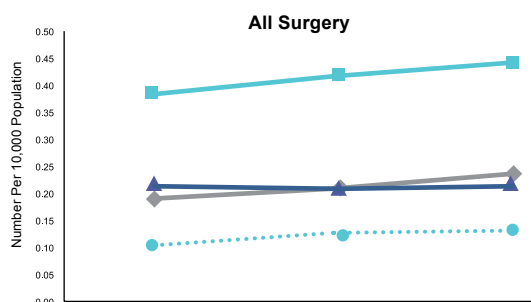
	2010	2013	2018
West Coast	0.28	0.30	0.45
East Coast	0.14	0.17	0.20
Sabah	0.07	0.09	0.12
Sarawak	0.14	0.16	0.23



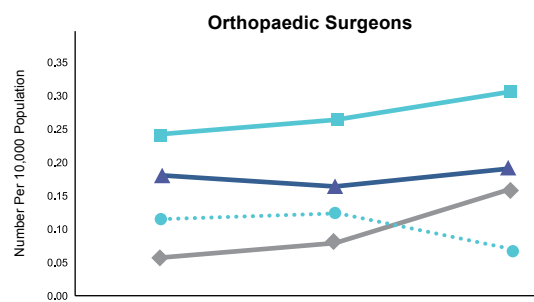
	2010	2013	2018
West Coast	0.34	0.37	0.39
East Coast	0.15	0.19	0.21
Sabah	0.12	0.11	0.13
Sarawak	0.17	0.20	0.22



	2010	2013	2018
West Coast	0.30	0.32	0.39
East Coast	0.16	0.17	0.23
Sabah	0.08	0.10	0.15
Sarawak	0.14	0.13	0.18



	2010	2013	2018
West Coast	0.38	0.42	0.44
East Coast	0.22	0.21	0.23
Sabah	0.10	0.13	0.13
Sarawak	0.19	0.21	0.24



	2010	2013	2018
West Coast	0.23	0.25	0.29
East Coast	0.17	0.15	0.18
Sabah	0.11	0.11	0.06
Sarawak	0.05	0.07	0.15

LEGEND	
■	West Coast
▲	East Coast
●	Sabah
◆	Sarawak

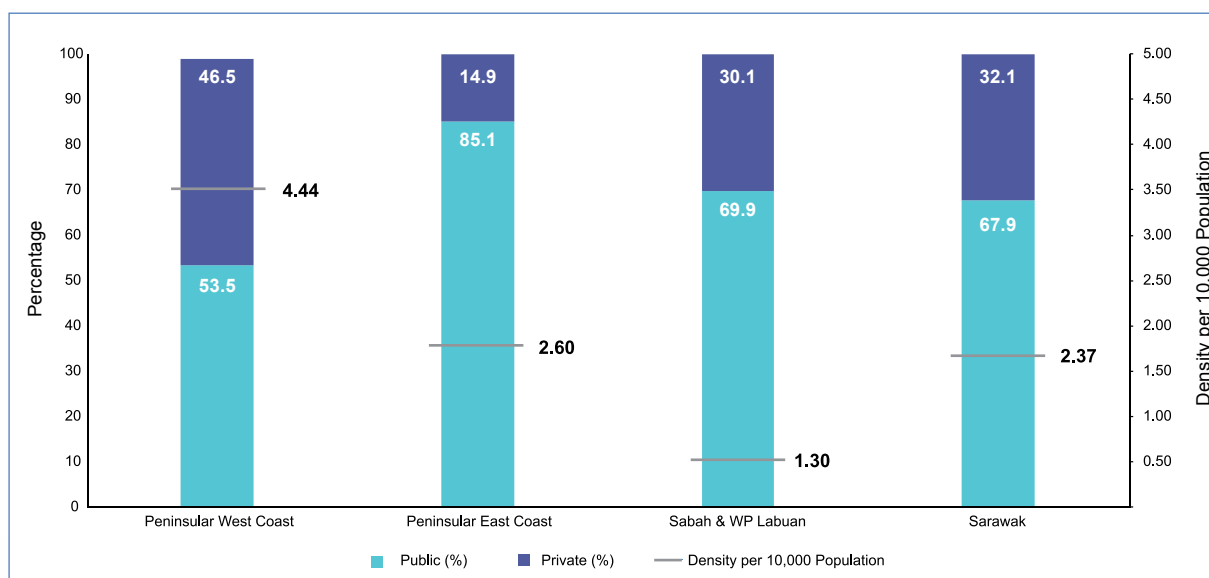
The distribution of specialists by geographical region shows that majority of specialists is concentrated in the west coast region of Peninsular Malaysia, followed by East Coast, Sarawak and Sabah & WP Labuan.

In addition to that, the distribution by sector shows that the Peninsular Malaysia west coast has almost an equal proportion of specialists between the public and private sector with the percentage of 53.5% and 46.5% respectively. However, the other

three regions – the east coast, Sarawak and Sabah including Federal Territory of Labuan have a significantly higher percentage of specialists in the public sector as compared to the private sector ([Figure 36](#)).

The uneven sector distribution by regions are due to the existence of different facilities and capabilities in the respective regions, thus creating a slight mismatch in terms of density of specialists per 10, 000 versus sector distribution.

**Figure 36:** Total Specialists in Malaysia by Region and Sector per 10,000 Population, 2018



It is to be noted that further breakdown of specialists by speciality, sector and region under the Malaysian context can be found in [Annex 1](#).

## KEY MESSAGES

1. The general trend in the total number of specialists per 10, 000 population is seen to be increasing; however, there is a clear disproportion of number of specialists between the regions especially between west coast and other regions in the country. This is mainly because most of the areas in the west coast are mainly urban areas and urban areas have many facilities such as training centres for the specialists to train and upgrade their skills.
2. Specialists in Malaysia are mostly male as compared to doctors in general. While most specialisations are mostly dominated by female specialists, and 70% of FMS is female. It can be noted that specialists in the surgical group are mainly male accounting up to 69%.
3. As for sector distribution, majority of specialists are centred in the public sector, except for the Obstetrics & Gynaecology speciality, where about 60% are in the private sector.
4. It is observed that the distribution of specialists by geographical region shows that majority of specialists are concentrated in the west coast region of Peninsular Malaysia, followed by East Coast, Sarawak and Sabah & WP Labuan.
5. Moving forward, there must be a mechanism to continuously encourage young doctors to further their training specialisation to support healthcare sector of the country in its quest to become a high-income country in future. This will enable the country to meet the resource requirements of the country especially in certain key areas of interest in its attempt to achieve universal health coverage for all.





# HEALTH PROFESSION EDUCATION

## 5.0 HEALTH PROFESSION EDUCATION

### 5.1 TRAINING INSTITUTIONS AND TRAINING PROGRAMMES FOR HRH

Health care is a highly skilled service industry where the HRH education system determines the supply of HRH. Most HRH professions require a long period of education and require good hands-on training. Therefore, investment in education is essential to ensure quality graduates enter the health system in the future. This chapter briefly explains the

number of training institutions for HRH, basic education programmes for HRH and other information with regards to HRH education in the country. [Table 15](#) shows the number of training institutions for HRH, and [Table 16](#) shows the basic education programmes for HRH provided by the Ministry of Education.

**Table 15:** Number of Training Institutions for Health Workforce in Malaysia, 2018

	Public colleges	Public universities	Private colleges	Private universities	All
Medicine	0	12	3	21	36
Dentistry	0	6	2	5	13
Pharmacy	0	5	6	17	28
Nursing	6	16	11	15	48
Midwifery	23	2	0	3	28
Assistant Medical Officer	6	4	15	0	25
Pharmacy Assistant	2	0	22	0	24
Dental Therapist (Nurse)	1	0	0	0	1
Dental Technologist	1	0	2	0	3
Dental Surgery Assistant	1	0	2	0	3
T&CM	0	0	1	7	8

Source: Ministry of Higher Education (2020)

**Table 16:** Basic Education Programmes Health Workforce in Malaysia, 2018

	Public				Private				Total
	Certificate	Diploma	Degree	Sub-Total	Certificate	Diploma	Degree	Sub-Total	
Medicine	-	-	14	14	-	-	30	30	44
Dentistry	-	-	6	6	-	-	6	6	12
Pharmacy	-	-	5	5	-	-	12	12	17
Pharmacy Assistant	-	2	-	2	-	36	-	36	38
Nursing	11	19	6	36	-	72	30	102	138
Midwifery	11	13	0	24	-	2	-	2	26
Assistant Medical Officer	-	6	4	10	-	15	3	18	28
Dental Therapist (Nurse)	-	1	-	1	-	-	-	-	1
Dental Technologist	-	1	-	1	1	1	-	2	3
Dental Surgery Assistant	1	-	-	1	3	-	-	3	4
T&CM	-	-	-	-	-	4	7	11	11

Source: Ministry of Higher Education (2020)



## 5.2 SOURCES OF TRAINING OF DOCTORS AND DENTAL PRACTITIONERS ENTERING HEALTH WORKFORCE

### 5.2.1 DOCTORS

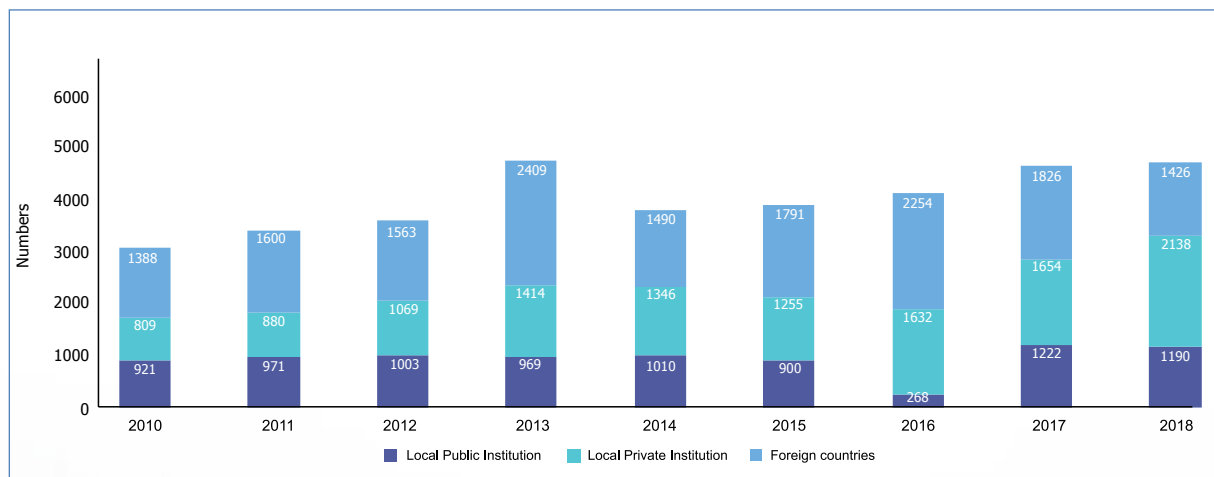
The number of new medical graduates who enter the workforce annually has increased since 2008. This is partly due to the increase in the number of local medical schools as well as the availability of affordable accredited medical training programmes overseas such as CUCMS, USIM, UTAR, MAHSA and other as can be seen in [Table 17](#).

Though the number of locally trained medical graduates has increased, the proportion

trained in public and private universities has not changed much, but the proportion that are trained in foreign countries has increased (see [Figure 37](#))

In 2018, about 35% of graduates were trained overseas in 16 different countries with the largest contributors being Egypt (381 graduates), Russia (380 graduates) and Indonesia (207 graduates)

**Figure 37:** Sources of Training of House-Officers Entering Workforce, 2010-2018



Source: Human Resource Division (2020)

**Table 17:** Local Trained Medical Graduates (Public and Private), 2010-2018

No.	University	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	UM	159	182	188	198	197	176	7	185	196
2	UKM	223	219	259	220	208	263	13	248	276
3	USM	186	180	193	193	205	222	16	278	242
4	UNIMAS	79	64	74	39	92	107	14	123	104
5	UMS	68	75	70	80	81	6	81	103	97
6	UPM	101	131	111	143	99	110	16	144	130
7	PMC	131	100	97	150	115	117	76	67	142
8	UIAM	105	120	108	96	128	16	121	141	145
9	IMU	140	118	231	183	136	98	147	189	128
10	RCMP	63	23	19	136	119	83	160	147	19
11	MMMC	271	254	249	258	117	252	245	202	362
12	AIMST	91	116	148	178	182	225	200	55	223
13	AUCMS	52	30	69	58	89	0	0	0	0
14	MONASH UNIVERSITY	29	27	10	71	76	99	100	74	86
15	UCSI	32	43	41	50	32	26	8	62	78
16	CUCMS	0	140	133	126	143	3	160	118	137
17	USIM	0	29	34	62	53	58	29	31	50
18	MSU	0	0	38	142	186	198	208	306	238
29	NUMED	0	0	0	0	0	35	34	6	70
20	UNISZA	0	0	0	0	0	28	53	63	56
21	UTAR	0	0	0	0	0	24	43	5	42
22	MAHSA UNIVERSITY	0	0	0	0	98	9	116	129	147
23	TAYLORS UNIVERSITY	0	0	0	0	0	0	15	54	37
24	SEGI UNIVERSITY	0	0	0	0	0	0	38	59	64
25	UPNM	0	0	0	0	0	0	0	9	19
26	PERDANA UNIVERSITY	0	0	0	0	0	0	0	68	72
27	LINCOLN UNIVERSITY COLLEGE	0	0	0	0	0	0	0	10	68

Source: Human Resource Division (2020)

There are marked discrepancies in data seen in the number of medical graduates from local universities entering the workforce in 2016 with the number of local graduates in the same year. The discrepancy is seen for one private university (Penang Medical College).

**Table 18:** Foreign-Trained Medical Graduates, 2010-2018

No	Country	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	India	13	72	64	45	90	117	149	123	55
2	Australia	36	53	59	99	39	38	21	14	6
3	Egypt	33	20	51	460	353	826	980	648	381
4	Bangladesh	0	1	1	0	2	3	8	8	7
5	Pakistan	0	1	3	3	1	0	2	0	0
6	Indonesia	242	368	571	785	528	410	275	305	207
7	Taiwan	1	10	6	6	3	1	2	2	1
8	China	18	28	14	20	12	7	11	15	6
9	New Zealand	15	23	9	23	18	11	4	0	0
10	Japan	2	1	2	0	0	0	0	0	
11	United Kingdom	104	47	59	101	47	34	55	37	44
12	Canada	5	11	2	1	0	1	1	0	2
13	Ireland	92	80	88	79	67	26	123	118	188
14	Russia	413	450	372	383	255	221	433	420	380
15	Ukraine	397	339	23	18	8	7	2	0	0
16	Others	17	96	185	480	67	89	188	128	149
<b>Total</b>		<b>13,88</b>	<b>1,600</b>	<b>1,563</b>	<b>2,409</b>	<b>1,490</b>	<b>1,791</b>	<b>2,254</b>	<b>1,826</b>	<b>1,426</b>

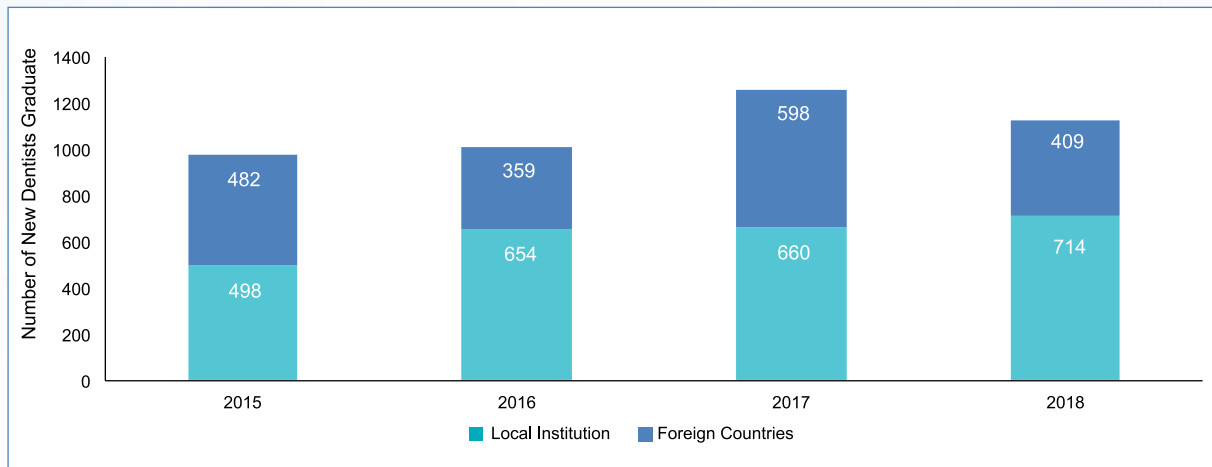
Source: Human Resource Division (2020)

## 5.2.2 DENTISTS

In 2018, 36% of the new entrants are trained in foreign countries and this figure is slightly lower as compared to 2017, where 48% of the new entrants are from foreign countries.

In 2018 foreign-trained graduates received training in fourteen different countries, with the highest in India (122) followed by Egypt (91), Jordan (96), Indonesia (74) and United Kingdom (13).

**Figure 38:** Source of Training of Dentists Entering the Workforce, 2015 - 2018



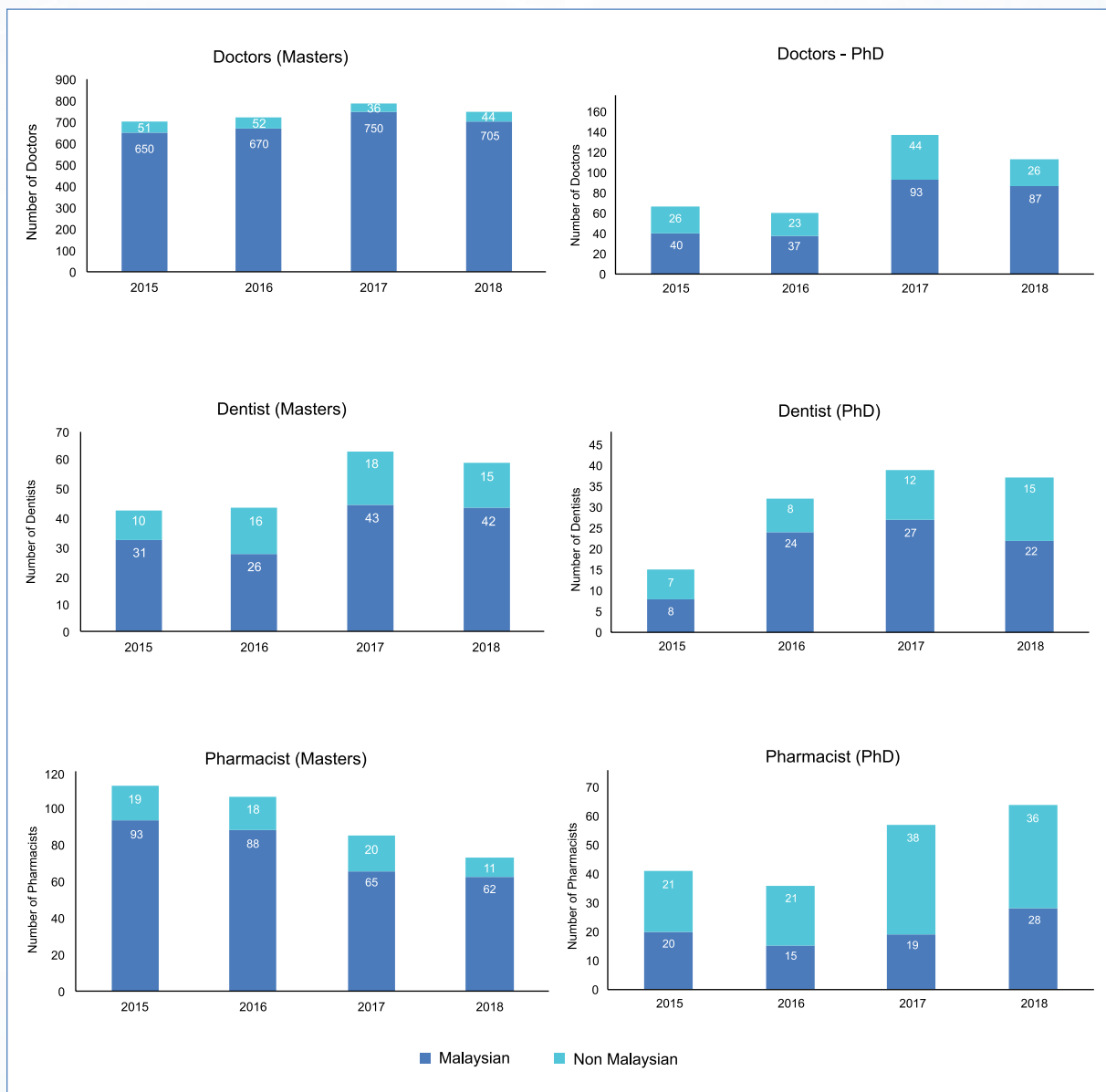
Source: Malaysian Dental Council (2019)

### 5.3 POSTGRADUATE TRAINING IN PUBLIC SECTOR UNIVERSITIES IN MALAYSIA: Doctors, Dentists, and Pharmacists

Doctors and dentist postgraduate training takes at least four years (equivalent to a master's Programme), and postgraduate training is a pre-requisite to becoming a specialist. These trainings are available in the country, and some programmes established by Royal Colleges in the United Kingdom are

recognised too. However, for this report, data on production of postgraduates are only available for Malaysian universities in the public sector. Figure 39 shows the number of Doctors, Dentists and Pharmacists who completed postgraduate training during 2015 – 2018. [Figure 39](#), however, provides information on the numbers which are in the pipeline i.e. the current enrolment for basic and postgraduate training for major HRH categories.

**Figure 39:** Doctors, Dentists and Pharmacists Completed Postgraduate Training in Malaysian Public Universities, 2015 – 2018



Source: Ministry of Education (2020)

#### 5.4 POSTGRADUATE TRAINING OF DOCTORS EMPLOYED BY MOH

This section discusses the number of postgraduate training to become a specialist among doctors employed by MOH. [Table 19](#) showed the number of MOH doctors received an offer to pursue postgraduate study in the selected five disciplines which are, Internal Medicine, Paediatrics, Obstetrics & Gynaecology, Surgery and Anaesthesia.

The offer is to pursuit study through Master Program in local universities and recognised “parallel pathway”. The number of MOH doctors enrolled in Internal Medicine and Paediatrics “parallel pathway” are higher as compared to those offered the Master Program.

**Table 19:** Number of MOH Doctors Receive Offer to Pursue Postgraduate Study in Five Disciplines through Master Programme and 'Parallel Pathway', 2014-2018

Speciality	Programme	2014	2015	2016	2017	2018
Internal Medicine	MRCP	57	57	112	137	172
	MMED	22	33	43	34	41
Paediatric	MRCPCH	25	21	15	60	40
	MMED	13	26	24	34	27
O&G	MRCOG	8	4	1	20	26
	MMED	23	30	29	23	33
Oncology	FRCR	0	0	0	0	0
	MMED	1	4	5	6	6
Surgery	FRCS	0	0	0	0	0
	MMED	25	53	42	41	52
Anaesthesia	FCAI	0	0	0	0	0
	MMED	85	50	64	62	51
<b>Total</b>		<b>259</b>	<b>278</b>	<b>335</b>	<b>417</b>	<b>448</b>

Source: Medical Development Division (2020)

[Table 20](#) provides detailed on the number of clinical specialists who obtained their postgraduate qualification in the selected five disciplines through Master Programme and Parallel Pathway from 2014 to 2018. It is observed that more specialists obtained their postgraduate degree over the years except among that pursuing anaesthesiology.

**Table 20:** Number of MOH Clinical Specialist Obtained Postgraduate Qualification in Five Disciplines through Master Programme and 'Parallel Pathway', 2014-2018

Speciality	Qualification	2014	2015	2016	2017	2018
Internal Medicine	MRCP	57	57	112	137	172
	MMED	22	33	43	34	41
Paediatric	MRCPCH	25	21	15	60	40
	MMED	13	26	24	34	27
O&G	MRCOG	8	4	1	20	26
	MMED	23	30	29	23	33
Oncology	FRCR	-	-	-	-	-
	MMED	1	4	5	6	6
Surgery	FRCS	-	-	-	-	-
	MMED	25	53	42	41	52
Anaesthesia	FCAI	-	-	-	-	-
	MMED	85	50	64	62	51
<b>Total</b>		<b>259</b>	<b>278</b>	<b>335</b>	<b>417</b>	<b>448</b>

Source: Medical Development Division (2020)

\*Note: There is no parallel pathway programme for General Surgery. The FANZCA programme is not part of the parallel pathway in Malaysia.

## 6.0 CONCLUDING REMARKS

This report is intended to provide information and data to support the strategic planning process of HRH. It provides data on the current and past trends on the total number of personnel especially in the four most important and costly categories of HRH, namely, doctors, dentists, pharmacists, and nurses. It also provides useful information on regional distribution and the age and gender profiles of the health workforce employed by MOH who is the largest employer of HRH. The report illustrates some of the major HRH challenges for example, very rapid increase of new entrants into the workforce, the need to issue of increasing percentage of female in the key categories of HRH.

The health system can only function with sufficient and well-trained healthcare personnel. Besides that, it is also important to note that issues on health service coverage especially on availability, accessibility and quality is critical in providing equal healthcare to all. Therefore, this report serves to illustrate a scenario analysis of Human Resource in Malaysian healthcare in order for the policy makers to judge, analyse and further make informed policy planning and decision for the future. It also serves as an exercise to better prepare the background data before submitting the analysis to the National Health Workforce Account (NHWA).



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## GLOSSARY

TERM	DEFINITION
Adult Mortality Rate	<p>Adult mortality rate represents the probability that a 15-year-old person will die before reaching his/her 60th birthday, if subject to age-specific mortality rates between those ages for the specified year. Globally, adult mortality rate was 142 per 1000 population in 2016.</p> <p>Adult mortality is highest in low-income countries, and lowest in high-income countries. Disease burden from non-communicable diseases among adults - the most economically productive age span – is rapidly increasing in developing countries due to ageing and health transitions. Therefore, the level of adult mortality is becoming an important indicator for the comprehensive assessment of the mortality pattern in a population.</p>
Allied Health Division	This is a programme division in Ministry of Health that is responsible to collect, analyse and provide policy direction for Allied Health Personnel serving in the MOH. HRH in the private sector are encouraged to provide information to the Allied Health Division on a voluntary basis.
Assistant Medical Officer	This category was known formerly as "Medical Assistant". It includes individuals who have successfully completed the basic education programme for Assistant Medical Officers and have been placed on the Register of Assistant Medical Officers.
Assistant Nurses	Individuals who have successfully completed a two-year accredited nursing course at certificate level and been placed in Nursing Register
Community Nurses	Individuals who have successfully completed an accredited basic community nursing course at certificate level and have been placed on Nursing Register. Midwifery for normal deliveries is part of the basic educational programme.
Dental Nurse	Individuals who have successfully completed the basic education programme for dental nurses. Currently all of them are employed only in public sector. When they are converted to Dental Therapists, they will be eligible to be placed on the Dental Register.
Dentist also known as Dental Practitioner	Individuals who have successfully completed an accredited basic dental education programme and have been placed on the Dental Register. It includes individuals who are undergoing the two-year compulsory posting in a public facility.
Doctors	Medical practitioners who have successfully completed an accredited basic medical education programme, have successfully completed training as a trainee medical officer, and have been placed on the Medical Register as "Fully Registered". It includes those who are serving the initial two-year compulsory posting in a public sector institution
East Coast	The East Coast is a part of Peninsular Malaysia. It consists of Kelantan, Pahang and Terengganu in this region of Peninsular Malaysia.
Food Analysts	Food analysts are persons who conduct food analysis in the public and private sector. They hold a degree in food science or Food Technology or Food Science and Technology from any institution of higher education or any other degree in science in any related field. These individuals are eligible to be placed on the Food Analyst Register.

TERM	DEFINITION
Health Facts	An annual publication produces by IDS. It provides concise information on key health indicators. Reports for the period 2000-2012 are available online.
Health Informatics Centre	The HIC in the Federal Ministry of Health is responsible for collecting and compiling health information from all the Programme Divisions in the Ministry of Health, the Department of Statistics and private healthcare providers. Prior
House-Officers	Medical graduates who have successfully completed accredited basic medical education programme and are undergoing training as a trainee medical officer in a recognised institution. Most have been placed on the Medical Register as "Provisionally Register"
Malaysian Dental Council	This is a statutory body formed under the Dental Act. It has members from the public and private sectors, is chaired by the Director General of Health and the secretariat is in the Oral Health Regulation and Practice Division of the Ministry of Health. It maintains a computerised register of Dental Practitioners.
Malaysian Food Analyst Council	Malaysian Food Analysts Council is a statutory body formed under the Food Analysts Act 2011. It has members from public and private sectors, and is chaired by Director General of Health. It registers the food analysts and regulate the practice.
Malaysian Medical Council	This is a statutory body formed under the Medical Act 1971. It has members from the public and private sectors, is chaired by the Director General of Health and the secretariat is in the Oral Health Regulation and Medical Practice Division of the Ministry of Health. It maintains a computerised register of medical practitioners.
Malaysian Optical Council	This is a statutory body formed under the Optical Act 1991. It has members from the public and private sector and is chaired by the Director General of Health. It maintains a computerised register of optometrists and opticians in the country and issues them annual practicing licenses.
Malaysian Qualification Agency	An agency established under an Act of Parliament and situated in the Ministry of Higher Education. It maintains data on higher education institutions, HRH education programmes, students, and graduates in the public and private sectors (excluding those in MOH).
Medical group specialty	A medical group of specialties as defined in OECD (2019). The list of specialties includes: <ul style="list-style-type: none"> <li>i. Internal Medicine</li> <li>ii. Nuclear Medicine</li> <li>iii. Rehabilitation Medicine</li> <li>iv. Sports Medicine</li> <li>v. Clinical Oncology</li> <li>vi. Radiation Oncology</li> <li>vii. Clinical Radiology</li> <li>viii. General Paediatrics</li> <li>ix. General Pathology</li> <li>x. Anatomical Pathology</li> <li>xi. Chemical Pathology</li> <li>xii. Haematology</li> <li>xiii. Medical Microbiology</li> <li>xiv. Forensic Pathology</li> <li>xv. Transfusion Medicine</li> <li>xvi. Psychiatry</li> <li>xvii. Public Health Medicine</li> <li>xviii. Obstetrics and Gynaecology (O&amp;G)</li> </ul>

TERM	DEFINITION
	<p>xix. General Surgery xx. Cardiothoracic Surgery xxi. Neurosurgery xxii. Paediatric Surgery xxiii. Plastic Surgery xxiv. Ophthalmology xxv. Otorhinolaryngology</p> <p>Note: Otorhinolaryngology is a medical group specialty as specified in the OECD (2019)</p>
Midwives	Registered Nurses who have successfully completed an accredited post-basic education programme in Midwifery and are registered in Part 1 of the Nursing Register. Midwives also include all Community Nurses who have successfully completed basic education programme for Community Nursing which includes midwifery for normal childbirth. Such individuals are placed in Part 2 of the Nursing Register
Monitoring Indicator for Health for All	An annual publication produced by IDS. It provides concise information on health indicators required for reporting on progress towards Health for all. Reports for the period 2003-2012 are available on-line.
Nurses	Individuals who have successfully completed accredited basic nursing courses at diploma or degree and have been placed on the Nursing Register. They are known as "Registered Nurses"
Nursing Board of Malaysia	This is a statutory body formed under the Nursing Act. It has members from the public and private sectors, is chaired by the Director General of Health and the secretariat is in the Nursing Division of the Ministry of Health. It maintains a computerised register of Registered Nurses, Community Nurses, and Midwifery trained personnel.
Optician	Opticians are registered with Malaysian Optical Council (MOC). They hold a diploma or certificate in optometry or optic with one-year experiences (Optical Act 1992). In order to qualify they have to perform eye examination including prescribing, dispensing and selling spectacles. An optician who has 3 years of experience or passes the contact lens examination is allowed to prescribe and dispense contact lenses.
Optometrist	Optometrists are persons who are registered with Malaysian Optical Council (MOC) and have obtained a degree in optometry. They are qualified to perform comprehensive eye examinations including prescribing, dispensing and selling spectacles and contact lenses. They also give advice regarding visual problems and detect eye problems, even chronic ophthalmic conditions before referring to medical practitioner.
Other specialties not elsewhere classified	Other group of specialties as defined in OECD (2019). The list of specialties includes: <ul style="list-style-type: none"> <li>i. Rehabilitation Medicine</li> <li>ii. Sports Medicine</li> </ul>
Pharmacist	Individuals who have successfully completed an accredited basic pharmacy education programme and have been placed on the Pharmacy Register. It includes individuals who are undergoing the one-year trainee period and those who are serving the subsequent one-year compulsory posting in a recognised public or private sector institution.

TERM	DEFINITION
Pharmacy Board of Malaysia	Pharmacy Board Malaysia is a body established under Registration of Pharmacy Act (ROPA) 1951 which functions to regulate the profession of pharmacists through registration activities, recognition of pharmacy degree programs and also ethical cases of registered pharmacists. Pharmacist registration activities are implemented through an online system, namely PRiSMA.
Specialist / Specialist doctor	Fully registered medical practitioner who has registered with the National Specialist Register. Exclude: - Specialists who failed to renew annual practicing certificate for the specified year - Dental specialist
Specialist Medical and Dental Practitioners	Individuals who have successfully completed defined postgraduate education programmes in defined specialties, and successfully completed defined periods of experience and have demonstrable competency in the specialty.
Surgical group specialty	A surgical group of specialties as defined in OECD (2019). The list of specialties includes: i. Anaesthesiology and Critical Care ii. Cardiothoracic Surgery iii. Emergency Medicine iv. General Surgery v. Neurosurgery vi. Ophthalmology vii. Orthopaedic Surgery viii. Otorhinolaryngology ix. Paediatric Surgery x. Plastic Surgery xi. Urology
West Coast	The West Coast is a general way of referring to states in Peninsular Malaysia which have their coastlines along the Straits of Malacca. It consists of Perlis, Kedah, Penang, Perak, Selangor, Negeri Sembilan, Malacca Federal Territory of Kuala Lumpur and Putrajaya.

Source: Respective Divisions and reproduced from HRH Country Profile, 2015



# ANNEXES

## ANNEX 1: INTERNATIONAL COMPARISON

**Table 21:** Number and Average per 10,000 Population for Professionally Active Professions in OECD Countries, 2018

OECD Countries	Professionally Active in 2018			
	Physicians	Dentists	Pharmacists	Nurses
<b>Australia</b>	39.4	6.2	10.1	99
<b>Austria</b>	-	-	-	68.5
<b>Canada</b>	27.8	6.7	10.9	71.3
<b>Denmark</b>	44.5	7.6	6.6	101
<b>Estonia</b>	-	-	-	62.9
<b>France</b>	-	6.5	11	-
<b>Germany</b>	47.1	9	7.9	110.6
<b>Greece</b>	-	-	10.2	19.5
<b>Hungary</b>	-	-	-	49.4
<b>Iceland</b>	38.9	8.2	11.1	89.4
<b>Italy</b>	41.5	8.3	12.2	57.4
<b>Japan</b>	25.7	8.2	-	93.8
<b>Korea</b>	-	-	-	37.8
<b>Latvia</b>	33.5	7.1	8.9	-
<b>Lithuania</b>	48.8	10.1	10.8	77.8
<b>Mexico</b>	-	-	-	16.9
<b>Netherlands</b>	-	-	2.9	-
<b>New Zealand</b>	33.7	-	7.8	98.4
<b>Norway</b>	55	10.1	10.2	177.4
<b>Portugal</b>	-	-	13.1	-
<b>Slovak Republic</b>	35.2	5.1	8	-
<b>Slovenia</b>	32.4	7.3	7.7	34.3
<b>Spain</b>	43.3	-	13.2	58.7
<b>Switzerland</b>	44.1	-	-	114.8
<b>United Kingdom</b>	-	-	-	63.7
<b>United States</b>	27.4	6.1	9.5	-
<b>Average</b>	<b>38.64</b>	<b>7.61</b>	<b>9.56</b>	<b>75.13</b>

Source: OECD.stats (derived from website 28/09/2020). Professionally Active Physicians, Professionally Active Dentists, Professionally Active Pharmacists and Professionally Active Nurses was used to compare with Malaysian profession for this analysis. Refer to website for definition and comparison with other variable used in OECD.stats.



**Table 22:** Number and Average per 10,000 Population for Selected Specialists by Categories in OECD Countries, in 2018

OECD Countries in 2018	Medical Group Specialists	Surgical Group Specialists	General Paediatricians	Obstetricians & Gynaecologists	Psychiatrists
Australia	5.8	6.7	1.0	0.9	1.7
Austria	11	9.8	1.5	2.1	1.8
Belgium	8.8	6.1	1.4	1.3	1.7
Canada	6.6	4.2	1.0	0.8	1.7
Chile	4	4.5	1.0	1.1	1
Czech Republic	15.5	11	1.3	2.9	1.5
Denmark	7.7	6.4	0.8	1.1	1.9
Estonia	12.7	8.4	1.2	2.3	1.9
Finland	-	-	-	-	-
France	7.7	4.8	1.2	1.2	2.3
Germany	13.9	12	1.7	2.6	2.7
Greece	26.8	14.4	4.0	3.2	2.6
Hungary	13	7	2.4	1.5	1.5
Iceland	11.1	7.3	0.4	1.5	2.4
Ireland	6.1	4.7	1.0	0.8	1.7
Italy	14.5	9.9	2.8	2	1.7
Japan	-	-	1.4	1	1.3
Korea	6.5	6.6	1.3	1.2	0.8
Latvia	9.6	7.2	1.3	2	1.6
Lithuania	16.5	11.1	2.5	2.4	2.3
Luxembourg	-	-	-	-	-
Mexico	8.4	1.6	1.6	1.9	0.1
Netherlands	9.2	4.2	1.1	1	2.4
New Zealand	7.3	7.2	1.3	1	1.9
Norway	8.5	5.7	1.7	1.2	2.6
Poland	-	-	-	-	-
Portugal	12.4	7.6	2.1	1.8	1.3
Slovenia	10.8	6.7	3.2	1.8	1.5
Spain	11	9.8	2.7	1.2	1.1
Sweden	-	-	-	-	-
Switzerland	7.9	8.3	2.2	2.2	5.2
Turkey	5.4	4.4	1.0	1	0.5
United Kingdom	7.2	8.2	1.6	1.2	1.8
United States	7.5	3.9	2.6	1.3	1.4
<b>Average</b>	<b>10.12</b>	<b>7.23</b>	<b>1.68</b>	<b>1.58</b>	<b>1.80</b>

Source: OECD.stats (derived from website 28/09/2020). Selected Physician by categories define in OECD.stats was used to compare with Malaysian Specialists. Refer to website for definition and comparison with other variable used in OECD.stats.

**Table 23:** Number and Average per 10,000 Population for Medical Doctors in Selected Upper Middle-Income Countries, 2017 and 2018

WHO Region	Upper Middle-Income Countries	Medical doctors per 10,000 population	
		Year 2017	Year 2018
Africa	Algeria	17.88	17.19
	Equatorial Guinea	4.02	-
	Gabon	6.82	-
	Mauritius	23.15	25.33
	Namibia	5.91	4.18
	South Africa	9.05	-
America	Belize	11.23	-
	Brazil	21.65	21.64
	Colombia	21.06	21.85
	Costa Rica	29.53	28.94
	Cuba	82.95	84.22
	Dominica	11.19	-
	Grenada	14.07	-
	Guatemala	-	3.55
	Guyana	-	8.02
	Jamaica	13.06	-
	Mexico	23.83	-
	Paraguay	-	13.54
	Saint Lucia	6.41	-
	Suriname	11.85	12.10
	South-East Asia	Maldives	37.23
Thailand		8.08	8.05
Europe	Armenia	44.02	-
	Romania	29.81	-
	Turkey	18.49	-
	Montenegro	-	27.56
Eastern Mediterranean	Iran	11.29	15.84
	Iraq	8.38	7.08
	Jordan	23.24	-
	Lebanon	20.26	21.04
	Libya	20.91	-
Western Pacific	China	19.80	-
<b>Average</b>		<b>19.83</b>	<b>21.52</b>

Source: Global Health Observatory (derived from website on 28/09/2020). Both year 2017 and 2018 was used as both had large number of reporting countries

**Table 24:** Number and Average per 10,000 Population for Dentists in Selected Upper Middle-Income Countries, 2017

WHO region	Upper Middle-Income Countries	Dentists (per 10 000 population) Year 2017
<b>Africa</b>	Gabon	0.18
	Mauritius	3.17
<b>America</b>	Belize	1.54
	Brazil	12.45
	Costa Rica	0.10
	Cuba	16.81
	Dominica	0.70
	Dominican Republic	2.15
	Grenada	1.53
	Jamaica	0.89
	Mexico	1.37
	Saint Lucia	1.71
	<b>Eastern Mediterranean</b>	Iran
Iraq		2.54
Jordan		7.26
Lebanon		9.87
<b>Europe</b>	Armenia	5.56
	Romania	7.96
	Turkey	3.44
<b>South-East Asia</b>	Maldives	1.67
	Thailand	1.67
<b>Western Pacific</b>	China	4.46
<b>Average</b>		<b>4.11</b>

Source: Global Health Observatory (derived from website on 28/09/2020). Only year 2017 was taken as year 2018 had minimal number of countries reporting.

**Table 25:** Number and Average per 10,000 Population for Pharmacists in Selected Upper Middle-Income Countries, 2017

WHO region	Upper Middle-Income Countries	Pharmacists (per 10,000 population) Year 2017
<b>Africa</b>	Gabon	0.59
	Mauritius	4.20
<b>America</b>	Belize	6.76
	Brazil	6.83
	Saint Lucia	4.37
<b>Eastern Mediterranean</b>	Iran	2.36
	Iraq	2.91
	Jordan	16.01
	Lebanon	12.27
	Libya	6.01
<b>Europe</b>	Romania	9.07
	Turkey	3.52
<b>South-East Asia</b>	Maldives	4.80
	Thailand	4.18
<b>Western Pacific</b>	China	3.17
<b>Average</b>		<b>5.80</b>

Source: Global Health Observatory (derived from website on 28/09/2020). Only year 2017 was taken as year 2018 had minimal number of countries reporting.

**Table 26:** Number and Average per 10,000 Population for Nurses and Midwifery in Selected Upper Middle-Income Countries, 2017 and 2018

WHO Region	Upper Middle-Income Countries	Nurses and Midwifery per 10,000 population	
		Year 2017	Year 2018
<b>Africa</b>	Algeria	22.23	15.48
	Botswana	-	54.03
	Equatorial Guinea	5.02	-
	Gabon	29.46	-
	Mauritius	35.15	-
	Namibia	20.20	19.54
	South Africa	13.08	-

WHO Region	Upper Middle- Income Countries	Nurses and Midwifery per 10,000 population	
		Year 2017	Year 2018
<b>America</b>	Belize	23.41	23.41
	Brazil	97.37	101.19
	Colombia	12.71	13.31
	Costa Rica	31.80	34.14
	Cuba	77.29	75.61
	Dominica	60.98	64.39
	Dominican Republic	11.70	13.80
	Ecuador	28.27	25.06
	Grenada	30.57	62.84
	Guatemala	0.69	0.74
	Guyana	7.87	10.40
	Jamaica	14.67	8.07
	Mexico	25.08	23.96
	Paraguay	7.39	16.60
	Peru	22.13	24.40
	Saint Lucia	31.55	-
	Saint Vincent and the Grenadines	63.12	70.15
	Suriname	19.28	27.57
<b>South-East Asia</b>	Maldives	64.93	64.28
	Thailand	29.57	27.59
<b>Europe</b>	Armenia	61.07	-
	Bosnia and Herzegovina	55.65	57.33
	Montenegro	-	52.29
	Romania	73.89	-
	Russian Federation	85.43	-
<b>Eastern Mediterranean</b>	Turkey	27.11	-
	Iran (Islamic Republic of)	26.29	4.43
	Iraq	18.13	20.45
	Jordan	33.60	28.21
	Lebanon	16.42	16.74
<b>Western Pacific</b>	Libya	65.31	-
	China	26.62	-
	Fiji	-	33.75
	Marshall Islands	-	33.39
	Malaysia	34.68	-
	Nauru	-	76.64
	Samoa	-	24.89
	Tonga	-	41.57
Tuvalu	-	42.59	
<b>Average</b>		<b>34.5</b>	<b>35.6</b>

Source: Global Health Observatory (derived from website on 28/09/2020). Both year 2017 and 2018 was used as both had large number of reporting countries.

## ANNEX 2: HRH TRENDS, DISTRIBUTION, AGE, GENDER

### HRH TRENDS

Data on the stock of Human Resources for Health (HRH) in both the public and private sectors is available only for health worker categories that are legally required to be registered. Community nurses are employed almost exclusively in the public sector.

**Table 27:** Number of Doctors, Dentists, Pharmacists, Nurses and AMO's (per 10,000 Population), 2002 - 2018

Personnel	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Doctors	7.11	7.26	7.13	7.69	8.23	8.21	8.33	9.77	10.58	12.64	13.20	15.79	15.14	14.91	15.82	18.04	18.88
Dental Practitioners	0.94	0.97	1.00	1.05	1.10	1.16	1.31	1.26	1.34	1.47	1.55	1.76	1.96	2.05	2.27	2.68	2.99
Pharmacists	1.15	1.24	1.37	1.54	1.61	1.68	2.31	2.70	2.74	2.98	3.29	3.39	4.08	3.37	3.32	3.61	4.14
Nurses	10.61	10.81	11.73	12.47	12.99	13.30	13.89	14.33	15.33	24.60	27.08	27.98	29.14	30.25	30.24	33.16	32.85
AMO's	2.40	2.42	2.37	2.57	2.90	2.93	3.27	3.33	3.65	3.85	4.04	4.21	4.24	4.72	4.93	5.39	5.53

Source: Ministry of Health (2003 – 2019)

**Table 28:** Number of Community Nurse, Dental Nurse, Optician, Optometrist and Assistant Pharmacist (per 10,000 Population), 2002- 2018

Personnel	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Community Nurse	3.69	4.51	5.13	5.90	6.04	6.09	6.88	6.59	6.98	7.25	7.89	8.16	8.43	7.99	7.94	7.65	7.25
Dental Nurse	0.74	0.75	0.78	0.79	0.80	0.85	0.81	0.86	0.88	0.87	0.91	0.94	0.93	0.90	0.90	0.91	0.88
Optician	-	-	-	-	-	-	0.91	0.96	1.00	0.87	1.00	1.03	1.04	1.02	1.03	0.78	0.76
Optometrist	-	-	-	-	-	-	0.25	0.27	0.31	0.31	0.39	0.45	0.47	0.51	0.57	0.45	0.51
Assistant Pharmacist	1.01	1.00	1.06	0.97	0.98	0.98	1.00	1.04	1.17	1.22	1.55	1.63	1.67	1.70	1.79	1.87	1.94

Source: Ministry of Health (2003 – 2019)

**Table 29:** Number of Allied Health Personnel (per 10,000 population) from 2015 to 2018

PERSONNEL	2015	2016	2017	2018
Physiotherapist	0.44	0.44	0.43	0.44
Radiographers	0.9	0.91	0.89	0.90
Occupational Therapists	0.33	0.34	0.36	0.36
Dental Nurse	0.09	0.92	0.91	0.88
Dental Technologies	0.59	0.61	0.60	0.29*
Dental Surgery Assistant	0.13	0.13	1.33	1.23
Medical Laboratory Technician (MLT)	2	2.1	1.98	1.98
Environmental Health Officer (EHO)	1.44	1.48	1.55	1.57

\*Data from Non-MOH and private sector is unavailable  
Source: Ministry of Health (2016-2019)

## DISTRIBUTION BY SECTOR

**Table 30:** Distribution of Doctors by Sector, 2000 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
2000	8,410	53.8	7,209	46.2	15,619
2001	8,615	53.4	7,531	46.6	16,146
2002	9,424	54.0	8,018	46.0	17,442
2003	8,946	49.2	9,245	50.8	18,191
2004	9,410	51.6	8,836	48.4	18,246
2005	10,943	54.4	9,612	47.8	20,105
2006	13,335	60.8	8,602	39.2	21,937
2007	14,298	60.2	9,440	39.8	23,738
2008	15,096	60.1	10,006	39.9	25,102
2009	20,192	66.1	10,344	33.9	30,536
2010	22,429	68.0	10,550	32.0	32,979
2011	25,845	70.6	10,762	29.4	36,607
2012	27,478	71.0	11,240	29.0	38,718
2013	35,129	74.9	11,697	24.9	46,916
2014	33,275	73.0	12,290	27.0	45,565
2015	33,545	72.2	12,946	27.8	46,491
2016	36,403	72.7	13,684	27.3	50,087
2017	43,348	75.0	14,483	25.0	57,831
2018	46,509	76.0	14,649	24.0	61,158

Source: Ministry of Health (2001-2019)

Notes: Non MOH for public sectors data is only available from the year 2017, the previous year's public sector= MOH

**Table 31:** Distribution of Dentist by Sector, 2000 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
2000	750	35.0	1,394	65.0	2,144
2001	782	35.1	1,443	64.9	2,225
2002	879	38.3	1,418	61.7	2,297
2003	992	41.0	1,426	59.0	2,418
2004	1,111	43.6	1,439	56.4	2,550
2005	1,263	45.9	1,488	54.1	2,751
2006	1,368	46.5	1,572	53.5	2,940
2007	1,540	48.7	1,625	51.3	3,165
2008	1,922	52.8	1,718	47.2	3,640
2009	1,858	52.1	1,709	47.9	3,567
2010	2,055	53.9	1,755	46.1	3,810
2011	2,452	57.7	1,801	42.3	4,253
2012	2,664	58.4	1,894	41.6	4,558
2013	2,777	58.4	1,979	41.6	4,756
2014	3,763	63.9	2,125	36.1	5,888
2015	4,021	63.0	2,363	37.0	6,384
2016	4,591	63.9	2,595	36.1	7,186
2017	5,736	66.7	2,832	32.9	8,598
2018	6,455	66.6	3,244	33.4	9,699

Source: Ministry of Health (2001-2019)

**Table 32:** Distribution of Pharmacists by Sector, 2000 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
2000	438	18.8	1,899	81.4	2,333
2001	460	17.9	2,107	82.1	2,567
2002	517	18.3	2,311	81.7	2,828
2003	798	25.7	2,306	74.3	3,104
2004	804	22.9	2,702	77.1	3,506
2005	955	23.8	3,057	76.2	4,012
2006	889	20.8	3,403	79.5	4,282
2007	1,250	27.3	3,321	72.7	4,571
2008	3,070	48.0	3,327	52.0	6,397
2009	3,877	57.1	2,907	42.9	6,784
2010	4,610	59.4	3,149	40.6	7,759
2011	5,288	54.9	3,344	34.7	9,632
2012	5,908	61.2	3,744	38.8	9,652
2013	6,501	66.2	3,325	33.8	9,826
2014	7,117	57.9	5,177	42.1	12,294
2015	6,608	62.9	3,903	37.1	10,511
2016	6,499	61.8	4,009	38.2	10,508



YEAR	Public		Private		TOTAL
	n	%	n	%	
<b>2017</b>	6,599	57.1	4960	42.9	11,559
<b>2018</b>	8,246	61.4	5174	38.6	13,420

Source: Ministry of Health (2001-2019)

**Table 33:** Distribution of Nurses by Sector, 2000 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
<b>2000</b>	23,255	74.7	7,874	25.3	31,129
<b>2001</b>	24,543	73.7	8,752	26.3	33,295
<b>2002</b>	26,029	73.8	9,251	26.2	35,280
<b>2003</b>	27,089	73.6	9,695	26.4	36,784
<b>2004</b>	30,002	74.6	10,218	25.4	40,220
<b>2005</b>	32,580	73.8	11,540	26.2	44,120
<b>2006</b>	34,598	72.6	13,044	27.4	47,642
<b>2007</b>	36,150	73.9	12,766	26.1	48,916
<b>2008</b>	38,757	71.5	15,633	28.8	54,208
<b>2009</b>	45,060	75.9	14,315	24.1	59,375
<b>2010</b>	47,992	69.4	21,228	30.7	69,110
<b>2011</b>	50,063	66.9	24,725	33.1	74,778
<b>2012</b>	56,089	66.0	28,879	34.0	84,968
<b>2013</b>	56,503	67.9	26,653	32.1	83,156
<b>2014</b>	64,348	69.4	28,333	30.6	92,681
<b>2015</b>	69,590	69.6	30,335	30.4	99,925
<b>2016</b>	72,025	70.2	30,539	29.8	102,564
<b>2017</b>	71,480	67.3	34,809	32.7	106,289
<b>2018</b>	71,499	67.2	34,874	32.8	106,373

Source: Ministry of Health (2001-2019)

**Table 34:** Distribution of Assistant Medical Officers by Sector, 2002 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
2002	5,341	90.8	538	9.2	5,879
2003	5,504	90.8	556	9.2	6,060
2004	5,510	91.0	547	9.0	6,057
2005	6,113	91.1	596	8.9	6,709
2006	7,150	92.6	570	7.4	7,720
2007	7,411	93.2	537	6.8	7,948
2008	8,310	91.5	768	8.5	9,078
2009	8,648	91.9	766	8.1	9,414
2010	9,556	92.3	794	7.7	10,350
2011	10,289	92.2	873	7.8	11,162
2012	10,902	92.0	944	8.0	11,846
2013	11,089	88.6	1,428	11.4	12,517
2014	11,775	92.2	998	7.8	12,773
2015	13,094	88.9	1,630	11.1	14,724
2016	13,708	87.9	1,894	12.1	15,602
2017	14,427	81.4	2,847	16.1	17,274
2018	14,876	83.1	3,019	16.9	17,895

Source: Ministry of Health (2003-2019)

**Table 35:** Distribution of Specialists by Sector, 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
Medical Group of Specialist	2,373	59.6	1,609	40.4	3,982
Surgical Group of Specialist	2,138	55.0	1,750	45.0	3,888
Obstetrics & Gynaecology (O&G)	391	38.3	631	61.7	1,022
Psychiatry	295	75.6	95	24.4	390
Paediatric	581	51.0	558	49.0	1,139
Family Medicine	409	73.7	146	26.3	555
Public Health Medicine	523	88.6	67	11.4	590
Other specialists not elsewhere classified	111	92.5	9	7.5	120
<b>Total Specialist</b>	<b>6,821</b>	<b>58.4</b>	<b>4,865</b>	<b>41.6</b>	<b>11,686</b>

**Table 36:** Distribution of Dental Nurses by Sector, 2002 – 2018

YEAR	PUBLIC		PRIVATE		TOTAL
	n	%	n	%	
2002	1,805	100	–	–	1,805
2003	1,888	100	–	–	1,888
2004	1,993	100	–	–	1,993
2005	2,071	100	–	–	2,071
2006	2,129	100	–	–	2,129
2007	2,319	100	–	–	2,319
2008	2,254	98.6	33	1.4	2,287
2009	2,447	100	–	–	2,447
2010	2,486	100	–	–	2,486
2011	2,528	100	–	–	2,528
2012	2,600	96.9	84	3.1	2,684
2013	2,706	96.9	87	3.1	2,793
2014	2,720	97.4	72	2.6	2,792
2015	2,821	100	–	–	2,812
2016	2,845	100	–	–	2,845
2017	2,915	100	–	–	2,915
2018	2,863	100	–	–	2,863

Source: Ministry of Health (2003-2019)

\* Notes: Dental nurses is known as dental therapists from the year 2018

**Table 37:** Distribution of Dental Technologists by Sector, 2002 – 2018

YEAR	PUBLIC		PRIVATE		TOTAL
	n	%	n	%	
2002	584	100	–	–	584
2003	625	100	–	–	625
2004	657	100	–	–	657
2005	655	100	–	–	655
2006	646	100	–	–	646
2007	684	100	–	–	684
2008	772	100	–	–	772
2009	737	100	–	–	737
2010	749	100	–	–	749
2011	816	52.3	743	47.7	1,559
2012	963	56.3	749	43.8	1,712
2013	1,000	56.7	765	43.3	1,765
2014	1,053	57.8	770	42.2	1,823
2015	1,071	56.9	811	43.1	1,882
2016	1,042	56.2	813	43.8	1,855
2017	1,060	55.3	857	44.7	1,917
2018	924	100	–	–	924

Source: Ministry of Health (2003-2019)

**Table 38:** Distribution of Dental Surgery Assistant by Sector, 2002 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
2002	1,738	100	-	-	1,738
2003	1,891	100	-	-	1,891
2004	2,111	100	-	-	2,111
2005	2,355	100	-	-	2,355
2006	2,471	100	-	-	2,471
2007	2,632	100	-	-	2,632
2008	3,278	100	-	-	3,278
2009	2,820	100	-	-	2,820
2010	2,950	100	-	-	2,950
2011	3,334	100	-	-	3,334
2012	4,212	99.0	44	1.0	4,256
2013	4,262	99.1	39	0.9	4,303
2014	4,331	99.3	30	0.7	4,361
2015	4,171	99.0	41	1.0	4,212
2016	4,124	98.7	53	1.3	4,177
2017	4,197	98.2	74	1.8	4,271
2018	3,987	100	-	-	3,987

Source: Ministry of Health (2003-2019)

**Table 39:** Distribution of Assistant Pharmacist by Sector, 2007 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
2007	2,652	100	-	-	2,652
2008	2,778	100	-	-	2,778
2009	2,949	100	-	-	2,949
2010	3,318	100	-	-	3,318
2011	3,534	100	-	-	3,534
2012	4,068	89.4	482	10.6	4,550
2013	4,294	88.6	552	11.4	4,846
2014	4,350	86.3	688	13.7	5,038
2015	4,372	82.4	936	17.6	5,308
2016	4,446	78.4	1,229	21.7	5,672
2017	4,523	75.3	1,484	24.7	6,007
2018	4,624	73.7	1,652	26.3	6,276

Source: Ministry of Health (2008-2019)

**Table 40:** Distribution of Community Nurses by Sector, 2002 – 2018

YEAR	Public		Private		TOTAL
	n	%	n	%	
<b>2002</b>	9,043	98.2	167	1.8	9,210
<b>2003</b>	11,293	97.3	317	2.7	11,610
<b>2004</b>	13,128	98.8	164	1.2	13,292
<b>2005</b>	15,408	98.7	210	1.3	15,618
<b>2006</b>	16,090	96.5	577	3.5	16,667
<b>2007</b>	16,550	98.0	333	2.0	16,883
<b>2008</b>	18,143	97.3	500	2.7	18,643
<b>2009</b>	18,851	93.5	1312	6.5	20,163
<b>2010</b>	21,282	99.2	167	0.8	21,449
<b>2011</b>	21,928	98.5	338	1.5	22,266
<b>2012</b>	22,917	98.7	301	1.3	23,218
<b>2013</b>	24,152	98.9	267	1.1	24,419
<b>2014</b>	25,179	99.1	241	0.9	25,420
<b>2015</b>	24,980	99.2	195	0.8	25,175
<b>2016</b>	24,724	98.3	416	1.7	25,140
<b>2017</b>	23,771	97.0	742	3.0	24,513
<b>2018</b>	23,136	98.5	279	1.2	23,490

Source: Ministry of Health (2003-2019)

**Table 41:** Local Traditional and Complementary Medicine (T&CM) Practitioners by Field of Practice, 2016

FIELD OF PRACTICE	TOTAL
Traditional Malay Medicine	1,966
Traditional Chinese Medicine	7,655
Traditional Indian Medicine	42
Homeopathy	600
Chiropractic	112
Islamic Medical Practice	5,675
<b>TOTAL</b>	<b>16,050</b>

Source: Traditional and Complementary Medicine Division (2019)

**Table 42:** Local Traditional and Complementary Medicine (T&CM) Practitioners by State, 2016

State	Number of Registered Practitioner
Perlis	158
Kedah	810
Pulau Pinang	1,347
Perak	1,208
Selangor	2,163
W.P Kuala Lumpur	1,314
W.P.Putrajaya	3
W.P.Labuan	-
Negeri Sembilan	403
Melaka	496
Johor	1,922
Pahang	330
Terengganu	490
Kelantan	409
Sabah	437
Sarawak	697
<b>TOTAL</b>	<b>16,050</b>

Source: Traditional and Complementary Medicine Division (2019)

## AGE AND GENDER PROFILE

**Table 43:** Percentage of Healthcare Worker by Gender, 2018

Profession	Male (%)	Female (%)
Specialist	55	45
Family Medicine	28	72
Public Health Medicine	41	59
Doctor <sup>a</sup>	47	53
Dentist <sup>b</sup>	31	69
Pharmacist <sup>c</sup>	28	72
Nurse <sup>d</sup>	5	95
AMO <sup>e</sup>	84	16

Source:

a: Malaysian Medical Council, 2018

b: Malaysian Dental Council, 2018

c. Pharmacy Board Malaysia, 2018

d. Nursing Board Malaysia, 2018

e. Medical Assistant Board, 2018

**Table 44:** Distribution of Dental Practitioner by Age Group, 2018

Age group in years	Male	Female	Male	Female	Total
Dentists aged <25	1%	3	82	251	333
Dentists aged 25-34	17%	47%	1,695	4,582	6,277
Dentists aged 35-44	3%	10%	324	983	1,307
Dentists aged 45-54	4%	5%	353	494	847
Dentists aged 55-64	3%	3%	266	302	568
Dentists aged 65+	3%	1%	288	97	385
<b>Total</b>	<b>31%</b>	<b>69%</b>	<b>3,008</b>	<b>6,709</b>	<b>9,717</b>

Source: Malaysian Dental Council (Unpublished)

### Doctors

Data on the age group for all Doctors including those in the public and private sector is not available. However, the data for Doctors in MOH have been generated using HRMIS data as shown before. Having said that, Planning Division has manually calculated specialists' data into age group as shown in Table 45 to Table 53

**Table 45:** Distribution of Medical Group Specialist by Sector and Age Group, 2018

Medical group	Public		Private		TOTAL
	n	%	n	%	
<30	-	0.0	3	100.0	3
30 - 39	1,056	90.4	112	9.6	1,168
40 - 49	974	62.1	594	37.9	1,568
50 - 59	286	38.2	462	61.8	748
≥60	57	11.5	438	88.5	495
<b>Total</b>	<b>2,373</b>	<b>59.6</b>	<b>1,609</b>	<b>40.4</b>	<b>3,982</b>

**Table 46:** Distribution of Surgical Group Specialist by Sector and Age Group, 2018

Surgical group	Public		Private		TOTAL
	n	%	n	%	
<30	2	66.7	1	33.3	3
30 - 39	830	93.7	56	6.3	886
40 - 49	976	59.6	662	40.4	1,638
50 - 59	288	31.9	616	68.1	904
≥60	42	9.2	415	90.8	457
<b>Total</b>	<b>2,138</b>	<b>55.0</b>	<b>1,750</b>	<b>45.0</b>	<b>3,888</b>

**Table 47:** Distribution of Obstetrician & Gynaecologist (O&G) by Sector and Age Group, 2018

O&G	Public		Private		TOTAL
	n	%	n	%	
<30	-	0.0	1	100.0	1
30 - 39	117	84.2	22	15.8	139
40 - 49	162	46.2	189	53.8	351
50 - 59	100	30.7	226	69.3	326
≥60	12	5.9	193	94.1	205
<b>Total</b>	<b>391</b>	<b>38.3</b>	<b>631</b>	<b>61.7</b>	<b>1,022</b>

**Table 48:** Distribution of Psychiatrist by Sector and Age Group, 2018

Psychiatry	Public		Private		TOTAL
	n	%	n	%	
<30	-	-	-	-	-
30 - 39	108	98.2	2	1.8	110
40 - 49	129	82.7	27	17.3	156
50 - 59	49	61.3	31	38.8	80
≥60	9	20.5	35	79.5	44
<b>Total</b>	<b>295</b>	<b>75.6</b>	<b>95</b>	<b>24.4</b>	<b>390</b>

**Table 49:** Distribution of Paediatrician by Sector and Age Group, 2018

Paediatric	Public		Private		TOTAL
	n	%	n	%	
<30	-	-	-	-	-
30 - 39	251	82.8	52	17.2	303
40 - 49	212	50.7	206	49.3	418
50 - 59	93	32.7	191	67.3	284
≥60	25	18.7	109	81.3	134
<b>Total</b>	<b>581</b>	<b>51.0</b>	<b>558</b>	<b>49.0</b>	<b>1,139</b>



**Table 50:** Distribution of Family Medicine Specialist by Sector and Age Group, 2018

Family Medicine	Public		Private		TOTAL
	n	%	n	%	
<30	-	0.0	1	100.0	1
30 - 39	108	91.5	10	8.5	118
40 - 49	197	80.4	48	19.6	245
50 - 59	100	68.5	46	31.5	146
≥60	4	8.9	41	91.1	45
<b>Total</b>	<b>409</b>	<b>73.7</b>	<b>146</b>	<b>26.3</b>	<b>555</b>

**Table 51:** Distribution of Public Health Medicine Specialist by Sector and Age Group, 2018

Public Health	Public		Private		TOTAL
	n	%	n	%	
<30	-	-	-	-	-
30 - 39	38	100.0	-	0.0	38
40 - 49	214	96.8	7	3.2	221
50 - 59	245	95.3	12	4.7	257
≥60	26	35.1	48	64.9	74
<b>Total</b>	<b>523</b>	<b>88.6</b>	<b>67</b>	<b>11.4</b>	<b>590</b>

**Table 52:** Distribution of Other Group Specialist by Sector and Age Group, 2018

Others	Public		Private		TOTAL
	n	%	n	%	
<30	-	-	-	-	-
30 - 39	50	98.0	1	2.0	51
40 - 49	49	94.2	3	5.8	52
50 - 59	11	78.6	3	21.4	14
≥60	1	33.3	2	66.7	3
<b>Total</b>	<b>111</b>	<b>92.5</b>	<b>9</b>	<b>7.5</b>	<b>120</b>

**Table 53:** Distribution of Specialists by Sector and Age Group, 2018

TOTAL SPECIALIST	Public		Private		TOTAL
	n	%	n	%	
<30	2	25.0	6	75.0	8
30 - 39	2,558	90.9	255	9.1	2,813
40 - 49	2,913	62.7	1,736	37.3	4,649
50 - 59	1,172	42.5	1,587	57.5	2,759
≥60	176	12.1	1,281	87.9	1,457
<b>Total</b>	<b>6,821</b>	<b>58.4</b>	<b>4,865</b>	<b>41.6</b>	<b>11,686</b>

**Table 54:** Percentage of MOH Employed Healthcare Personnel by Gender, 2018

Healthcare Personnel in MOH	Male		Female		TOTAL
	n	%	n	%	
<b>Doctors</b>	11,841	37.25	19,943	62.75	31,784
<b>Dentist</b>	707	19.69	2,884	80.31	3,591
<b>Pharmacist</b>	1,736	21.95	6,172	78.05	7,908
<b>Nurses</b>	2,400	3.73	62,017	96.27	64,417
<b>AMO</b>	12,236	88.30	1,622	11.70	13,858

Source: Human Resource Division (2020)

Phamacist, Nurses and Allied Health Professionals

Data on the age profile is not available sector wide, however data for staff employed by the MOH is made available as in Table 55 to Table 58.

**Table 55:** Number of MOH Employed Doctors, Dentists, Pharmacists, Nurses and AMO's by Age Group, 2015 – 2018

MOH Employers	Age group	2015	2016	2017	2018	Summary for 2018 age group
Doctors	< 30	18,230	17,985	13,658	12,674	Below age 39: 87%
	30 - 39	9,476	11,187	12,542	14,972	
	40 - 49	2,042	2,327	2,915	3,144	
	≥ 50	411	387	956	994	
	<b>Total</b>	<b>30,159</b>	<b>31,886</b>	<b>30,071</b>	<b>31,784</b>	
Dentists	< 30	2,422	2,706	2,382	1,975	Below age 39: 90%
	30 - 39	677	821	1,002	1,254	
	40 - 49	193	187	197	225	
	≥ 50	109	104	152	137	
	<b>Total</b>	<b>3,401</b>	<b>3,818</b>	<b>3,733</b>	<b>3,591</b>	
Pharmacists	< 30	5,556	5,268	4,469	4,045	Below age 39: 95%
	30 - 39	1,766	2,230	2,861	3,507	
	40 - 49	138	171	211	263	
	≥ 50	94	88	98	93	
	<b>Total</b>	<b>7,554</b>	<b>7,757</b>	<b>7,639</b>	<b>7,908</b>	
Nurses	< 30	28,236	27,781	25,561	23,335	Below age 39: 75%
	30 - 39	20,149	21,526	23,559	25,192	
	40 - 49	9,309	10,195	11,479	12,307	
	≥ 50	4,279	3,963	3,815	3,583	
	<b>Total</b>	<b>61,973</b>	<b>63,465</b>	<b>64,414</b>	<b>64,417</b>	
AMOs	< 30	5,104	5,662	5,664	6,204	Below age 39: 79%
	30 - 39	4,215	4,382	4,680	4,795	
	40 - 49	1,535	1,717	1,963	2,169	
	≥ 50	802	775	720	690	
	<b>Total</b>	<b>11,656</b>	<b>12,536</b>	<b>13,027</b>	<b>13,858</b>	

Source: Human Resource Division (2020)

Note: The total number is not the same as published data as there is error in mechanism to capture gender data in HRMIS

**Table 56:** Number of MOH Employed Allied Health Personnel by Gender, 2015 – 2018

Profession	Gender	2015	2016	2017	2018	2018 Gender Profile	
						Female	Male
Audiologist	Male	20	19	17	29	85%	15%
	Female	149	151	153	166		
	<b>Total</b>	<b>169</b>	<b>170</b>	<b>170</b>	<b>195</b>		
Clinical Scientist (Biochemist)	Male	88	89	87	86	71%	19%
	Female	356	366	367	318		
	<b>Total</b>	<b>444</b>	<b>455</b>	<b>454</b>	<b>448</b>		
Clinical Scientist (Biomedical)	Male	12	12	12	12	85%	15%
	Female	70	70	70	70		
	<b>Total</b>	<b>82</b>	<b>82</b>	<b>82</b>	<b>82</b>		
Clinical Scientist (Embriologist)	Male	3	4	4	4	60%	40%
	Female	6	6	6	6		
	<b>Total</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>		
Clinical Scientist (Entomologist)	Male	37	36	36	36	71%	29%
	Female	90	90	90	90		
	<b>Total</b>	<b>127</b>	<b>126</b>	<b>126</b>	<b>126</b>		
Clinical Scientist (Geneticist)	Male	2	2	2	2	89%	11%
	Female	17	17	17	17		
	<b>Total</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>19</b>		
Clinical Scientist (Microbiologist)	Male	102	107	106	104	73%	27%
	Female	278	284	284	280		
	<b>Total</b>	<b>380</b>	<b>391</b>	<b>390</b>	<b>384</b>		
Nutritionist	Male	67	67	67	67	84%	16%
	Female	355	360	356	355		
	<b>Total</b>	<b>422</b>	<b>427</b>	<b>423</b>	<b>422</b>		
Dietitian	Male	52	58	57	57	87%	13%
	Female	373	393	392	389		
	<b>Total</b>	<b>425</b>	<b>451</b>	<b>449</b>	<b>446</b>		
Clinical Psychologist	Male	1	1	1	2	93%	7%
	Female	16	16	22	27		
	<b>Total</b>	<b>17</b>	<b>17</b>	<b>23</b>	<b>29</b>		
Counsellor	Male	43	41	40	40	74%	26%
	Female	116	115	115	112		
	<b>Total</b>	<b>159</b>	<b>156</b>	<b>155</b>	<b>152</b>		
Medical Physicist	Male	76	75	73	74	65%	35%
	Female	137	142	142	140		
	<b>Total</b>	<b>213</b>	<b>217</b>	<b>215</b>	<b>214</b>		
Forensic Science Officer	Male	17	17	17	17	59%	41%
	Female	22	22	22	24		
	<b>Total</b>	<b>39</b>	<b>39</b>	<b>39</b>	<b>41</b>		
Diagnostic Radiographer	Male	1,132	1,137	1,137	1,136	56%	44%
	Female	1,388	1,397	1,417	1,433		
	<b>Total</b>	<b>2,520</b>	<b>2,534</b>	<b>2,554</b>	<b>2,569</b>		

Profession	Gender	2015	2016	2017	2018	2018 Gender Profile	
						Female	Male
Food Service Officer	Male	81	82	103	104	70%	30%
	Female	238	241	248	248		
	<b>Total</b>	<b>319</b>	<b>323</b>	<b>351</b>	<b>352</b>		
Health Education Officer	Male	108	108	102	106	57%	43%
	Female	138	138	137	139		
	<b>Total</b>	<b>246</b>	<b>246</b>	<b>239</b>	<b>245</b>		
Medical Record Officer	Male	106	104	99	106	74%	26%
	Female	302	296	286	299		
	<b>Total</b>	<b>408</b>	<b>400</b>	<b>385</b>	<b>405</b>		
Medical Social Officer	Male	76	74	73	114	56%	44%
	Female	186	182	181	144		
	<b>Total</b>	<b>262</b>	<b>256</b>	<b>254</b>	<b>258</b>		
Occupational Therapist	Male	315	327	342	344	74%	26%
	Female	877	890	958	996		
	<b>Total</b>	<b>1,192</b>	<b>1,217</b>	<b>1,300</b>	<b>1,340</b>		
Physiotherapist	Male	448	459	469	461	70%	30%
	Female	1043	1051	1093	1097		
	<b>Total</b>	<b>1,491</b>	<b>1,510</b>	<b>1,562</b>	<b>1,558</b>		
Speech-Language Therapist	Male	10	10	10	9	93%	7%
	Female	94	92	105	119		
	<b>Total</b>	<b>104</b>	<b>102</b>	<b>115</b>	<b>128</b>		
Radiation Therapist	Male	78	89	92	102	64%	36%
	Female	106	133	148	183		
	<b>Total</b>	<b>184</b>	<b>222</b>	<b>240</b>	<b>285</b>		
Environmental Health Officer	Male	3664	3738	4013	4102	20%	80%
	Female	853	878	945	996		
	<b>Total</b>	<b>4,517</b>	<b>4,616</b>	<b>4,958</b>	<b>5,098</b>		

Source: Allied Health Division (2019)

**Table 57:** Number of MOH Employed Allied Health Personnel by Age Group and Gender, 2018

Profession	Age	Gender	Total	Summary 2018 profile by age and gender
Audiologist	≤30	Male	13	Female: 85% Below age 40: 98%
		Female	67	
	31 - 40	Male	15	
		Female	97	
	41 - 50	Male	1	
		Female	2	
	51-60	Male	0	
Female		0		
<b>Total</b>			<b>195</b>	
Clinical Scientist (Biochemist)	≤30	Male	12	Female: 81% Below age 40: 80%
		Female	70	
	31 - 40	Male	46	
		Female	229	
	41 - 50	Male	13	
		Female	57	
	51-60	Male	15	
Female		6		
<b>Total</b>			<b>448</b>	
Clinical Scientist (Biomedical)	≤30	Male	2	Female: 85% Below age 40: 93%
		Female	11	
	31 - 40	Male	9	
		Female	54	
	41 - 50	Male	1	
		Female	5	
	51-60	Male	0	
Female		0		
<b>Total</b>			<b>82</b>	
Clinical Scientist (Embriologist)	≤30	Male	1	Female: 60% Below age 40: 90%
		Female	1	
	31 - 40	Male	2	
		Female	5	
	41 - 50	Male	1	
		Female	0	
	51-60	Male	0	
Female		0		
<b>Total</b>			<b>10</b>	

Profession	Age	Gender	Total	Summary 2018 profile by age and gender
Clinical Scientist (Entomologist)	≤30	Male	4	Female: 71% Below age 40: 79%
		Female	24	
	31 - 40	Male	20	
		Female	51	
	41 - 50	Male	7	
		Female	13	
	51-60	Male	5	
Female		2		
<b>Total</b>			<b>126</b>	
Clinical Scientist (Geneticist)	≤30	Male	1	Female: 89% Below age 40: 95%
		Female	5	
	31 - 40	Male	1	
		Female	11	
	41 - 50	Male	0	
		Female	1	
	51-60	Male	0	
Female		0		
<b>Total</b>			<b>19</b>	
Clinical Scientist (Microbiologist)	≤30	Male	11	Female: 73% Below age 40: 77%
		Female	18	
	31 - 40	Male	59	
		Female	208	
	41 - 50	Male	21	
		Female	44	
	51-60	Male	12	
Female		11		
<b>Total</b>			<b>384</b>	
Nutritionist	≤30	Male	15	Female: 84% Below age 40: 87%
		Female	81	
	31 - 40	Male	36	
		Female	237	
	41 - 50	Male	14	
		Female	32	
	51-60	Male	2	
Female		5		
<b>Total</b>			<b>422</b>	
Dietitian	≤30	Male	24	Female: 87% Below age 40: 90%
		Female	115	
	31 - 40	Male	24	
		Female	237	
	41 - 50	Male	8	
		Female	31	
	51-60	Male	1	
Female		6		
<b>Total</b>			<b>446</b>	

Profession	Age	Gender	Total	Summary 2018 profile by age and gender
Clinical Psychologist	≤30	Male	1	Female: 93% Below age 40: 97%
		Female	7	
	31 - 40	Male	1	
		Female	19	
	41 - 50	Male	0	
		Female	1	
	51-60	Male	0	
Female		0		
<b>Total</b>			<b>29</b>	
Counsellor	≤30	Male	3	Female: 74% Below age 40: 78%
		Female	14	
	31 - 40	Male	23	
		Female	78	
	41 - 50	Male	11	
		Female	19	
	51-60	Male	3	
Female		1		
<b>Total</b>			<b>152</b>	
Medical Physicist	≤30	Male	10	Female: 66% Below age 40: 88%
		Female	38	
	31 - 40	Male	44	
		Female	96	
	41 - 50	Male	13	
		Female	7	
	51-60	Male	5	
Female		1		
<b>Total</b>			<b>214</b>	
Forensic Science Officer	≤30	Male	0	Female: 59% Below age 40: 100%
		Female	4	
	31 - 40	Male	17	
		Female	20	
	41 - 50	Male	0	
		Female	0	
	51-60	Male	0	
Female		0		
<b>Total</b>			<b>41</b>	
Diagnostic Radiographer	≤30	Male	310	Female: 56% Below age 40: 82%
		Female	295	
	31 - 40	Male	609	
		Female	883	
	41 - 50	Male	168	
		Female	208	
	51-60	Male	49	
Female		47		
<b>Total</b>			<b>2569</b>	

Profession	Age	Gender	Total	Summary 2018 profile by age and gender
Food Service Officer	≤30	Male	23	Female: 70% Below age 40: 83%
		Female	19	
	31 - 40	Male	63	
		Female	188	
	41 - 50	Male	14	
		Female	19	
	51-60	Male	4	
Female		22		
<b>Total</b>			<b>352</b>	
Health Education Officer	≤30	Male	14	Female: 57% Below age 40: 56%
		Female	12	
	31 - 40	Male	38	
		Female	72	
	41 - 50	Male	37	
		Female	46	
	51-60	Male	17	
Female		9		
<b>Total</b>			<b>245</b>	
Medical Record Officer	≤30	Male	14	Female: 74% Below age 40: 68%
		Female	30	
	31 - 40	Male	45	
		Female	188	
	41 - 50	Male	22	
		Female	45	
	51-60	Male	25	
Female		36		
<b>Total</b>			<b>405</b>	
Medical Social Officer	≤30	Male	2	Female: 72% Below age 40: 59%
		Female	14	
	31 - 40	Male	31	
		Female	104	
	41 - 50	Male	23	
		Female	58	
	51-60	Male	17	
Female		9		
<b>Total</b>			<b>258</b>	
Occupational Therapist	≤30	Male	203	Female: 74% Below age 40: 91%
		Female	511	
	31 - 40	Male	104	
		Female	397	
	41 - 50	Male	26	
		Female	62	
	51-60	Male	11	
Female		26		
<b>Total</b>			<b>1340</b>	



Profession	Age	Gender	Total	Summary 2018 profile by age and gender
Physiotherapist	≤30	Male	261	Female: 70% Below age 40: 89%
		Female	557	
	31 - 40	Male	152	
		Female	423	
	41 - 50	Male	31	
		Female	83	
	51-60	Male	17	
Female		34		
<b>Total</b>			<b>1,558</b>	
Speech-Language Therapist	≤30	Male	4	Female: 93% Below age 40: 97%
		Female	68	
	31 - 40	Male	4	
		Female	48	
	41 - 50	Male	0	
		Female	3	
	51-60	Male	1	
Female		0		
<b>Total</b>			<b>128</b>	
Radiation Therapist	≤30	Male	42	Female: 64% Below age 40: 93%
		Female	97	
	31 - 40	Male	49	
		Female	76	
	41 - 50	Male	8	
		Female	9	
	51-60	Male	3	
Female		1		
<b>Total</b>			<b>285</b>	

Source: Allied Health Division (2019)

**Table 58:** Number of MOH Employed Allied Health Personnel According to Placement Setting by Age Group and Gender, 2018

Profession	Age	Gender	Ministry	State/ District	Institution	Hospitals	Clinic	Others	Total
Audiologist	≤30	Male	0	0	1	12	0	0	13
		Female	0	0	3	64	0	0	67
	31 - 40	Male	0	0	0	15	0	0	15
		Female	0	0	14	79	0	4	97
	41 - 50	Male	0	0	0	1	0	0	1
		Female	0	0	0	2	0	0	2
	51-60	Male	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0
<b>Total</b>			<b>0</b>	<b>0</b>	<b>18</b>	<b>173</b>	<b>0</b>	<b>4</b>	<b>195</b>
Clinical Scientist (Biochemist)	≤30	Male	0	1	4	7	0	0	12
		Female	1	2	10	57	0	0	70
	31 - 40	Male	1	2	8	35	0	0	46
		Female	3	1	34	191	0	0	229
	41 - 50	Male	1	0	1	11	0	0	13
		Female	2	0	11	44	0	0	57
	51-60	Male	1	0	2	12	0	0	15
		Female	0	0	1	5	0	0	6
<b>Total</b>			<b>9</b>	<b>6</b>	<b>71</b>	<b>362</b>	<b>0</b>	<b>0</b>	<b>448</b>
Clinical Scientist (Biomedical)	≤30	Male	0	0	0	2	0	0	2
		Female	0	0	2	9	0	0	11
	31 - 40	Male	0	0	1	7	0	1	9
		Female	0	0	3	51	0	0	54
	41 - 50	Male	0	0	0	1	0	0	1
		Female	0	0	0	5	0	0	5
	51-60	Male	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0
<b>Total</b>			<b>0</b>	<b>0</b>	<b>6</b>	<b>75</b>	<b>0</b>	<b>1</b>	<b>82</b>
Clinical Scientist (Embriologist)	≤30	Male	0	0	0	1	0	0	1
		Female	0	0	0	1	0	0	1
	31 - 40	Male	0	0	1	1	0	0	2
		Female	0	0	1	4	0	0	5
	41 - 50	Male	0	0	0	1	0	0	1
		Female	0	0	0	0	0	0	0
	51-60	Male	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0
<b>Total</b>			<b>0</b>	<b>0</b>	<b>2</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>10</b>

Profession	Age	Gender	Ministry	State/ District	Institution	Hospitals	Clinic	Others	Total	
Clinical Scientist (Entomologist)	≤30	Male	0	4	0	0	0	0	4	
		Female	1	23	0	0	0	0	24	
	31 - 40	Male	1	17	2	0	0	0	20	
		Female	5	46	0	0	0	0	51	
	41 - 50	Male	0	7	0	0	0	0	7	
		Female	1	11	1	0	0	0	13	
	51-60	Male	2	3	0	0	0	0	5	
		Female	1	1	0	0	0	0	2	
	<b>Total</b>			<b>11</b>	<b>112</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>126</b>
	Clinical Scientist (Geneticist)	≤30	Male	0	0	0	1	0	0	1
Female			0	0	1	4	0	0	5	
31 - 40		Male	0	0	0	1	0	0	1	
		Female	0	0	0	11	0	0	11	
41 - 50		Male	0	0	0	0	0	0	0	
		Female	0	0	0	1	0	0	1	
51-60		Male	0	0	0	0	0	0	0	
		Female	0	0	0	0	0	0	0	
<b>Total</b>			<b>0</b>	<b>0</b>	<b>1</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>19</b>	
Clinical Scientist (Microbiologist)		≤30	Male	0	0	1	10	0	0	11
	Female		0	1	1	16	0	0	18	
	31 - 40	Male	2	4	6	46	0	1	59	
		Female	2	16	38	147	0	5	208	
	41 - 50	Male	2	1	6	12	0	0	21	
		Female	1	5	8	29	0	1	44	
	51-60	Male	3	2	0	7	0	0	12	
		Female	0	1	2	8	0	0	11	
	<b>Total</b>			<b>10</b>	<b>30</b>	<b>62</b>	<b>275</b>	<b>0</b>	<b>7</b>	<b>384</b>
	Nutritionist	≤30	Male	2	3	0	0	10	0	15
Female			5	7	1	0	68	0	81	
31 - 40		Male	4	11	1	0	20	0	36	
		Female	37	39	4	3	154	0	237	
41 - 50		Male	2	5	2	1	4	0	14	
		Female	10	14	2	0	6	0	32	
51-60		Male	0	2	0	0	0	0	2	
		Female	3	1	0	0	1	0	5	
<b>Total</b>			<b>63</b>	<b>82</b>	<b>10</b>	<b>4</b>	<b>263</b>	<b>0</b>	<b>422</b>	

Profession	Age	Gender	Ministry	State/ District	Institution	Hospitals	Clinic	Others	Total	
Dietitian	≤30	Male	0	0	1	11	7	5	24	
		Female	1	0	10	89	13	2	115	
	31 - 40	Male	1	0	3	13	7	0	24	
		Female	4	0	16	181	35	1	237	
	41 - 50	Male	0	0	0	7	1	0	8	
		Female	5	0	2	23	1	0	31	
	51-60	Male	0	0	0	1	0	0	1	
		Female	1	0	0	5	0	0	6	
	<b>Total</b>			<b>12</b>	<b>0</b>	<b>32</b>	<b>330</b>	<b>64</b>	<b>8</b>	<b>446</b>
	Clinical Psychologist	≤30	Male	0	0	0	1	0	0	1
Female			0	0	0	7	0	0	7	
31 - 40		Male	0	0	0	1	0	0	1	
		Female	0	0	6	10	0	3	19	
41 - 50		Male	0	0	0	0	0	0	0	
		Female	0	0	0	1	0	0	1	
51-60		Male	0	0	0	0	0	0	0	
		Female	0	0	0	0	0	0	0	
<b>Total</b>			<b>0</b>	<b>0</b>	<b>6</b>	<b>20</b>	<b>0</b>	<b>3</b>	<b>29</b>	
Counsellor		≤30	Male	0	0	0	3	0	0	3
	Female		0	2	2	10	0	0	14	
	31 - 40	Male	1	7	0	13	0	2	23	
		Female	3	19	9	43	0	4	78	
	41 - 50	Male	1	6	2	2	0	0	11	
		Female	2	4	2	8	0	3	19	
	51-60	Male	0	1	1	1	0	0	3	
		Female	0	0	1	0	0	0	1	
	<b>Total</b>			<b>7</b>	<b>39</b>	<b>17</b>	<b>80</b>	<b>0</b>	<b>9</b>	<b>152</b>
	Medical Physicist	≤30	Male	2	1	5	2	0	0	10
Female			7	7	3	21	0	0	38	
31 - 40		Male	6	13	10	15	0	0	44	
		Female	14	18	14	50	0	0	96	
41 - 50		Male	4	6	1	2	0	0	13	
		Female	5	1	1	0	0	0	7	
51-60		Male	3	0	0	2	0	0	5	
		Female	0	0	0	1	0	0	1	
<b>Total</b>			<b>41</b>	<b>46</b>	<b>34</b>	<b>93</b>	<b>0</b>	<b>0</b>	<b>214</b>	

Profession	Age	Gender	Ministry	State/ District	Institution	Hospitals	Clinic	Others	Total
Forensic Science Officer	≤30	Male	0	0	0	0	0	0	0
		Female	0	0	0	4	0	0	4
	31 - 40	Male	1	0	0	16	0	0	17
		Female	0	0	0	19	0	1	20
	41 - 50	Male	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0
	51-60	Male	0	0	0	0	0	0	0
		Female	0	0	0	0	0	0	0
<b>Total</b>			<b>1</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>0</b>	<b>1</b>	<b>41</b>
Diagnostic Radiographer	≤30	Male	0	0	17	266	27	0	310
		Female	0	0	10	248	37	0	295
	31 - 40	Male	2	0	14	527	66	0	609
		Female	1	0	27	661	194	0	883
	41 - 50	Male	1	0	5	147	15	0	168
		Female	3	0	4	164	37	0	208
	51-60	Male	0	0	0	48	1	0	49
		Female	2	0	1	42	2	0	47
<b>Total</b>			<b>9</b>	<b>0</b>	<b>78</b>	<b>2,103</b>	<b>379</b>	<b>0</b>	<b>2,569</b>
Food Service Officer	≤30	Male	0	0	0	23	0	0	23
		Female	0	0	4	15	0	0	19
	31 - 40	Male	0	0	4	59	0	0	63
		Female	0	0	14	174	0	0	188
	41 - 50	Male	0	0	1	13	0	0	14
		Female	0	0	1	18	0	0	19
	51-60	Male	0	0	2	2	0	0	4
		Female	0	0	3	19	0	0	22
<b>Total</b>			<b>0</b>	<b>0</b>	<b>29</b>	<b>323</b>	<b>0</b>	<b>0</b>	<b>352</b>
Health Education Officer	≤30	Male	3	5	2	4	0	0	14
		Female	2	3	4	3	0	0	12
	31 - 40	Male	7	19	2	8	0	2	38
		Female	14	28	5	23	0	2	72
	41 - 50	Male	4	18	6	8	0	1	37
		Female	9	19	9	8	0	1	46
	51-60	Male	2	9	2	4	0	0	17
		Female	2	4	1	2	0	0	9
<b>Total</b>			<b>43</b>	<b>105</b>	<b>31</b>	<b>60</b>	<b>0</b>	<b>6</b>	<b>245</b>

Profession	Age	Gender	Ministry	State/ District	Institution	Hospitals	Clinic	Others	Total
Medical Record Officer	≤30	Male	0	1	0	13	0	0	14
		Female	1	2	0	27	0	0	30
	31 - 40	Male	1	2	5	37	0	0	45
		Female	10	15	9	154	0	0	188
	41 - 50	Male	1	4	2	15	0	0	22
		Female	1	7	1	36	0	0	45
	51-60	Male	0	4	0	21	0	0	25
		Female	6	4	3	23	0	0	36
<b>Total</b>			<b>20</b>	<b>39</b>	<b>20</b>	<b>326</b>	<b>0</b>	<b>0</b>	<b>405</b>
Medical Social Officer	≤30	Male	0	0	0	2	0	0	2
		Female	0	0	0	12	2	0	14
	31 - 40	Male	4	0	2	25	0	0	31
		Female	4	0	9	82	9	0	104
	41 - 50	Male	1	1	0	19	2	0	23
		Female	2	1	5	47	3	0	58
	51-60	Male	0	0	1	14	2	0	17
		Female	0	0	0	8	1	0	9
<b>Total</b>			<b>11</b>	<b>2</b>	<b>17</b>	<b>209</b>	<b>19</b>	<b>0</b>	<b>258</b>
Occupational Therapist	≤30	Male	0	0	16	140	40	7	203
		Female	0	0	35	323	133	20	511
	31 - 40	Male	0	0	15	68	18	3	104
		Female	2	0	35	293	61	6	397
	41 - 50	Male	1	0	6	18	0	1	26
		Female	1	0	9	52	0	0	62
	51-60	Male	1	0	1	9	0	0	11
		Female	0	0	4	22	0	0	26
<b>Total</b>			<b>5</b>	<b>0</b>	<b>121</b>	<b>925</b>	<b>252</b>	<b>37</b>	<b>1,340</b>
Physiotherapist	≤30	Male	0	14	8	185	43	11	261
		Female	0	28	33	366	105	25	557
	31 - 40	Male	0	6	10	108	28	0	152
		Female	3	20	30	289	78	3	423
	41 - 50	Male	0	2	2	26	1	0	31
		Female	1	2	2	73	5	0	83
	51-60	Male	1	0	2	14	0	0	17
		Female	0	1	3	28	2	0	34
<b>Total</b>			<b>5</b>	<b>73</b>	<b>90</b>	<b>1,089</b>	<b>262</b>	<b>39</b>	<b>1,558</b>

Profession	Age	Gender	Ministry	State/ District	Institution	Hospitals	Clinic	Others	Total	
Speech-Language Therapist	≤30	Male	0	0	0	4	0	0	4	
		Female	0	0	3	63	2	0	68	
	31 - 40	Male	0	0	1	3	0	0	4	
		Female	0	0	5	42	0	1	48	
	41 - 50	Male	0	0	0	0	0	0	0	
		Female	0	0	0	3	0	0	3	
	51-60	Male	0	0	0	1	0	0	1	
		Female	0	0	0	0	0	0	0	
	<b>Total</b>			<b>0</b>	<b>0</b>	<b>9</b>	<b>116</b>	<b>2</b>	<b>1</b>	<b>128</b>
	Radiation Therapist	≤30	Male	0	0	22	20	0	0	42
Female			0	0	31	66	0	0	97	
31 - 40		Male	0	0	16	33	0	0	49	
		Female	1	0	32	43	0	0	76	
41 - 50		Male	1	0	1	6	0	0	8	
		Female	0	0	2	7	0	0	9	
51-60		Male	0	0	1	2	0	0	3	
		Female	0	0	1	0	0	0	1	
<b>Total</b>			<b>2</b>	<b>0</b>	<b>106</b>	<b>177</b>	<b>0</b>	<b>0</b>	<b>285</b>	

Source: Allied Health Division (2019)

## Medical Graduates entering workforce

**Table 59:** Number of Doctors Obtained Provisional Registration and Full Registration, 2010-2018

Year	Provisional Registration	Full Registration	Total number of Doctors in the workforce
<b>2010</b>	3,256	2,592	32,979
<b>2011</b>	3,708	3,357	36,607
<b>2012</b>	4,094	3,402	38,718
<b>2013</b>	4,472	3,754	46,916
<b>2014</b>	4,740	3,967	45,565
<b>2015</b>	5,146	4,607	46,491
<b>2016</b>	6,253	4,320	50,087
<b>2017</b>	6,150	4,090	57,831
<b>2018</b>	6,075	4,071	61,158

Source: Malaysian Medical Council (2020)

## REGIONAL DISTRIBUTION AND SKILL MIX

**Table 60:** Regional Distribution of Dentist and Dental Nurse (per 10,000 population), 2014 - 2018

Region	Dentist			Dental Nurse		
	2014	2016	2018	2014	2016	2018
Peninsular Malaysia West Coast	2.14	2.45	3.37	0.72	0.72	0.73
Peninsular Malaysia West Coast	2.21	2.80	3.49	1.20	1.18	1.17
Sabah & WP Labuan	0.99	1.12	1.23	1.06	0.96	0.99
Sarawak	1.49	1.66	1.89	1.58	1.49	1.43

Source: Ministry of Health (2015, 2017, 2019)

**Table 61:** Regional Distribution of Pharmacist and Assistant Pharmacist (per 10,000 population), 2014 - 2018

Region	Pharmacist			Assistant Pharmacist		
	2014	2016	2018	2014	2016	2018
Peninsular Malaysia West Coast	4.70	3.87	4.85	1.62	1.84	2.08
Peninsular Malaysia West Coast	2.87	2.46	3.19	1.92	1.85	1.96
Sabah & WP Labuan	2.53	1.76	2.00	1.51	1.42	1.42
Sarawak	3.70	2.89	3.55	1.88	1.86	1.88

Source: Ministry of Health (2015, 2017, 2019)

**Table 62:** Regional Distribution of Assistant Medical Officer (per 10,000 population), 2014 - 2018

Region	Assistant Medical Officers		
	2014	2016	2018
Peninsular Malaysia West Coast	3.82	4.53	4.93
Peninsular Malaysia West Coast	5.07	5.97	7.24
Sabah & WP Labuan	4.07	4.49	4.90
Sarawak	6.26	6.73	7.98

Source: Ministry of Health (2015, 2017, 2019)

**Table 63:** Regional Distribution of Nurses and Community Nurses (per 10,000 population), 2014-2018

Region	Nurse			Community Nurse		
	2014	2016	2018	2014	2016	2018
Peninsular Malaysia West Coast	32.22	32.22	36.68	6.77	6.40	5.86
Peninsular Malaysia West Coast	25.30	25.62	29.14	11.16	10.95	10.13
Sabah & WP Labuan	20.42	21.16	22.28	11.29	10.28	9.53
Sarawak	24.53	24.93	25.66	12.26	11.04	9.52

Source: Ministry of Health (2015, 2017, 2019)



**Table 64:** Regional Distribution of MLT, Radiographers and Physiotherapists (per 10,000 population), 2014-2018

Region	MLT			Radiographer			Physiotherapist		
	2014	2016	2018	2014	2016	2018	2014	2016	2018
Peninsular Malaysia West Coast	1.93	1.82	1.80	0.89	0.88	0.88	0.40	0.39	0.40
Peninsular Malaysia East Coast	2.36	2.23	2.21	0.93	0.92	0.90	0.51	0.49	0.50
Sabah & WP Labuan	2.16	2.00	1.96	0.80	0.77	0.79	0.47	0.43	0.43
Sarawak	3.13	2.96	2.95	1.22	1.14	1.19	0.61	0.57	0.58

Source: Allied Health Division (2019)

**Table 65:** Regional Distribution of Specialist (per 10,000 Population), 2010, 2013 and 2018

Specialist	Peninsular West Coast			Peninsular East Coast			Sabah & WP Labuan			Sarawak		
	2010	2013	2018	2010	2013	2018	2010	2013	2018	2010	2013	2018
Internal Medicine Specialist (Physicians)	0.56	0.64	0.87	0.27	0.26	0.36	0.18	0.17	0.26	0.26	0.29	0.47
Paediatricians	0.28	0.30	0.45	0.14	0.17	0.20	0.07	0.09	0.12	0.14	0.16	0.23
Obstetricians & Gynaecologists	0.34	0.37	0.39	0.15	0.19	0.21	0.12	0.11	0.13	0.17	0.20	0.22
Anaesthetist	0.30	0.32	0.39	0.16	0.17	0.23	0.08	0.10	0.15	0.14	0.13	0.18
General Surgeons	0.38	0.42	0.28	0.22	0.21	0.16	0.10	0.13	0.09	0.19	0.21	0.15
All Surgery*	0.38	0.42	0.44	0.22	0.21	0.23	0.10	0.13	0.13	0.19	0.21	0.24
Orthopaedic Surgeons	0.23	0.25	0.29	0.17	0.15	0.18	0.11	0.11	0.06	0.05	0.07	0.15
Family Medicine Specialists**	0.23	0.33	0.19	0.13	0.27	0.22	0.05	0.05	0.05	0.01	0.04	0.12
Public Health Medicine Specialist**	NA	NA	0.21	NA	NA	0.20	NA	NA	0.07	NA	NA	0.13

\*All Surgery includes General Surgery, Cardiothoracic, Neurosurgery, Paediatric Surgery, Plastic Surgery, Urology

\*\*Data 2010 and 2013 referred to MOH employee only (HRH Country Profile 2015)

**Table 66:** Distribution of Specialist by Specialty, Region and Sector in 2018

Specialist	Unit	Peninsular West Coast	Peninsular East Coast	Sabah & WP Labuan	Sarawak	MALAYSIA
Anaesthesiologist	Density (10,000 population)	0.39	0.23	0.15	0.18	0.32
	Public [%]	54.2	83.5	85.0	68.0	59.7
	Private [%]	45.8	16.5	15.0	32.0	40.3
Emergency Medicine Physicians	Density (10,000 population)	0.12	0.12	0.06	0.08	0.11
	Public [%]	93.9	100.0	95.8	100.0	95.4
	Private [%]	6.1	0.0	4.2	0.0	4.6
Family Medicine Physicians	Density (10,000 population)	0.19	0.22	0.05	0.12	0.17
	Public [%]	67.8	89.4	90.0	84.8	73.7
	Private [%]	32.2	10.6	10.0	15.2	26.3
Internal Medicine Physicians	Density (10,000 population)	0.87	0.36	0.26	0.47	0.68
	Public [%]	51.6	78.2	64.8	62.1	54.9
	Private [%]	48.4	21.8	35.2	37.9	45.1
Nuclear Medicine Physicians	Density (10,000 population)	0.01	0.01	0.00	0.01	0.01
	Public [%]	73.9	100.0	100.0	66.7	78.1
	Private [%]	26.1	0.0	0.0	33.3	21.9
Rehabilitation Medicine Physicians	Density (10,000 population)	0.03	0.02	0.01	0.01	0.03
	Public [%]	89.1	100.0	100.0	100.0	91.5
	Private [%]	10.9	0.0	0.0	0.0	8.5
Sports Medicine Physicians	Density (10,000 population)	0.02	0.00	0.01	-	0.01
	Public [%]	94.3	100.0	100.0	0.0	94.7
	Private [%]	5.7	0.0	0.0	0.0	5.3
Clinical Oncologists	Density (10,000 population)	0.04	-	0.01	0.02	0.03
	Public [%]	40.4	0.0	75.0	50.0	42.4
	Private [%]	59.6	0.0	25.0	50.0	57.6
Radiation Oncologists	Density (10,000 population)	0.00	-	-	-	0.00
	Public [%]	100.0	0.0	0.0	0.0	100.0
	Private [%]	0.0	0.0	0.0	0.0	0.0

Specialist	Unit	Peninsular West Coast	Peninsular East Coast	Sabah & WP Labuan	Sarawak	MALAYSIA
Radiologists	Density (10,000 population)	0.25	0.11	0.06	0.13	0.19
	Public [%]	52.3	73.6	63.6	67.6	55.4
	Private [%]	47.7	26.4	36.4	32.4	44.6
Paediatricians	Density (10,000 population)	0.45	0.20	0.12	0.23	0.35
	Public [%]	47.5	76.3	57.4	60.0	51.0
	Private [%]	52.5	23.7	42.6	40.0	49.0
Pathologists	Density (10,000 population)	0.21	0.20	0.04	0.09	0.18
	Public [%]	84.1	100.0	93.8	92.0	87.4
	Private [%]	15.9	0.0	6.3	8.0	12.6
Transfusion Medicine Specialists	Density (10,000 population)	0.01	0.01	0.01	0.01	0.01
	Public [%]	100.0	100.0	100.0	100.0	100.0
	Private [%]	0.0	0.0	0.0	0.0	0.0
Psychiatrists	Density (10,000 population)	0.14	0.10	0.06	0.09	0.12
	Public [%]	69.8	98.0	86.4	91.7	75.6
	Private [%]	30.2	2.0	13.6	8.3	24.4
Public Health Physicians	Density (10,000 population)	0.21	0.20	0.07	0.13	0.18
	Public [%]	86.6	95.7	89.7	94.3	88.6
	Private [%]	13.4	4.3	10.3	5.7	11.4
Obstetricians & Gynaecologists	Density (10,000 population)	0.39	0.21	0.13	0.22	0.32
	Public [%]	31.7	74.3	56.0	51.6	38.3
	Private [%]	68.3	25.7	44.0	48.4	61.7
General Surgeons	Density (10,000 population)	0.28	0.16	0.09	0.15	0.23
	Public [%]	44.1	81.3	48.6	55.8	48.8
	Private [%]	55.9	18.7	51.4	44.2	51.2
Cardiothoracic Surgeons	Density (10,000 population)	0.03	0.01	0.01	0.01	0.02
	Public [%]	26.2	50.0	50.0	100.0	30.1
	Private [%]	73.8	50.0	50.0	0.0	69.9

Specialist	Unit	Peninsular West Coast	Peninsular East Coast	Sabah & WP Labuan	Sarawak	MALAYSIA
Neurosurgeons	Density (10,000 population)	0.04	0.03	0.02	0.03	0.04
	Public [%]	45.5	76.9	66.7	100.0	53.9
	Private [%]	54.5	23.1	33.3	0.0	46.1
Paediatric Surgeons	Density (10,000 population)	0.01	0.00	0.01	0.01	0.01
	Public [%]	42.9	50.0	33.3	50.0	42.9
	Private [%]	57.1	50.0	66.7	50.0	57.1
Plastic surgeons	Density (10,000 population)	0.03	0.01	0.01	0.01	0.02
	Public [%]	32.8	100.0	100.0	75.0	42.5
	Private [%]	67.2	0.0	0.0	25.0	57.5
Ophthalmologists	Density (10,000 population)	0.23	0.11	0.05	0.11	0.18
	Public [%]	45.1	82.7	57.1	65.6	49.9
	Private [%]	54.9	17.3	42.9	34.4	50.1
Otorhino-laryngologists	Density (10,000 population)	0.15	0.10	0.04	0.08	0.12
	Public [%]	45.9	80.4	76.5	43.5	51.0
	Private [%]	54.1	19.6	23.5	56.5	49.0
Orthopaedic surgeons	Density (10,000 population)	0.29	0.18	0.06	0.15	0.23
	Public [%]	42.1	88.2	52.2	61.0	48.6
	Private [%]	57.9	11.8	47.8	39.0	51.4
Urologists	Density (10,000 population)	0.04	0.01	0.01	0.03	0.03
	Public [%]	20.4	50.0	25.0	57.1	24.5
	Private [%]	79.6	50.0	75.0	42.9	75.5

**Table 67:** Comparison Regional Distribution of Selected HRH in 2018

Location	Doctors	Assistant Medical Officer
Number per 10 000 population West Coast	21.68	4.93
Number per 10 000 population East Coast	14.85	7.24
Number per 10 000 population Sabah & WP Labuan	11.73	4.90
Number per 10 000 population Sarawak	15.10	7.98
	Nurses	Community Nurses
Number per 10 000 population West Coast	36.68	5.86
Number per 10 000 population East Coast	29.14	10.13
Number per 10 000 population Sabah & WP Labuan	22.28	9.53
Number per 10 000 population Sarawak	25.66	9.52
	Dentist	Dental Nurses
Number per 10 000 population West Coast	3.37	0.73
Number per 10 000 population East Coast	3.49	1.17
Number per 10 000 population Sabah & WP Labuan	1.23	0.99
Number per 10 000 population East Coast	1.89	1.43
	Pharmacist	Assistant Pharmacist
Number per 10 000 population West Coast	4.85	2.08
Number per 10 000 population East Coast	3.19	1.96
Number per 10 000 population Sabah & WP Labuan	2.00	1.42
Number per 10 000 population Sarawak	3.55	1.88

Source: Ministry of Health (2019)

**Table 68:** Regional Distribution of Allied Health Personnel

	2003				2010				2014				2018			
	WEST COAST	EAST COAST	SABAH	SARAWAK	WEST COAST	EAST COAST	SABAH	SARAWAK	WEST COAST	EAST COAST	SABAH	SARAWAK	WEST COAST	EAST COAST	SABAH	SARAWAK
Audiologist	-	-	1	2	-	-	7	3	92	50	14	11	137	30	14	9
Per 100,000 Population	-	-	0.04	0.09	-	-	0.22	0.12	0.31	0.17	0.04	0.04	0.44	0.09	0.04	0.04
Clinical Psychologist	-	-	-	-	-	-	-	-	9	4	1	-	25	3	1	3
Per 100,000 Population	-	-	-	-	-	-	-	-	<b>0.03</b>	<b>0.01</b>	<b>0</b>	-	<b>0.07</b>	<b>0.01</b>	<b>0</b>	<b>0</b>
Assistant Food Technologist	-	-	8	9	-	-	17	9	125	32	25	15	238	59	37	28
Per 100,000 Population	-	-	<b>0.29</b>	<b>0.41</b>	-	-	<b>0.53</b>	<b>0.36</b>	<b>0.42</b>	<b>0.11</b>	<b>0.07</b>	<b>0.06</b>	<b>0.44</b>	<b>0.12</b>	<b>0.09</b>	<b>0.07</b>
Assistant Pharmacist	1401	478	320	296	1902	577	436	391	3155	851	523	469	-	-	-	-
Per 100,000 Population	0.87	1.26	11.45	13.37	1.03	1.42	13.6	15.82	1.62	1.92	1.46	1.8	-	-	-	-
Clinical Scientist (Biochemist)	-	-	11	7	-	-	30	30	255	71	32	31	309	64	40	38
Per 100,000 Population	-	-	0.39	0.32	-	-	0.94	1.21	0.85	0.24	0.09	0.12	0.9	0.2	0.12	0.09
Clinical Scientist (Biomedical Scientist)	-	-	-	-	-	-	3	2	53	8	5	2	66	8	6	2
Per 100,000 Population	-	-	-	-	-	-	0.09	0.08	0.18	0.03	0.01	0.01	0.18	0.02	0.01	0.01
Clinical Scientist (Embryologist)	-	-	-	-	-	-	29	18	6	2	2	0	6	2	2	0
Per 100,000 Population	-	-	-	-	-	-	0.9	0.73	0.02	0.01	0.01	0	0.7	0.01	0.01	0
Clinical Scientist (Medical Geneticist)	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-
Per 100,000 Population	-	-	-	-	-	-	-	-	0.07	-	-	-	-	-	-	-

	2003				2010				2014				2018			
	WEST COAST	EAST COAST	SABAH	SARAWAK	WEST COAST	EAST COAST	SABAH	SARAWAK	WEST COAST	EAST COAST	SABAH	SARAWAK	WEST COAST	EAST COAST	SABAH	SARAWAK
Dental Therapist	964	388	161	302	1272	486	314	400	1395	532	366	412	1509	555	381	487
Per 100,000 Population	0.6	1.02	5.76	13.64	0.69	1.19	9.79	19.19	0.72	1.2	1.02	1.58	19.7	1	1	1.5
Environmental Health Officer	1026	465	220	235	1676	665	415	451	2179	840	668	734	974	2649	726	749
Per 100,000 Population	0.63	1.23	7.87	10.61	0.91	1.61	12.94	18.25	1.12	1.9	1.92	2.82	18	1.1	1.9	2.8
Medical Social Officer	-	-	7	8	-	-	15	22	166	41	27	29	188	39	24	23
Per 100,000 Population	-	-	0.25	0.36	-	-	0.47	0.89	0.55	0.14	0.08	0.11	0.55	0.14	0.09	0.09
Nutritionist	-	-	7	7	-	-	25	19	232	87	38	35	242	86	38	38
Per 100,000 Population	-	-	0.25	0.32	-	-	0.78	0.77	0.77	0.29	0.11	0.13	0.77	0.29	0.13	0.13
Occupational Therapist	-	-	22	22	410	88	75	73	669	199	157	117	857	198	168	122
Per 100,000 Population	-	-	0.79	0.99	0.22	0.22	3.34	2.95	2.22	0.66	0.44	0.45	2.24	0.66	0.44	0.45
Physiotherapist	252	47	40	38	486	113	108	97	823	280	168	171	938	270	183	167
Per 100,000 Population	0.16	0.12	1.43	1.72	0.26	0.28	3.37	3.93	2.73	0.93	0.47	0.66	2.74	0.93	0.66	0.47
Radiation Therapist	-	-	-	22	-	-	13	44	91	13	19	38	-	-	44	60
Per 100,000 Population	-	-	-	-	0.99	-	-	0.41	1.78	0.3	0.04	0.15	-	-	0.04	0.15
Speech Language Therapist	-	-	1	1	-	-	4	4	59	14	8	6	99	13	7	8
Per 100,000 Population	-	-	0.04	0.05	-	-	0.12	0.16	0.2	0.05	0.02	0.02	0.3	0.05	0.02	0.02

Source: Allied Health Science Division (2019)

**Table 69:** Skill Mix Ratios of Selected Professionals to Allied Health Professionals in MOH

Selected Professionals to Allied Health Professionals	2013	2014	2018
Otorhinolaryngologist to audiologist	1:1	1:1.3	1:1.24
Otorhinolaryngologist to speech language therapist	1:1	1:1.2	1:0.8
Ophthalmologist to optometrist	1:1	1:1.4	1:7.55
Psychiatrist to clinical psychologist	1:0.02	1:0.1	1:0.15
Gynaecologist to clinical scientist (embryologist)	1:0.02	1:0.04	1:0.03
Radiologist to diagnostic radiographer	1:12	1:10.7	1:9.37
Radiologist to medical physicist	1:1	1:0.88	1:1.28
Oncologist to medical physicist	1:7	1:6.96	1:8.56
Oncologist to radiation therapist	1:11	1:10.1	1:11.4
Nuclear medicine physician to medical physicist	1:25	1:1.13	1:8.56
Public health medicine specialist to entomologist	1:02	1:0.3	1:0.28
Doctor to dietitian	1:0.01	1:0.01	1:0.01
Doctor to health education officer	1:0.004	1:0.008	1:0.005
Public health medicine specialist to environmental health officer	1:5.1	1:7.5	1:11.7
Doctor to medical social officer	1:0.01	1:0.01	1:0.006
Doctor to counsellor	1:0.03	1:0.007	1:0.003
Dietician to healthcare food service officer	1:1	1:0.98	1:0.78
Family health physician to nutritionist	1:1	1:2	1.37
Medical rehab specialist to occupational therapist	1:35	1:27.9	1:27
Medical rehab specialist to physiotherapist	1:42	1:35	1:32
Medical rehabilitation specialist to speech language therapist	1:3	1:2.12	1:2.6

## EDUCATION

**Table 70:** Allied Health Professional Training Programme, 2018

PROFESSION	Public			Private			TOTAL NO OF PROGRAMMES/ NO OF INSTITUTIONS
	Diploma	Degree	Subtotal programmes/ no of institutions	Diploma	Degree	Subtotal programmes/ no of institutions	
Audiologist	0	3	3/3	0	0	0	3/3
Assistant food technologist	1	2	3/2	0	1	1/1	4/3
Assistant pharmacist	1	0	1/1	26	0	26/26	27/27
Clinical psychologist	0	2	2/2	0	1	1	3/3
Clinical scientist (biochemist)	0	3	3/3	0	2	2/2	5/5
Clinical scientist (biomedical scientist)	0	5	5/5	0	7	7/7	12/12
Clinical scientist (embryologist)	0	4	4/4	0	0	0	4/4
Clinical scientist (medical genetics)	0	2	2/2	0	0	0	2/2



PROFESSION	Public			Private			TOTAL NO OF PROGRAMMES/ NO OF INSTUTIONS
	Diploma	Degree	Subtotal programmes/ no of institutions	Diploma	Degree	Subtotal programmes/ no of institutions	
Clinical scientist (microbiologist)	0	4	4/4	0	1	1/1	5/5
Counsellor	0	5	5/5	0	2	2/2	7/7
Dental therapist	1	0	1/1	0	0	0	1/1
Dental technologist	1	0	1/1	1	0	1/1	2/2
Diagnostic radiographer	4	4	8/7	16	4	20/16	28/23
Dietician	0	6	6/6	0	1	1/1	7/7
Entomologist	0	1	1/1	0	0	0	1/1
Environmental health officer	2	3	5/4	12	1	13/12	18/16
Food technologist	0	7	7/7	0	0	0	7/7
Forensic science officer	0	2	2/2	0	0	0	2/2
Healthcare food service officer	1	3	4/3	0	1	1/1	5/4
Health education officer	0	1	1/1	0	0	0	1/1
Medical geneticist	0	1	1/1	0	0	0	1/1
Medical laboratory technologist	7	1	8/7	41	3	44/41	52/48
Medical physicist	1	3	4/4	0	0	0	4/4
Medical social officer	0	8	8/8	0	0	0	8/8
Nutritionist	0	3	3/3	0	0	0	3/3
Occupational therapist	2	2	4/3	7	1	8/8	12/11
Optician	0	0	0	3	0	0	3/3
Optometrist	0	3	3/3	nil	3	3/3	6/6
Physiotherapist	3	3	6/5	29	10	39/30	45/35
Radiation therapist	1	3	4/4	2	1	3/3	7/7
Speech/language therapist	0	2	2/2	0	0	0	2/2

Source: Allied Health Science Division (2019)

**Table 71:** Entrants, Enrolment and Graduates in Public Universities Undergraduate and Postgraduate Programmes for Doctors, Dentists, Pharmacists and Nurses, 2015 -2018

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES		
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Doctor	2015	Matriculation	Malaysian	88	172	260	114	200	314	73	84	157
			Non Malaysian	1	4	5	4	10	14	2	5	7
		Bachelor's Degree	Malaysian	337	795	1,132	2,420	4,901	7,321	443	766	1,209
			Non Malaysian	416	569	985	1,598	2,520	4,118	264	386	650
		Masters	Malaysian	21	20	41	123	102	225	29	22	51
			Non Malaysian	12	33	45	71	165	236	10	30	40
	PHD	Malaysian	10	4	14	55	32	87	16	10	26	
		Non Malaysian	95	130	225	126	189	315			0	
	2016	Matriculation	Malaysian	377	840	1,217	2,359	4,705	7,064	554	1,094	1,648
			Non Malaysian	474	571	1,045	1,713	2,566	4,279	256	414	670
		Bachelor's Degree	Malaysian	25	25	50	97	82	179	26	26	52
			Non Malaysian	21	50	71	128	347	475	9	28	37
		Masters	Malaysian	11	6	17	78	79	157	17	6	23
			Non Malaysian	82	94	176	76	95	171			0
	2017	Matriculation	Malaysian	415	753	1,168	2,132	4,271	6,403	542	1,082	1,624
			Non Malaysian	8	6	14	11	9	20		3	3
		Bachelor's Degree	Malaysian	471	642	1,113	1,862	2,680	4,542	272	478	750
			Non Malaysian	29	25	54	89	90	179	28	8	36
		Masters	Malaysian	41	71	112	145	395	540	26	67	93
			Non Malaysian	12	14	26	80	75	155	20	24	44
	2018	Matriculation	Malaysian	75	110	185	75	111	186			0
			Non Malaysian	373	727	1,100	2,077	4,172	6,249	421	827	1,248
		Bachelor's Degree	Malaysian	5	5	10	19	14	33	2	3	5
			Non Malaysian	466	620	1,086	2,002	2,776	4,778	259	446	705
Masters		Malaysian	20	23	43	89	83	172	17	27	44	
		Non Malaysian	45	88	133	173	422	595	20	67	87	
PHD	Malaysian	27	16	43	94	84	178	15	11	26		
	Non Malaysian											

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES		
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Dentist	2015	Bachelor's Degree	Malaysian	73	220	293	392	1,263	1,655	54	167	221
			Non Malaysian			0	3	2	5	1		1
		Masters	Malaysian	4	27	31	34	111	145	10	21	31
			Non Malaysian	10	3	13	34	24	58	8	2	10
		PHD	Malaysian	13	23	36	49	108	157	2	6	8
			Non Malaysian	10	4	14	49	22	71	6	1	7
	2016	Bachelor's Degree	Malaysian	77	248	325	417	1,376	1,793	69	234	303
			Non Malaysian		1	1	3	2	5		1	1
		Masters	Malaysian	10	51	61	38	142	180	4	22	26
			Non Malaysian	16	7	23	41	23	64	9	7	16
		PHD	Malaysian	13	22	35	47	117	164	12	12	24
			Non Malaysian	8	5	13	49	23	72	3	5	8
	2017	Bachelor's Degree	Malaysian	79	242	321	411	1,242	1,653	60	242	302
			Non Malaysian	1	1	2	4	3	7	1		1
		Masters	Malaysian	12	35	47	40	133	173	5	38	43
			Non Malaysian	13	12	25	38	25	63	10	8	18
		PHD	Malaysian	19	47	66	52	133	185	8	19	27
			Non Malaysian	16	10	26	49	24	73	10	2	12
2018	Bachelor's Degree	Malaysian	73	244	317	396	1,256	1,652	79	214	293	
		Non Malaysian	8	4	12	12	6	18		1	1	
	Masters	Malaysian	14	39	53	65	157	222	6	36	42	
		Non Malaysian	13	5	18	52	27	79	7	8	15	
	PHD	Malaysian	2	21	23	28	116	144	5	17	22	
		Non Malaysian	17	7	24	54	32	86	11	4	15	

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES		
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Pharmacist	2015	Diploma	Malaysian	36	130	166	100	314	414	14	62	76
			Non Malaysian	0	0	0	0	0	0	0	0	0
		Bachelors Degree	Malaysian	78	272	350	370	1,369	1,739	105	258	363
			Non Malaysian			0		2	2			0
		Masters	Malaysian	16	61	77	58	166	224	18	75	93
			Non Malaysian	4	7	11	22	19	41	12	7	19
	PHD	Malaysian	4	11	15	34	88	122	7	13	20	
		Non Malaysian	5	8	13	85	41	126	17	4	21	
	2016	Diploma	Malaysian	29	78	107	98	309	407	22	74	96
			Non Malaysian	0	0	0	0	0	0	0	0	0
		Bachelors Degree	Malaysian	87	289	376	332	1,177	1,509	121	477	598
			Non Malaysian			0		3	3			0
		Masters	Malaysian	15	45	60	41	121	162	18	70	88
			Non Malaysian	8	5	13	21	16	37	10	8	18
	PHD	Malaysian	2	17	19	29	98	127	5	10	15	
		Non Malaysian	12	3	15	90	36	126	14	7	21	
	2017	Diploma	Malaysian	20	83	103	84	288	372	6	8	14
			Non Malaysian	0	0	0	0	0	0	0	0	0
		Bachelors Degree	Malaysian	89	280	369	341	1,183	1,524	81	280	361
			Non Malaysian			0		2	2		2	2
		Masters	Malaysian	24	32	56	52	95	147	14	51	65
			Non Malaysian	4	5	9	15	12	27	12	8	20
	PHD	Malaysian	5	8	13	24	106	130	8	11	19	
		Non Malaysian	15	5	20	75	34	109	27	11	38	
2018	Diploma	Malaysian	33	106	139	78	258	336	34	103	137	
		Non Malaysian	0	0	0	0	0	0	0	0	0	
	Bachelors Degree	Malaysian	81	187	268	342	1,051	1,393	78	312	390	
		Non Malaysian	2	3	5	2	5	7			0	
	Masters	Malaysian	20	59	79	56	101	157	17	45	62	
		Non Malaysian	8	1	9	18	9	27	6	5	11	
PHD	Malaysian	4	15	19	23	99	122	6	22	28		
	Non Malaysian	21	7	28	79	35	114	25	11	36		

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES		
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Nurse	2015	Diploma	Malaysian	32	240	272	93	652	745	13	189	202
			Non Malaysian	0	0	0	0	0	0	0	0	0
		Bachelors Degree	Malaysian	26	206	232	114	974	1,088	21	177	198
			Non Malaysian		1	1			0	1		1
	Masters	Malaysian	28	57	85	47	140	187	12	46	58	
		Non Malaysian	28	57	85	47	140	187	12	46	58	
	PHD	Malaysian	13	36	49	77	244	321	2	4	6	
		Non Malaysian	7	11	18	47	58	105			0	
	2016	Diploma	Malaysian	45	224	269	113	649	762	17	195	212
			Non Malaysian	0	0	0	0	0	0	0	0	0
		Bachelors Degree	Malaysian	42	265	307	118	954	1,072	21	242	263
			Non Malaysian	0	0	0	0	0	0	0	0	0
Masters	Malaysian	8	35	43	45	121	166	14	47	61		
	Non Malaysian	1	2	3	6	4	10	1	2	3		
PHD	Malaysian	14	35	49	35	90	125	7	35	42		
	Non Malaysian	4	5	9	3	7	10	7	5	12		
2017	Diploma	Malaysian	53	381	434	209	1,524	1,733	33	237	270	
		Non Malaysian	0	0	0	0	0	0	0	0	0	
	Bachelors Degree	Malaysian	58	400	458	157	1,110	1,267	19	252	271	
		Non Malaysian		1	1		2	2			0	
Masters	Malaysian		16	16	4	73	77	1	18	19		
	Non Malaysian	2	1	3	3	3	6	3	1	4		
PHD	Malaysian	5	5	10	8	15	23			0		
	Non Malaysian	2	1	3	3	3	6	3	1	4		
2018	Diploma	Malaysian	48	338	386	181	1,154	1,335	47	309	356	
		Non Malaysian	0	0	0	0	0	0	0	0	0	
	Bachelors Degree	Malaysian	56	345	401	175	1,210	1,385	32	220	252	
		Non Malaysian	1	1	2	1	2	3			0	
Masters	Malaysian	5	13	18	9	54	63		25	25		
	Non Malaysian	2	1	3	5	3	8		1	1		
PHD	Malaysian		11	11	8	25	33			0		
	Non Malaysian	3	5	8	8	9	17	1		1		

Source: Ministry of Higher Education (2020)

**Table 72:** Entrants, Enrolment and Graduates in Private Universities Undergraduate and Postgraduate Programmes for Doctors, Dentists, Pharmacists and Nurses, 2015 -2018

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES			
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	
Doctor	2018	Bachelors Degree	Malaysian	58	61	119	2,855	4,627	7,482	91	117	208	
			Non Malaysian	272	272	544	531	718	1,249	0	1	1	
		Masters	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	1	0	1	1	0	1	0	0	0	
		Ph.D	Malaysian	0	0	0	9	17	26	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Certificate	Malaysian	0	0	0	0	1	1	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Diploma	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	1	1	0	1	1	0	0	0	
		Others	Malaysian	0	0	0	12	49	61	0	0	0	
			Non Malaysian	0	0	0	4	4	8	0	0	0	
		2017	Bachelors Degree	Malaysian	439	813	1,252	2,583	4,355	6,938	668	1,086	1,754
				Non Malaysian	146	249	395	473	657	1,130	37	82	119
	Masters		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Ph.D		Malaysian	0	1	1	9	17	26	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Certificate		Malaysian	0	1	1		1	1	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Diploma		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Others		Malaysian	0	1	1	12	49	61	0	0	0	
			Non Malaysian	0	0	0	4	4	8	0	0	0	
	2016		Bachelors Degree	Malaysian	448	839	1,287	2,144	3,542	5,686	398	594	992
				Non Malaysian	135	160	295	327	408	735	47	64	111
		Masters	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
Ph.D		Malaysian	9	16	25	9	16	25	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
Certificate		Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
Diploma		Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
Others		Malaysian	0	0	0	12	48	60	0	0	0		
		Non Malaysian	0	0	0	4	4	8	0	0	0		
2015		Bachelors Degree	Malaysian	1,696	2,703	4,399	516	801	1,317	282	410	692	
			Non Malaysian	192	248	440	81	123	204	4	15	19	
	Masters	Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Ph.D	Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Certificate	Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Diploma	Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Others	Malaysian	12	48	60	7	43	50	0	0	0		
		Non Malaysian	4	4	8	0	0	0	0	0	0		

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES			
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	
Nurse	2018	Diploma	Malaysian	82	491	573	375	2,438	2,813	0	0	0	
			Non Malaysian	0	5	5	4	26	30	0	0	0	
		Bachelors Degree	Malaysian	9	108	117	66	891	957	0	0	0	
			Non Malaysian	1	2	3	10	112	122	0	0	0	
		Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Masters	Malaysian	0	3	3	2	32	34	0	0	0	
			Non Malaysian	0	0	0	3	4	7	0	0	0	
		Ph.D	Malaysian	0	0	0	3	40	43	0	0	0	
			Non Malaysian	0	0	0	10	7	17	0	0	0	
		Certificate	Malaysian	6	28	34	10	83	93	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Others	Malaysian	7	51	58	15	129	144	0	0	0	
			Non Malaysian	0	1	1	0	1	1	0	0	0	
		2017	Diploma	Malaysian	134	728	862	293	1,947	2,240	32	355	387
				Non Malaysian	3	11	14	4	21	25		5	5
			Bachelors Degree	Malaysian	19	287	306	57	783	840	5	129	134
				Non Malaysian	3	54	57	9	110	119	4	14	18
	Post degree diploma		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Masters		Malaysian	0	10	10	2	29	31	0	1	1	
			Non Malaysian	1	3	4	3	4	7	0	0	0	
	Ph.D		Malaysian	1	14	15	3	40	43	0	1	1	
			Non Malaysian	4	7	11	10	7	17	0	0	0	
	Certificate		Malaysian	2	19	21	4	55	59	4	76	80	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Others		Malaysian	0	24	24	8	78	86	16	146	162	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	2016		Diploma	Malaysian	77	685	762	159	1,219	1,378	30	254	284
				Non Malaysian	1	10	11	1	10	11	0	1	1
			Bachelors Degree	Malaysian	22	208	230	38	496	534	2	101	103
				Non Malaysian	4	26	30	6	56	62	0	1	1
		Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Masters	Malaysian	1	7	8	2	19	21	0	18	18	
			Non Malaysian	1	1	2	2	1	3	0	2	2	
		Ph.D	Malaysian	0	3	3	2	26	28	1		1	
			Non Malaysian	0	0	0	6	0	6	0	0	0	
		Certificate	Malaysian	2	36	38	2	36	38	3	25	28	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Others	Malaysian	5	32	37	8	54	62		7	7	
			Non Malaysian	0	0	0	0	0	0	1	1	2	
2015		Diploma	Malaysian	82	534	616	57	285	342	9	117	126	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Bachelors Degree	Malaysian	16	288	304	9	177	186	8	89	97	
			Non Malaysian	2	30	32	1	14	15	2	2	4	
	Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Masters	Malaysian	1	12	13		4	4	1	27	28		
		Non Malaysian	1		1	1		1					
	Ph.D	Malaysian	2	23	25	1	4	5		1	1		
		Non Malaysian	6		6	0	0	0	0	0	0		
	Certificate	Malaysian	0	0	0	0	0	0	0	17	17		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Others	Malaysian	3	21	24	1	8	9	5	80	85		
		Non Malaysian	0	0	0	0	0	0	0	0	0		

Human Resources for Health Country Profiles  
MALAYSIA (2015-2018)

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES			
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	
Dentists	2018	Diploma	Malaysian	0	0	0	0	1	1	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Bachelors Degree	Malaysian	43	115	158	727	1,730	2,457	0	0	0	
			Non Malaysian	4	6	10	28	38	66	0	0	0	
		Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Masters	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Ph.D	Malaysian	0	0	0	3	5	8	0	0	0	
			Non Malaysian	0	0	0	0	1	1	0	0	0	
		Certificate	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Others	Malaysian	0	0	0	29	53	82	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		2017	Diploma	Malaysian	0	0	0	0	1	1	0	0	0
				Non Malaysian	0	0	0	0	0	0	0	0	0
			Bachelors Degree	Malaysian	110	314	425	24	32	56	132	326	458
				Non Malaysian	10	10	20	684	1,615	2,299	1	3	4
	Post degree diploma		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Masters		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Ph.D		Malaysian	0	0	0	3	5	8	0	0	0	
			Non Malaysian	0	0	0	0	1	1	0	0	0	
	Certificate		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Diploma		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Others		Malaysian	3	4	7	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	2016		Diploma	Malaysian	0	1	1	0	1	1	0	0	0
				Non Malaysian	0	0	0	0	0	0	0	0	0
		Bachelors Degree	Malaysian	131	316	447	573	1,301	1,874	85	210	295	
			Non Malaysian	5	6	11	14	22	36	3	5	8	
		Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Masters	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Ph.D	Malaysian	0	0	0	3	5	8	0	0	0	
			Non Malaysian	0	1	1	0	1	1	0	0	0	
		Certificate	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Others	Malaysian	0	0	0	26	49	75	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		2015	Diploma	Malaysian	0	0	0	0	0	0	0	0	0
				Non Malaysian	0	0	0	0	0	0	0	0	0
			Bachelors Degree	Malaysian	442	985	1427	139	324	463	46	70	116
				Non Malaysian	9	16	25	6	11	17	2	2	4
Post degree diploma	Malaysian		0	0	0	0	0	0	0	0	0		
	Non Malaysian		0	0	0	0	0	0	0	0	0		
Masters	Malaysian		0	0	0	0	0	0	0	0	0		
	Non Malaysian		0	0	0	0	0	0	0	0	0		
Ph.D	Malaysian		3	5	8	0	0	0	0	0	0		
	Non Malaysian		0	0	0	0	0	0	0	0	0		
Certificate	Malaysian		0	0	0	0	0	0	0	0	0		
	Non Malaysian		0	0	0	0	0	0	0	0	0		
Diploma	Malaysian		0	0	0	0	0	0	0	0	0		
	Non Malaysian		0	0	0	0	0	0	0	0	0		
Others	Malaysian		26	49	75	1	2	3	0	0	0		
	Non Malaysian		0	0	0	0	0	0	0	0	0		



Human Resources for Health Country Profiles  
MALAYSIA (2015-2018)

PROFESSION	YEAR	EDUCATION LEVEL	CITIZENSHIP	ENTRANTS			ENROLMENT			GRADUATES			
				MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	
Pharmacist	2018	Diploma	Malaysian	32	163	195	177	872	1,049	0	0	0	
			Non Malaysian				1	1	2	0	0	0	
		Bachelors Degree	Malaysian	62	162	224	705	2,412	3,117	0	0	0	
			Non Malaysian	3	6	9	26	33	59	0	0	0	
		Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Masters	Malaysian	0	0	0	31	82	113	0	0	0	
			Non Malaysian	0	0	0	23	16	39	0	0	0	
		Ph.D	Malaysian	0	0	0	1	4	5	0	0	0	
			Non Malaysian	0	0	0	4	4	8	0	0	0	
		Certificate	Malaysian	0	1	1		1	1	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Others	Malaysian	5	23	28	14	42	56	0	0	0	
			Non Malaysian	6	4	10	3	3	6	0	0	0	
		2017	Diploma	Malaysian	60	313	373	145	708	853	38	169	207
				Non Malaysian		1	1	1	1	2	0	0	0
			Bachelors Degree	Malaysian	130	368	498	605	2,017	2,622	280	601	881
				Non Malaysian	5	11	16	23	26	49	4	7	11
	Post degree diploma		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Masters		Malaysian	7	30	37	23	56	79	16	19	35	
			Non Malaysian	7	6	13	15	11	26	1	8	9	
	Ph.D		Malaysian	0	0	0	1	0	1	0	0	0	
			Non Malaysian	0	0	0	1	2	3	0	0	0	
	Certificate		Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
	Others		Malaysian	10	22	32	3	3	6	0	0	0	
			Non Malaysian	1	2	3	14	42	56	0	0	0	
	2016		Diploma	Malaysian	1		1	85	395	480	9	84	93
				Non Malaysian	61	278	339	1		1			
			Bachelors Degree	Malaysian	128	452	580	475	1,649	2,124	90	275	365
				Non Malaysian	4	2	6	18	15	33	2	3	5
		Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Masters	Malaysian	12	22	34	16	26	42	6	2	8	
			Non Malaysian	4	4	8	8	5	13	0	2	2	
		Ph.D	Malaysian	0	0	0	1	0	1	0	0	0	
			Non Malaysian	0	0	0	1	2	3	2		2	
		Certificate	Malaysian	0	0	0	0	0	0	0	0	0	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Others	Malaysian	3	4	7	4	20	24	0	0	0	
			Non Malaysian	2	1	3	2	1	3	0	0	0	
2015		Diploma	Malaysian	24	117	141	8	61	69	16	70	86	
			Non Malaysian	0	0	0	0	0	0	0	0	0	
		Bachelors Degree	Malaysian	347	1,197	1,544	186	570	756	97	297	394	
			Non Malaysian	14	13	27	2	8	10	1	1	2	
	Post degree diploma	Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Masters	Malaysian	4	4	8	4	2	6	0	0	0		
		Non Malaysian	4	1	5	3	1	4	0	0	0		
	Ph.D	Malaysian	1		1	1	0	1	0	0	0		
		Non Malaysian	1	2	3	1	2	3	0	0	0		
	Certificate	Malaysian	0	0	0	0	0	0	0	0	0		
		Non Malaysian	0	0	0	0	0	0	0	0	0		
	Others	Malaysian	1	16	17	1	11	12	15	0	15		
		Non Malaysian	0	0	0	0	0	0	0	0	0		

Source: Ministry of Higher Education (2020)

### ANNEX 3: LIST OF SPECIALTY IN MALAYSIA

**Table 73:** List of Specialty and Field of Practice in Malaysia

Specialty		Field of Practice	
1	Anaesthesiology	i.	Anaesthesiology and Critical Care
		ii.	Intensive Care
2	Emergency Medicine	i.	Emergency Medicine
3	Family Medicine	i.	Family Medicine
4	Internal Medicine	i.	Internal Medicine
		ii.	Cardiology
		iii.	Clinical Haematology
		iv.	Dermatology
		v.	Endocrinology
		vi.	Gastroenterology & Hepatology
		vii.	Geriatric Medicine
		viii.	Infectious Diseases
		ix.	Intensive Care Medicine
		x.	Nephrology
		xi.	Neurology
		xii.	Medical Oncology
		xiii.	Palliative Medicine
		xiv.	Respiratory Medicine
		xv.	Rheumatology
5	Nuclear Medicine	i.	Nuclear Medicine
6	Rehabilitation Medicine	i.	Rehabilitation Medicine
7	Sports Medicine	i.	Sports Medicine
8	Oncology	i.	Clinical Oncology
		ii.	Radiation Oncology
9	Clinical Radiology	i.	Clinical radiology
10	General Paediatrics	i.	General Paediatrics
		ii.	Adolescent Medicine
		iii.	Clinical Genetics
		iv.	Developmental Paediatrics
		v.	Neonatology
		vi.	Paediatrics And Child Health
		vii.	Paediatric Cardiology
		viii.	Paediatric Dermatology
		ix.	Paediatric Endocrinology
		x.	Paediatric Gastroenterology
		xi.	Paediatric Haematology & Oncology
		xii.	Paediatric Infectious Diseases
		xiii.	Paediatric Intensive Care
		xiv.	Paediatric Nephrology
		xv.	Paediatric Neurology
		xvi.	Paediatric Respiratory Medicine
		xvii.	Paediatric Rheumatology
11	General Pathology	i.	General Pathology
12	Anatomical Pathology	i.	Anatomical Pathology
13	Chemical Pathology	i.	Chemical Pathology
		ii.	Chemical Pathology (Metabolic Medicine)
14	Haematology	i.	Haematology
15	Medical Microbiology	i.	Medical Microbiology

Specialty		Field of Practice	
16	Forensic Pathology	i.	Forensic Pathology
17	Transfusion Medicine	i.	Transfusion Medicine
18	Psychiatry	i. ii. iii.	Psychiatry Child And Adolescent Psychiatry Forensic Psychiatry
19	Public Health	i. ii. iii. iv. v. vi. vii. viii. ix.	Public Health Medicine Communicable Disease Non-Communicable Disease Epidemiology Family Health Health Management Occupational Health Environmental Health Military Medicine
20	Obstetrics and Gynaecology	i. ii. iii. iv. v.	Obstetrics And Gynaecology Gynae-Oncology Maternal Fetal Medicine Reproductive Medicine Uro-Gynaecology
21	General Surgery	i. ii. iii. iv. v. vi. vii.	General Surgery Breast / And Endocrine Surgery Colorectal Surgery Hepatobiliary Surgery Thoracic Surgery Upper GIT Surgery Vascular Surgery
22	Cardiothoracic Surgery	i.	Cardiothoracic Surgery
23	Neurosurgery	i.	Neurosurgery
24	Paediatric Surgery	i.	Paediatric Surgery
25	Plastic Surgery	i.	Plastic Surgery
26	Ophthalmology	i.	Ophthalmology
27	Otorhinolaryngology	i.	Otorhinolaryngology
28	Orthopaedic Surgery	i. ii. iii. iv. v. vi. vii. viii. ix.	Orthopaedic Surgery Spine Surgery Arthroplasty Upper Limb & Microsurgery Arthroscopy & Sport Surgery Paediatric Orthopaedics Foot & Ankle Orthopaedic Oncology Advanced Musculoskeletal Trauma
29	Urology	i.	Urology

Source: National Specialist Register (n.d.)

## ANNEX 4: KEY LEGISLATION GOVERNING THE PROFESSIONAL PRACTICE OF HRH IN MALAYSIA

**Table 74:** Key Legislation in Malaysia

PROFESSIONALS	KEY LEGISLATION	STATUTORY BOARD
Medical Practitioners	Medical Act 1971 and subsequent amendments and regulations under the Act	Malaysian Medical Council
Dental Practitioners	Dental Act 1971 and subsequent amendments and regulations	Malaysian Dental Council
Pharmacist	Registrations of pharmacist Act 1951 and regulation under the Act	Pharmacy Board Malaysia
Nurses, Midwives, Community Nurses and Assistant Nurses	Nurses Act 1950 and Nurses Regulation 1985 and Midwives Registration 1990 (fees)	Nursing Board Malaysia
Assistant Medical Officers	Assistant Medical Officers Act 1977 and subsequent amendments and regulations under the Act	Medical Assistant Board, Malaysia
Opticians and Optometrist	Optical Act 1991 and Optical regulations 1994	Malaysian Optical Council
Food Analyst	Food Analyst 2011 and Food Analyst Regulation 2013	Malaysian Food Analysts Council
Counsellor	Malaysian Counsellor Act 1998	Board of Counsellors
Traditional and Complementary Medicine Practitioners	Traditional and Complementary Medicine Act 2013	Traditional and Complementary Medicine Council will be formed after enforcement of the Act
Medical Physicist	Atomic Energy Licensing Act 1982 (Act 304)	Atomic Energy Licensing Board
Diagnostic Radiographer	Atomic Energy Licensing Act 1982 (Act 304)	Atomic Energy Licensing Board
Radiation Therapist	Atomic Energy Licensing Act 1982 (Act 304)	Atomic Energy Licensing Board
Environmental Health Officer	Destruction of Disease Bearing Insect (Act 154)	Ministry of Health
Environmental Health Officer	Prevention and Control of Infectious Diseases Act 1988 (Act 342)	Ministry of Health

## ANNEX 5: DATA AVAILABILITY AND QUALITY

**Table 75:** Sources of HRH Data and Scope of Data From Each Source

Source	Scope	Data that is compiled and routinely available
Human Resource Management (Information System HRMIS)	Federal government	Service records: <ul style="list-style-type: none"> <li>• Postings &amp; promotions</li> <li>• Wages</li> <li>• Leave</li> <li>• Disciplinary action</li> </ul>
Human Resource Division, MOH	Ministry of Health employees	<ul style="list-style-type: none"> <li>• Posts for each category of staff</li> <li>• New employees, retirement, vacancies</li> <li>• Postings (i.e. state &amp; hospital distribution)</li> <li>• Age and gender</li> <li>• Promotions</li> <li>• Wages</li> <li>• Source of qualification for new entrants</li> </ul>
Health Informatics Centre, MOH	Annual human resource information submitted by; <ul style="list-style-type: none"> <li>• Statutory Boards</li> <li>• Program Divisions in MOH</li> </ul>	<ul style="list-style-type: none"> <li>• Numbers (selected categories)</li> <li>• Public &amp; Private sector distribution (only for some categories)</li> <li>• State distribution</li> </ul>
Statutory Boards (nationwide coverage)	<ul style="list-style-type: none"> <li>• Medical</li> <li>• Dental</li> <li>• Pharmacy</li> <li>• Nursing (including midwifery)</li> <li>• Assistant Medical Officers</li> <li>• Opticians &amp; Optometrists</li> <li>• Food Analysts</li> <li>• Counsellors</li> </ul>	<ul style="list-style-type: none"> <li>• Numbers</li> <li>• Public and Private sectors (not all board has data on age, gender, location of practice which is not extracted or compiled)</li> <li>• Accredited training programs</li> <li>• Disciplinary action on registered practitioners</li> <li>• Intake and output of MOH training institutions</li> </ul>
National Specialist Register	Accredited Medical Specialist	Data on accredited Medical Specialist who has registered <ul style="list-style-type: none"> <li>• Number (cumulative)</li> <li>• Field of practice (specialty and sub-specialty)</li> <li>• Sector</li> <li>• Gender</li> </ul>
Ministry of Education (MOE)	Public Sector Universities	<ul style="list-style-type: none"> <li>• Numbers of staff (selected categories)</li> <li>• Posts for selected category of staff</li> </ul>
Ministry of Defence (MOD)	MOD hospitals and clinics	<ul style="list-style-type: none"> <li>• Numbers of staff</li> <li>• Posts</li> <li>• New employees, retirement, vacancies</li> <li>• Age and gender</li> </ul>

**Table 76:** Summary of Data Discrepancies and Key Data That Are Not Available for HRH Planning

Sectors/Inter agencies/ Ministries	Discrepancies
<p>Intra-MOH (Ministry of Health):</p> <ul style="list-style-type: none"> <li>• HR Division</li> <li>• Program Divisions</li> <li>• Statutory Boards</li> <li>• Health Informatics Centre</li> </ul>	<ul style="list-style-type: none"> <li>• Differing definitions of some categories: (<i>Example: Doctors in managerial positions at federal and state level do not apply for Annual Practising Certificate-hence are not counted in statutory board but are included in HR Division</i>)</li> <li>• Differing numbers: collection or clerical errors</li> <li>• Data not routinely analysed (<i>Example: age, gender, location of practice</i>)</li> <li>• Private sector information is missing or incomplete (<i>Example: incomplete registration and enforcement-limited capacity of Statutory Boards</i>)</li> <li>• Data on private sector clinic staff is collected but not compiled or reported</li> </ul>
<p>Other public sector agencies (Ministry of Education, MQA, Ministry of Defence)</p>	<p>Data that is not routinely reported HRH in:</p> <ul style="list-style-type: none"> <li>• Universities (including hospitals &amp; clinics)</li> <li>• MINDEF hospitals</li> <li>• Other public sector agencies</li> </ul>
<p>Private Sector</p>	<p>Data that is collected but not compiled or reported:</p> <ul style="list-style-type: none"> <li>• HRH in private hospitals and free standing clinics &amp; pharmacies is routinely collected by statutory boards (<i>Currently analysis is dependent on periodic surveys, limited to hospitals</i>)</li> </ul>
<p>Education of HRH</p> <ul style="list-style-type: none"> <li>• Ministry of Education</li> <li>• MQA</li> <li>• Statutory Boards</li> <li>• Public services department</li> </ul>	<p>Data is collected but not compiled or reported include:</p> <ul style="list-style-type: none"> <li>• Training institutions (number, type)</li> <li>• Annual intake and output of each institution</li> <li>• Numbers sponsored by government for basic training in overseas countries</li> </ul>

**Data that is NOT collected**

- Attrition between graduation and entry into HRH workforce.
- Under-employment and unemployment of trained HRH.
- Emigration (out-migration) of Malaysian HRH professionals.



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