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MALAYSIAN HEALTH AND HEALTHCARE PERFORMANCE REPORT 2014

General Health Status, Maternal and Child Mortality

MALAYSIAN HEALTHCARE PERFORMANCE UNIT

Malaysian Health and Healthcare Performance Report

General Health Status

Maternal and Child Mortality

2014

MALAYSIAN HEALTHCARE PERFORMANCE UNIT

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Disclaimer:

Findings in this report maybe different from other published reports. This is because analysis for this report was done based on the latest dataset obtained from the Department of Statistics Malaysia and Family Health Development Division, Ministry of Health Malaysia.

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ABBREVIATIONS

ABBREVIATION	FULL NAME
APH	Antepartum Haemorrhage
BPKK	Bahagian Pembangunan Kesihatan Keluarga
CDR	Crude Death Rate
DSOM	Department Of Statistics Malaysia
FHDD	Family Health Development Division
HDP	Hypertensive Disorders of Pregnancy
IHSR	Institute for Health Systems Research
ISSN	International Standard Serial Number
MDG	Millennium Development Goal
MHPU	Malaysian Healthcare Performance Unit
MMR	Maternal Mortality Ratio
MNNR	Malaysian National Neonatal Registry
MOH	Ministry Of Health, Malaysia
NCRC	National Clinical Research Centre
NIH	National Institutes of Health
NOR	National Obstetric Registry
OECD	Organization for Economic Co-operation and Development
PIK	Pusat Informatik Kesihatan
PPH	Postpartum Haemorrhage
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WP	Wilayah Persekutuan

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EXECUTIVE SUMMARY

This is the first report that focused on healthcare performance benchmarking. It covers three chapters on health status (life expectancy at birth and all-cause mortality), child and maternal healthcare performance indicators (standard mortality indicators such as stillbirth, perinatal, neonatal, under-five and maternal mortalities).

This report mainly used the 5 years secondary data series 2008-2012 from Department of Statistics Malaysia and standard indicators. In summary as a nation the health status in terms of life expectancy has improved. However international benchmarking showed that the rate of improvement is moderate. Ethnic and state variation existed.

Stillbirth, perinatal, neonatal, under-five rates has also improved since 1990, yet from year 2000 onwards these rates have plateaued.

Maternal mortality rate has also improved and performance with international was below Asia 20 but above OECD. Yet Malaysia has not achieved the MDG 5 target in 2015.

In conclusion, this first report serves as a proof that performance benchmarking of Malaysian health and healthcare is possible. In order to have better quality and more timely reporting in the coming years, MHPU need to work closer with partners to develop a National Performance Framework incorporating meaningful National Indicators for benchmarking. There is a need for better data governance albeit data sharing policy and guidelines as well as a need to build and capitalize on big data analytics. Lastly and most important is to get buy-in from data holders for better teamwork and quality data.

INTRODUCTION

Background

This is the first report that focuses on Malaysian health and healthcare system with the aim to benchmark the system performance at local and international level.

Apart from feeding information to the health policy makers and planners, the purpose of the report is also to advocate dissemination of information about our healthcare performance publicly in a transparent manner.

Methodology

This report leverages on existing indicators used in Ministry of Health (MOH) and non-MOH agencies that examine trends in health care quality across all the 13 states; Johor, Melaka, Negeri Sembilan, Kedah, Kelantan, Pahang, Perak, Perlis, Pulau Pinang, Sabah, Sarawak, Selangor, Terengganu, and three federal territories: WP Labuan, WP Kuala Lumpur and WP Putrajaya.

The indicators were selected on the basis of their relevance to the local health needs, taking into account their definitions and comparability of existing and published data.

This report uses routinely collected secondary data. The main sources of data are the Department of Statistics Malaysia (DOSM) and Family Health Development Division MOH.

A 5-year data series was constructed from 2008 to 2012. Year 2011 was set as the index year because data from 2012 was preliminary.

Structure of the report

This report consists of three chapters with each chapter having two subsections; internal and external benchmarking. Internal benchmarking refers to benchmarking performance for the 13 states and three federal territories whereas external benchmarking compares Malaysia with the selected OECD and Asia 20 /22 countries.

Chapter 1 provides an overview of health status of the nation in terms of life expectancy at birth and all-cause mortality.

Chapter 2 and 3 highlight child and maternal healthcare performance indicators using standard mortality indicators such as stillbirth, perinatal, neonatal, under-five and maternal mortalities.

Chapter 1 : GENERAL HEALTH STATUS OF THE NATION

This chapter provides an overview of the Malaysian general health status using both life expectancy at birth and mortality as performance indicator.

1.1. Life Expectancy at Birth

1.1.1. Definition:

Life Expectancy at birth is defined by various institutions and agencies as below;

1. Life Expectancy at birth is the average remaining age (years) for a person expected to live at birth [1].

2. The average number of years that a new-born could expect to live, if he or she were to pass through life exposed to the sex- and age-specific death rates prevailing at the time of his or her birth, for a specific year, in a given country, territory, or geographic area [2].

3. Life expectancy at birth is the average number of years that a person can be expected to live, assuming that age-specific mortality levels remain constant [3].

1.1.2. Rationale for use:

Life Expectancy at birth reflects the overall mortality level of a population across all age groups. Life Expectancy and mortality interact in a reciprocal relationship. If mortality rate generally decreases, Life Expectancy will generally increase. However, increase in Life Expectancy does not solely translate into fewer disease incidences as people can also live longer with diseases through better management.

1.1.3. Findings

1.1.3.1. Internal benchmarking

Figure 1.1 shows gradual increase from 1991 to 2013 in life expectancy at birth for both genders. The life expectancy at birth in Malaysia from 2002 through 2012[p] increased by 2.1% and 2.5% for male and female respectively.

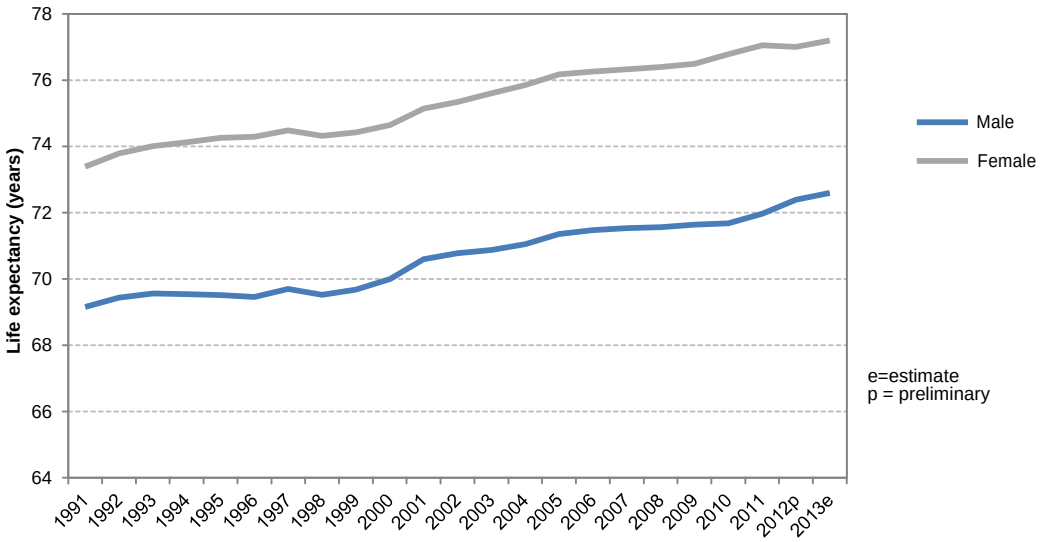


Figure 1.1: Malaysian life expectancy at birth

Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

The estimated life expectancy at birth in 2013[e] was 72.5 and 77.1 years for male and female respectively. Sabah and Sarawak population generally lived longer whereas Kelantan and Terengganu population had the shortest life span (Figure 1.2 and Figure 1.3). Over the 4-year period (2010-2013), life expectancy at birth improved steadily across all states. Male from Indian ethnicity had the shortest life expectancy overall in 2011 (Figure 1.4).

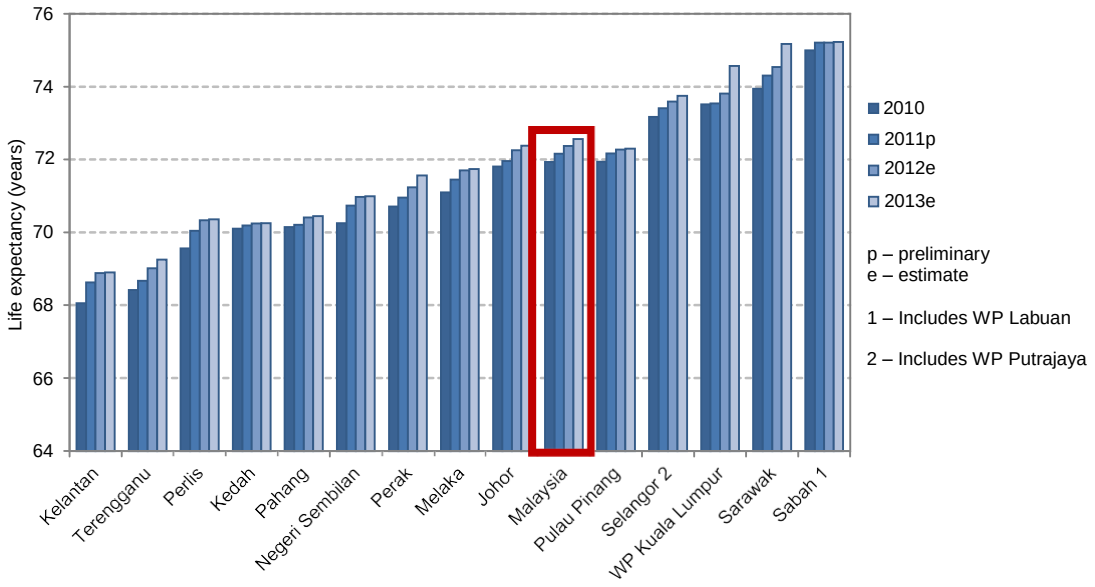


Figure 1.2: Male life expectancy by states of Malaysia
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

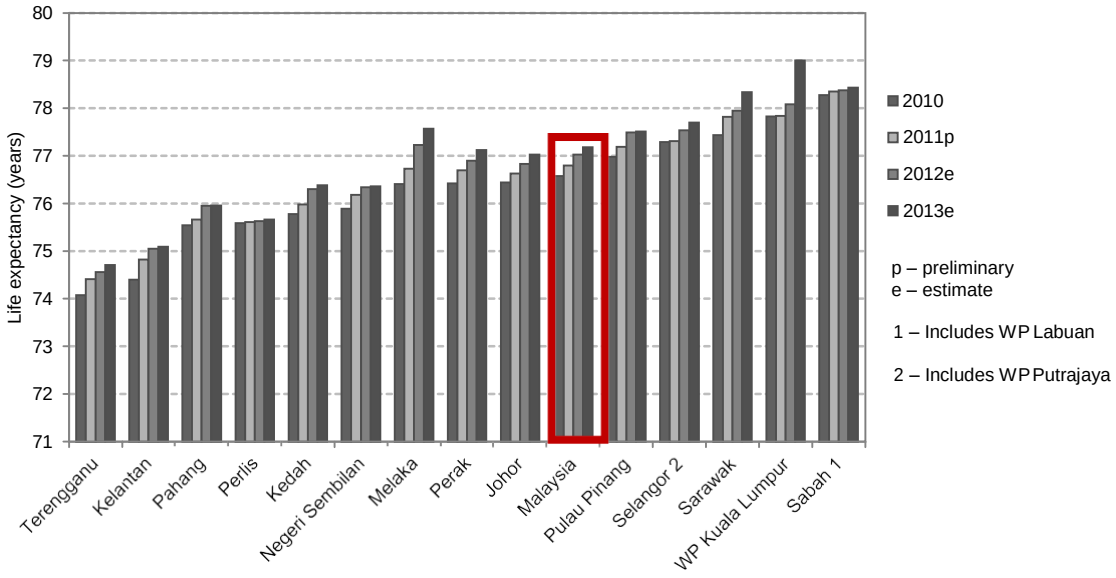
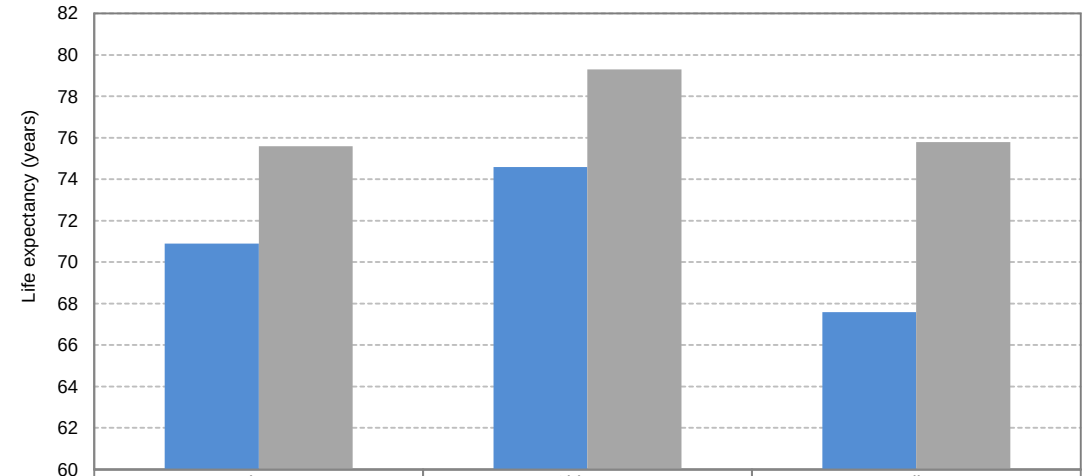


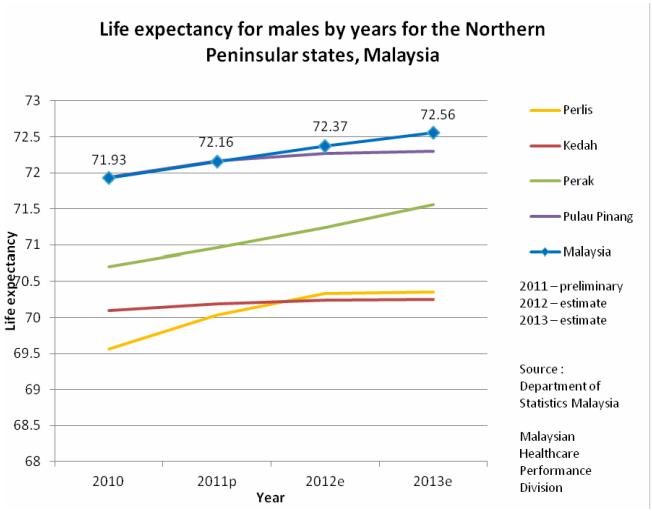
Figure 1.3: Female life expectancy by states of Malaysia
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.



	Bumiputera	Chinese	Indian
Male	70.90	74.60	67.60
Female	75.60	79.30	75.80

Figure 1.4: Life expectancy in Malaysia by ethnicity in 2011

Source: Department of Statistics Malaysia. Graph was generated by the MHPU.



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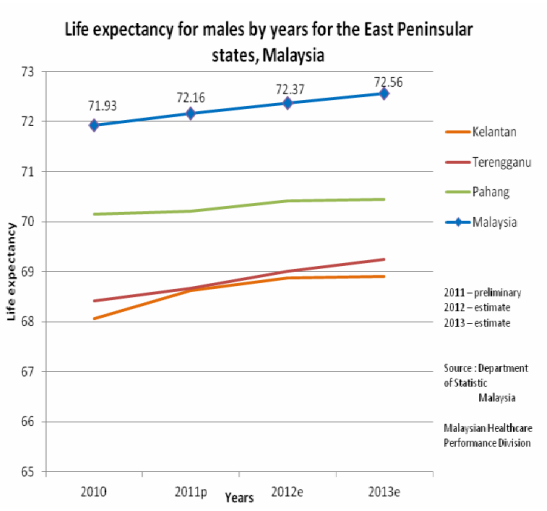

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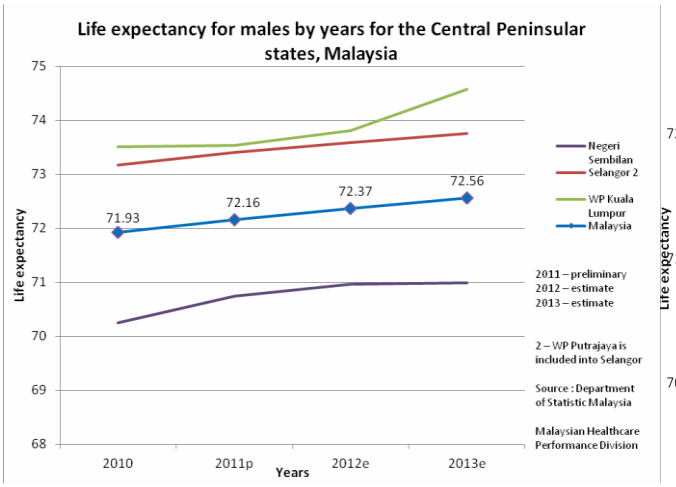

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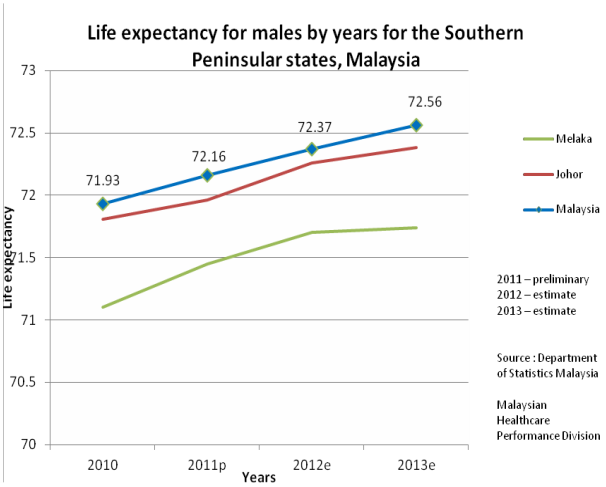

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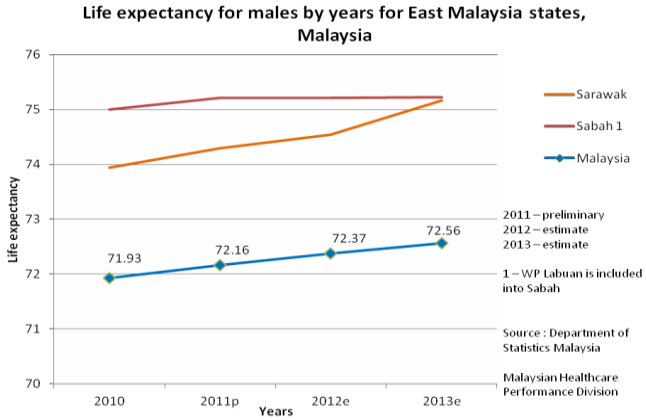
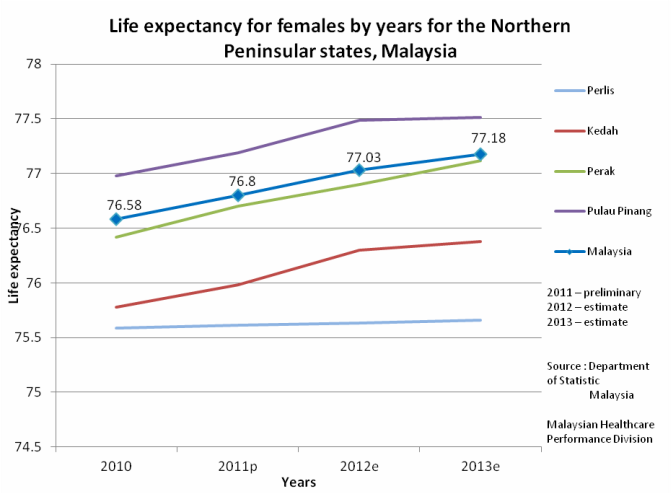


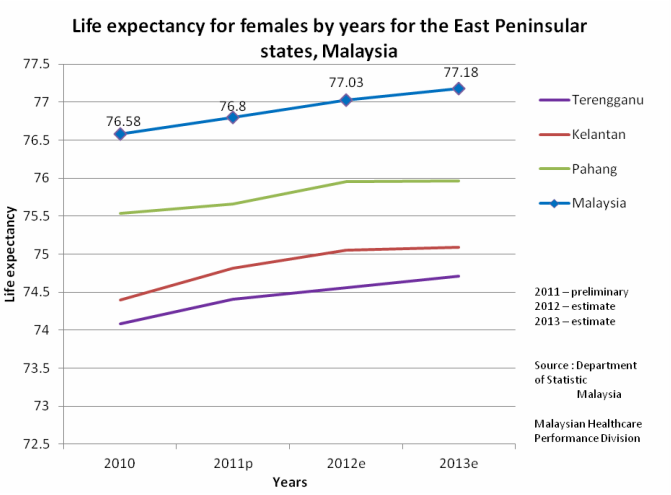
(e)

Figure 1.5 (a),(b),(c),(d),(e): Life expectancy of Malaysian males by regions in Malaysia

Source: Department of Statistics Malaysia. All graphs were generated by the MHPU.



(a)



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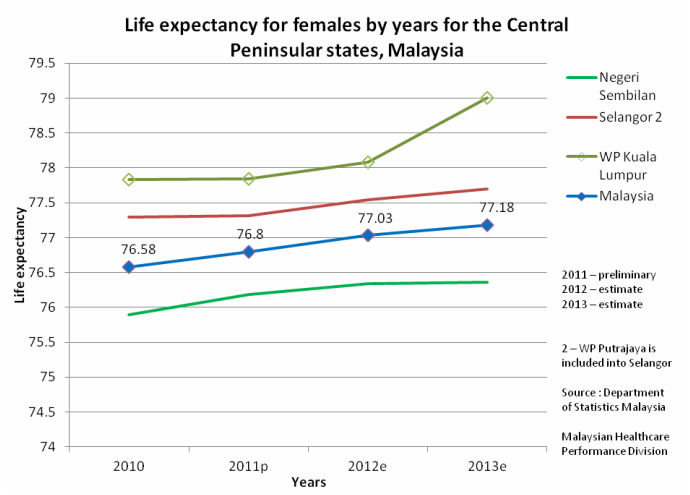

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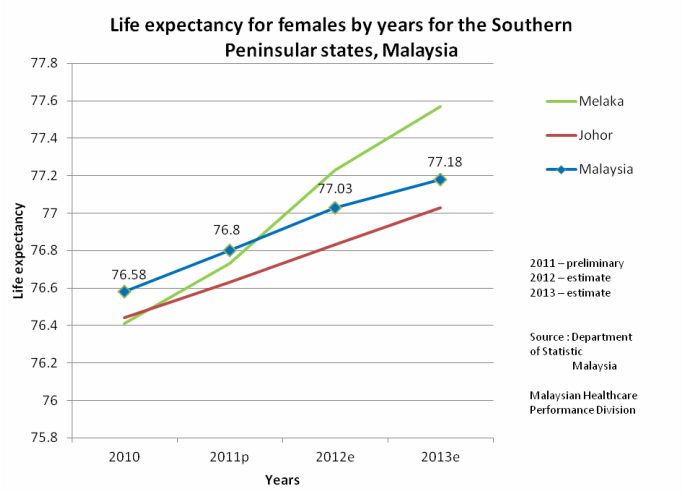

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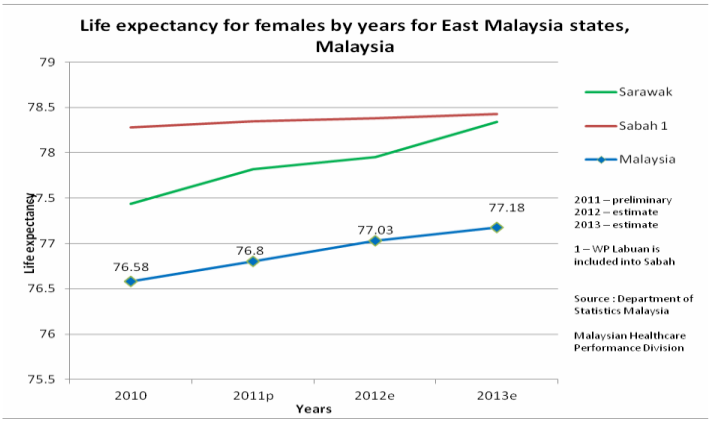


(e)

Figure 1.6 (a),(b),(c),(d),(e): Life expectancy of Malaysian Females according to regions in Malaysia

Source: Department of Statistics Malaysia. All graphs were generated by the MHPU.

1.1.3.2. External Benchmarking

Malaysian life expectancy was below that of OECD countries but slightly above that of Asia-22 (22 selected Asian countries) for both genders in 1970 and 2010 (Figure 1.7).

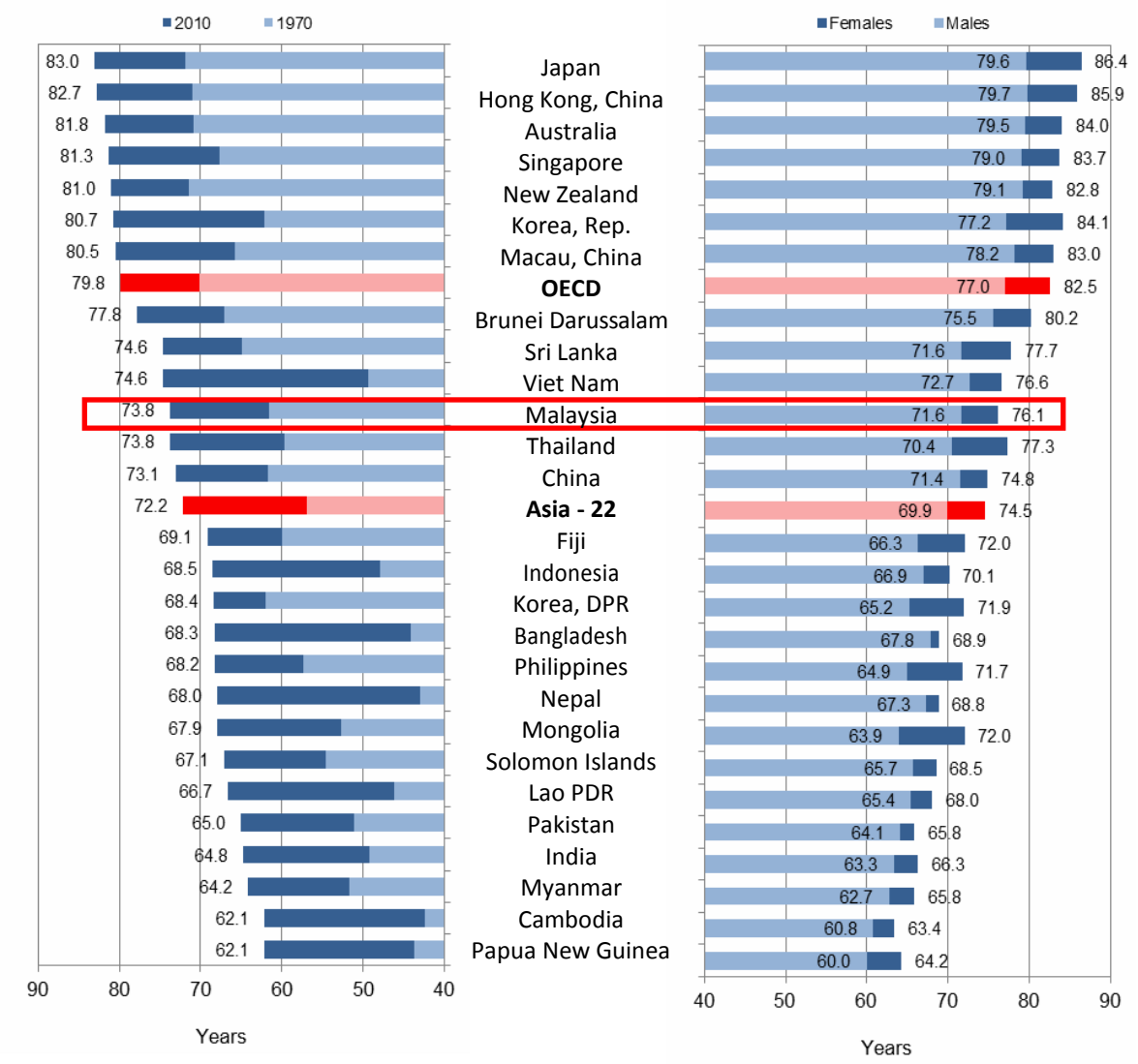


Figure 1.7: Life expectancy at birth, by country and sex, 1970 vs 2010 [3]

1.2. Mortality

Mortality is one of the most common measures of population health. There can be different rates of mortality depending on specific groups of which they address. The rate can also be computed based on overall population death.

1.2.1. Definition of Crude Death Rate

Crude death rate (CDR) is the ratio of the number of deaths in a year to the mid-year population for that year (per thousand population) [7].

1.2.2. Rationale for use

Crude death rate disregards the age structure of the population. Therefore it should be interpreted as it is and not to be compared with other population with different ageing population**.**

1.2.3. Findings

1.2.3.1. Internal Benchmarking

CDR in Malaysia was 4.7 per 1000 population in 2011. The CDR ranged approximately 4.6 to 4.8 from 2008 to 2012 (Figure 1.9).

The range spanned from a low 2.4 per 1000 in Sabah and WP Labuan to 6.9 per 1000 population in Perlis respectively (Figure 1.9). The range varied widely from state to state.

(a) Numbers of deaths

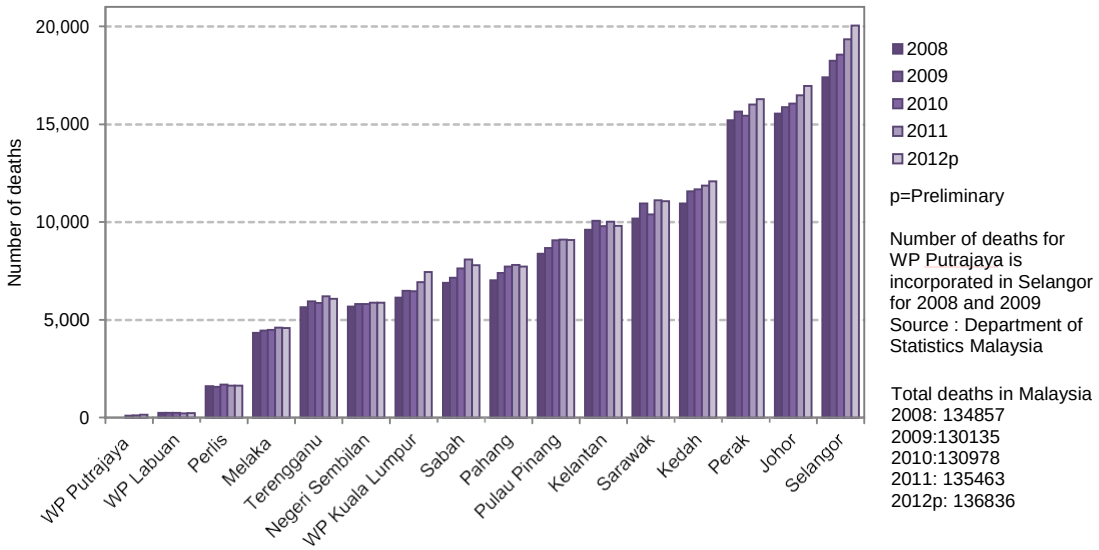


Figure 1.8: Number of deaths in Malaysia from 2008 to 2012 according to states

Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

(b) Crude death rate

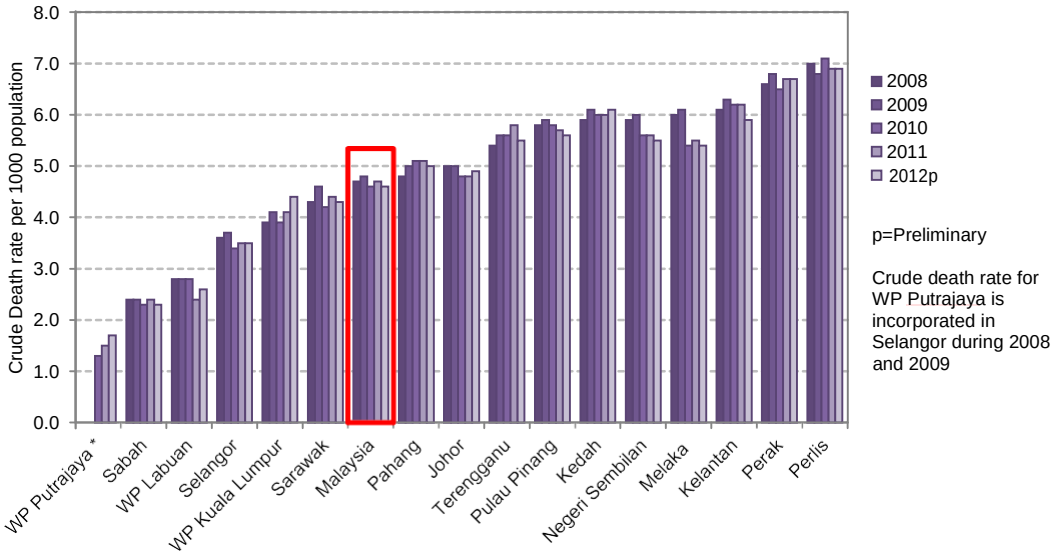
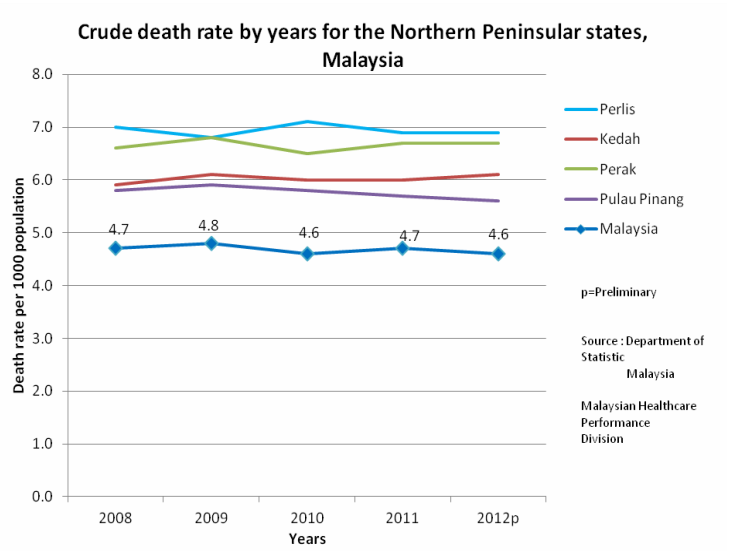


Figure 1.9: Crude death rate according to states

Source: Department of Statistics Malaysia. Graph was generated by the MHPU.



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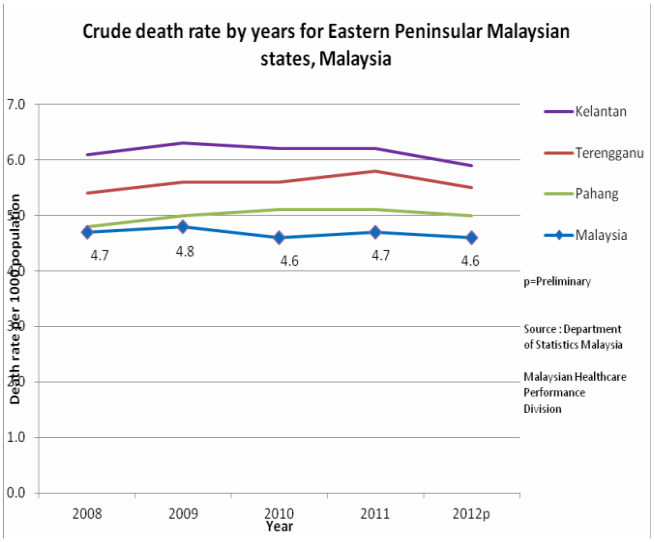

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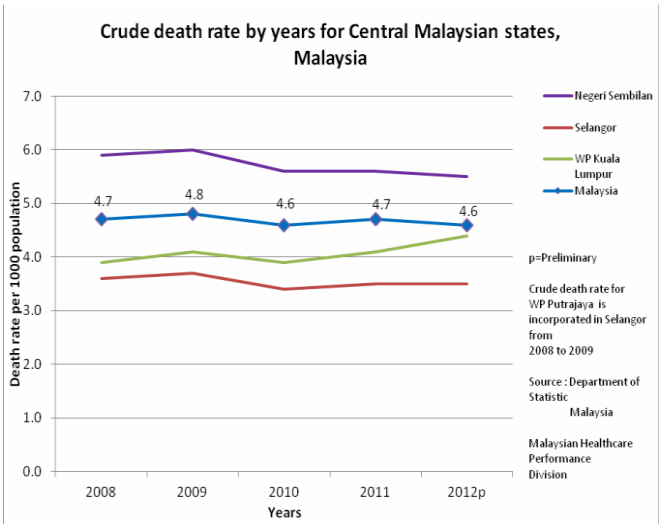

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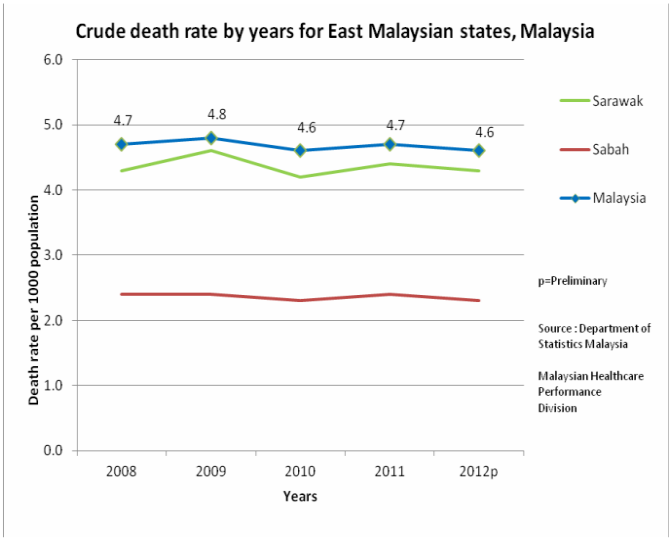

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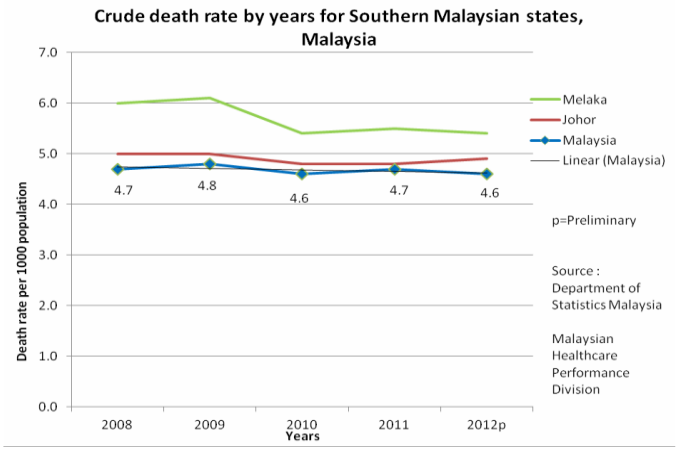


(e)

Figure 1.10 (a),(b),(c),(d),(e): Crude death rate of Malaysia according to regions

Source: Department of Statistics Malaysia. All graphs were generated by the MHPU.

1.2.3.2. External Benchmarking

Age standardization will remove the effect of population age structure on mortality rate between groups under comparison.

Figure 1.12 shows the age standardized mortality rate in Malaysia; 762 deaths per 100 000 population in comparison with selected countries in the neighboring regions. Malaysia had a higher mortality than the OECD average (474 per 100,000 populations); but lower than the Asia-20 (902 per 100,000 population).

In Malaysia, mortality rate for males is almost twice that of females. Nevertheless, this phenomenon is in parallel with generally many other countries where figure for male gender death is always higher (Figure 1.11) [3].

Benchmarking countries in Asia needs to be done with caution because some of the developing countries do not have complete vital registration system [3 &4].

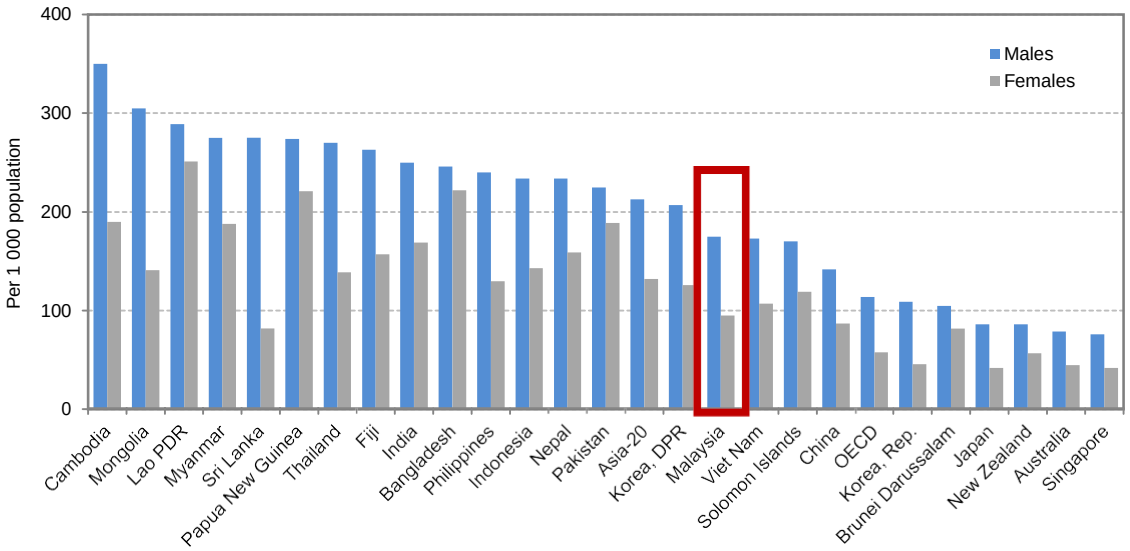


Figure 1.11: Adult mortality rate for ages 15 to 60, 2009

Source: WHO(2012f);Statlink http:/dx.doi.org/10.1787/888932722905

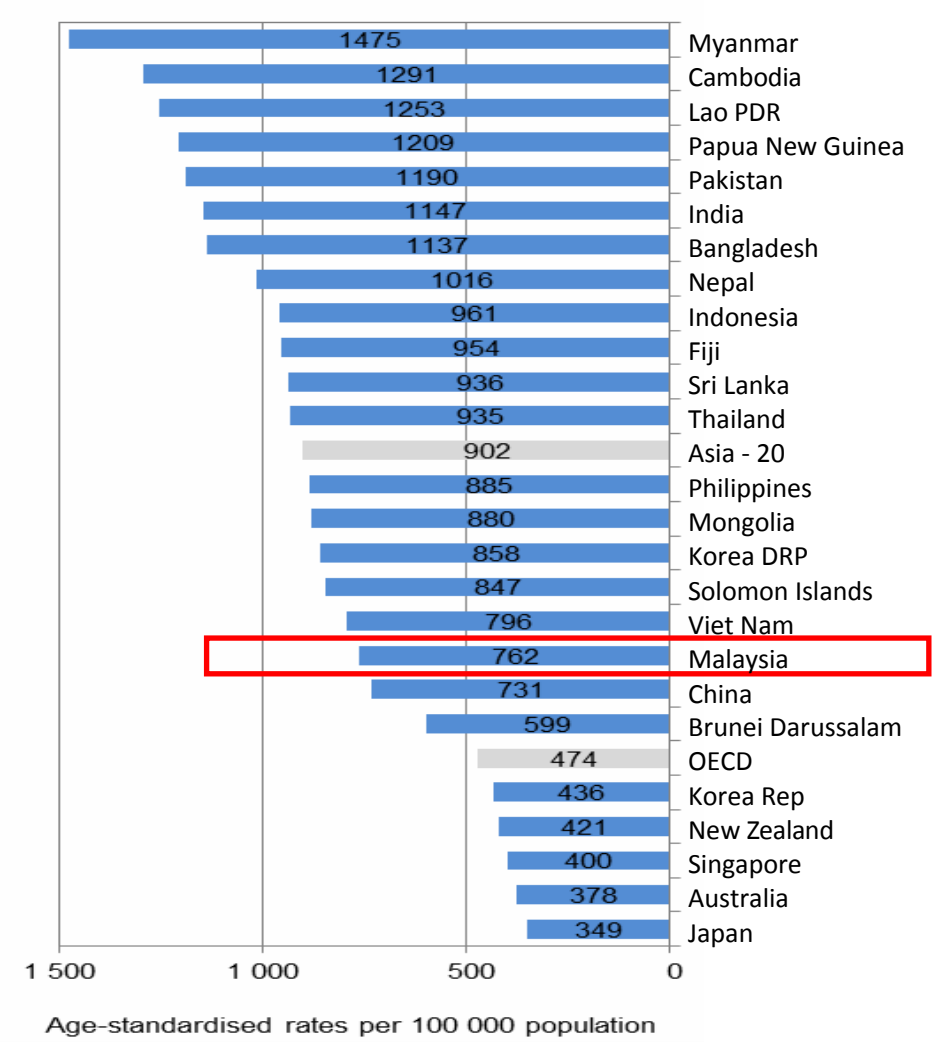


Figure 1.12: All causes, estimated mortality rates, 2008

Source: WHO Global Burden of Disease, 2011[4] and OECD[3], Graph reproduced by MHPU

Chapter 2 : CHILD HEALTHCARE

This chapter describes healthcare performance in term of Crude Birth Rate, Stillbirth Rate, Perinatal Mortality, Neonatal Mortality, Infant Mortality and Under-five Mortality.

2.1. Crude Birth Rate

2.1.1. Definition

Crude birth rate is defined as a ratio of the number of live births during a year to the mid-year population in that year (per 1000 population) [7].

Live birth refers to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life - e.g. beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles - whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born [5].

2.1.2. Rationale for use

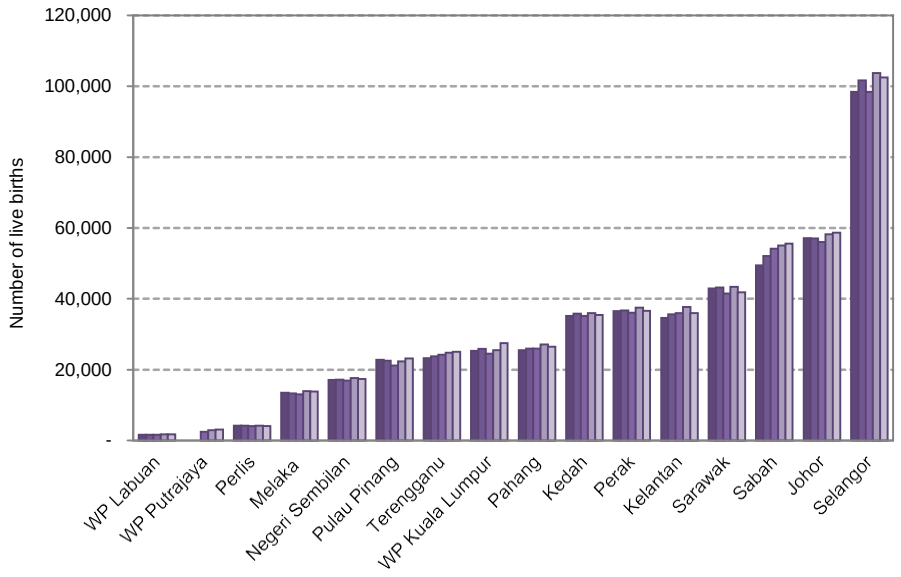
Crude birth rate is an important component of growth in the country which determines the natural growth rate of the population.

2.1.3. Findings

The birth rates recorded across the different states for the specified time period appear to be consistent with only few exceptions: the relatively high birth rates seen in the East Coast states of Kelantan and Terengganu and the remarkably high birth rate in record for WP Putrajaya.

2.1.3.1. Internal Benchmarking

(a) Numbers of live births

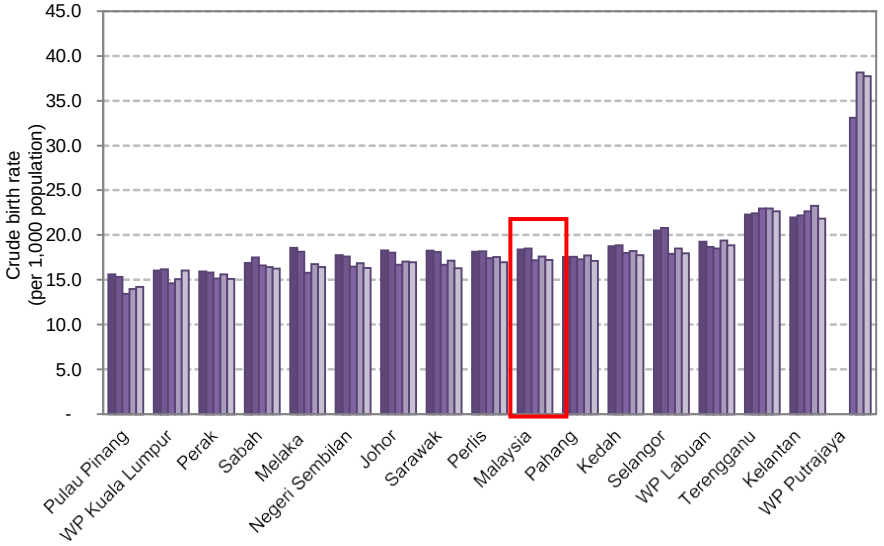


p=Preliminary

Number of live births for WP Putrajaya were incorporated into Selangor in 2008 and 2009

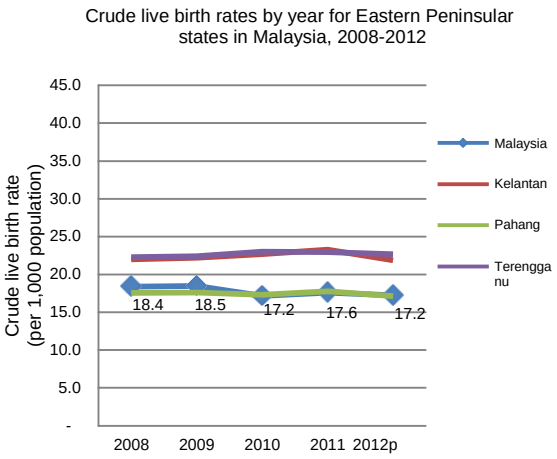
Total cases in Malaysia:
2008: 487,346 cases
2009: 496,313 cases
2010: 491,239 cases
2011: 511,594 cases
2012p: 508, 774 cases

(b) Crude birth rate

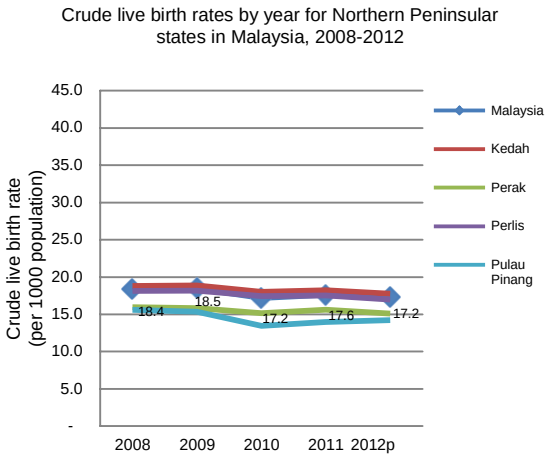


p = Preliminary

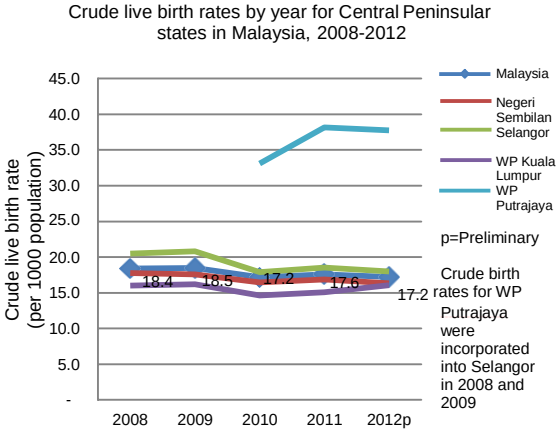
Crude birth rates for WP Putrajaya were incorporated into Selangorin 2008 and 2009



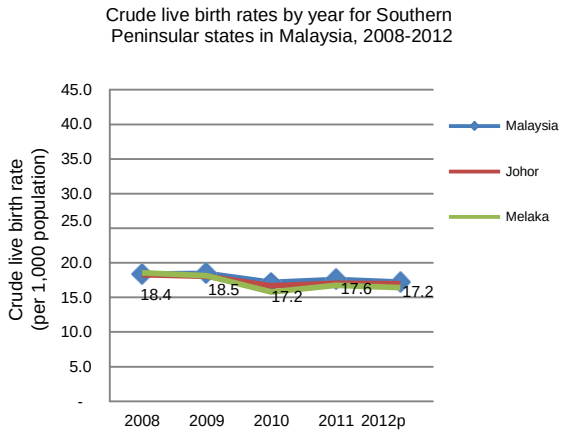
(a)



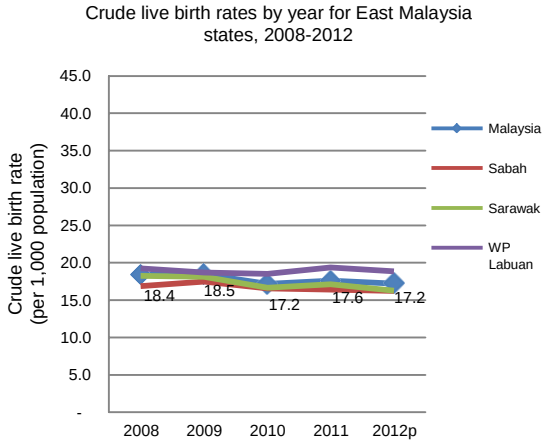
(b)



(c)



(d)



(e)

Figure 2.3 (a),(b),(c),(d),(e): Crude birth rates by regions in Malaysia, 2008-2012

Source: Department of Statistics Malaysia. All graphs were generated by the MHPU.

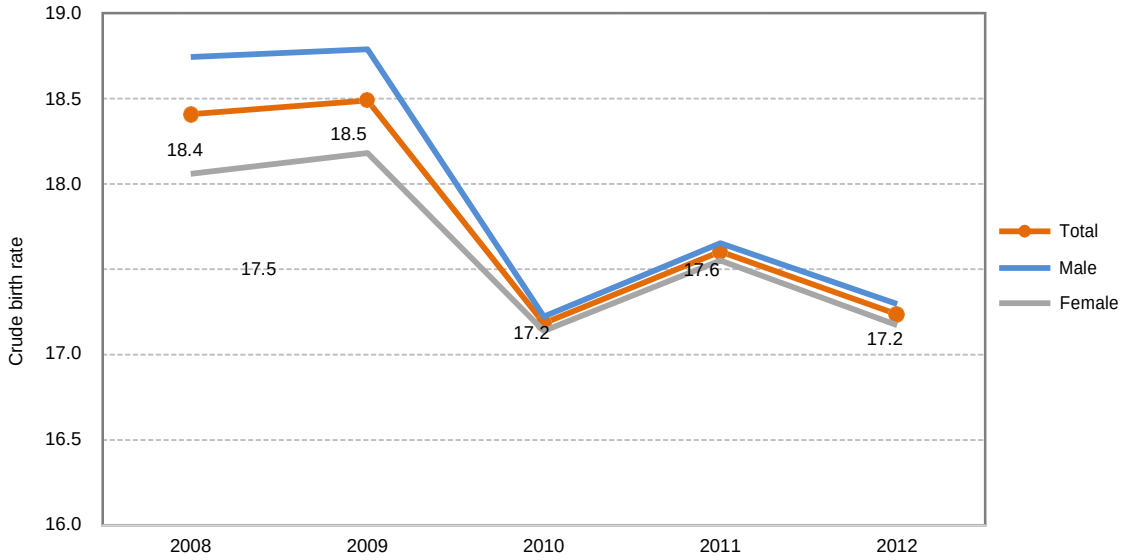


Figure 2.4: Crude birth rates by gender in Malaysia, 2008-2012

Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

2.2. Stillbirth

2.2.1. Definition

Stillbirth is defined as births after 28 completed weeks or more of gestation without any sign of life during delivery [9].

Unit of Measurement: Deaths per 1,000 total births

$$\text{Stillbirth rate} = \frac{\text{Number of stillbirths in year t}}{\text{Number of live births + number of stillbirths in year t}} \times 1000$$

2.2.2. Rationale for use

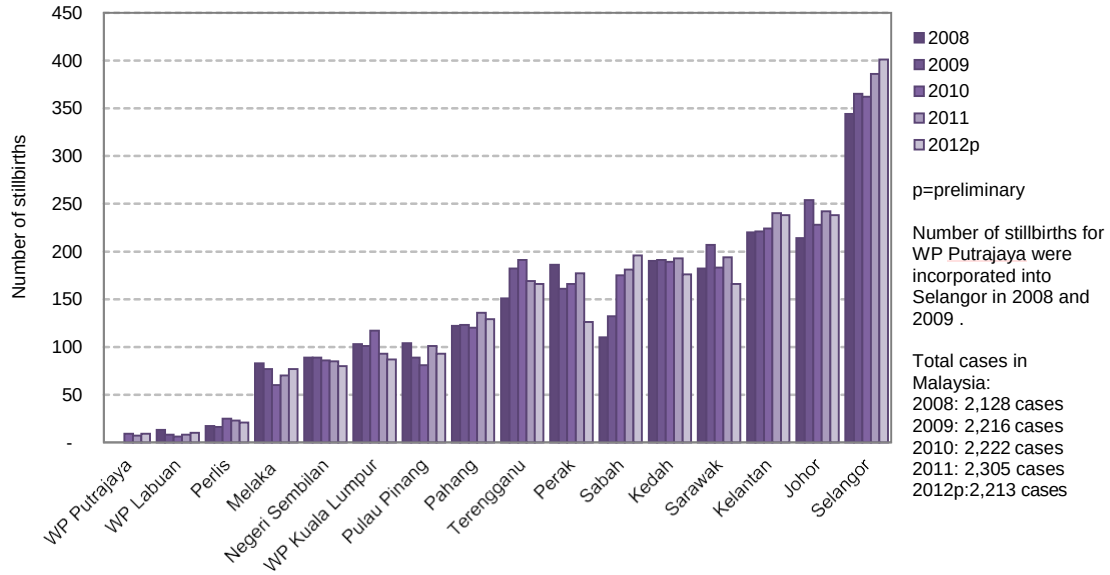
Majority of the causes of stillbirths are preventable. This indicator reflects the quality of the provision of maternal care. Stillbirth reporting is to include statistics for death only of potentially viable fetus. Therefore different healthcare institution may use different data definition depending on the capability of the institution to care for the newborns.

2.2.3. Findings

From 2008 to 2012, stillbirth rate for Malaysia remained fairly constant between four and five per 1000 total birth respectively. However, Terengganu and Kelantan were persistently above the average.

2.2.3.1. Internal Benchmarking

(a) Numbers of stillbirths



(b) Stillbirth rate

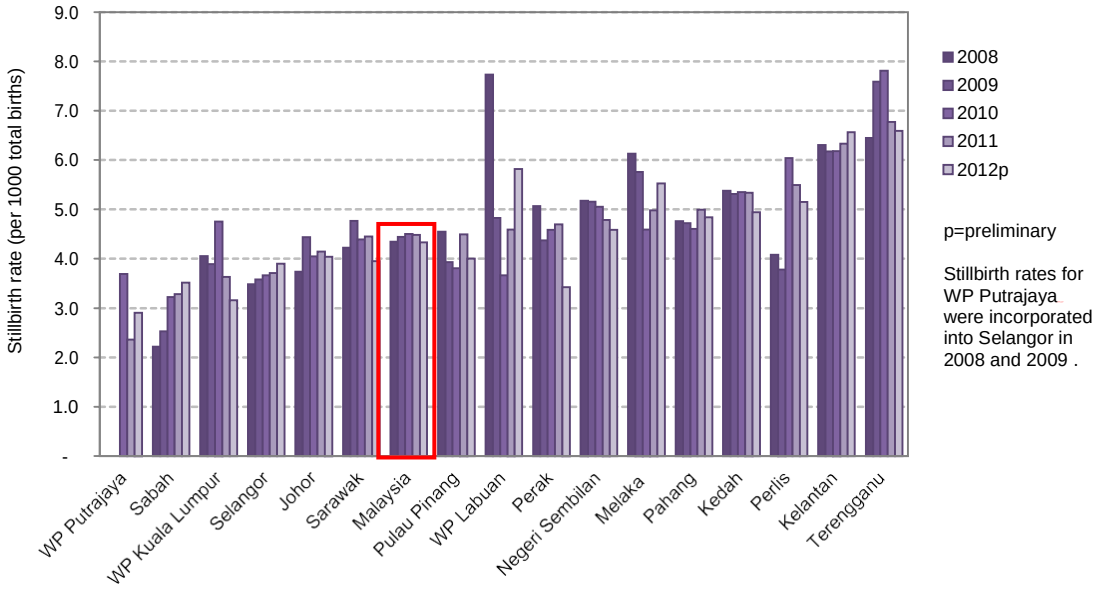
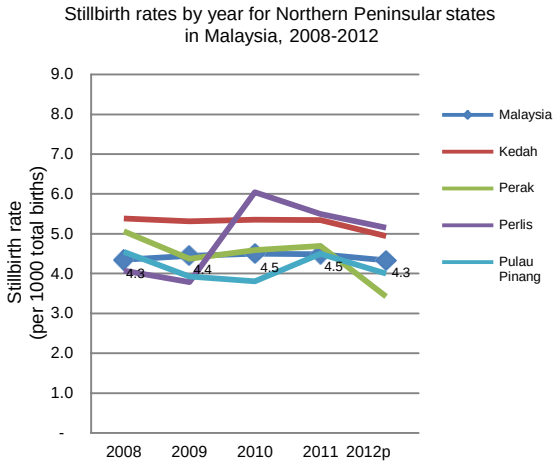
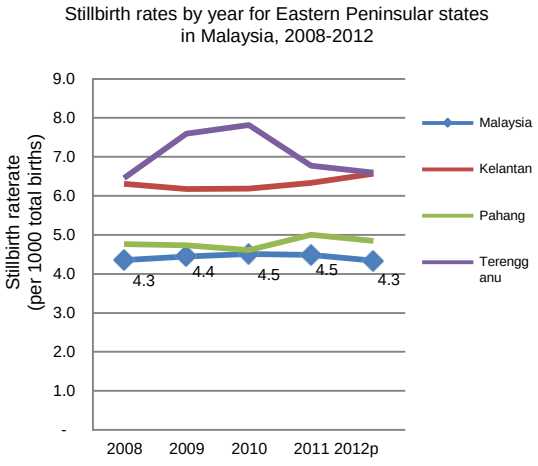


Figure 2.6: Stillbirth rates by states in Malaysia, 2008-2012

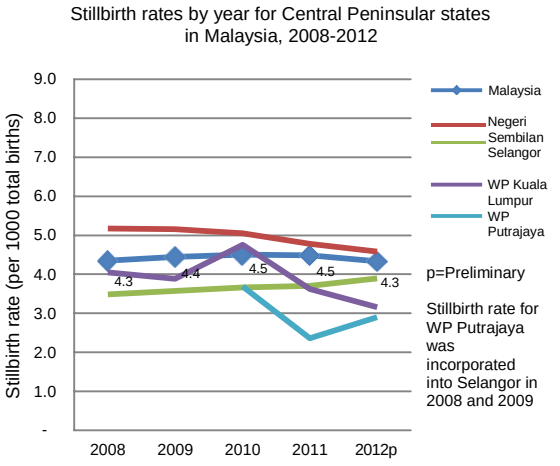
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.



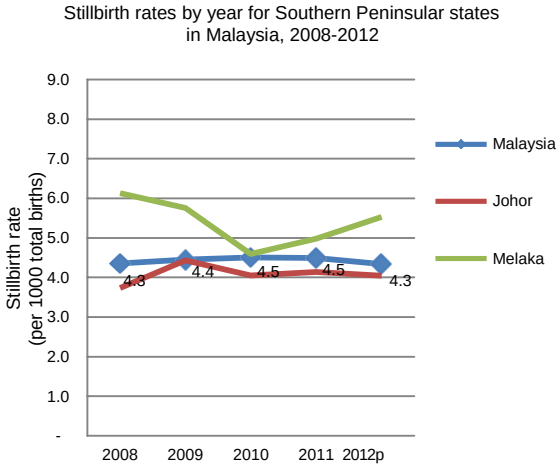
(a)



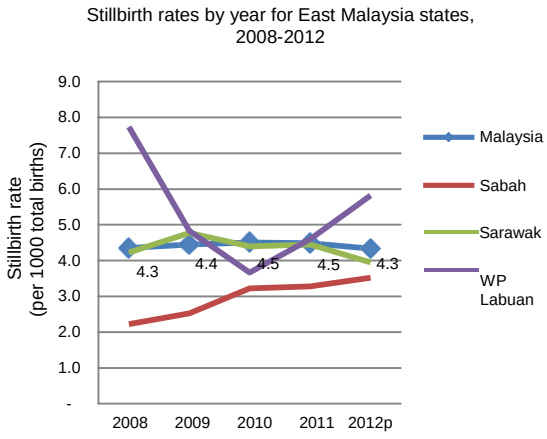
(b)



(c)



(d)



(e)

Figure 2.7 (a),(b),(c),(d),(e): Stillbirth rates by regions in Malaysia, 2008-2012

Source: Department of Statistics Malaysia. All graphs were generated by the MHPU.

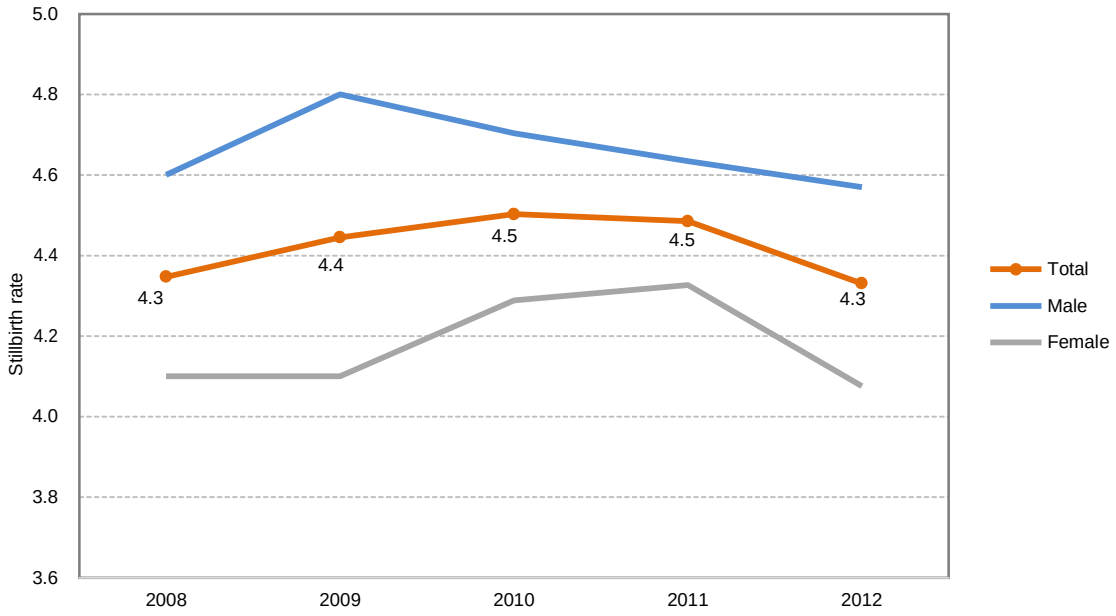


Figure 2.8: Stillbirth rates by gender in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

2.3. Perinatal Mortality

2.3.1. Definition

Perinatal mortality refers to stillbirths and deaths of infants aged less than 1 week [9].

Unit of Measurement: Deaths per 1,000 total births

$$\text{Perinatal mortality rate} = \frac{\text{Number of deaths under 1 week + number of stillbirths in year t}}{\text{Number of live births + number of stillbirths in year t}} \times 1000$$

2.3.2. Rationale for use

This indicator combines stillbirth and early neonatal death.

2.3.3. Findings

Perinatal mortality rate was relatively constant for overall Malaysia since 2008 (Figure 2.10). Among the states, WP Kuala Lumpur, Selangor and Johor had lower perinatal mortality whereas Terengganu, WP Labuan and Kelantan harbored persistently high number of cases per 1000 population.

2.3.3.1. Internal Benchmarking

(a) Numbers of perinatal mortalities

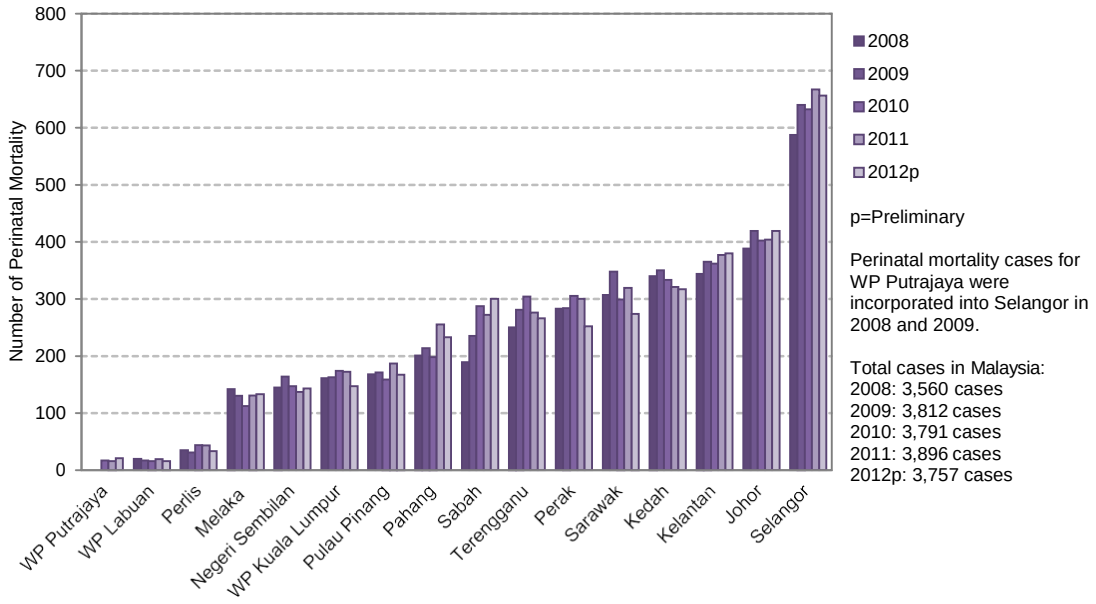


Figure 2.9: Number of perinatal mortalities by state in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

(b) Perinatal mortality rate

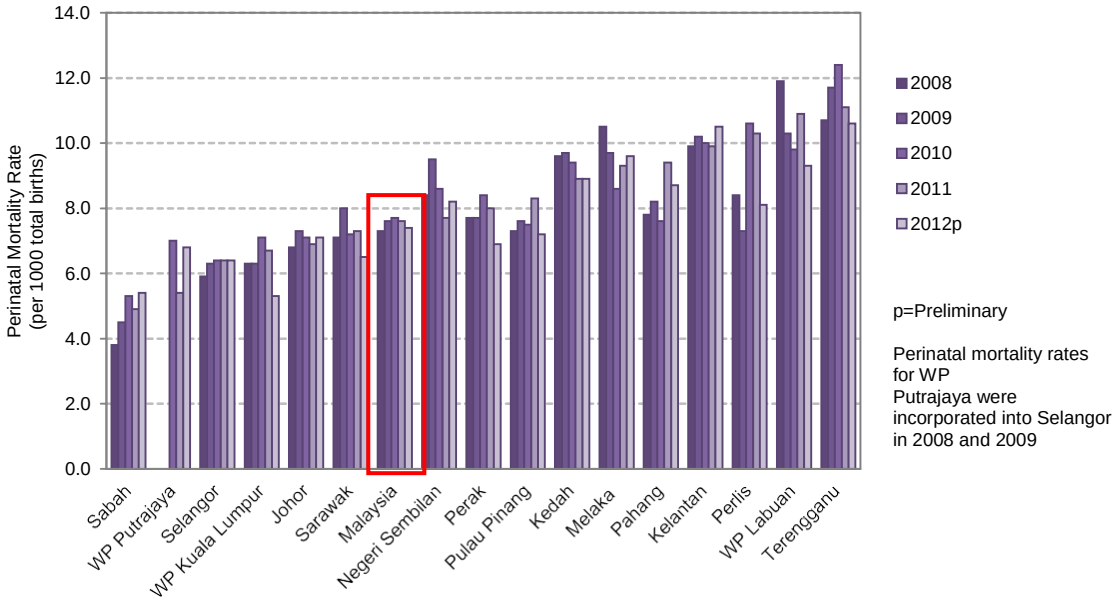
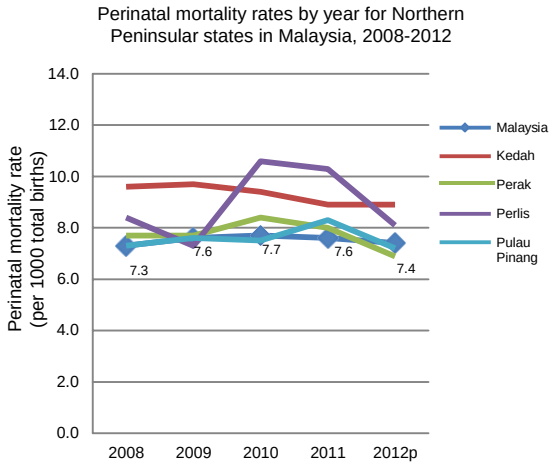
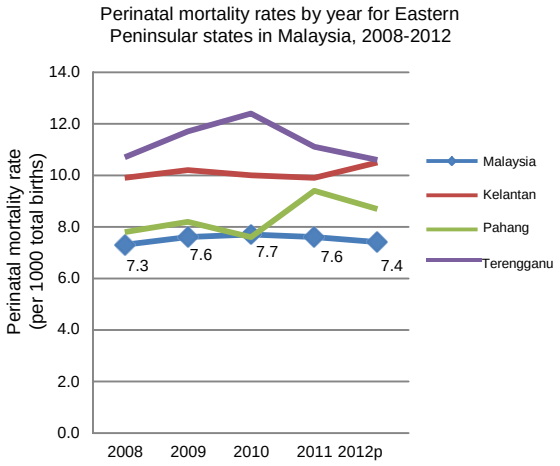


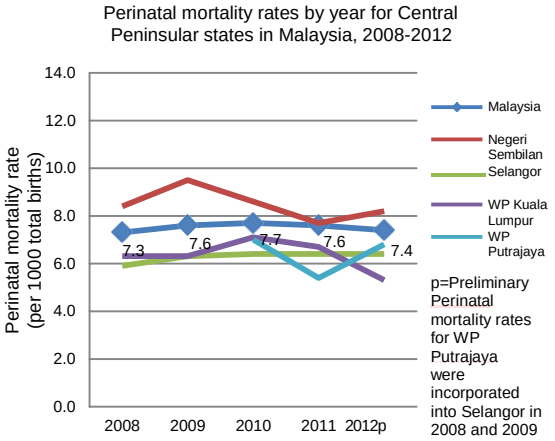
Figure 2.10: Perinatal mortality rates by states in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.



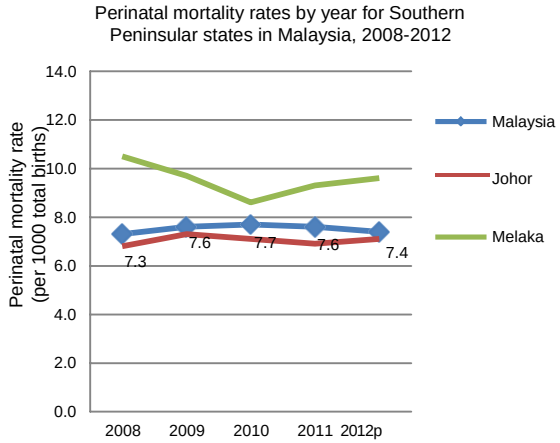
(a)



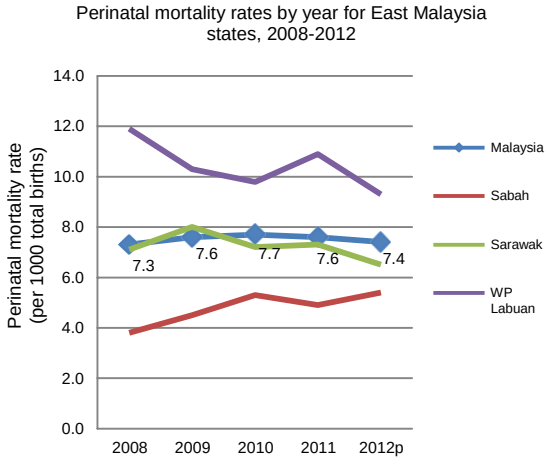
(b)



(c)



(d)



(e)

Figure 2.11 (a),(b),(c),(d),(e): Perinatal mortality rates by regions in Malaysia, 2008-2012

Source: Department of Statistics Malaysia. The graphs were generated by the MHPU.

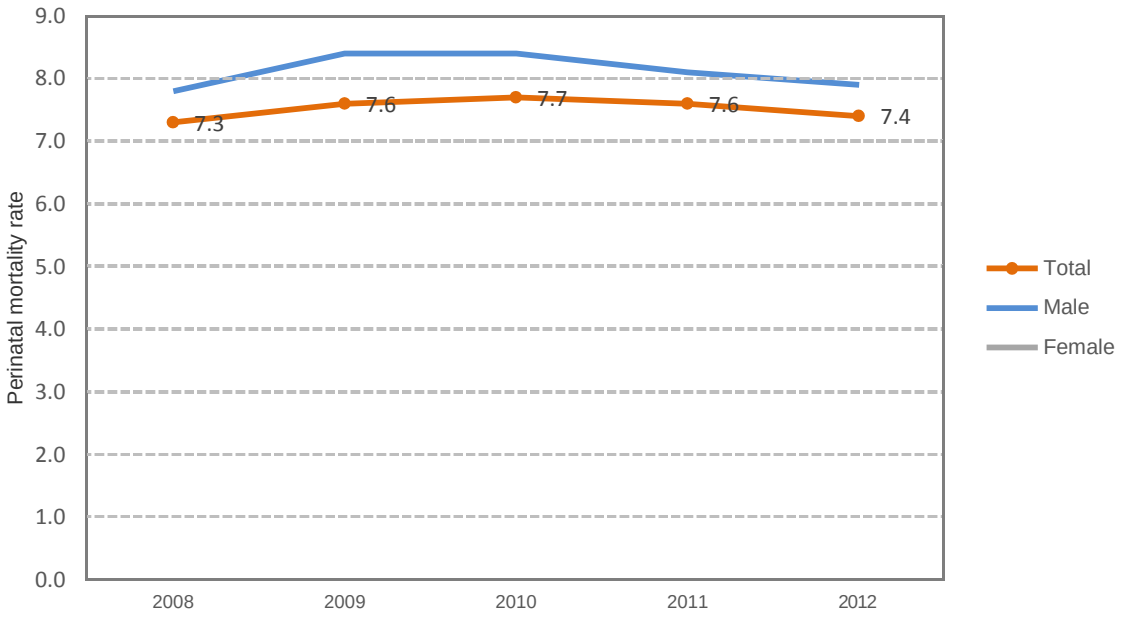


Figure 2.12: Perinatal mortality rates by gender in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

2.4. Neonatal Mortality

Neonatal deaths are subdivided into early neonatal deaths, occurring during the first seven days of life, and late neonatal deaths, occurring after the seventh day but before the 28 completed days of life.

2.4.1. Definition

Neonatal mortality refers to deaths of infants less than 28 days [9].
Unit of Measurement**:** Deaths per 1,000 live births

$$\text{Neonatal Mortality Rate} = \frac{\text{Number of deaths under 28 days of age in year t}}{\text{Number of live births in year t}} \times 1000$$

2.4.2. Rationale for use

Neonatal deaths account for a large proportion of child deaths. Mortality during neonatal period is considered a useful indicator of both maternal and newborn care. Factors such as health of the mother, antenatal care and birth weight are important determinants of neonatal mortality.

2.4.3. Findings

Neonatal mortality rate was found to be much lower in the Wilayah Persekutuan Kuala Lumpur and Selangor than the rest.

2.4.3.1. Internal benchmarking

(a) Number of neonatal deaths

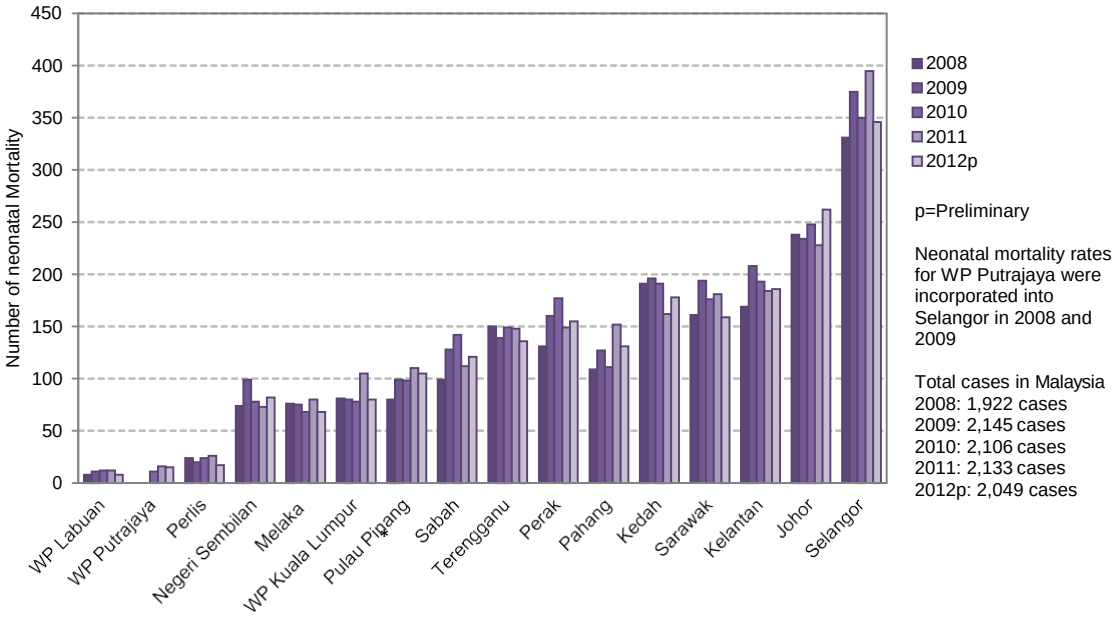


Figure 2.13: Number of neonatal mortality by states in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

(b) Neonatal mortality rate

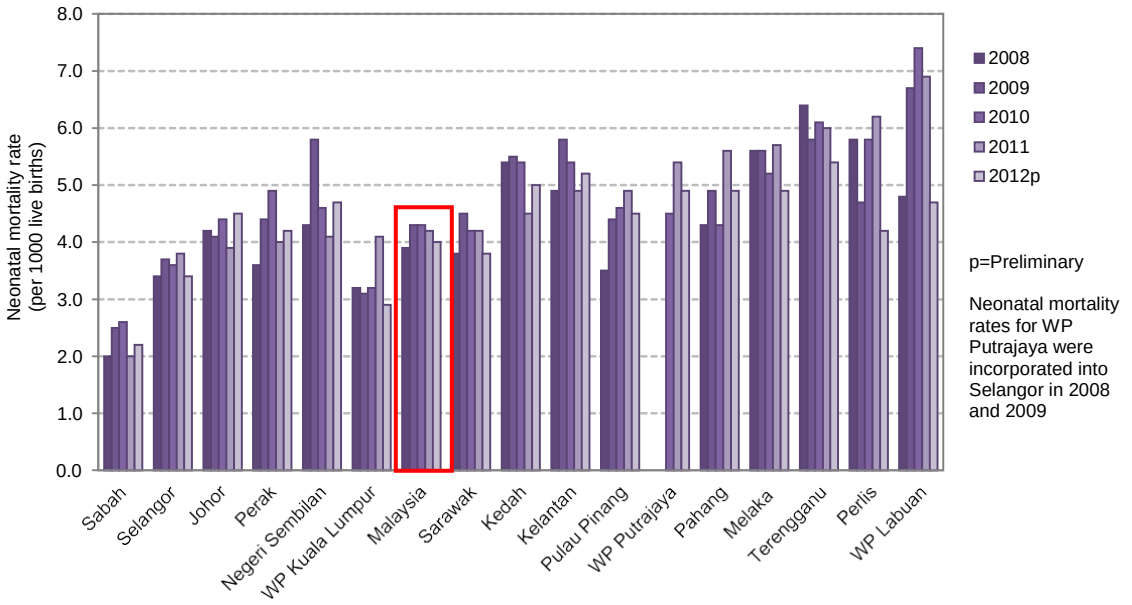
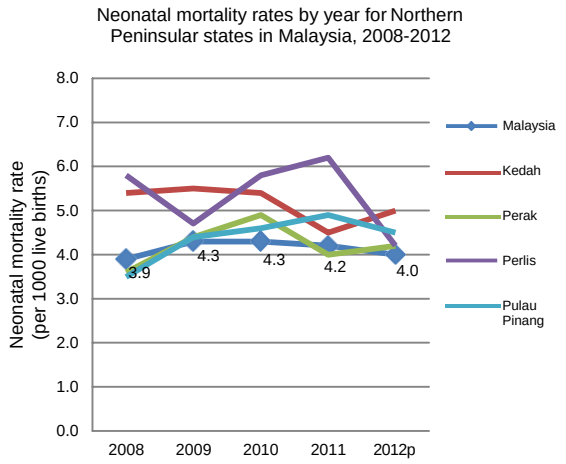
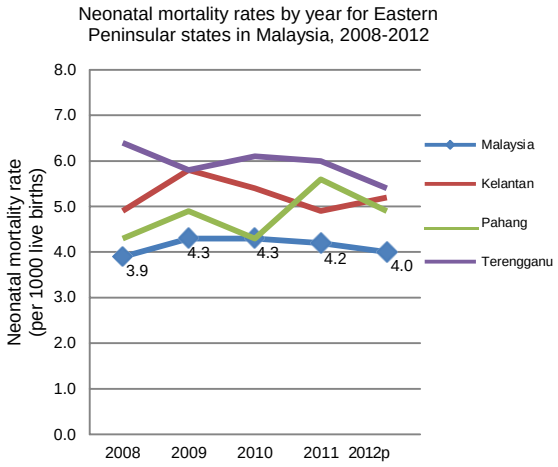


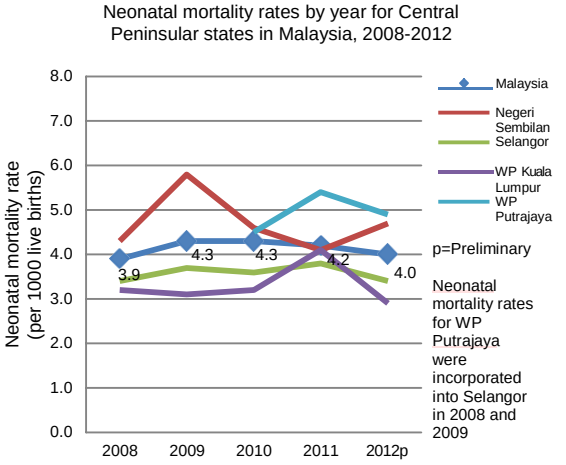
Figure 2.14: Neonatal mortality rates by states in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.



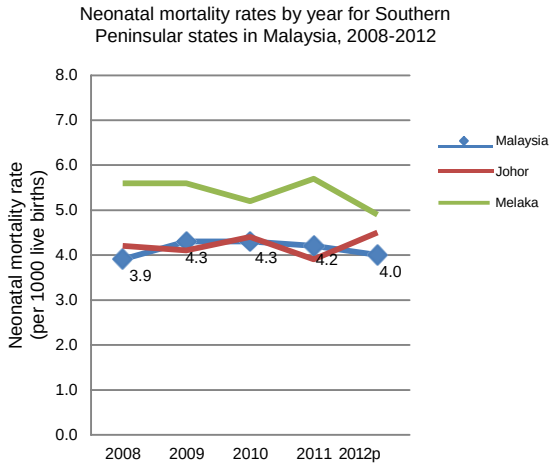
(a)



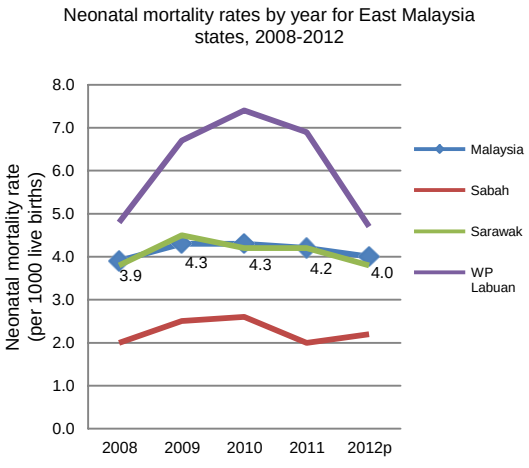
(b)



(c)



(d)



(e)

Figure 2.15 (a),(b),(c),(d),(e): Neonatal mortality rates by regions in Malaysia, 2008-2012

Source: Department of Statistics Malaysia. All graphs were generated by the MHPU.

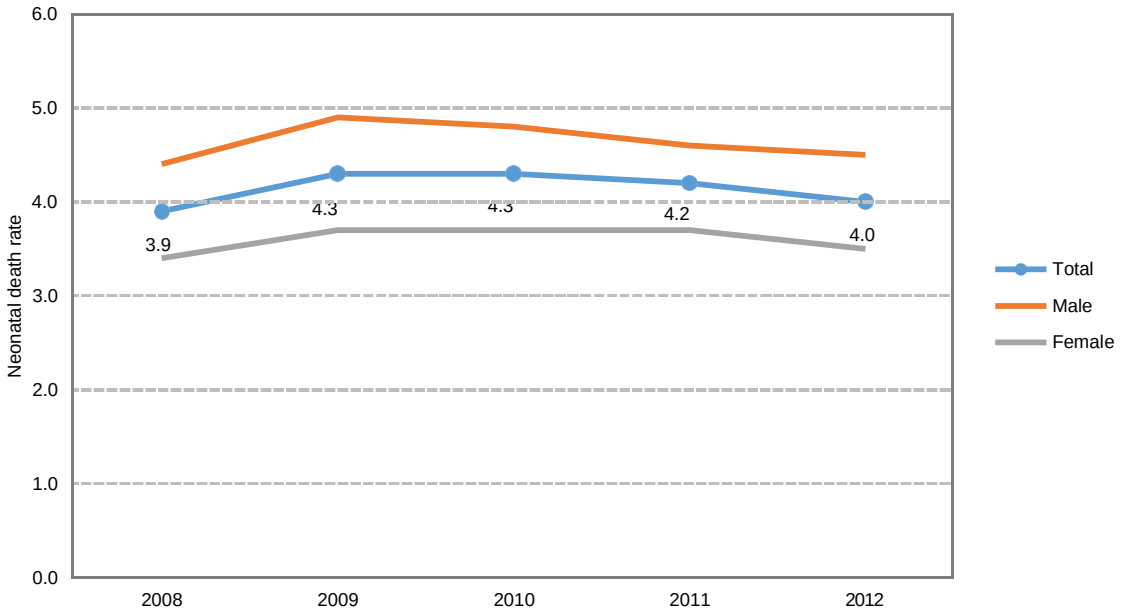


Figure 2.16: Neonatal mortality rates by gender in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

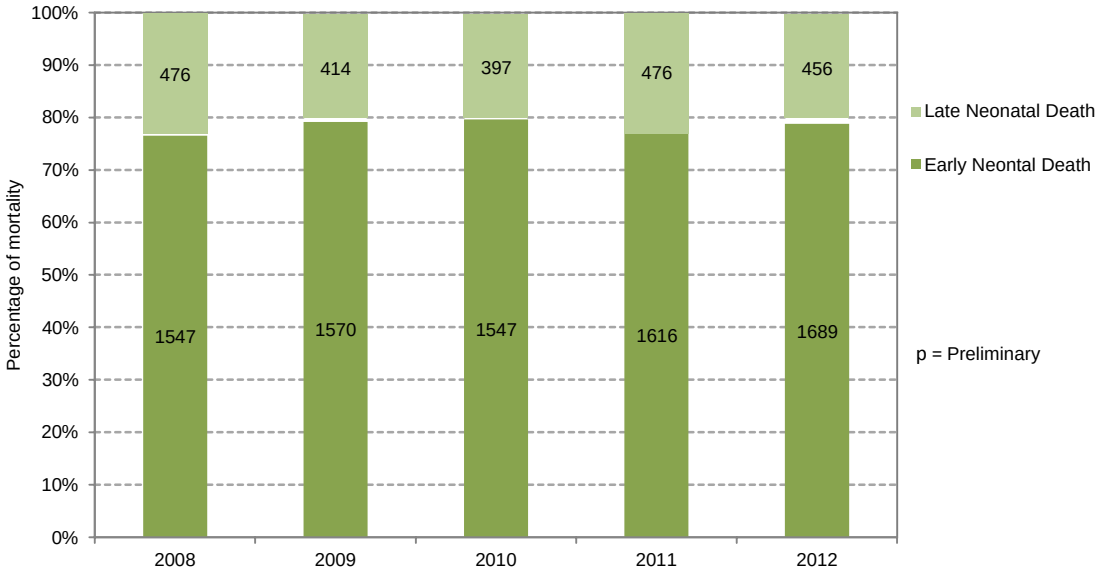


Figure 2.17: Neonatal mortality rates by categories in Malaysia, 2008-2012
Source: Family Health Development Division, MOH Malaysia.

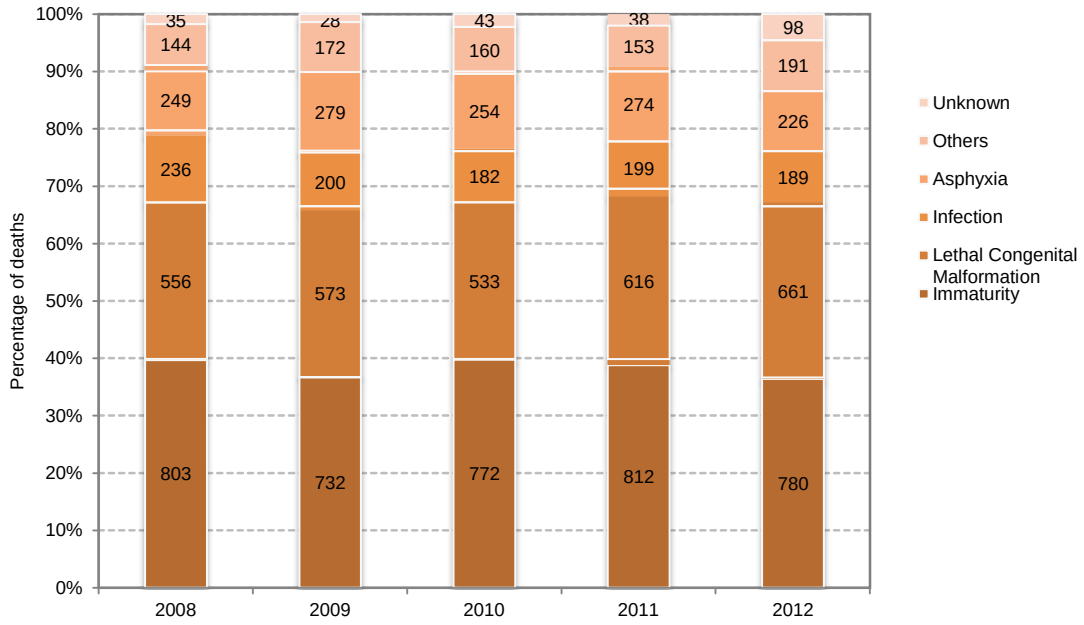


Figure 2.18: Causes of neonatal mortality in Malaysia, 2008-2012
Source: Family Health Development Division, MOH Malaysia.

Between 2008 and 2012, data from the Family Health Development Division (FHDD) unveiled that the main causes of neonatal death were immaturity and lethal congenital malformations (Figure 2.18).

2.5. Infant Mortality

2.5.1. Definition

Infant mortality refers to deaths of infants aged less than 1 year [9].

Unit of Measurement: Deaths per 1,000 live births

$$\text{Infant Mortality Rate} = \frac{\text{Number of deaths under 1 year of age in year t}}{\text{Number of live births in year t}} \times 1000$$

2.5.2. Rationale for use

Infant mortality reflects the availability, utilization and effectiveness of health care system, particularly, post-natal care.

2.5.3. Findings

The five years overall trend of infant mortality rates in Malaysia showed a decline. Notwithstanding that, drilling down to WP Putrajaya, an upward trend of infant mortality was evident (Figure 2.20).

2.5.3.1. Internal benchmarking

(a) Number of infant mortalities

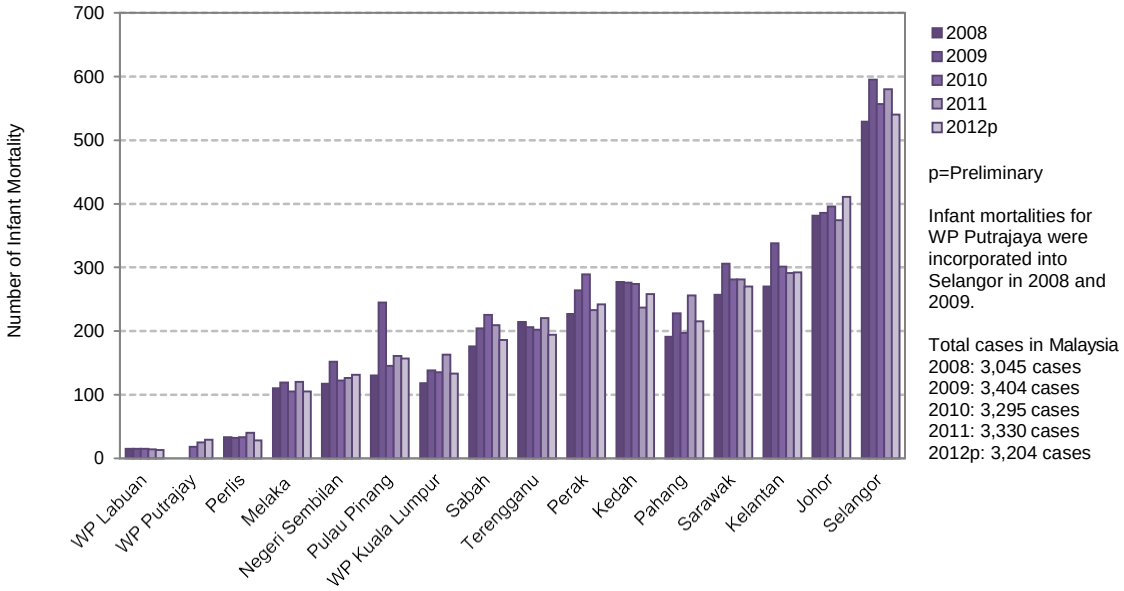


Figure 2.19: Number of infant deaths by states in Malaysia, 2008 - 2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

(b) Infant mortality rate

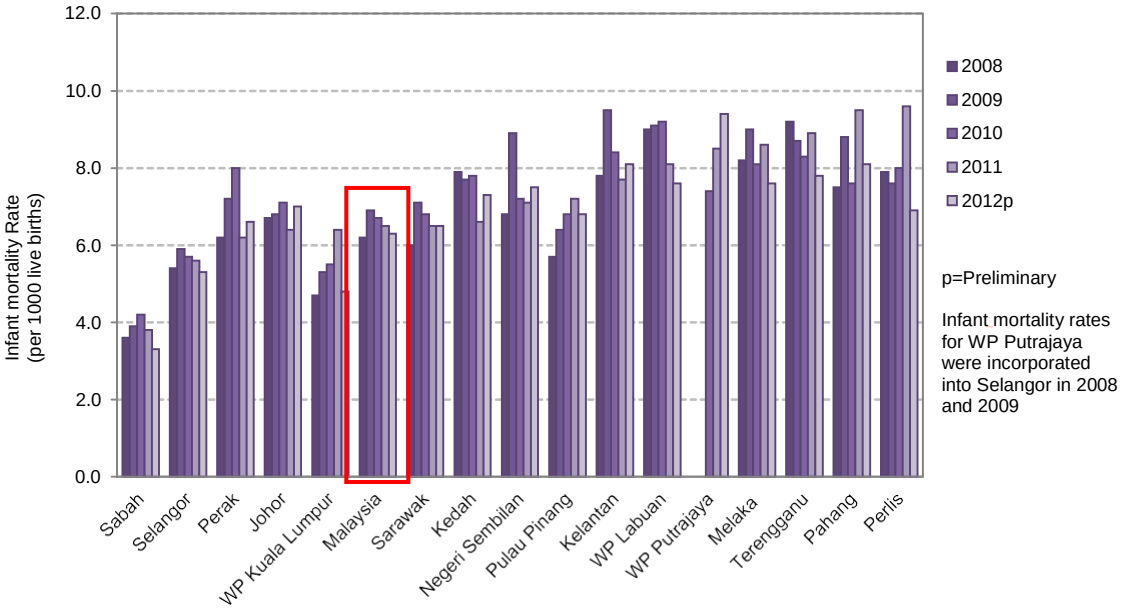


Figure 2.20: Infant mortality rates by states in Malaysia, 2008 - 2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

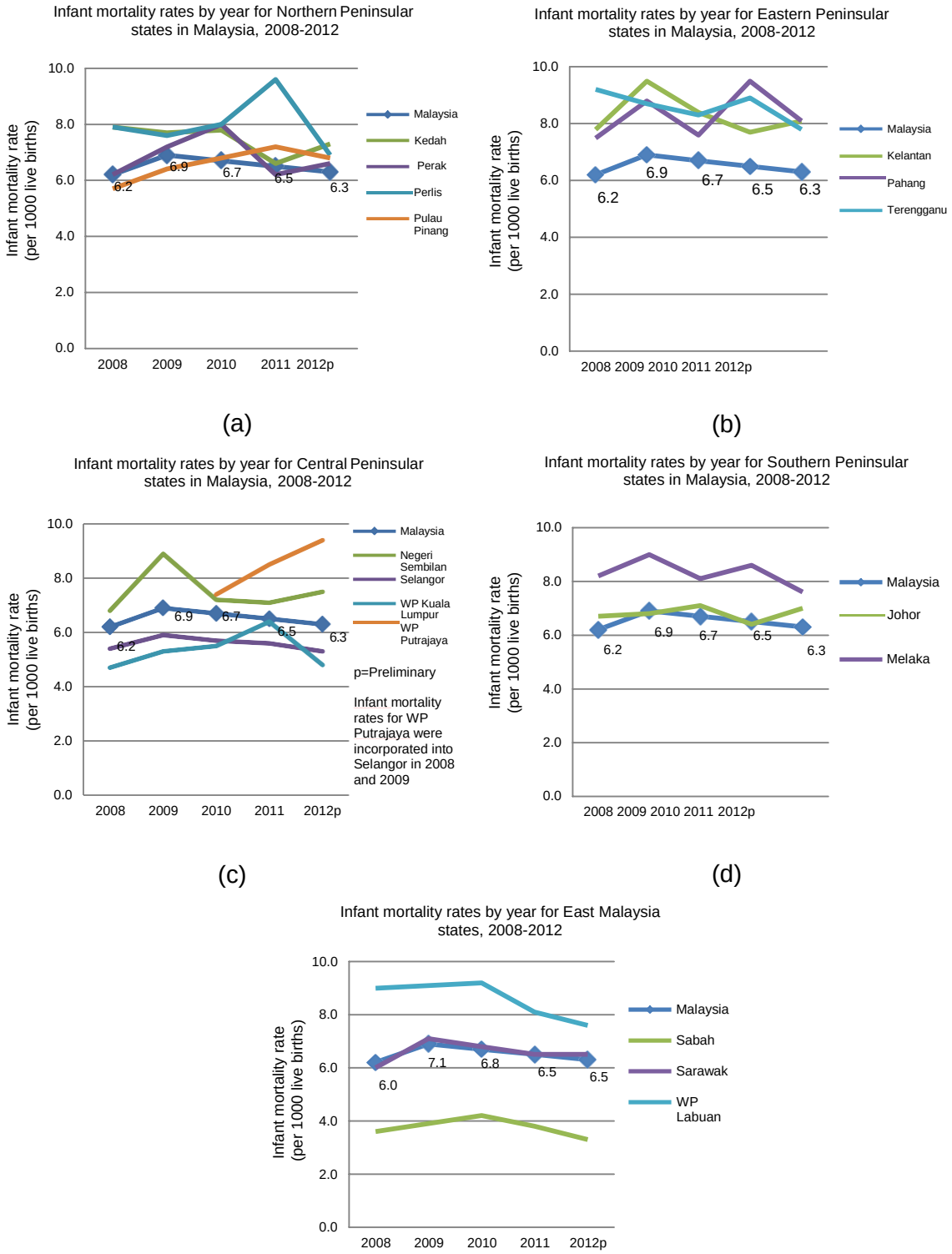


Figure 2.21 (a),(b),(c),(d),(e): Infant mortality rates by regions in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

Comparing the infant mortality rates by region from 2008 to 2012, there seems to be a clustering pattern of certain states in Northern and Eastern Peninsular region that recorded a much higher still birth rates than the rest (Figure 2.21 (a),(b),(c),(d),(e)).

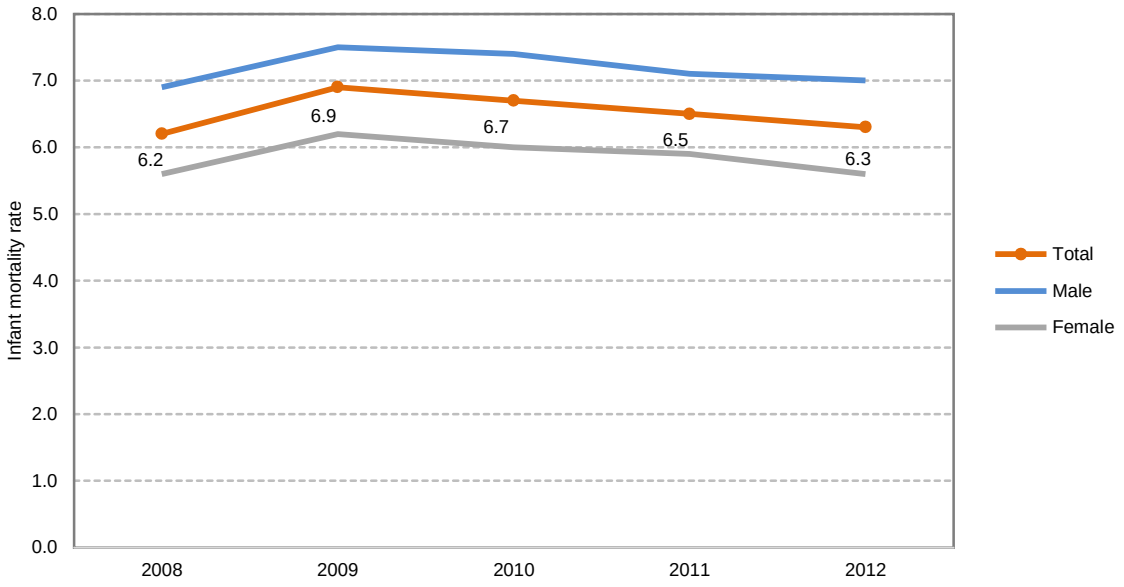


Figure 2.22: Infant mortality rates by gender in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

2.5.3.2. External Benchmarking

Over the last 30 years, there has been marked reduction in infant mortality rate in Asia/Pacific region. In countries such as Malaysia, Singapore, Republic of Korea, and Thailand, the decline has been by 75% or more[3] (Figure 2.23).

Malaysia was positioned at about the OECD average for infant mortality rate in 2010.

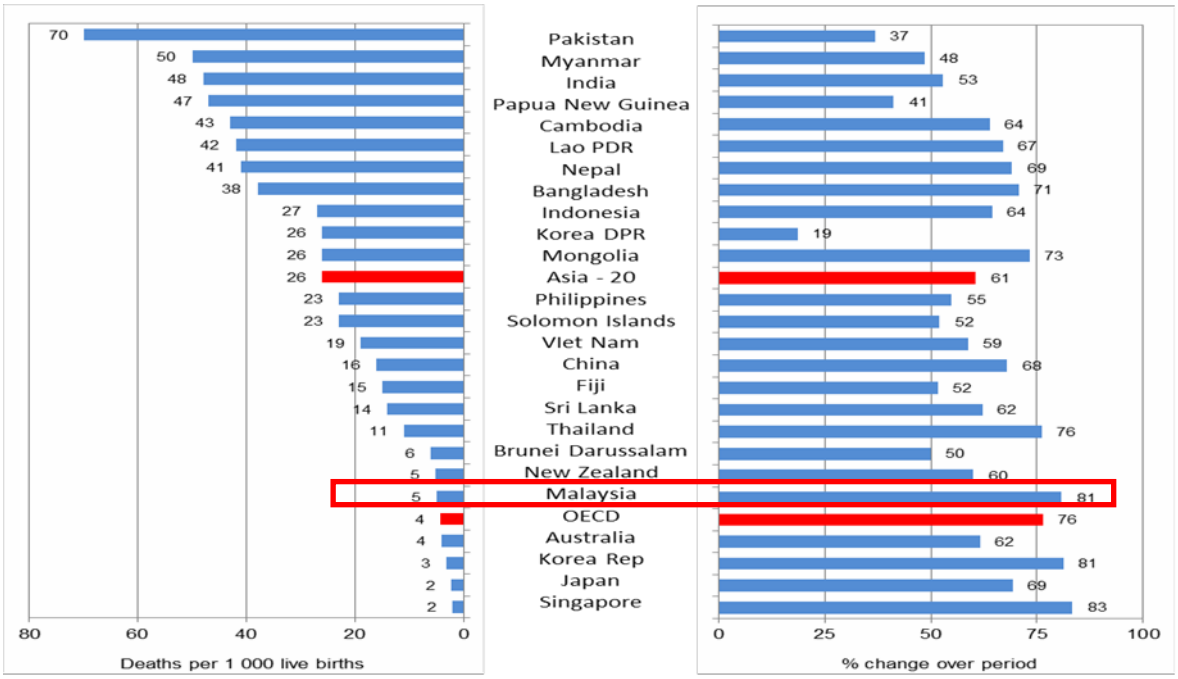


Figure 2.23: Infant mortality rate, 2010 and decline, 1980 and 2010 [3]
Source: OECD (2012)

2.6. Under-five Mortality

2.6.1. Definition

Under-five mortality refers to deaths of children under the age of 5 years old [9].

Unit of Measurement: Deaths per 1,000 live births

$$\text{Under-five mortality rate} = \frac{\text{Number of deaths under 5 years of age in year t}}{\text{Number of live births in year t}} \times 1000$$

2.6.2. Rationale for use

The under-five mortality rate reflects the impact of child survival interventions during the first few years of life. It is a Millennium Development Goal (MDG) 4.

2.6.3. Findings

Under-five mortality rate in Malaysia took a downtrend over the 5 year period (Figure 2.25). However, the pattern was inconsistent at the state level showing peaks at different point in time. In 2011, Perlis, Pahang and Terengganu ranked atop with highest mortality rate whereas Selangor, WP Kuala Lumpur and Kedah boasted with the least (Figure 2.25).

2.6.3.1. Internal benchmarking

(a) Number of under-five mortalities

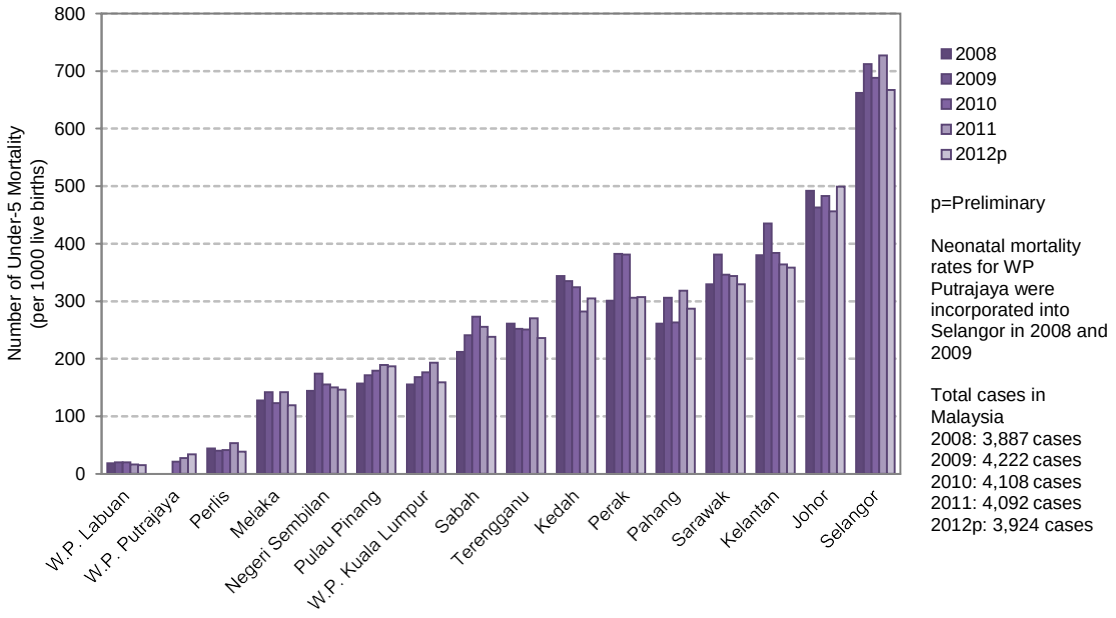


Figure 2.24: Number of under-five mortalities by states in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

(b) Under-five mortality rate

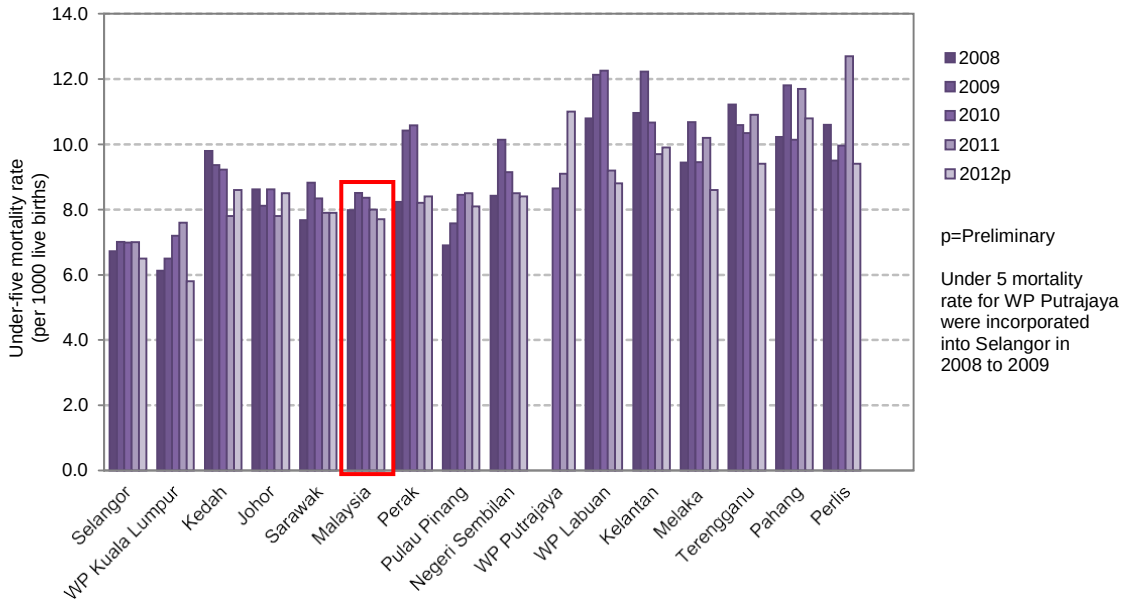


Figure 2.25: Under-five mortality rates by states in Malaysia, 2008 - 2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

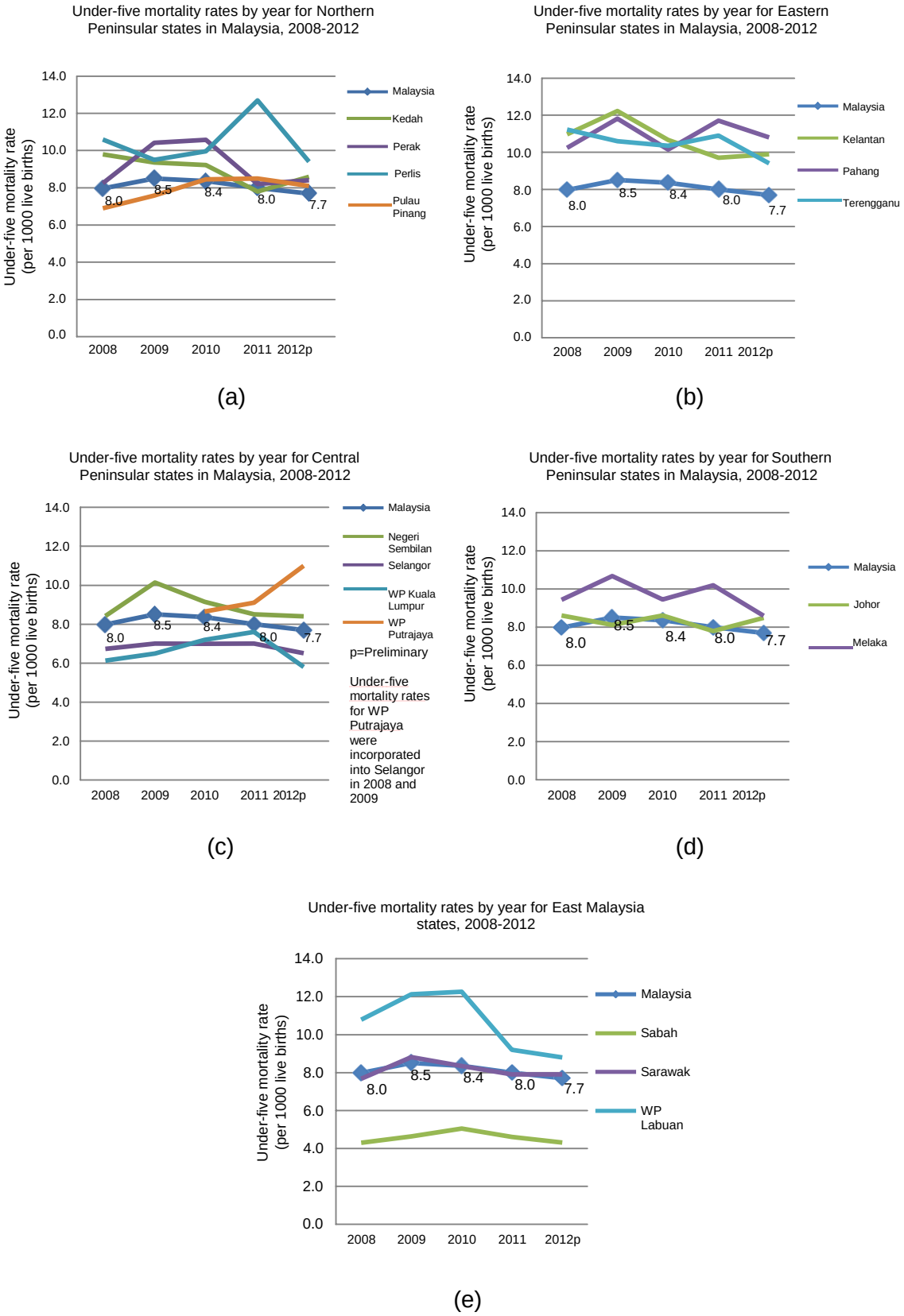


Figure 2.26 (a),(b),(c),(d),(e): Under-five mortality rates by regions in Malaysia, 2008-2012

Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

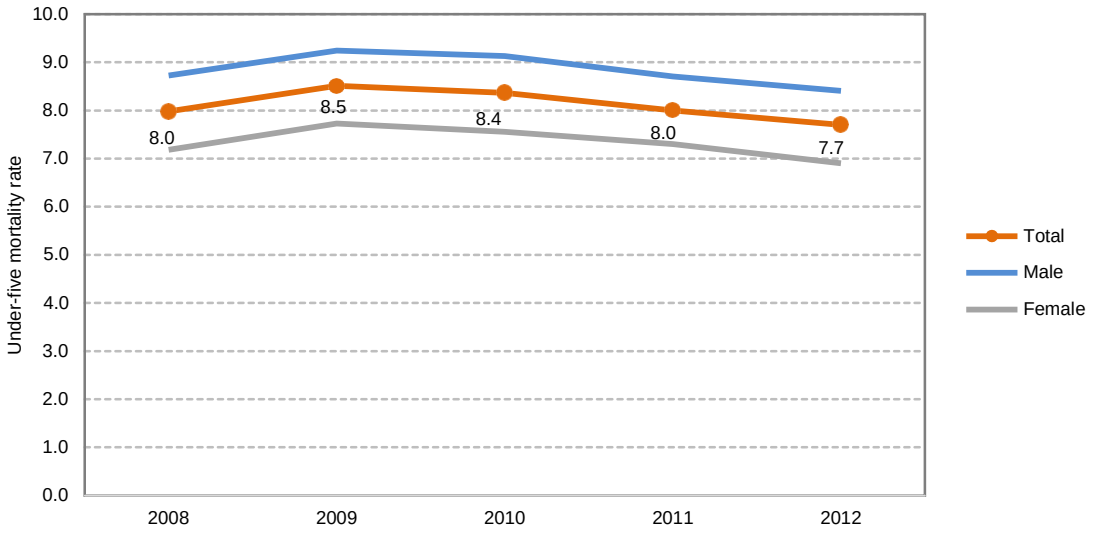


Figure 2.27: Under-five mortality rates by gender in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

2.6.3.2. External Benchmarking

Malaysia is approaching the average of OECD countries in term of under-five mortality. The principle cause of death was also similar to that of OECD; more death due to prematurity and congenital anomalies instead of pneumonia.

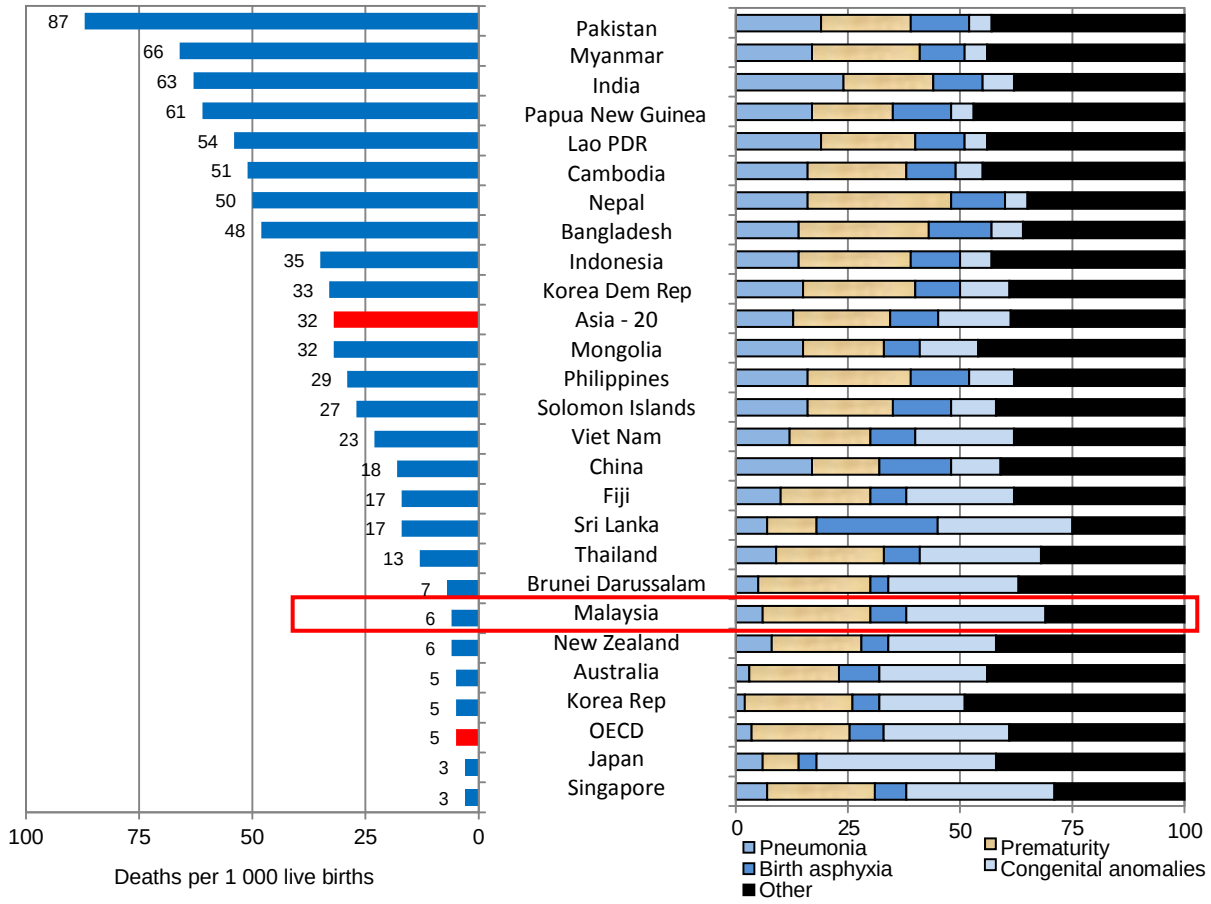


Figure 2.28: Benchmarking Malaysia for under-5 mortality 2012
Source: UNICEF Childinfo [3] (left); Source: WHO [3] (right)

2.7. Additional Information on Childhood Mortality Trending

We have seen a 2-fold improvement in all child death statistics over the past 20 years (1990 to 2010). However, since 2000, the rates have been stagnating (Figure 2.29).

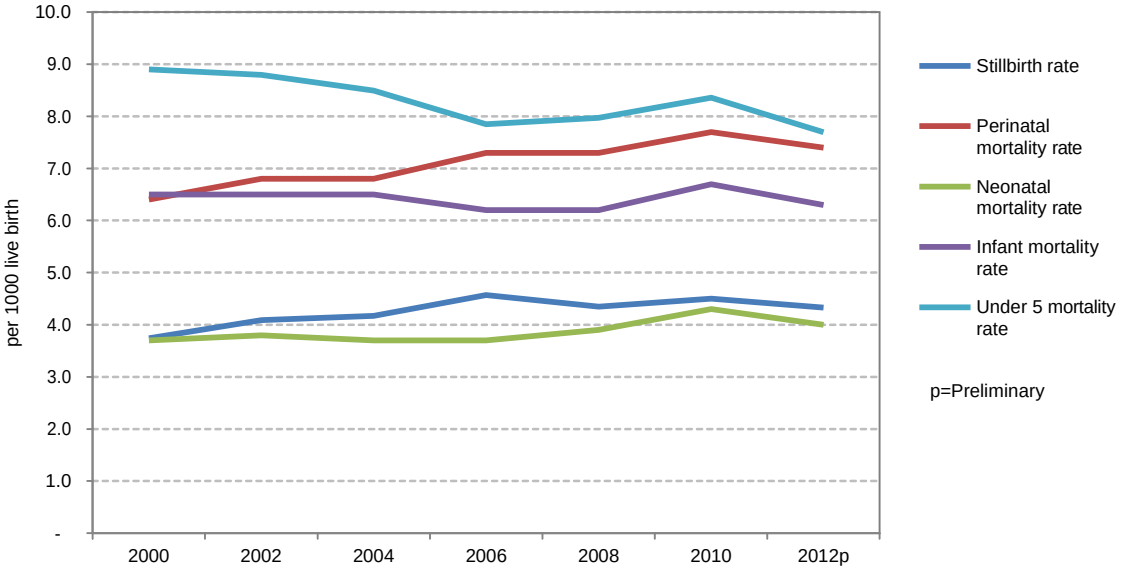
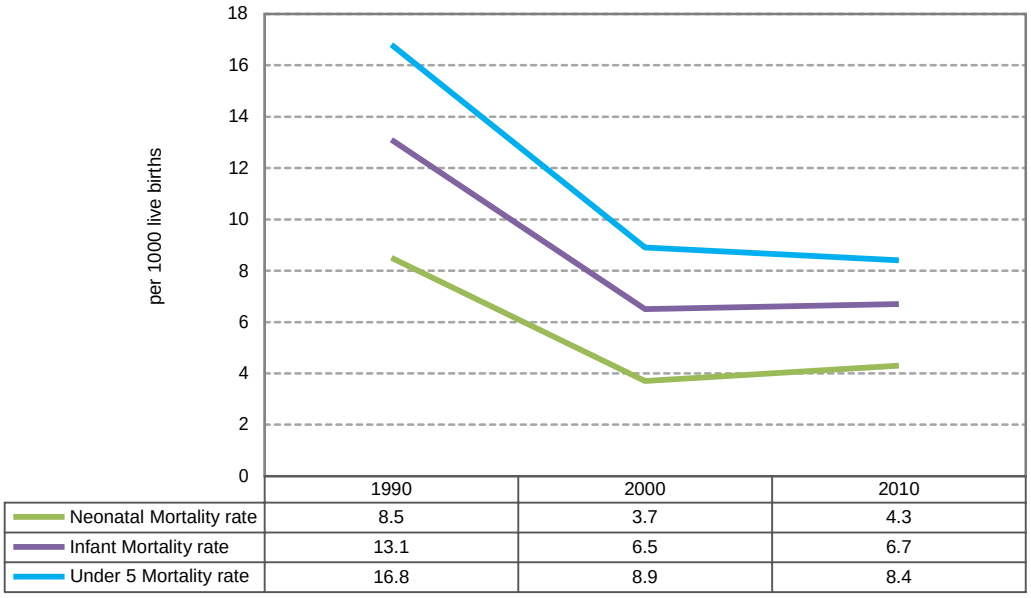


Figure 2.29: Trends between childhood mortality indicators from 2000 to 2012
Source: Department of statistics Malaysia, Graph was generated by the MHPU.

Caveat:

Cut off point for definition of live birth has been upgraded from 28 weeks to 22 weeks in year 2000 in MOH Hospitals. Up to 2011, data were collected from 22 weeks onwards. However from 2012 onwards, data for both cut offs (22 and 28 weeks) were collected separately.



	1990	2000	2010
Neonatal Mortality rate	8.5	3.7	4.3
Infant Mortality rate	13.1	6.5	6.7
Under 5 Mortality rate	16.8	8.9	8.4

Figure 2.30: Trends of neonatal mortality, infant mortality and under-five mortality rate of Malaysia, from 1990 to 2010

Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

Chapter 3 : MATERNAL HEALTHCARE

This chapter describes indicators pertaining to maternal healthcare.

3.1. Maternal mortality

3.1.1. Definition

Maternal deaths refer to deaths which are caused by complications of pregnancy or childbirth or the puerperium within the period of 42 days after childbirth [9].

Unit of Measurement: maternal deaths per 100 000 live births

3.1.2. Rationale of use

Complications during pregnancy and childbirth remain the major causes of death and disability among women of reproductive age in Malaysia. The maternal mortality ratio represents the risk associated with each pregnancy, i.e. the obstetric risk. It is also a Millennium Development Goal (MDG) 5 indicator.

3.1.3. Findings

Maternal mortality ratio (MMR) for Malaysia remained fairly unchanged (year 2008 through 2011). However, Negeri Sembilan had a steep rise in MMR from 40.9 in 2008 to 45.3 in 2011 respectively. Kelantan demonstrated a consistently high maternal mortality ratio across 3 consecutive years (Figure 3.2).

3.1.3.1. Internal Benchmarking

(a) Number of maternal mortalities

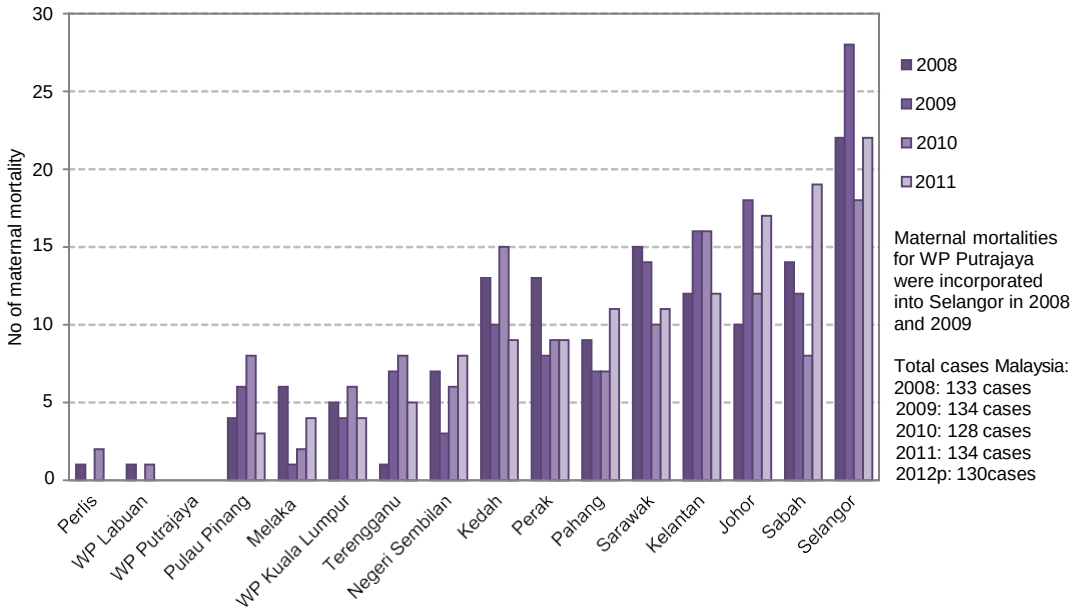


Figure 3.1: Number of maternal mortality by states in Malaysia, 2008-2012
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

(b) Maternal Mortality Ratio

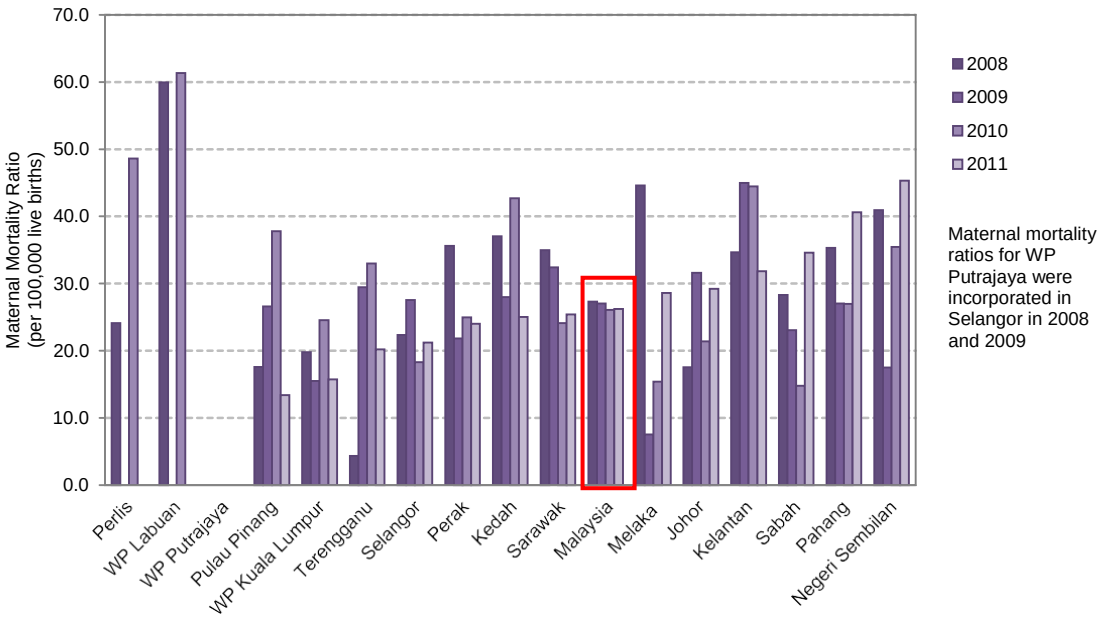


Figure 3.2: Maternal mortality ratios by states in Malaysia, 2008-2011
Source: Department of Statistics Malaysia. Graph was generated by the MHPU.

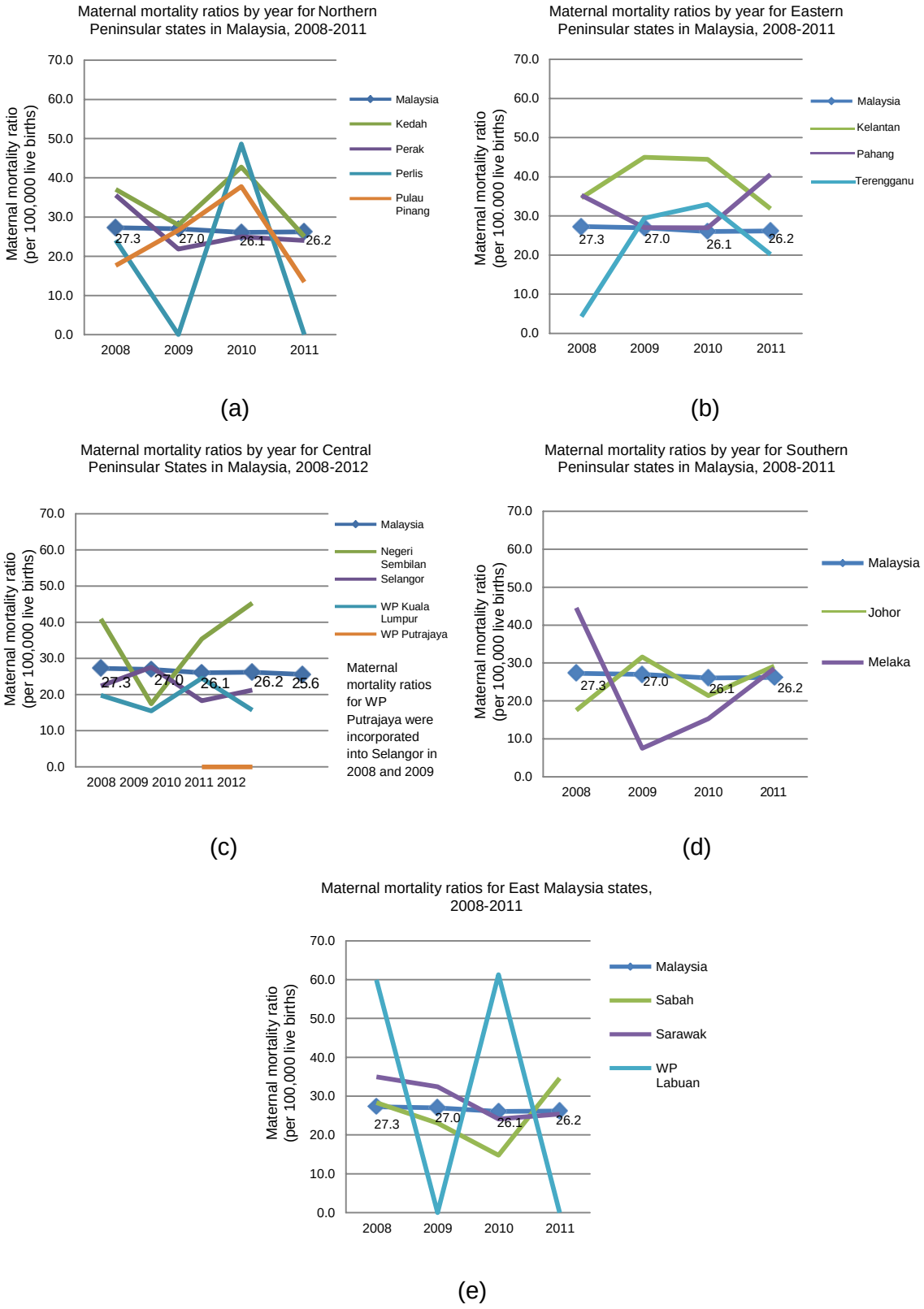
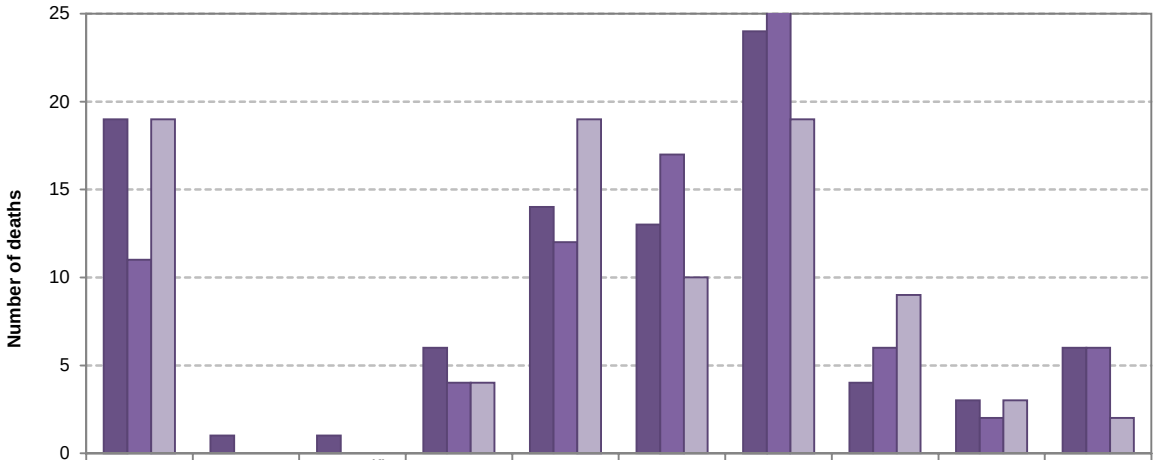


Figure 3.3: Maternal mortality ratios by regions in Malaysia, 2008-2011
Source: Department of Statistics Malaysia. All graphs were generated by the MHPU.

From 2008-2011, wide differentials exist in these rates from state to state and from year to year within the certain states (Figure 3.3).

(c) Cause of Maternal Deaths during Postpartum stage



	PPH	Ectopic	Unspecified complication	Others	HDP	Obstretric Embolism	Associated Medical Condition	Obsteric Trauma	APH	Puerperal Sepsis
2009	19	1	1	6	14	13	24	4	3	6
2010	11	0	0	4	12	17	26	6	2	6
2011	19	0	0	4	19	10	19	9	3	2

Figure 3.4: Cause of maternal deaths during postpartum stage
Source: Family Health Development Division

The main cause of maternal deaths during postpartum stage is concomitant medical conditions, obstetric embolism and Hypertensive Disorders of Pregnancy (HDP) (Figure 3.4).

3.1.3.2. External Benchmarking

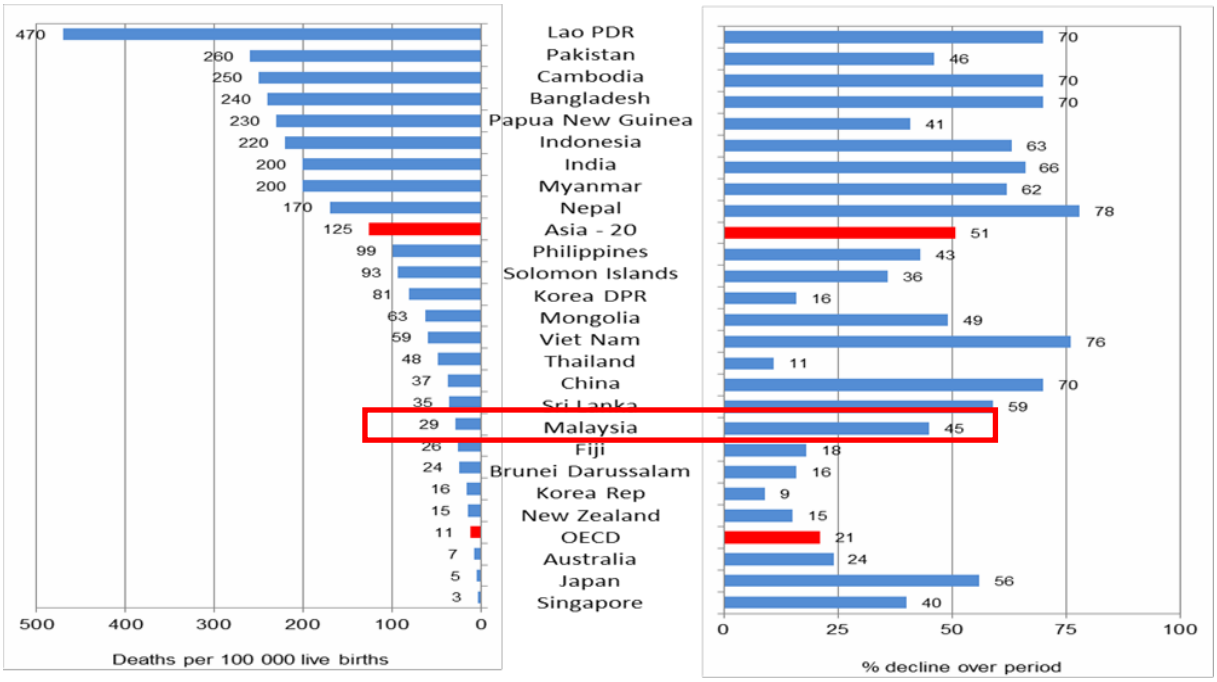


Figure 3.5: Estimated maternal mortality ratios, selected countries, 1990-2010
Source: WHO (2012), Health at a Glance: Asia/Pacific 2012 [3]

Malaysia's maternal mortality was better in comparison to the Asia-20 but higher than OECD average (Figure 3.5).

3.2. Millennium Development Goal 5

We have seen remarkable progress in maternal care since 1933, however improvement in maternal mortality has been minimal recently and we are diverting away from the Millennium Development Goal (MDG) target. The MDG target for Malaysia is to reduce MMR to 11 deaths per 100,000 live births by 2015 (Figure 3.6).

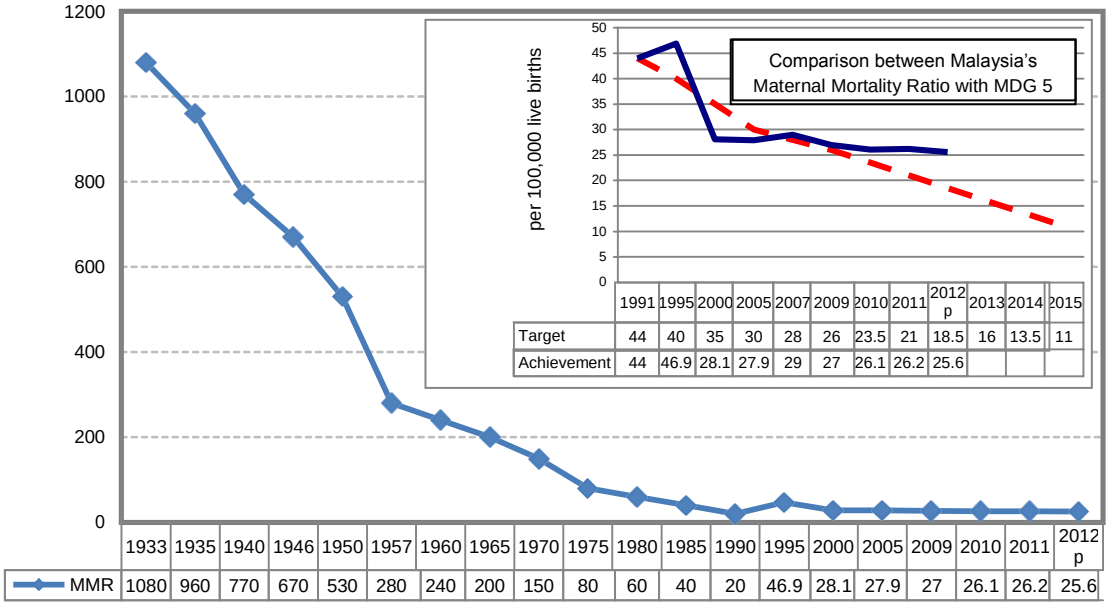


Figure 3.6: Trend of maternal mortality ratio in Malaysia from 1933 to 2012
Source: Department of Statistics Malaysia and Family Health Development Division, Ministry of Health

Challenges and Recommendations

1. Assignment of state for death statistics.

Death statistics require the denominator to be assigned to a defined population. Prior to 1982, the calculation for death statistics took the place of occurrence (the state where the death occurred) as the denominator. However, after 1982, the place of residence of the person as documented in his or her death registry form by the National Registration Department is used instead.

Recommendations: Statistical computation using either place of residence or place of occurrence (of death) has its own respective implication. Death rate as according to places of residence may reflect long term performance of healthcare delivery to the population in the respective region whereas assorting death data by the place of occurrence gives an opportunity to assess performance at the facility level. Therefore, we recommend the recording and analysis using both variables.

2. Differences in practice of documenting place of residence

There is inconsistency in recording the person's address in the death registry form. The home address recorded can be either the address on the identification card or the address given by next of kin. Each may be different from the usual place of residence of the person who died. This is especially so when the address on the identification card was not updated. To date, the magnitude of discrepancy is unknown.

Recommendations: To conduct a study measuring the discrepancy between the recorded address in the death registry form and the usual place of residence.

3. Gaps in the methodology of performance and outcome reporting

Whilst completing this 2014 report, we have identified gaps in the methodology of performance and outcome reporting that may lead to misinterpretation in performance benchmarking both internally as well as internationally.

Recommendation: In order to produce a purposeful 2015 publication, we plan to build summary tables of data availability for each service or specialty that we intend to report. In doing so, we hope that we could identify and optimize all data resources and build a clearer picture so as to bridge the limitations that we may face.

Our report uses available published data with the assumption that these are the most up-to-date. This report may impose the need for both new and improved data collection as unavailability or inadequacy of quality data will significantly limit meaningful comparison.

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