1. INTRODUCTION

Statistics on deaths and principal causes of death in this publication are produced based on death records registered at the National Registration Department (NRD). Statistics on principal causes of death are presented according to the causes of death by category that are medically certified and non-medically certified.

The compilation of these statistics are based on the concepts and guidelines from Principles and Recommendations for a Vital Statistics System, Revision 3 published by the United Nations Statistics Division (2014) and the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) published by the World Health Organization (2010).

2. DEATH INDICATORS

2.1 *Death indicators are calculated using the current mid-year population estimates, live births and stillbirths. The death statistics cover the number of deaths as well as death rates that are compiled according to chapters namely total deaths in Malaysia, perinatal deaths, neonatal deaths, infant deaths, toddler deaths, under-5 deaths, maternal deaths, deaths of the population aged 0–14 year, deaths of the population aged 15–40 year, deaths of the population aged 41–59 year, deaths of the population aged of 60 year and over and premature deaths (30-69 year).*

2.2 *The demographic indicators that involved population data for 2020 to 2022 have been revised based on Population and Housing Census of Malaysia 2020. Meanwhile, the indicators for 2011 to 2019 are based on Population and Housing Census of Malaysia 2010 and will be revised later. Data for 2020 to 2022 have been updated based on the report on suicide cases from the Royal Malaysia Police.*

3. COVERAGE AND LIMITATION

3.1 Coverage

3.1.1 *The record of deaths received from the NRD covers the whole of Malaysia.*

3.1.2 *Perinatal deaths cover stillbirths and infant deaths aged less than one week. However, the causes of perinatal death only show causes of infant death aged less than one week (the cause of death for stillbirths are not available). Therefore, the statistics on causes of perinatal deaths are less than the number of perinatal deaths.*

3.2 Limitation

3.2.1 *The death information compiled in this publication is based on the death records provided by NRD.*

3.2.2 *The principal causes of death present the highest number of specific causes of death.*

3.2.3 *The compilation of the principal causes of death presented excludes unknown causes of death. Besides that, unspecific causes of death are also excluded (e.g.: other heart diseases, all other diseases) because it becomes meaningless when it is sorted by principal diseases that causes death. Users are advised to be cautious in making data interpretation.*

4. PLACE OF RESIDENCE

Deaths and causes of death statistics presented by state are based on place of usual residence of the deceased.

5. ETHNIC GROUP

Classification of ethnic groups is based on the classification used in the Population and Housing Census 2020. The classification is as follows:

Citizens

Bumiputera
- *Malay*
- *Other Bumiputera*

Chinese

Indians

Others

Non-citizens

6. VERIFICATION ON CAUSES OF DEATH

6.1 *Information on the causes of death is divided into two categories which are medically certified and non-medically certified. Medically certified causes of death refer to verification made by the Medical Officer and Coroner only. The coroner is a public officer who investigated sudden death cases where the cause is suspected to be related to a criminal case. Non-medically certified causes of death refer to verification made by informants without medical qualifications such as the police or individuals.*

6.2 *Ministry of Health (MoH) has implemented the verification of non-medically certified causes of death in Malaysia to increase the percentage of medically certified causes of death. The system is known as 'Data Verification on Non-medically Certified Causes of Death System'.*

6.3 *Data Verification on Non-medically Certified Causes of Death System is intended to improve the reporting and writing for the causes of death that occurred outside the health facilities (hospitals) and are not intended to alter any of the existing Act, cannot be used for changing the existing causes of death registered at the National Registration Department (NRD) and is not unfitting to be used for court cases.*

7. CODING ON CAUSES OF DEATH

Medically certified causes of death are coded based on the International Statistical Classification of Diseases and Related Health Problem, 10th Revision (ICD-10). Not medically certified causes of death are coded based on Code Book for Uncertified Causes of Deaths Version 3 developed by the Department of Statistics, Malaysia as agreed by the Ministry of Health Malaysia, National Registration Department, Royal Malaysia Police and Kuala Lumpur City Hall.

8. SUSTAINABLE DEVELOPMENT GOALS (SDG)

In September 2015, Malaysia expressed its commitment and support for implementing the 2030 Agenda towards the Sustainable Development Goals (SDG) from 2016 to 2030.

The SDG contains 17 Goals, 169 Targets and 248 Indicators. The statistics on causes of death are part of the indicators listed in Goal 3: Ensure healthy lives and promote well-being for all at all ages. There are two related indicators which are indicator 3.4.1 and 3.4.2.

The concepts and definitions for SDG indicators are based on metadata published by United Nations (UN) and World Health Organization (WHO).

i. *Mortality rate attributed to Cardiovascular diseases, Cancer, Diabetes and Chronic respiratory diseases defined as the number of death per 100,000 population for population aged 30 to 69 years. The ICD-10 code for Cardiovascular diseases, Cancer, Diabetes and Chronic respiratory diseases are I00-I99, C00-C97, E10-E14 and J30-J98.*

ii. *Suicide mortality rate is the number of suicide deaths per 100,000 population. The ICD-10 code for suicide are X60-X84 (Intentional Self-harm).*

9. CONCEPTS

i. Stillbirths
Refer to births after 28 completed weeks or more of gestation without any sign of life during delivery.

ii. Perinatal deaths
Refer to stillbirths and death of infants aged less than one week.

iii. Early neonatal deaths
Refer to death of infants aged less than one week.

iv. Late neonatal deaths
Refer to death of infants aged 7 to less than 28 days.

v. Neonatal deaths
Refer to death of infants aged less than 28 days.

vi. Infant deaths

Refer to death of infants aged less than 1 year.

vii. Toddler deaths

Refer to death of toddlers aged 1 to 4 years.

viii. Under-5 deaths

Refer to the death of infants and toddlers aged below 5 years.

ix. Maternal deaths

Refers to deaths of a woman while pregnant or within 42 days after the termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental causes.

x. Deaths of population aged 0–14 years

Refer to deaths of the population aged 0 to 14 years.

xi. Deaths of population aged 15–40 years

Refer to deaths of the population aged 15 to 40 years.

xii. Deaths of population aged 41–59 years

Refer to deaths of the population aged 41 to 59 years.

xiii. Deaths of population aged 60 years and over

Refer to deaths of the population aged 60 years and over.

xiv. Premature deaths

Refer to deaths of the population aged 30 to 69 years.

10. FORMULA

i. Crude Death Rate (CDR)

$$= \frac{\text{Number of deaths in year}_t}{\text{Number of mid-year population in year}_t} \times 1{,}000$$

ii. Stillbirth Rate (SBR)

$$= \frac{\text{Number of stillbirths in year}_t}{\text{(Number of live births + number of stillbirths) in year}_t} \times 1{,}000$$

iii. Perinatal Mortality Rate (PMR)

$$= \frac{\text{(Number of deaths under 1 week + number of stillbirths) in year}_t}{\text{(Number of live births + number of stillbirths) in year}_t} \times 1{,}000$$

iv. Early Neonatal Mortality Rate (ENMR)

$$= \frac{\text{Number of deaths under 1 week in year}_t}{\text{Number of live births in year}_t} \times 1{,}000$$

v. Late Neonatal Mortality Rate (LNMR)

$$= \frac{\text{Number of deaths aged 7 to less than 28 days in year}_t}{\text{Number of live births in year}_t} \times 1{,}000$$

vi. Neonatal Mortality Rate (NMR)

$$= \frac{\text{Number of deaths aged under 28 days in year}_t}{\text{Number of live births in year}_t} \times 1{,}000$$

vii. Infant Mortality Rate (IMR)

$$= \frac{\text{Number of deaths under 1 year in year}_t}{\text{Number of live births in year}_t} \times 1{,}000$$

viii. Toddler Mortality Rate (TMR)

$$= \frac{\text{Number of deaths aged 1–4 years in year}_t}{\text{Number of mid-year population aged 1–4 years in year}_t} \times 1{,}000$$

ix. Under-5 Mortality Rate (U5MR)

$$= \frac{\text{Number of deaths under 5 years in year}_t}{\text{Number of live births in year}_t} \times 1{,}000$$

x. Maternal Mortality Ratio (MMR)

$$= \frac{\text{Number of deaths which are caused by complications of pregnancy, childbirth and the puerperium, within the period of 42 days after childbirth in year}_t}{\text{Number of live births in year}_t} \times 100{,}000$$

xi. Mortality rate of population aged 0–14 years

$$= \frac{\text{Number of deaths of population aged 0–14 years in year}_t}{\text{Number of mid-year population aged 0–14 years in year}_t} \times 1{,}000$$

xii. Mortality rate of population aged 15–40 years

$$= \frac{\text{Number of deaths of population aged 15–40 years in year}_t}{\text{Number of mid-year population aged 15–40 years in year}_t} \times 1{,}000$$

xiii. Mortality rate of population aged 41–59 years

$$= \frac{\text{Number of deaths of population aged 41–59 years in year}_t}{\text{Number of mid-year population aged 41–59 years in year}_t} \times 1{,}000$$

xiv. Mortality rate of population aged 60 years and over

$$= \frac{\text{Number of deaths of population aged 60 years and over in year}_t}{\text{Number of mid-year population aged 60 years and over in year}_t} \times 1{,}000$$

xv. Premature mortality rate

$$= \frac{\text{Number of deaths of population aged 30 to 69 years in year}_t}{\text{Number of mid-year population aged 30 to 69 years in year}_t} \times 1{,}000$$

xvi. Mortality rate attributed to Cardiovascular diseases

$$= \frac{\text{Number of deaths of population aged 30 to 69 years attributed to Cardiovascular diseases in year}_t}{\text{Number of mid-year population aged 30 to 69 years in year}_t} \times 100{,}000$$

xvii. *Mortality rate attributed to Cancer*

$$= \frac{\text{Number of deaths of population aged 30 to 69 years attributed to Cancer in year}_t}{\text{Number of mid-year population aged 30 to 69 years in year}_t} \times 100{,}000$$

xviii. *Mortality rate attributed to Diabetes*

$$= \frac{\text{Number of deaths of population aged 30 to 69 years attributed to Diabetes in year}_t}{\text{Number of mid-year population aged 30 to 69 years in year}_t} \times 100{,}000$$

xix. *Mortality rate attributed to Chronic respiratory diseases*

$$= \frac{\text{Number of deaths of population aged 30 to 69 years attributed to Chronic respiratory diseases in year}_t}{\text{Number of mid-year population aged 30 to 69 years in year}_t} \times 100{,}000$$

xx. *Suicide mortality rate*

$$= \frac{\text{Number of Suicide in year}_t}{\text{Number of mid-year population in year}_t} \times 100{,}000$$

11. NOTES AND SYMBOLS

-	*Nil/blank/no cases*
0.0	*Less than half smallest unit shown*
W.P.	*Federal Territory*