1. Demographic indicator

The demographic indicators that involved population data for 2020 to 2022 have been revised based on Population and Housing Census of Malaysia 2020 (MyCensus 2020). Meanwhile, the indicators for 2011-2019 are based on Population and Housing Census of Malaysia 2010 and will be revised later.

2. Coverage

The records on live births, stillbirths and deaths received from the NRD cover the whole Malaysia. Analysis of vital statistics are based on information which is reported by informants during the births registration in The Register of Birth Form (JPN.LM01) and deaths registration in The Register of Death Form (JPN.LM02). JPN.LM01 and JPN.LM02 form are as ***Appendix****.*

The number of perinatal deaths covers stillbirths and infant deaths aged less than one week.

The number of maternal deaths includes deaths caused by mental disorders.

The number of deaths in Sabah has been adjusted due to under reporting of death registration obtained from the Study of Under Reporting of Death Registration in Sabah[1] which was conducted by the Department of Statistics, Malaysia.

Sex	Region	Coverage (%)
Male	**Malaysia**	**100**
	Peninsular Malaysia	100
	Sabah	78
	Sarawak	100
Female	**Malaysia**	**100**
	Peninsular Malaysia	100
	Sabah	83
	Sarawak	100

3. Place of residence

Analysis of births and deaths presented in this publication are based on place of usual residence of mother or the deceased.

4. Place of occurrence

Analysis of births and deaths based on place of occurrence also presented in this publication. Place of occurrence is the geographical location in the country where the births and deaths occurred such as in public or private health facility.

[1] *The results of the study have been approved by the Steering Committee on Implementation of Civil Registration and Vital Statistics in 2016.*

5. Ethnic groups

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

a) *Bumiputera consists of Malay and Other Bumiputera;*
b) *Chinese;*
c) *Indians; and*
d) *Others include Non-Citizens.*

6. Concepts

(i) Natural Increase
Refers to the excess of births over deaths.

(ii) Live births
Refers to births with signs of life during delivery although for a very short period.

(iii) Stillbirths
Refers to births after 28 completed weeks or more of gestation without any sign of life during delivery.

(iv) Perinatal deaths
Refers to stillbirths and deaths of infants aged less than one week.

(v) Early neonatal deaths
Refer to death of infants aged less than one week.

(vi) Late neonatal deaths
Refer to death of infants aged 7 to less than 28 days.

(vii) Neonatal deaths
Refers to deaths of infants aged less than 28 days.

(viii) Infant deaths
Refers to deaths of infants aged less than one year.

(ix) Toddler deaths
Refers to deaths of toddlers aged 1-4 years.

(x) Under-5 mortality
Refers to deaths of infants and toddlers aged below 5 years.

(xi) Maternal deaths

Refers to deaths of a woman while pregnant, childbirth 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.

(xii) Age-specific Fertility Rate

Refers to the number of births by mothers within a specific age group during a given year, per 1,000 females in that age group.

(xiii) Total Fertility Rate

Refers to the average number of children which would be born if women survived to the end of their reproductive period and throughout that period are subject to the schedule of age-specific fertility rates for the given year [This rate is derived by adding up the age-specific fertility rates of women aged 15-49 years (by five-year age groups) and multiplying by 5].

(xiv) The replacement level fertility

The replacement-level fertility is the total fertility levels of about 2.1 children per woman in reproductive age (15-49 years). This value represents the average number of children a woman would need to have to reproduce herself by bearing a daughter who survives to childbearing age. If replacement level fertility is sustained over a sufficiently long period, each generation will exactly replace itself in absence of migration.

(xv) Mean age at first live birth

Refers to the average age of mothers who deliver their first child.

(xvi) Gross Reproductive Rate

Refers to the average number of daughters that would be born if women survived to the end of their reproductive period, assuming that none died or migrated.

(xvii) Net Reproductive Rate

Refers to the average number of daughters that would be born if women survived to the end of their reproductive period, taking into account the average female survivors.

(xviii) Age-specific Death Rate

Refers to the average number of deaths for every 1,000 population within a specific age group.

7. Formulae

Crude Rate of Natural Increase (CRNI)

$$= \frac{\text{(Number of live births - number of deaths) in year } t}{\text{Mid-year population in year } t} \times 1{,}000$$

Crude Birth Rate (CBR)

$$= \frac{\text{Number of live births in year } t}{\text{Mid-year population in year } t} \times 1{,}000$$

Age-Specific Fertility Rate (ASFR)

$$= \frac{\text{Number of live births by specific age group of mother in year } t}{\text{Mid-year female population of the specific age group in year } t} \times 1{,}000$$

Total Fertility Rate (TFR)

$$= 5 \sum_i \left(\text{Age-specific fertility rate} \right)$$

where: i = (15-19), (20-24), …, (45-49)

Gross Reproductive Rate (GRR)

$$= 5 \sum_i \left(\frac{\text{Number of female live births by age group of mother in year } t}{\text{Mid-year female population of the specific age group in year } t} \right)$$

where: i = (15-19), (20-24), …, (45-49)

Net Reproductive Rate (NRR) = $5 \sum_i \left(\frac{\text{Number of female live births by age group of mother in year } t}{\text{Mid-year female population of the specific age group in year } t} \right) \times lx$

where: lx is the survivorship (number of survivors) at exact age for the female cohort in the reproductive ages (15-49 years).
i = (15-19), (20-24), …, (45-49)

Crude Death Rate (CDR) = $\frac{\text{Number of deaths in year } t}{\text{Mid-year population in year } t} \times 1{,}000$

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

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

Early Neonatal Mortality Rate (ENMR) = $\frac{\text{Number of deaths under 1 week in year } t}{\text{Number of live births in year } t} \times 1{,}000$

Late Neonatal Mortality Rate (LNMR) = $\frac{\text{Number of deaths aged 7 to less 28 days in year } t}{\text{Number of live births in year } t} \times 1{,}000$

Neonatal Mortality Rate (NMR) = $\frac{\text{Number of deaths under 28 days of age in year } t}{\text{Number of live births in year } t} \times 1{,}000$

Infant Mortality Rate (IMR) = $\frac{\text{Number of deaths under 1 year of age in year } t}{\text{Number of live births in year } t} \times 1{,}000$

Toddler Mortality Rate (TMR) = $\frac{\text{Number of deaths aged 1-4 years in year } t}{\text{Mid-year population aged 1-4 years in year } t} \times 1{,}000$

Under-5 Mortality Rate (U5MR) = $\frac{\text{Number of deaths under 5 years in year } t}{\text{Number of live births in year } t} \times 1{,}000$

Maternal Mortality Ratio (MMR) = $\frac{\text{Number of deaths which are caused by complications of pregnancy, childbirth and the puerperium, within the period of 42 days after childbirth in year } t}{\text{Number of live births in year } t} \times 100{,}00$

Age-Specific Death Rate (ASDR) = $\frac{\text{Number of deaths by specific age in year } t}{\text{Mid-year population by specific age group in year } t} \times 1{,}000$

8. Notes and symbols

-	*Nil/blank/no cases*
0.0	*Refers to less than half smallers unit shown*
W.P.	*Federal Territory*
:	*Not applicable*