

Trends in Infant Mortality Rate and Related Indicators

Infant mortality refers to the deaths of children under one year of age. Infant mortality rate (IMR) is defined as the number of infant deaths per thousand live-births within a specific time period, usually a year. Along with life expectancy, IMR is one of the most widely used indicators of a population’s health status, and is used as a measure of a population’s socio-economic environment.

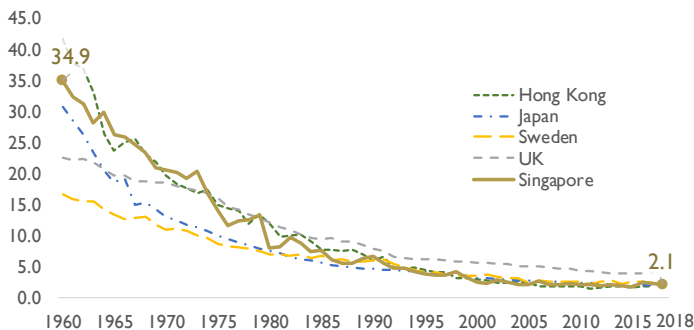
This article looks at trends in Singapore’s IMR, as well as two related indicators – the neonatal and perinatal mortality rates.

Trends in Singapore’s Infant Mortality Rate

The IMR in Singapore declined exponentially from 34.9 infant deaths per thousand live-births in 1960, to 2.1 in 2018. Since 2000, the IMR has been stable and remains below 3.0 infant deaths per thousand live-births¹. This compares well internationally with the IMRs of other developed economies such as that of Hong Kong, Japan, Sweden and UK, where Singapore’s IMR is observed to have declined at a faster rate than many of these economies since 1960s (Chart 1).

CHART 1

INFANT MORTALITY RATES FOR SINGAPORE AND SELECTED ECONOMIES, 1960 - 2018²



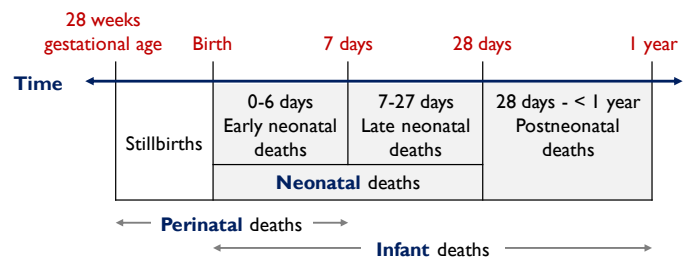
What is the Difference Between Infant, Neonatal and Perinatal Deaths?

As infant deaths tend to occur very early in the first year of life, there are further categorisations of infant deaths. Neonatal mortality refers to deaths of infants aged under 28 days. They tend to make up the majority of infant deaths as there are higher risks associated with foetal development and the birth process, especially within the first week of life. Postneonatal mortality covers the remaining infant deaths, which occur for infants aged 28 days to under a year.

Aside from infant deaths, there are stillbirths, which refer to death in the womb after 28 weeks of pregnancy. Perinatal mortality comprises both stillbirths and neonatal deaths of infants aged under 7 days. Diagram 1 summarises the types of deaths for foetuses and infants.

DIAGRAM 1

TYPES OF FOETUS AND INFANT DEATHS



* Diagram is for illustration purpose only and is not drawn to scale.

Similar to the IMR trend, Singapore’s neonatal and perinatal mortality rates declined exponentially from 1960 to 2018³ (Chart 2).

The neonatal mortality rate fell from 17.7 neonatal deaths per thousand live-births in 1960, to 1.3 in 2018. In 2015, it reached a record low of 0.8 neonatal deaths per thousand live-births.

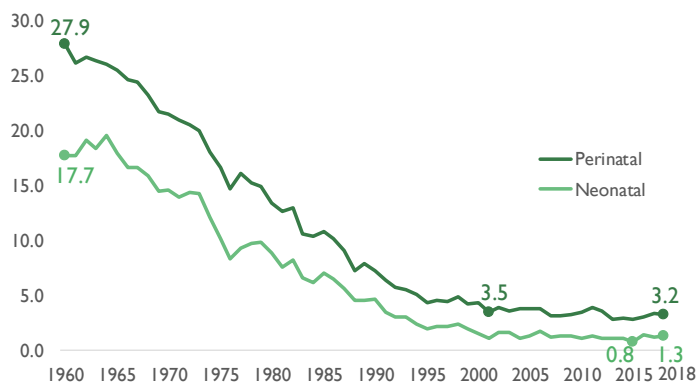
1 Time series data on Singapore’s IMR as well as other indicators of death and death rates are available on the [SingStat Website](#).

2 Data for selected economies are extracted from their official statistical publications and websites (as at 30 Apr 2019).

3 Time series data on Singapore’s neonatal and perinatal mortality rates are also available on the [SingStat Website](#).

Likewise, the perinatal mortality rate decreased significantly over the same period, from 27.9 perinatal deaths per thousand stillbirths and live-births in 1960, to 3.5 in 2001, where it has since remained at a level below 4.0. In 2018, there were 3.2 perinatal deaths registered for every thousand stillbirths and live-births.

CHART 2
NEONATAL & PERINATAL MORTALITY RATES, 1960 - 2018



What is the Significance of a Low Infant Mortality Rate?

In terms of public health and social policy, a low IMR (as well as low neonatal and perinatal mortality rates) is generally reflective of good medical care, education, nutrition of mother and infant, and sanitation.

In economies with advanced medical care and where individuals are better educated, women are more likely to seek adequate medical care and ensure that they and their infants are sufficiently nourished. As such, infant deaths are less likely to be caused by environmental factors, and are more likely to be due to factors relating to genetics and the birth process, which are not readily preventable.

This is the case in Singapore where, similar to a decade ago⁴, the leading causes of infant deaths in 2017 were Perinatal Originated Conditions (41.5%), which include preterm births, complications of pregnancy, labour and

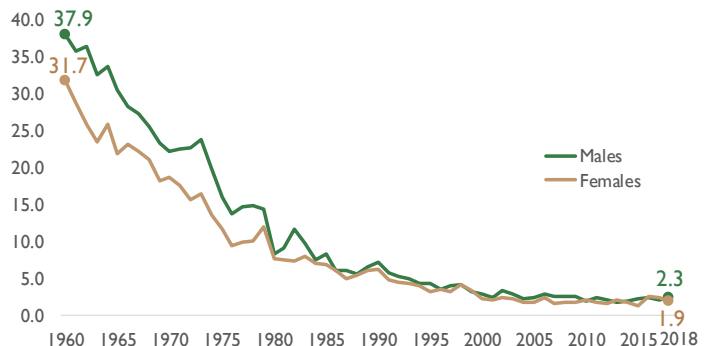
delivery; and, Congenital Anomalies (35.1%), which include birth defects.

Trends in Singapore's Infant Mortality Rate by Sex

The sex-specific IMR, which is the number of infant deaths for each sex per thousand live-births of the same sex, used to be higher for males in the 1960s and 1970s in Singapore. Over time, the male IMR decreased faster than the female IMR, and by the late 1980s, the differences in IMR between the sexes tapered off and diminished⁵.

In the 1960s, there were 6.9 more male infant deaths compared to female infant deaths on average per thousand live-births of the respective sex (Chart 3). This gap in IMR between the sexes narrowed to an average of 1.2 by the 1980s, and subsequently to 0.2 between 2010 and 2018.

CHART 3
INFANT MORTALITY RATES BY SEX, 1960 - 2018



Concluding Remarks

Singapore's IMR has fallen significantly since the 1960s, and is now one of the lowest amongst developed economies. This is reflective of the public health initiatives and improvements made over the years in areas such as medical care, education, nutrition of mother and infant, and sanitation.

⁴ Data source for leading cause of infant deaths: ICA's Report on Registration of Births and Deaths publication. The 2017 publication can be found on [ICA's Website](#), while the 2007 publication can be found in the national library archives. In 2007, the main causes of infant deaths were Perinatal Originated Conditions (34.0%) and Congenital Anomalies (26.6%).

⁵ Time series data on Singapore's male and female IMR are also available on the [SingStat Website](#).