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Estimating child mortality

Workshop on data analysis and report writing for civil registration based vital statistics

Nadi, Fiji

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Bloomberg
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DATA FOR
HEALTH INITIATIVE



Pacific
Community
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UNITED NATIONS
ESCAP

Economic and Social Commission for Asia and the Pacific

Infant and Child mortality



- ❖ Infant mortality rate (IMR) and Under five mortality rate (U5MR) are important indicators for development
- ❖ IMR and U5MR are key indicators of Goal 3 of the sustainable development goals targeting good health and wellbeing

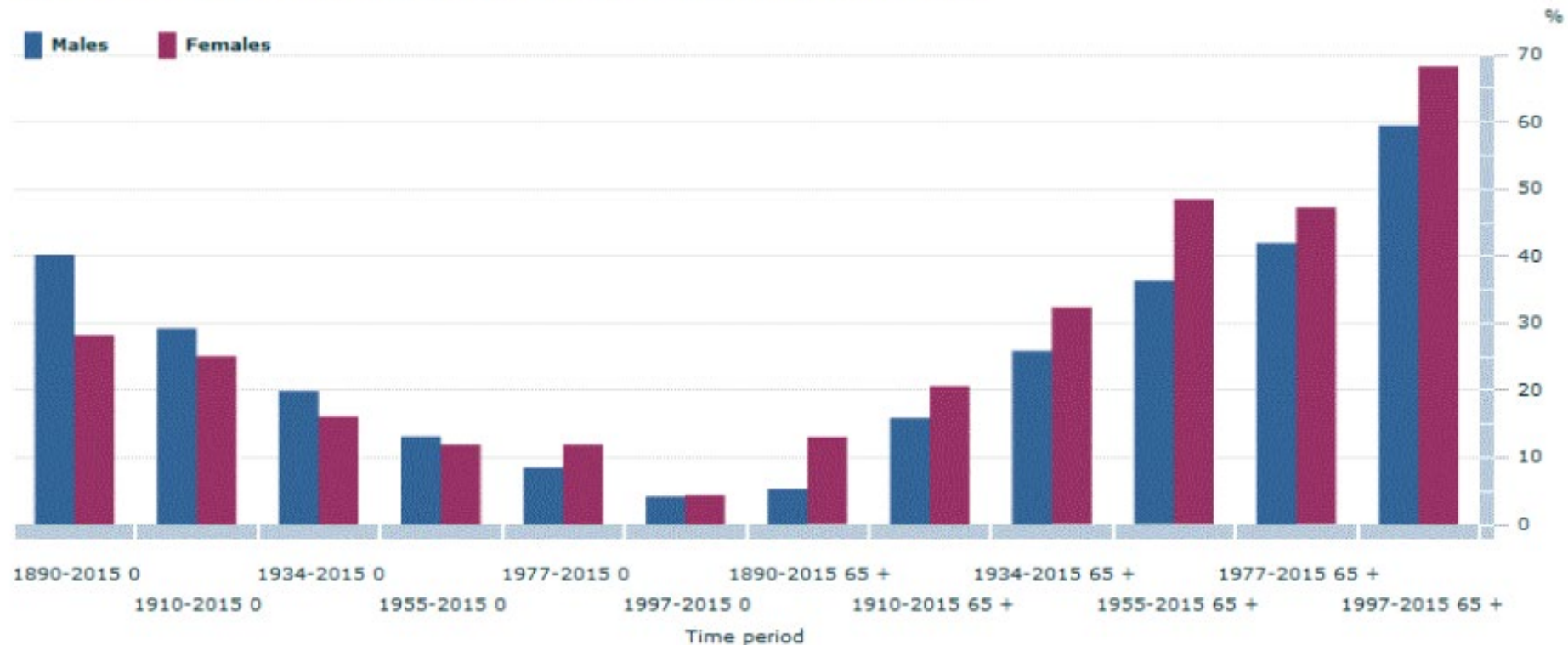
SDG 3: Ensure healthy lives and promote well-being of all at all ages

Target 3.2: By 2030, reduce neonatal mortality to at least 12 per 1,000 live births and under 5 mortality to at least 25 per 1,000 live births.

- ❖ Many of the causes of death in these age-groups are amenable to interventions

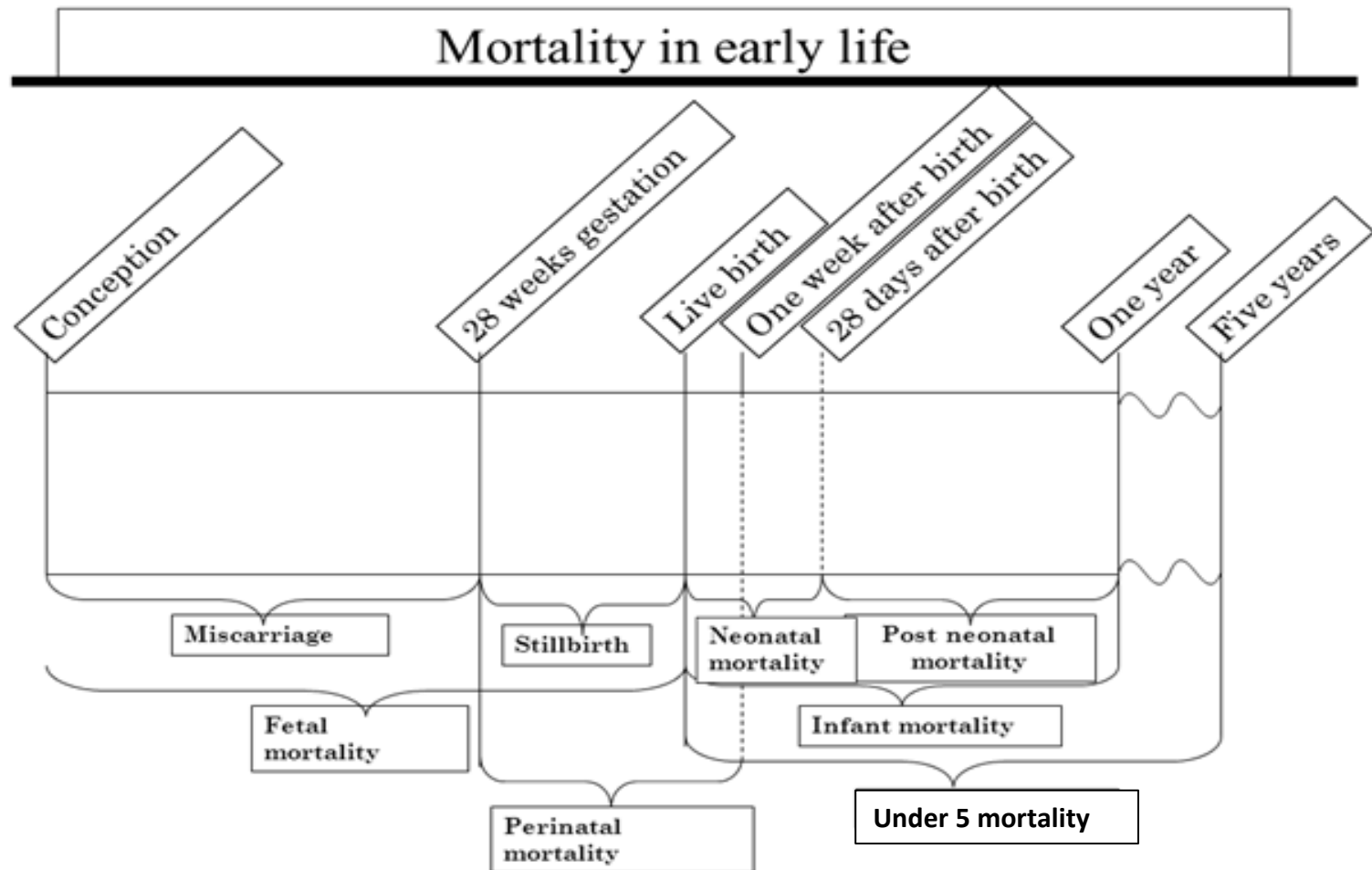
Life expectancy and infant mortality

Figure 2 - Percentage of life expectancy gain by persons aged 0 & 65 years & over, Australia(a)



Source: Australian Bureau of Statistics *Life Tables, States, Territories and Australia 3302.0.55.001*

Measures of infant and child mortality





Neonatal mortality rate

❖ Neonatal mortality rate (NNMR) =

$$\frac{\text{Number of deaths in infants aged less than 28 days in a specified time period}}{\text{Number of live births in the same time period}} \times 1000$$

❖ May be subdivided into:

❖ **early** neonatal deaths, occurring within 0-7 days of life,

❖ **late** neonatal deaths, occurring between 8-28 days of life.

❖ Considered to be a useful indicator of maternal and newborn health and care.

Infant mortality rate

❖ Infant mortality rate (IMR, ${}_1q_0$)

$$\frac{\text{Number of deaths in infants aged less than one year old in a specified time period}}{\text{Number of live births in the same time period}}$$

x 1000

- ❖ Measures such as IMR and NNMR should always be aggregated over several years and reported with confidence intervals due to the small population size and subsequent instability in these measures.
- ❖ Trends should be evaluated over the longer term rather than year to year.

Major causes of infant mortality

Neonatal Period

- Birth complications
- Prematurity and other developmental conditions
- Congenital conditions
- (Malnutrition)
- (Infectious diseases)
- Conditions in mother are key

Post -neonatal Period

- Malnutrition
- Infectious Diseases
- (External causes- accidents and injuries)

❖ As IMR falls and fewer deaths are attributed to infectious diseases and environmental influences, a greater proportion of infant deaths would be expected to occur in the neonatal period. - **The neonatal mortality rate should not increase as this occurs.**

Under five mortality rate

❖ Under five mortality rate (U5MR, ${}_5q_0$) =

$$\frac{\text{Number of deaths in children aged less than five in a specified time period}}{\text{Number of live births in the same time period}} \times 1000$$

- ❖ Also a very widely used indicator to compare between countries and over time.
- ❖ Used to reflect the economic, social, and health conditions in countries
- ❖ As with IMR and NNMR, although called a rate, this is actually a probability of dying
- ❖ **An important summary measure of development as it looks at the overall impact of mortality on early childhood.**

Assessing your data for plausibility

- ❖ Infant and child deaths may be under-reported
 - ❖ Why would this be?
 - *Is this possible in the local context*
- ❖ Need to compare to other sources
 - ❖ Census/ DHS etc
- ❖ Are the proportions plausible?
 - ❖ What proportion of the infant deaths are neonatal?
 - *Is this consistent with what you know of your health system?*





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Q&A