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# Introduction to completeness and coverage

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

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Bloomberg Philanthropies
DATA FOR HEALTH INITIATIVE
Pacific Community
Communauté du Pacifique
Australian Bureau of Statistics
UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

# Outline of presentation

- Difference between coverage and completeness
- Estimating completeness of civil registration
- Data Sources
- Timing: delayed registration
- Impact of COVID-19

# Guidelines for estimating the completeness of civil registration of vital events


Guidelines were developed by ESCAP to support national statistical offices, ministries of health, and other relevant government and non-government agencies to better estimate the completeness of CRVS, in particular, the completeness of birth and death registration

# Difference between coverage and completeness

- These terms are often used synonymously, but there is an important difference:
  - **Coverage** – a spatial metric to indicate the geographical 'reach' of CRVS systems
  - **Completeness** – the proportion of vital events captured by the CRVS system
    - **Content completeness** - how complete and reliable (by variable) is the unit record data (for the population covered), i.e. are there missing variables (age, sex, dates)?

# Coverage

- A spatial metric to indicate the geographical ‘reach’ of a CRVS system
    - E.g. Coverage of 80% indicates that residents in 80% of the country are able to access registration facilities

$$\text{Coverage (\%)} = \frac{\textit{Population in administrative areas served by the CRVS system}}{\textit{Total population}} \times 100$$

# Completeness

- The proportion of vital events registered in the CRVS system
  - E.g. If 900,000 births are registered, but the best estimate of the 'true/observed' number of births is 1,000,000, then estimated completeness is 90%

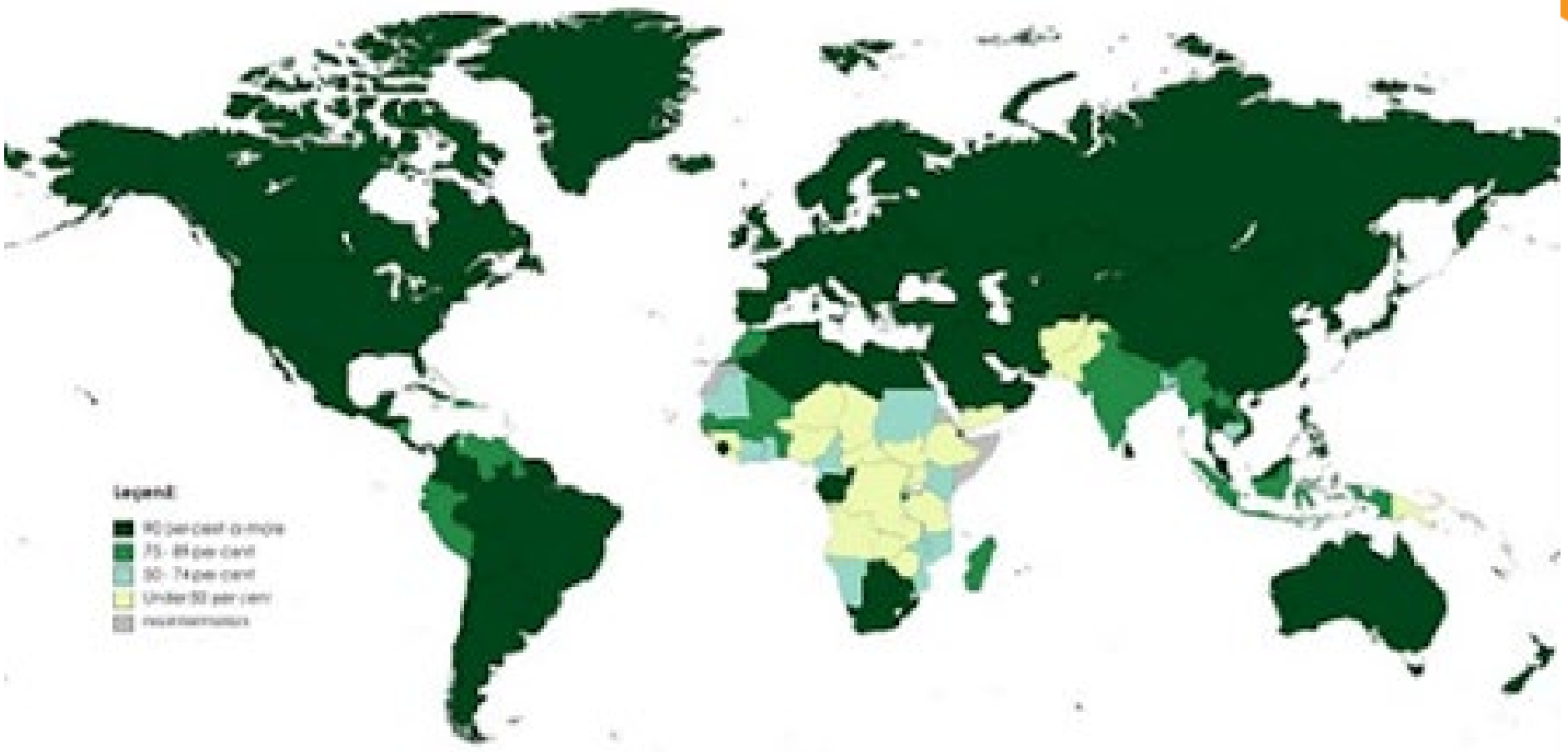
$$\text{Completeness (\%)} = \frac{Number\ of\ events\ registered}{Total\ number\ of\ events\ expected/observed} \times 100$$

# Question

$$\text{Completeness (\%)} = \frac{Number\ of\ events\ registered}{Total\ number\ of\ events\ expected/observed} \times 100$$

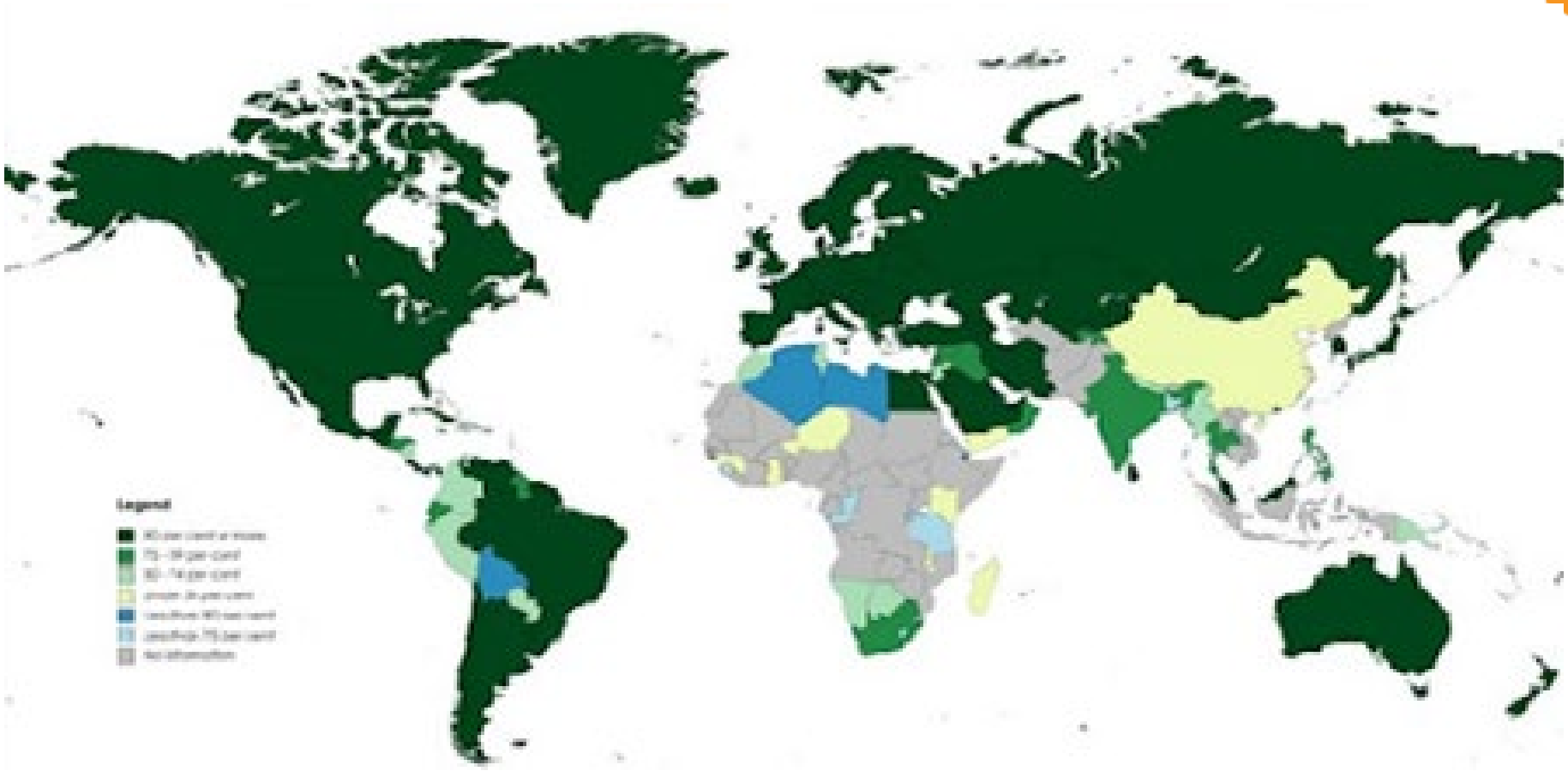
**If 550,000 births are registered, but the best estimate of the 'true/observed' number of births is 1,000,000, what is the estimated completeness rate?**

# Birth registration completeness (February 2021, United Nations Statistics Division)




Note: the boundaries and designations used on this map do not imply official endorsement or acceptance by the United Nations

# Death registration completeness (February 2021, United Nations Statistics Division)




Note: the boundaries and designations used on this map do not imply official endorsement or acceptance by the United Nations

# Importance of estimating registration completeness

- Computing registration completeness allows us to monitor the performance of the CRVS system:
  - How large is the gap to universal registration?
  - Is this gap diminishing over time?

- If possible, it can also be disaggregated by several variables to get a better sense of what needs improvement in the system?
  - Is coverage of birth registration the same for boys and girls?
  - Do some geographical areas/islands have lower registration rates?

# Estimating completeness of civil registration

**Numerator**

Registered births/deaths from the Civil Register

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**Denominator**

- Births/deaths from HIS
- Census data
- Administrative data (school enrolment, vaccination data)
- Indirect estimation of deaths
- Reverse-survival approaches applied to census data for number of births
- CBR or CDR * Total Population Size
- UNWPP estimates

# Timing: delayed registration

- Completeness is usually estimated on a calendar-year basis.
  - Events may be registered outside the stipulated statutory period, but nevertheless, within the calendar year of occurrence.
  - These are classified as ‘late’ registrations

- However, there are two other circumstances in which the number of events registered may be affected when estimating completeness on a calendar-year basis:
  - Events registered in the statutory period, but in the calendar year following the year of occurrence
  - Late registrations in the calendar years following the year of occurrence

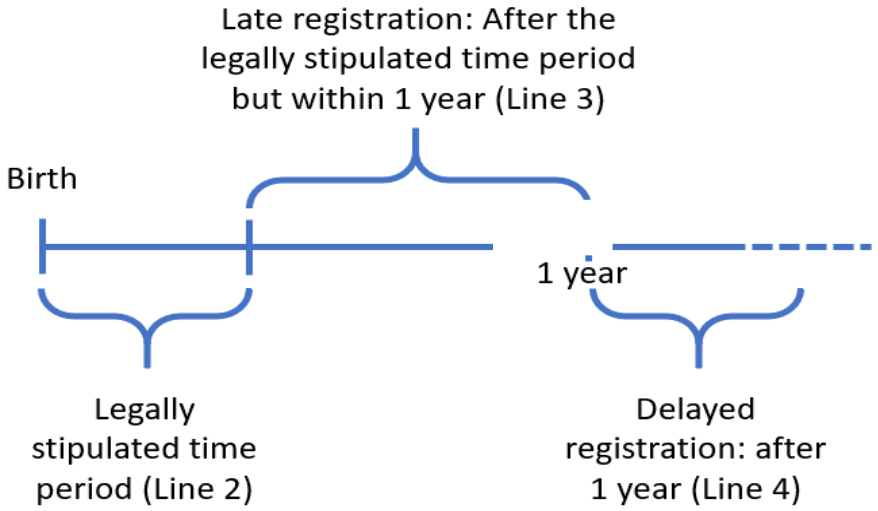
# Registration delays

- Though not as critical as registration completeness, another key indicator of the performance of the CRVS system is the proportion of events that are registered in-time.
- The **legally stipulated time** is the time allotted by law to the registration of events.

- There usually is a tolerance period during which registrations are considered **late**
- After this period (usually 1 year), registrations are considered **delayed**

Analyzing delays can provide insights on issues faced by the registration system

- The fewer late and delayed registrations, the better!



# Impact of COVID-19

- Likely to have an impact on completeness estimates
  - Numerator: direct impact birth and death registration
  - Denominator: does the denominator allow for the effects of COVID-19

- Other impacts: temporary closure of registration offices; lock-downs; overburdening of offices with excess deaths, compromising registration of other vital events

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# Q&A