COVID-19 mortality assessment

The use of surveys and censuses to fill adult mortality data gaps
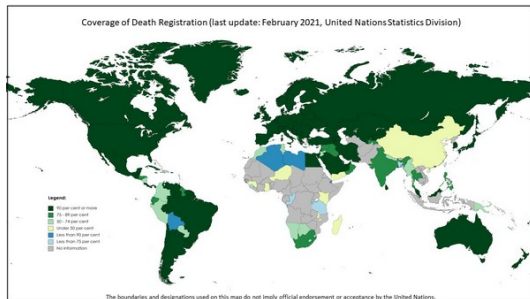
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2/5/2022

Background: data sources on adult mortality

The pre-pandemic landscape

- ▶ Many LMICs lack sufficiently complete civil registration systems.

- ▶ Data on mortality levels and trends are collected during:
  1. Periodic household surveys
  2. Decennial censuses

Figure 1: Coverage of death registration in 2021, source: UNSD estimates

Data collection methods: recent household deaths

- Usually covers deaths of past 12 months

- Elicits age at death, possibly date of death

- Circumstances of the death

Figure 2: Mortality questionnaire of the 2021 Ghana census

Data collection methods: orphanhood

- Routinely included in censuses and surveys

- Requires indirect methods to generate mortality estimates

- Questions often only asked about parents of 0-17 years old

Figure 3: Orphanhood questions in the 2021 Ghana census

MATERNAL AND PATERNAL ORPHANHOOD

A11f Is [NAME]'s biological mother alive?	A11g Is [NAME]'s biological father alive?
Yes ....1 No .....2 DK 3	Yes ....1 No .....2 DK 3

Data collection methods: siblings' survival

- Included in DHS and growing number of other surveys

- Yields direct estimates of 45q15 and other indicators

- Primary source of maternal mortality data in many LMICs.

Figure 4: Maternal mortality section of the 2016 Ethiopia DHS

Pandemic-associated challenges

Limited data sources

- Data gaps remain in CRVS, possibly exacerbated by:
  - COVID-related restrictions
  - Fear and stigma.

- Epidemiological surveillance systems are also incomplete
  - Limited testing for SARS-CoV-2 in many LMICs
  - Do not measure the indirect effects of COVID-19 on mortality

- Rapid mortality surveillance systems only established in select cities/areas.

Surveys and censuses

- ▶ At same time, censuses and household surveys often postponed or cancelled since beginning of pandemic.

- ▶ Questionnaires and methodologies not adapted to measuring recent excess mortality
  - ▶ Reference periods are often short
  - ▶ Age groups most affected (e.g., older age groups) under-sampled
  - ▶ Limited sample size
  - ▶ Clustering of mortality in households and families

Technical advisory group on COVID-19 mortality assessment

- ▶ an advisory body of WHO, UN DESA and UN Member States

- ▶ Goal is to obtain accurate estimates of the number of deaths attributable to the pandemic

- ▶ Several working groups:
    - ▶ Global mortality estimates
    - ▶ **Use of surveys and censuses to fill data gaps**
    - ▶ Death registration
    - ▶ Summary metrics
    - ▶ Inequalities in COVID-19 mortality

UN/WHO working group

- Focus on:
  - Reviewing available survey/census methods for mortality data collection
  - Suggesting modifications/additions to capture recent excess mortality
  - Evaluating innovative methods and instruments

- Broad membership including academics, NSOs and members of UN system.

Emerging recommendations

Censuses

- **Expanding the recall period** for household deaths
  - Would allow covering entire pandemic period

- Collecting **more detailed data on dates of deaths** (e.g., month)
  - Would allow controlling for seasonality in measuring excess mortality.

- **Expanding data collection on parental survival**:
  - Collecting age at, and dates of, reported parental deaths to allow direct estimates
  - Expanding to all residents to generate data on survival at older ages

Surveys

- ▶ Similar modifications re: survey instruments
  - ▶ Strengthen data on HH deaths if collected
  - ▶ Include detailed assessment of parental survival

- ▶ **Review sampling approaches**: adopt sample sizes large enough to allow detection of excess mortality in recent periods

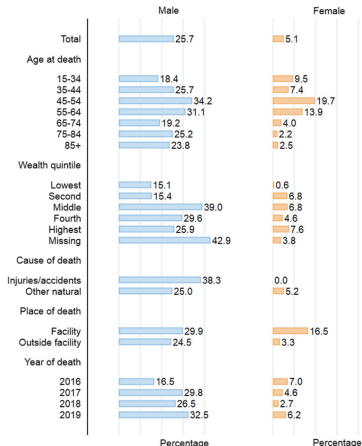- ▶ Consider nested follow-up studies, e.g., verbal and social autopsies.

Cross-cutting

- **Include direct question re: status of reported deaths in CRVS**

- Allows documenting gender and other gaps in CRVS

- Facilitates adjustments/corrections of other data sources.

Figure 5: From Haider et al, (2021): completeness of death registration in Matlab

Innovations

Perspectives and new opportunities

- ▶ New questionnaires (e.g., networks)

- ▶ New modes of data collection (e.g., mobile phones)

- ▶ Complementary data sources (web sources, social media)

Figure 6: From RAMMPS project: noninferiority trial of the collection of mortality data by mobile phone
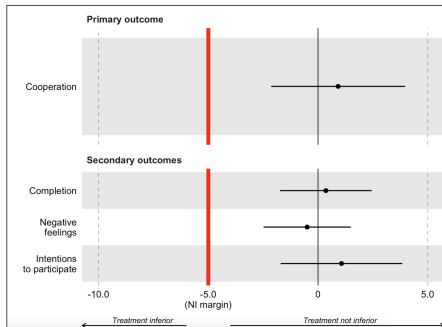

Figure 2: Differences in study outcomes between treatment and control groups