# COVID-19 mortality assessment

The use of surveys and censuses to fill adult mortality data gaps

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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

	M: MORTALITY (HOUSEHOLD DEATHS)											
яп				0, GO TO HM								
902	RECORD THE FOLLOWING INFORMATION FOR EACH MEMBER WI MEa:	Millio DURING	INE PAST 12 MONTHS ME2c: How ald use the	ME2d: Was the death due to an accident, violence, homicident Yes1 No2	M62c: PREGNANCY-RELATED QUESTIONS If deceased you female area 12-54, at the time of							
PERSON	What has the same of decision?	six of deceased? Male1	ices so has the deceased at death? (AGE IN COMPLETED YEARS)		Preparat? Yes1 No2	dash, was she Geving birth? Yes1 No2	Within six (0) weeks of the er of a programs or after child- hirds?					
NO		Female2					Ne2					
1												
2												
3												
4												
5												
6												
7												
8												

## 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?							
Yes1 No2	Yes1 No2							
DK3	DK3							

## 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

SECTION 12. MATERNAL MORTALITY

NO.	1			1	CODING CATEGORIES			
1201	brothers and sist natural mother, in living elsewhere a	ers, that is, all of t icluding those who and those who har	ne questions about your of the children born to your who are killing with you. Brose have deck.					
	you?							
1202	CHECK 1201: TWO OR MORE BIRTHS ONLY ONE BIRTH (RESPONDENT ONLY)							
1203	How many births did your mother have before you were born? NUMBER OF PRECEDING BIRTHS							
1204	What was the name given to your (oldest/ next oldest) brother or sister?	(1)	(2)	(3)	(4)	(5)	(6)	
1205	Is (NAME) male or female?	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	
1206	Is (NAME) still alive?	YES 1 NO 2 GO TO 1208+J DK 8 GO TO (2)+J	YES 1 NO 2 GO TO 1208 DK 8 GO TO (3)	YES 1 NO 2 GO TO 1208 DK 8 GO TO (4)	DK 8 1	YES 1 NO 2 GO TO 1208 DK 8 GO TO (6)	YES 1 NO 2 GO TO 1208+ DK 8 GO TO (7)+	
1207	How old is (NAME)?	GO TO (2)	GO TO (3)	GO TO (4)	GO TO (5)	GO TO (6)	GO TO (7)	
1208	How many years ago did (NAME) die?							
1209	How old was (NAME) when (he/she) died?	IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (2)	IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (3)	IF MALE OF DIED BEFO 12 YEARS OF AGE GO TO (4)		IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (6)	IF MALE OR DIED BEFOR 12 YEARS OF AGE GO TO (7)	

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