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# Country Experiences in using the Census to Measure Pregnancy-related Mortality

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## Objectives:

- Briefly present what is entailed in including pregnancy-related mortality questions in the census;
- Present results from 5 countries which have used the census (mid 90's) to measure pregnancy-related mortality AND have evaluated/adjusted their results;
- Touch upon a variety of issues worth thinking about;

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# How is pregnancy-related mortality measured via a census?

- All live births in the household in the last 12-24 months are recorded
- All household deaths (plus sex and age at death) for the last 12-24 months are recorded
- Only for adult female deaths:
  - Did the deceased die:
    - during pregnancy?
    - during childbirth?
    - within 42 days (6 weeks) of the termination of pregnancy?
- REMEMBER: only ask these questions of ~ 1% of households;
- The issue is space on the page;

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## Optional/Supplemental question:

- Where did she die (in hospital, at home, en route to hospital; other outside home)?
- Follow up questions using a verbal autopsy/medical record review to discern maternal from pregnancy-related death could be added for all or a sub-sample of adult female deaths (a very interesting, but major additional undertaking)

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## Once the data are collected:

- The decision to collect these data must be accompanied by a commitment to evaluate, and adjust if necessary, the data
- Standard demographic techniques are used to evaluate/adjust the completeness of reporting on deaths/birth (see UN Manual X, 1983);
- Currently, no standard methods exist to evaluate or adjust the % of pregnancy-related adult female deaths
  - Adjustments are made to the adult female mortality data or birth data;
  - Then, the observed (national) proportion maternal is applied to adjusted mortality data

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# Countries including PRM questions in the Census:

- For sure:
  - Analyzed: Benin, Iran, Lao, Madagascar, Zimbabwe (+inter-dec); Lesotho?
  - Benin – most recent (2002/3)
  - Bolivia (asked PRM questions, no adult mortality, so no adjustment); South Africa (?)
  - To analyze: Nicaragua, Honduras, Paraguay
- Future plans: Mozambique, Burkina Faso
  - Possibly: Pakistan
- No guarantee that this list is complete

## Characteristics of the Census

	Benin	Iran	Lao	Madagascar	Zimbabwe
Date	2/92	10/96	3/95	8/93	8/92
Population	6m	60m	4.6m	12.4m	10.4m
N of enumerators	4,800	na	14,000	15,000	22,225
Duration of training	2 wks	3-4 wks	3 days	1 wk	5 days
N of questions in census	52	40	26	43	33

## Questions to identify pregnancy-related deaths

Benin 3 questions	..she die during pregnancy? During delivery (w/prompt for PPP)? From other causes?
Iran 3+ questions	..was she pregnant at death? Was she w/in 42 days? From other causes? + questions re: follow up home 2mo later.
Lao 1 question	...die while pregnant, while giving birth or w/in 42 days of <i>giving birth</i> ?
Madagascar 1 question	..any live births in the HH during last 12 mo whose mother died?
Zimbabwe 1 question	...die while pregnant, while giving birth or w/in ~1 mo of <i>giving birth</i> ?

# Results from 5 country experiences

Country	Benin (1992)	Islamic Rep of Iran (1996)	Lao People's Dem Rep (1995)	Madagas- car (1993)	Zimbabwe (1992)
Adjust- ment Factor: births	1.34	1.30	1.65	1.0	1.0
Adjust- ment Factor: deaths	2.7	3.0	1.6	2.5	1.0

NOTE: Adjustment for deaths almost always > than for births. Must be prepared for this magnitude of adjustment. Can be hard to accept.

Source: Stanton et al. 2001. Bulletin of the WHO 79(7)

# Results from 5 country experiences

Country	Benin	Islamic Rep of Iran	Lao People's Dem Rep	Madagascar	Zimbabwe
Unadjusted MMR	168	39	821	NA	395
Adjusted MMR (high, low variants)	338 (250-375)	88 (58-95)	796 (746-871)	NA (NA)	395 (NONE)
MMRs from external sources	498 (DHS)	NA	NA	NA	393 (DHS)

NOTE: Some adjustments are very large. The benefit of no sampling error should be judged against unmeasurable non-sampling error, plus the validity of assumptions underlying the high/low variants. IN SUMMARY: there are many advantages, but this is far from perfect.

Source: Stanton et al. 2001. Bulletin of the WHO 79(7)

Issues to think about

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## Which questions to use?

### Our recommendation re: PRM questions

- Depending on country priorities:
  - 1 question: includes... Did she die during pregnancy, during childbirth or w/in 6 wks (or other clearly defined period) of completion of pregnancy? (note: training issues re: PPP)
  - Was she pregnant when she died? Was she in childbirth when she died? Was she w/in 6 weeks of completion of pregnancy when she died?
  - Possibly add: was the death due to injury?
- Are these recommendations evidence based?  
Not really – ie, no testing was done

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## Various issues to consider:

- Cost – difficult to estimate, but additional costs for PRM over and above HH death question is negligible (~1% of HH require the additional questions);
  - There are costs for data evaluation/adjustment via workshops
- Data quality concerns could be lessened by:
- Careful training
- Supervision
- ... admittedly: the two most difficult aspects of a census.  
Possible solutions to consider:
  - Experiment with increased supervision in selected regions
  - Restrict pregnancy-related death questions to a sub-sample of regions/districts; or include only when long form/short form is used

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## Various issues to consider:

- Reporting: plan *in advance* for a separate publication (you might get a couple tables in the census volume/s).
  - See recommendations in Measure/Eval manual
  - Take advantage of fact that census provides all 4 indicators of PRM, and differentials; could include external/process data as well, mapping, etc
  - Do Health Areas differ from Geo/Political regions?

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# Various issues to consider:

- RE: evaluation: who is appropriate to invite to workshop?
  - Trainers (w/ experience in adult mort. Analysis and participants)
  - Keep it small (12-15 max)
- The census for PRM measurement is NOT a silver bullet for our measurement problems
  - You trade sampling error for non-sampling error (no time to establish rapport, availability of respondents)
  - Alternative approaches may/do have non-sampling errors also

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## In summary:

- Using the census to measure pregnancy-related mortality offers many advantages to traditional approaches
- BUT, it is not a magic bullet. It comes with its own limitations and results should be interpreted accordingly
- The Measure/Evaluation project has produced step by step Guidelines in English/French/Spanish on the evaluation/adjustment of such data. See: [www.cpc.unc.edu/measure/publications/index](http://www.cpc.unc.edu/measure/publications/index)