

### **Including Questions Pertaining to Maternal Mortality in a National Census**

Ronsmans and Graham (1) emphasize that "... action [to minimize the risk of maternal death] needs to be informed by an understanding of who is dying, when, where and why." (p.13). Our understanding of the who's, when's, where's and why's is severely limited in countries lacking complete registration of deaths with good ascertainment of cause of death; only a handful of developing countries meet these conditions (2). The widespread use of sibling histories in Demographic and Health Surveys (DHS) in many developing countries has provided some information on pregnancy-related deaths (that is, deaths occurring during or shortly after pregnancy regardless of cause), but the data have a number of shortcomings. First, the methodology does not lend itself to follow-up enquiries to refine the ascertainment of cause of death because it is very problematic to contact the families of the dead sisters of respondents to apply for example a verbal autopsy instrument. Second, the DHS samples are too small to provide robust estimates of pregnancy-related mortality for periods shorter than five or six years or for sub-national areas (and of course in countries with substantial migration the correspondence between residence of respondent and prior residence of a deceased sister may not be close). Third, doubts remain about how well sibling histories measure overall mortality (3), and the present structure of the DHS sibling history does not lend itself to evaluation since respondents are limited to the age range 15 to 49 rather than all ages 15 and over.

The long-term solution to the data problem, the improvement in vital registration systems, will be incremental rather than immediate, so some other strategy is needed to provide the information required for action to meet MDG-5, which calls for a reduction of 75 percent in the Maternal Mortality Ratio (MMR) between 1990 and 2015. Hobcraft (4) proposed in 1996 that the national census was an appropriate vehicle for improving our knowledge base, but even before his initial proposal a small number of countries had already incorporated questions relating to maternal death into their national census. Data from five of these countries were analyzed at a workshop in Nairobi in 1999 (5), an analysis that brought home two conclusions: first, each country had used a different approach; and second, the success of the methodology varied widely between countries, with some approaches working better than others. Although evidence for a "best" approach is lacking, we can at least identify with the evidence available an approach that seems to be satisfactory.

The recommended approach is to include in the household portion of the census questionnaire a box that asks about household deaths in a recent reference period (the last 12 months, since some widely-recognized holiday, or since some other setting-specific time marker). For each death, the name, age at death in completed years, and sex is recorded. For deaths of women of reproductive age, additional questions are asked as to whether the woman was pregnant, giving birth, or within six weeks of the end of a pregnancy (this follow-up is best asked as three separate questions). It is very important for data evaluation purposes that the questions on household deaths include all such deaths, not just those of women of reproductive age. It is also important to note that in order to measure MMR, the metric in which the target for MDG-5 is expressed, an estimate of numbers of births is also required. If a country lacks an alternative accurate source of information about recent fertility, the census should also include questions for women of reproductive age about recent and lifetime fertility.

**Task from Census meeting, Ken Hill (HIGH)  
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The advantages of using the national census to estimate maternal mortality in countries lacking accurate conventional sources of data are substantial.

1. The census is the only household-level survey large enough to support the measurement of spatial and socio-economic differentials in maternal mortality.
2. Standard methods exist for evaluating and, under certain conditions, adjusting the data on overall deaths. Census questions on household deaths went out of fashion in the 1970s and 1980s because reported death rates were implausibly low. Advances in analytic methodology have greatly improved the ability to evaluate and then adjust for reporting deficiencies since that time.
3. For a country planning in any event to include questions on household deaths in the census, as is strongly endorsed by the draft Principles and Recommendations for the 2010 Population and Housing Censuses for countries lacking complete death registration, the marginal cost of adding the questions to identify pregnancy-related deaths is low; only about one percent of households will report the event that triggers the additional questions, namely a death of a woman of reproductive age. There is some additional cost in terms of paper and printing, but it is small.
4. The methodology lends itself to potential follow-up with a verbal autopsy or other in-depth study of households reporting a death of a woman of reproductive age.
5. The additional questions on household deaths and their timing relative to pregnancy can, to reduce costs, be included only on a census long form if a country is planning a census with a short questionnaire for the majority of households and a longer questionnaire for a sample.

For a country lacking conventional sources of data to measure maternal mortality and considering the inclusion of questions on household deaths in the 2010 census round, the inclusion of additional questions to identify pregnancy-related deaths is a cost-effective way to monitor progress towards MDG-5. The current draft of the Principles and Recommendations for the 2010 census round provides only lukewarm support for the approach, but countries should be encouraged by bilateral and multilateral donors to give it serious consideration.

1. Ronsmans C, Graham W. on behalf of the Lancet Maternal Survival Series Steering Group. 2006. Maternal mortality: Who, where, when and why. *Lancet*. 368(9542):1189-200.
2. WHO (2004) Maternal mortality in 2000: estimates developed by WHO, UNICEF and UNFPA. Geneva: World Health Organization.
3. Stanton C, Nouredine A, and Hill K.(2000) An Assessment of DHS Maternal Mortality Indicators. *Studies in Family Planning* 31(2).
4. Hobcraft J. (reference to be added)
5. Stanton, C., J. Hobcraft, K.Hill et al. 2001. Every Death Counts: Measurement of Maternal Mortality via a Census. *Bulletin of the World Health Organization* 79(7): 657-664.