

# Measuring Maternal Mortality

## Challenges, Solutions, and Next Steps

### Background

At national and international levels, the demand for reliable maternal death estimates has grown significantly since the creation of the Millennium Development Goals.

To improve maternal health and survival, decision-makers must make difficult choices about where to allocate scarce resources and how to set programme and policy priorities. To make such decisions, policymakers and programme planners need accurate data on the level of and trends in maternal death in their country or region. Equally valuable is information on differences in the risk of maternal death between, for example, remote and urban communities, or between the rich and the poor in a country.

Unfortunately, reliable and comparable data are scarce. Too often policies or programmes are developed despite a lack of data that identifies which women are at highest risk of maternal death and inadequate knowledge of what actions are most likely to reduce the risk of such deaths.

A primary objective of Immpact, a global research initiative, is to improve the methods and evaluation tools for measuring levels of maternal death and attributing changes in maternal health and survival to specific programme strategies.

### Why measure maternal mortality?

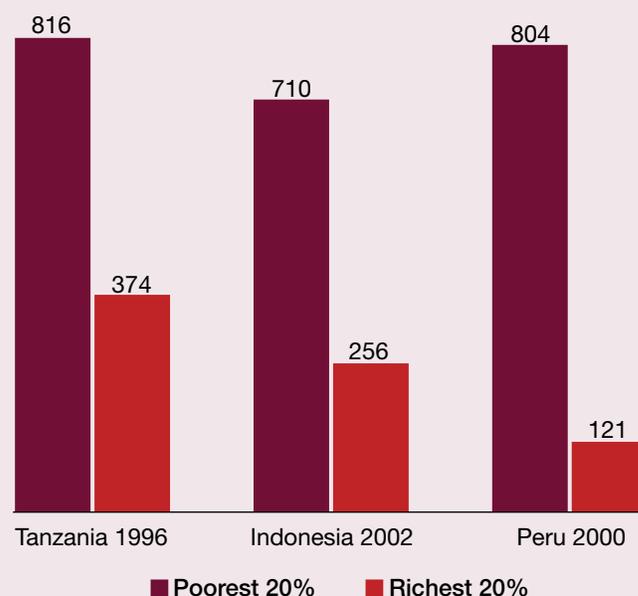
Reliable data on the levels and causes of maternal death can be used for planning, monitoring, and evaluating programmes. Such data can also be used for priority setting and advocacy, which can help increase awareness about safe motherhood, encourage accountability, and raise funds.

### Measurement challenges

Measuring maternal mortality is difficult for a number of reasons. While vital registration systems are a rich and valuable source of health data in developed countries, they are not complete in most developing countries. So population surveys are often used to estimate maternal mortality. The downside of such surveys is that they can be expensive, because they require information about

### Maternal Deaths by Selected Wealth Quintile

Maternal deaths per 100,000 live births



Source: Immpact.

a very large number of women to accurately measure maternal mortality. Another way to measure maternal death is to use hospital records. Unfortunately, estimates from hospital-based studies are not representative of the whole population, but only the population that sought care at the hospital.

Regardless of how data on maternal deaths are gathered, such deaths are often misclassified and attributed to nonmaternal causes. For example, if a pregnant or postpartum woman dies in a hospital—but not in the obstetrics ward—her death is often not counted as a maternal death. Pregnancy can also be a sensitive issue that women or their relatives may not want to disclose to health care professionals or researchers. As a result, a pregnancy-related illness or death may be attributed to other causes.

## Progress made in measuring maternal mortality

No one tool can perfectly measure maternal death in all situations. For this reason, multiple measurement approaches are needed. To add to the safe motherhood “basket” of tools, Immpact has worked to improve existing tools as well as develop new ones.

To more efficiently collect data, reduce costs, and use fewer skilled personnel to carry out surveys, Immpact developed **Sampling at Service Sites (SSS)**. With this method, women are interviewed at busy centres, such as markets or health facilities, about any maternal deaths among their sisters. Allowing respondents to come to the interviewers rather than sending the interviewers to the respondents’ homes, as traditional household surveys do, reduces both the cost and time required to collect data. Maternal mortality estimates made using this new approach in Ghana were consistent with those from the 1999-2000 Ghana World Health Survey.

In Indonesia, Immpact developed the tool, “**MAternal DEaths from Informants**” (**MADE-IN**). This tool uses village health workers, or the existing village administrative systems, to collect information on deaths of women of reproductive age in the past two years and, in particular, deaths that may have been pregnancy-related. For pregnancy-related deaths, the corresponding **Follow-On-Review tool (MADE-FOR)** is used to interview a relative, ask about symptoms and events around the time of death, and collect socioeconomic data about the woman. MADE-IN/MADE-FOR was used in 700 villages in Java, identifying more than 450 pregnancy-related deaths, at a relatively low cost.

**Rapid Ascertainment Process for Institutional Death (RAPID)** is a tool designed to reveal underreporting of pregnancy-related deaths in hospitals, by comparing data from existing hospital records with routinely reported hospital figures. This creates more complete statistics on pregnancy-related deaths, which can be used to evaluate programmes, better monitor pregnancy-related deaths, and make realistic plans for limited resources. RAPID also helps to identify weaknesses in the hospital-reporting system and opportunities to improve it.

**Interpretation of Verbal Autopsy-Maternal (InterVA-M)** is a computer model Immpact adapted that interprets data from interviews with the relatives of women of reproductive age who have died. It can help to identify pregnancy-related deaths and classify the causes of death.

Maternal mortality has been used as a marker to monitor progress toward poverty-reduction goals, but up until recently, evidence did not link poverty and maternal survival at the individual level. Immpact developed the familial technique, which uses existing survey data, to explore the relationship between maternal death and

poverty. Using this technique to analyze data from 11 Demographic and Health Surveys (DHS) in 10 low-income countries, Immpact’s published analysis showed that as household poverty increased, the proportion of women dying of maternal causes increased consistently, six-fold in the case of Peru (see figure).

## Recommendations

**Continue to develop and adapt tools to measure maternal death.** Immpact tools are meant to be adapted according to the particular context and unique needs of a country or programme. The tools are new; so they (and the resulting data) will become stronger as they are refined and used in a variety of different settings and for different purposes.

**Estimate maternal deaths using data from different sources.** New analytical methods should be developed to combine information about maternal deaths from different sources, while, taking into account geographic or socio-economic differences in populations, and imperfections in the data sources.

**Develop models to identify effective safe motherhood strategies.** Decision-makers and those in charge of allocating resources need to know which strategies are most likely to reduce maternal deaths in their countries. Safe motherhood programmes are usually complex and their results strongly depend on the conditions of the country or area in which the programme is carried out. These factors make it difficult to draw general conclusions from an evaluation of one programme and use the information to design future programmes. However, Immpact has begun to develop a model which incorporates important “contextual” information to identify which strategies will be most likely to reduce maternal deaths in different settings.

**Focus on levels of maternal death within countries and not only on national levels.** To most effectively target human and financial resources, attention must be directed at groups and areas that are most at risk of maternal death. Information on the distribution of maternal deaths within countries, comparing urban and rural areas, for example, will point decision-makers to the areas in greatest need.

**Use partnerships to improve the quality and availability of maternal death data.** The current demand for estimates of maternal mortality provides renewed momentum to improve routine information systems and enhance existing measurement methods and tools. Meeting the demands for better maternal death measurement requires partnering at multiple levels and among the various groups working on data collection, programme planning, and policy development.