Studying deaths can save lives

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"We all thought her pregnancy was safe," says the husband of 23-year-old Yeshimbet. "She looked fine." But after Yeshimbet gave birth to their son in their home, the bleeding wouldn't stop. She died the next day on the way to the health centre, many hours away on foot.

Yeshimbet's story, **told in a video produced by the Ethiopian Ministry of Health** and Evidence for Action, is all too common in the country. The World Health Organization reported a 2013 ratio of 420 maternal deaths per 100,000 live births. Child mortality rates are also high at 88 per 1,000 births, and 28% of all child deaths occur in the first month of life.

These numbers are tragic, but are they accurate? Fewer than 30% of births and deaths are recorded in Ethiopia, which means that women and children — and men — are dying uncounted because they are invisible to the health system that could save their lives.

A major hurdle to tracking maternal and newborn mortality is delivery at home, which more than 80% of Ethiopian women do with no trained help. Available data comes from health facilities, where only a minority of maternal and child deaths occur.

This means that there is no reliable data on why these women died, says Wubegzier Mekonnen, assistant professor at Addis Ababa University School of Public Health.

What is known is that most **maternal** and **child** deaths are preventable. But governments and health systems need to improve their understanding of the causes if they are to avoid them. Each death has an important story to tell and can point to practical ways to prevent avoidable deaths in the future.

Canadian-Ethiopian collaboration

To address the weakness of Ethiopia's civil registration and vital statistics system, Mekonnen leads a project to pilot a low-cost, high-quality cause-of-death data collection and monitoring system. Funded through the Innovating for Maternal and Child Health in Africa initiative, the research will provide Ethiopia with its first-ever representative data on the causes of newborn, child, and maternal deaths.

Carried out in collaboration with the Centre for Global Health Research (CGHR) of St. Michael's Hospital and the University of Toronto, the project supports Ethiopia's recent efforts to improve maternal and child health and to strengthen civil registration and vital statistics.

Work is following a two-track process. First, the team is carrying out a systematic search of all available Ethiopian information sources to identify maternal and child causes of death from 1990 onward. Initial results point to hemorrhage as the leading cause of maternal deaths, followed by pregnancy-induced hypertension and sepsis. This data will be compiled in an easy to use, national open-source database that will help researchers investigate historical patterns, risk factors, and causes of death.

Verbal autopsies are a cost-effective way of gathering data on cause of death. Photo: Ajay Bhaskar

In parallel, researchers are developing an innovative platform using data from verbal autopsies, which are accounts of death gathered through interviews with household members of the deceased. The research team is customizing the CGHR e-platform that was developed for the Indian Million Death Study for Ethiopia, including translation into Amharic.

Innovating in vital statistics

"Death is a concrete, final, and measurable event that households remember well, and it can be captured in household surveys reliably," says epidemiologist Prabhat Jha, CGHR's director. Jha worked closely with the Registrar General of India to launch the Million Death Study.

The interview data is documented, sent to a team of doctors to determine a medical cause, and codified using World Health Organization international coding standards.

While the work involves a lot of knocking on doors and talking to people, it is simple and relatively cost-effective. "We've designed electronic verbal autopsy survey tools that any country can use to organize and run the surveys very simply and efficiently," says Jha.

Listen to Prabhat Jha, director of the Centre for Global Health Research of St. Michael's Hospital and University of Toronto, describe verbal autopsies in India's Million Death Study.

In addition to piloting the system in Ethiopia, CGHR is working to introduce it to other African countries. "We expect this project to become the major global innovator in vital statistics," says Mekonnen.

Information will also be gleaned from the national census, scheduled to start in early 2018. The team has worked closely with Ethiopia's Census Commission on the questionnaire to capture information on deaths that occurred in the last year, which can be followed-up with a verbal autopsy.

From concept to national scale

By providing accurate cause-of-death data, training people in its analysis, and identifying gaps in health interventions, the project will provide proof of concept that this kind of high-quality, low-cost data collection is feasible, says Mekonnen.

"Our approach is both to address research questions, but also to develop engineering approaches that make it much easier to scale up and sustain the studies."

The results will also contribute to emerging evidence provided at the global level by the **Centre of Excellence for Civil Registration and Vital Statistics Systems**. Housed at IDRC, this Centre is part of the Government of Canada's overall contribution to the **Global Financing Facility** — a key financing platform of the UN Secretary General's Global Strategy for Women's, Children's, and Adolescent's Health.

Read more about IDRC's **Innovating for Maternal and Child Health in Africa initiative**

Learn more about the IDRC-supported **Community-Based Cause of Death Study Linked to Maternal and Child Health Program and Vital Statistics in Ethiopia**

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