Abstract

Background: Every year more than a quarter of a million women die from pregnancy-related causes, and nearly 3 million babies die before they reach 1 month of age. While the clinical causes of such deaths are well known, few understand the complex social and cultural antecedents that increase the likelihood of deaths from largely preventable causes. In Ghana, these include community power dynamics that require permission from multiple levels of authority to visit a health facility, regional norms of stoicism and suffering through pain, and delays as a result of seeking local treatment options first. Through its *Innovate for Health* mechanism, USAID-Ghana contracted the University of Michigan Medical School (UM) and the Navrongo Health Research Centre (NHRC) to utilize techniques of social autopsy to determine causes of maternal and neonatal deaths, community audits to determine factors associated with maternal and neonatal near-misses, and geographic mapping technology to help visualize the spatial relationships between social and cultural factors influencing maternal and neonatal mortality, and use those results to inform pilot initiatives at selected innovation sites to translate project findings into locally-tailored solutions. UM and NHRC are expanding on previous work in northern Ghana to incorporate four districts across the three northern regions into programmatic activities.

Methods: NHRC identified and trained local field workers in the Sissala East district in the Upper West Region, the East Mamprusi district in the Northern Region, and the Kassena-Nankana East and West districts in the Upper East Region. After a lengthy process of community entry, field workers trained community volunteers to help them prospectively identify all maternal and neonatal deaths in each district. For each event identified, field workers conducted Social Autopsies with surviving family members. Social Autopsies are in-depth, semi-structured surveys that include Verbal Autopsy questions as well as items designed to assess demographic, social, cultural, and care-seeking factors. In addition, the location of the respondent's home, where the death occurred, and all health facilities, traditional healers, chief compounds, markets, and rivers in the district were recorded using GPS technology. In addition to identifying deaths, field workers recruited the help of local health care providers to identify “near-misses” – or those mothers and babies who nearly died but ultimately survived, according to WHO clinical criteria for determining near-misses. Near-miss cases were also interviewed using a Socio-Cultural Audit tool to determine the social and cultural factors potentially associated with the near-miss event.

Results: Between October 2015 and March 2016, field workers have identified 125 neonatal deaths across the four districts, with more than half (N=77, 61.6%) occurring in East Mamprusi in the Northern Region. (The official East Mamprusi district tally for all of 2015 was 27 neonatal deaths.) Nine maternal deaths have been identified, with 5 of the 9 occurring in East Mamprusi. Despite slow initial recruitment of near-miss cases, field workers have identified 18 neonatal and 28 maternal near misses. Geographic data have been used to create preliminary maps illustrating the locations of deaths and near-misses, and the development of an interactive tool to allow exploration of various social and cultural correlates is underway. The project team will collect data through December 2016.

Conclusions: PREMAND’s process for identifying maternal and neonatal deaths and near-misses is providing the Ghana Health Service with unprecedented intelligence regarding not only the events themselves, but also the circumstances surrounding deaths and near-misses. The District Directors of Health Services in both East Mamprusi and Kassena Nankana West indicated that our numbers were significantly higher than what was shown via DHIMS data. We believe the PREMAND methodology will provide a critically needed validation check for the DHIMS data to ensure the government has the most accurate information possible regarding maternal and neonatal deaths and near-misses. The interactive tool being developed as part of PREMAND will also allow key stakeholders to explore how the geographic locations of deaths and near-misses relate to cause of death, locations of facilities, facility services offered, use of traditional healers, and a host of other social, cultural, and care-seeking factors.