A Verbal Autopsy Survey of Perinatal Mortality

in Rural Pakistan

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There is little information on perinatal deaths from developing countries, especially in settings with weak vital registration systems. In Pakistan as well, little systematic information exists on rates of perinatal and neonatal deaths in community settings. As a result no concerted efforts have been made to address these issues systematically. We undertook a community survey in rural Sindh in order to understand the burden and determinants of perinatal and neonatal deaths in representative community settings. The verbal autopsy instrument employed was a modification of a previously validated instrument used for evaluating deaths in older infants and children, and was expanded to include sections on still births, cause-specific neonatal deaths and a social autopsy. The data indicated that the burden of still births and neonatal deaths was much higher than anticipated. Most deaths occurred at home, indicating the need for community-based interventions.

Zulfiqar Ahmed Bhutta

Research has a vital role in increasing the profile of neonatal and perinatal mortality as an important health priority for developing countries

Every year it is estimated that 4 million babies die needlessly during their first four weeks of life. Almost all (99%) of these deaths are in the poorest countries of the world, mainly in South Asia and sub-Saharan Africa. Yet this major global public health issue appears to be almost invisible within the priorities policy makers set for research. One reason this issue remains hidden is that there is little information about death rates and causes of death in babies in their first month of life: most epidemiological and social research focuses on deaths amongst children in middle and high-income countries while infants in low-income countries bear the greater disease burden. This lack of information has led to the problem of perinatal and neonatal deaths being overlooked in the process of allocation of health resources. Thus, women and their babies in the poorest communities of the world today have little access to health care and preventative interventions.[1]

The value of research evidence is in its ability to inform research priorities, resource allocation and, ultimately, to prevent needless deaths.

It is vital that those at the heart of decision-making and service planning have the benefit of research evidence to make rational decisions on where resources are needed most and can have the greatest impact. Yet decision makers do not always have this evidence or the evidence available may be based only on estimates and little or unreliable national information. The fact that the perinatal period of human life has received such little attention by health care planners is a direct consequence of the lack of information and evidence in this regard. However, researching the rates and causes of neonatal and perinatal deaths poses particular challenges as many babies in poor countries are born at home and may die there before they have been named or formally registered. In this CHNRI Research Brief, a study in Pakistan highlights these issues and demonstrates a successful approach to overcoming the difficulties in documenting death rates, causes of death and the socio-economic context within which deaths occur among the newborn.

In many developing countries there is no valid birth or death registration, making epidemiological research essential and difficult

In many developing countries most neonatal deaths are unseen and undocumented. In Pakistan there are vital gaps in data on neonatal and perinatal mortality and their causes. Births and deaths are not regularly recorded in rural areas. Neither are deaths at home reported to the health or local authorities nor do families get death certificates from hospitals. In the study areas, 65% of newborn deaths occur at home. Thus, it is difficult to investigate and determine cause/s of child death relying only on the insignificant and invalid hospital data. At the same time there are indirect estimates indicating that over 75% of child deaths occur in infancy and between 50 - 60% of infant deaths occur in the neonatal period.

This mismatch between the disease burden and the lack of reliable, population-based information hampers planning for health interventions to deal with the specific causes of infant mortality in that country. Researchers seeking to fill this information void need to be technically creative and develop appropriate search methodologies to account for undocumented deaths retrospectively in rural communities.

A verbal autopsy survey of perinatal mortality in Pakistan

The study used a modification of the verbal autopsy method[2], modified for the cultural context and translated into Sindhi, as well as a social autopsy to identify both numbers and probable causes of deaths through reconstructing the events surrounding them. Verbatim accounts of the mother/caretaker describing the illness and events that led to the child's death were recorded. Additionally, the instrument included sections to describe the cause of death and the socio-economic and cultural factors that might contribute to an infant's death.

Local interviewers and field supervisors received extensive training in interviewing to gather this information from parents and families. This was an important feature of the research as it ensured access to communities and built research capacity.

Researchers found the stillbirth rate to be 61 per 1000 total births; the neonatal death rate was found to be 44 per 1000 live births and the post-neonatal infant death rate was 38 per 1000 live births. The main causes of death among neonates were asphyxial conditions, neonatal sepsis, conditions associated with prematurity and neonatal pneumonia. The majority of stillbirths were due to asphyxial conditions as they occurred in the intra-partum period.

Cultural practices and family traditions may inhibit care-seeking behaviour for a sick child

While the study indicated that health system shortcomings and poverty underlay almost half the reported deaths, in another third family traditions, cultural practices and education determined care-seeking behavior. The need for consent from the father or a male family member, discouragement of religious leaders, a lack of understanding of the severity of illness, poor knowledge of available health care and preferences for traditional homemade remedies were reported. However, healthcare was not an option for many families as they were too poor to pay for it. Clinics may have been too far away for the many lacking transport while some perceived the clinics to lack medicines and skilled healthcare workers.

Almost 90% of deaths were potentially preventable

Deaths during the perinatal period are largely preventable. Babies die mainly due to infections, preterm birth and asphyxia and between 60 and 80% will also have been underweight at birth. In addition, there is a hidden burden of stillbirths estimated to be around 4 million.[3]

There are proven cost effective interventions that when delivered through a continuum of care approach can prevent neonatal deaths.[4] This continuum may include linking households to hospitals and improving home based practices, mobilizing families to seek the care they need and increasing access to good facilities. In the case of the Sindh study areas, with an illiteracy rate of 95% and at least 1/3 of the population practicing self-medication or using homemade remedies, education for both men and women is essential.

However, there are variations between and within countries, not only in the numbers of deaths, but also in the capacity of the health system, the obstacles faced and the resources available. Although the body of evidence is growing and there is much that can be done, there are still information gaps and country specific research is urgently needed. In Pakistan, the research data indicated that almost 90% of deaths were potentially preventable, providing a vital message to decision makers.

Policy implications: Multidisciplinary research can inform policy makers and provide a rational basis for setting priorities to decrease infant deaths

There is much to be drawn from this research for other low-income countries, particularly in South Asia, in terms of the implications it raises for the funding of research as well as for health policy and service delivery.

Despite a growing body of evidence about neonatal mortality, there remain information gaps:

▶ Country-wide rates of perinatal and neonatal deaths
▶ Causes of deaths in the perinatal/neonatal period
▶ Barriers and opportunities for shaping services and implementing evidence based interventions within weak healthcare systems

The verbal autopsy survey carried out in Pakistan effectively illustrates:

▶ What is possible to achieve at a local level
▶ How the difficulties in carrying out research within low income countries with weak health systems can be overcome
▶ The importance of country specific research to supplement existing research evidence, to influence decision-making and to shape services appropriately

If the Millennium Development Goals are to be achieved by 2015, then neonatal deaths must be prevented

If research is to play a role in the alleviation of perinatal/neonatal deaths, it needs to be developed and used within a strategic context. Globally, major achievements have been made in improving the health of children under 5 years; however, the health of infants in the first 4 weeks of life has been ignored. To achieve the Millennium Development Goals, coordinated efforts and a focus on infant mortality within the research world as well as among policymakers and politicians are necessary.

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