Stillbirth in low- and middle-income countries: addressing the 'silent epidemic'

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Introduction

Annually, an estimated 2.6 million stillbirths occur worldwide.[1] With five deaths every single minute, stillbirth is the fifth leading global cause of death when compared with causes of death in all age categories—outranking diarrhoea, HIV/AIDS, TB, road traffic accidents and any form of cancer.[2] The vast majority (98%) of stillbirths occur in low- and middle-income countries (LMICs). This has also been referred to as the 'silent epidemic'.

Sadly, there is an increased risk of experiencing another stillbirth in subsequent pregnancies for women who have given birth to a stillborn baby before compared with those who have not.[3] Furthermore, in most LMIC settings, bereavement care for parents is either not available at all or substandard.[4] There is also still a paucity of information from LMICs regarding what causes stillbirth.

To achieve the global target of reducing the stillbirth rate to 12 per 1000 births in every country by the year 2035, as proposed by the World Health Assembly (2014), the current annual reduction rate of 2% will need to be more than doubled.

Several factors impede progress in the efforts to reduce the burden of preventable stillbirths. We highlight where and how focused interventions and implementation research is needed and would be effective.

The definition of stillbirth

The WHO defines stillbirth as the birth of a baby at ≥22 wk of gestation, or with a birth weight of ≥500 g or body length of ≥25 cm, who died before or during labour and birth. However, in practice, different countries and/or research groups use different cut-off points for the gestational age after which death of a fetus is considered a 'stillbirth' (as opposed to a 'miscarriage'). This continues to remain a point for international debate and careful consideration. Recent discussions in the UK have highlighted the need to consider the experience of giving birth more carefully rather

than maintaining a focus on the age of viability.[5] However, for the purpose of international comparisons, the WHO defines stillbirth as a baby born dead at ≥28 wk of gestation, or with a birth weight of ≥1000 g or a body length of ≥35 cm.[6]

Problems with different definitions across different settings mean that it is difficult to provide meaningful comparative data for stillbirth and perinatal mortality rates. Stillbirths are not counted uniformly or are not counted at all in many LMIC settings. Researchers, healthcare providers and managers as well as policy-makers will need to work together to ensure that stillbirths are made notifiable in many more countries.

The need for better data

A systematic review of 142 publications on the cause of stillbirth identified the major recognised causes of stillbirth in LMICs as asphyxia, placental disorders, hypertensive disorders, infections, cord problems and ruptured uterus.[7] However, the cause of up to half of all stillbirths in LMICs is still unknown.[8,9] It must be noted that asphyxia is often reported as the cause of death but is, in fact, the pathological pathway by which death occurs and, in many cases, there is a lack of data and a more specific underlying cause of death cannot be assigned.

For interventions to be successful, there is the need for more accurate and up-to-date information on the number of stillbirths that occur, where (at healthcare facility or community level) and when they occur (antepartum or intrapartum), and on the cause of and factors contributing to stillbirth. Millions of stillbirths in LMICs are still not counted. Stillbirth is not recognised in the Global Burden of Disease and not counted as 'missed lives' in disability-adjusted life-years.[2] Furthermore, in up to 90 countries, stillbirths are still not 'counted' as part of routine national data.[2]

Perinatal death audit (which includes a review of both stillbirths and early neonatal deaths) is a promising and practical quality improvement method that can be implemented in most

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Box 1: Terminology used in stillbirth audit[13]

Cause of stillbirth: a condition with a plausible mechanism likely to have led to the death of the fetus, e.g., congenital anomaly, placental abruption.

Risk factor: a maternal, paternal or fetal characteristic is considered to be a risk factor for stillbirth when it is associated with stillbirth, but without an obvious causal relationship, e.g., older maternal age, low socioeconomic status.

Contributing factors: refers to health system factors contributing to stillbirth. It is important to differentiate these factors from associated risk factors. Health system factors are often more amenable to improvement by healthcare providers than risk factors. These may include staff shortage, delays in the time for decision to deliver by caesarean section (CS) and conduct of the CS.

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settings and has the potential to reduce perinatal deaths by one-third.[10,11] Stillbirth audit ensures that the circumstances surrounding death are examined with a view to identifying what went well and what could have been done better. As part of the audit, recommendations for improvement in clinical practice are derived and action taken to address areas of substandard care. Although maternal death audit is conducted in an increasing number of LMIC settings, perinatal death audit is not yet commonly practised. Moreover, the significant and large numbers of stillbirths that occur can be overwhelming and make it difficult for healthcare providers to know where to start. In addition, in many cases where stillbirths were reviewed, failure to identify a clear and specific cause of death is often linked to lack of enough information to be able to reach a reasonably likely conclusion regarding the underlying medical cause of death.[12]

To obtain high-quality data to inform interventions aimed at reducing preventable stillbirths, there is an urgent need not just to improve the quality of clinical records, but also to improve diagnostic capabilities in low-resource settings. This will provide more accurate information on the cause of death and would significantly reduce the proportion of stillbirths for whom cause of death is not known.

There is also substantial confusion (in the literature as well as among healthcare providers who conduct perinatal death audit) regarding the use and meaning of the proposed international terminology, including cause of death, risk factors and contributing factors (Box 1).[7]

Standardised guidelines for perinatal death review

In 2016, the WHO launched new guidelines for perinatal death audit to help healthcare providers and managers set up effective systems for capturing the number and causes of stillbirths and to guide them to work in interdisciplinary teams to conduct audit using a 'no blame, no shame' approach.[14] The document sets out clear steps for the identification of cases of stillbirth, data collection and data analysis. Where substandard care occurs, healthcare providers can then make informed recommendations, act to implement change, as well as refine and sustain that change in practice over time.

Only a few countries have adopted the new guidelines so far, and fewer have started implementation. Thus, there is a real need and opportunity for expedited action to adapt and adopt these guidelines across LMICs. It has been suggested that for healthcare facilities with high numbers of stillbirths, stillbirth audit could initially focus on intrapartum deaths.[15] Whereas this may help achieve the development of focused recommendations for the improvement of the quality of care at the time of birth, with likely immediate results, the main causes of antepartum or intrauterine deaths will still need to be identified. The latter will most likely lead to recommendations for improved content and quality of antenatal care.[16]

A universal classification system

Classification systems are useful in guiding extraction of relevant information from clinical records (and/or verbal autopsy data) and are used to assign the cause of death and contributing factors. Such systems allow for a consistent use of terminology and, subsequently, for comparison within and between settings. There are, however, dozens of classification systems for stillbirth, many of which were developed to meet the specific needs of a defined population.[17] This has in the past caused a lot of confusion and wide variation in the range and type of cause of stillbirth reported across the globe.

To address this, the International Classification of Diseases for Perinatal Mortality (ICD-PM) was launched.[6] The new system uses a layered approach to classify the cause of perinatal mortality by time of death. At the first level, the type of stillbirth is identified (antepartum or intrapartum stillbirth). This is followed by a number of categories—each of which is further subdivided into smaller subgroups. With each layer, a more specific underlying cause of death is identified, for which more clinical and diagnostic information is generally required. It is hoped that this new classification system will result in better data on cause of death that can be aggregated and used for comparison and prioritisation of areas of care for which improvements in the quality of care will have the most impact. The application of ICD-PM should, in principle, also result in a reduction in the percentage of stillbirths for which a cause of death is not identified. However, preliminary results from a multinational study indicate that the introduction and application of the ICD-PM will still be challenging in many settings.

A major challenge will be to determine the time of death. In many LMICs, monitoring of the fetal heart rate and/or condition is poorly performed both during pregnancy (antenatal care) and at the time of birth. It is often difficult to obtain sufficient and

accurate data on when fetal death occurred. To date, the application of ICD-PM relies on knowing whether a stillbirth occurred antepartum or intrapartum. Despite this limitation, adoption of the new system will enable collation of global data, which is critical to monitoring progress overall but also monitoring change in the relevant distribution of each type of cause of stillbirth.

To facilitate consistent application of the ICD-PM, computer algorithms could play a vital role. Once properly tested, these algorithms could be applied in mobile device apps, which healthcare providers could download and use to correctly assign a code for the identified cause of stillbirth.

Conclusion

The majority of stillbirths are preventable. Continued high stillbirth rates in many LMIC settings are likely to be due more to lack of action than a lack of knowledge about what can and should be done. However, better data is needed so that healthcare providers understand why stillbirths occur, and can take correct and focused action. Counting each life lost is important and stillbirth rates at a healthcare facility can be monitored over time and used as an indicator of quality. Parents who experience stillbirth have a right to, and should be offered, information on what happened and what their baby's cause of death was. Support and bereavement counselling for parents is crucial. There is an urgent need for a concerted effort, with participation from all stakeholders, to address this silent epidemic and reduce the number of preventable stillbirths.

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