Making Every Baby Count: Audit and Review of Stillbirths and Neonatal Deaths

Highlights from the World Health Organization 2016 Audit Guide

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Background

Understanding the number and causes of death is key to tackling the burden of 2.7 million neonatal deaths[1] and 2.6 million stillbirths[2] each year. A vast majority of these deaths are preventable.[3] Systematic analyses of overall mortality trends, as well as events and contributing factors leading to individual deaths, can help identify health system breakdowns and inspire local solutions to prevent such deaths in the future. This process of mortality audit and feedback, if combined with an action plan and clear targets, shows greater impact on health care practices and outcomes than other quality improvement strategies.[4]

Three Important Aims of Audit and Review of Stillbirths and Neonatal Deaths

- **To understand the burden** of stillbirths and neonatal deaths by capturing trends over time for all births and deaths.
- **To generate information** about causes of death and modifiable factors by examining individual deaths in detail and using the information to guide action to prevent similar deaths in the future.
- **To provide accountability** for results and compel decision-makers to give the problem of stillbirths and neonatal deaths due attention and response.

Mortality audit for stillbirths and neonatal deaths may help contribute to global goals and is covered under two of the five objectives in the Every Newborn Action Plan: to address quality of care at birth and to generate data for decision-making and action.[5] In response, the World Health Organization (WHO) has created a guide and toolkit, Making Every Baby Count: Audit and Review of Stillbirths and Neonatal Deaths.

Terminology

For a functional death review process, clear definitions regarding pregnancy outcomes and guidance for assigning cause of death, with links to existing civil registration and vital statistics systems and routine health management information systems, are required. The new *WHO Application of ICD-10 to Deaths during the Perinatal Period: ICD-PM [ICD-Perinatal Mortality]* provides a system for classifying perinatal cause of death that links stillbirths and neonatal deaths to maternal contributory conditions and then applies the 10th revision of the International Classification of Diseases (ICD-10) in a way that is consistent across all settings.[6] *Making Every Baby Count* uses a simplified version of ICD-PM for the purpose of initiating audit in low-resource settings, with options to expand the classification in greater detail where feasible.

Key Terms and Definitions

- **Mortality audit and death review:** "Mortality audit" is a well-known and well-established clinical practice, while "death review" is a term used in the maternal death surveillance and response guidance.7 For these reasons, both terms are used interchangeably.
- **Stillbirth:** A death that occurs before birth in a baby weighing ≥1000g or, if missing, ≥28 completed weeks of gestation or, if missing, body length ≥35cm (this definition is used for international comparison; ICD-10 uses birthweight ≥500g or, if missing, ≥22 completed weeks or, if missing, body length ≥25cm).
- **Neonatal death:** A death which occurs in the first 28 days of life.
- **Minimum set of perinatal indicators:** The most basic, essential data to collect on each birth and death, including maternal age, place of delivery, mode of delivery, birthweight, gestational age, and birth outcome. These data should be collected in every routine information system.
- **Modifiable factor:** Circumstances that may have prevented a death if a different course of action was taken (missed opportunity). Using "modifiable" instead of "avoidable" or "substandard" helps limit opportunities for blame and presents potential for positive change. Approaches for classifying modifiable factors range from simple to more analytical and complex.

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Setting up Mortality Audit at the Facility Level

Instead of creating the perfect system on paper, **start the process** and **learn** with the experience; **adapting the approach** as needed:

- **Establish a review committee:** This is the team responsible for operationalising the audit policy, including setting up and conducting death review meetings and monitoring recommended actions. It should include representatives across the professional spectrum and be linked to existing maternal death surveillance and response processes, where they exist.
- **Mobilize resources:** While death review is a low-cost activity, space for meeting, stationery, and/or software are required, as is providing training to district management and clinical staff.
- **Decide on approach for review:** Given demands on staff, the committee may choose to review only a subset of cases (e.g., deaths in first week of each month), use a thematic approach (e.g., focus on a specific cause of death), or limit review to those cases that are most likely to be preventable.
- **Organize data collection:** Identify at least two individuals willing to lead the process of selecting cases for review meetings, keeping in mind that larger facilities may need a bigger team for shared responsibility and coverage.

Steps in the Mortality Audit Cycle

Photo by: Ian Hurley/Save the Children

Six-Step Cycle of Auditing Deaths at Facility Level
STEP ONE: Identify Cases for Review
Aim: To record all births, stillbirths, and neonatal deaths, ensuring capture of the minimum set of perinatal indicators and deciding which deaths (all or a subset) to collect more information on for a detailed review.
Questions to Ask: Are we capturing all births and deaths? Where are deaths likely to occur in the facility? How can we gather information about deaths that occur in the community? Which deaths do we want to collect more detailed information on?
STEP TWO: Collect Information
Aim: To empower designated staff to collect a standardised set of information from the patient file and/or register as soon as possible after the death.
Questions to Ask: What kinds of records exist (paper or electronic) and where are they located? What information is already recorded for every death? Who records it? What other information is needed?
STEP THREE: Analyse Information
Aim: To identify problems in the system that may have contributed to stillbirths and neonatal deaths, especially those that could have been prevented or avoided. Data analysis includes both quantitative components, such as identification of trends in rates and causes of death and geographic location, and qualitative components, such as analysis of modifiable factors.
Questions to Ask: What is happening to our trends over time in terms of numbers of births and deaths? What geographic location are most deaths coming from? What are the most common causes of death? What modifiable factors keep coming up? What additional analyses might be helpful?
STEP FOUR: Recommend Solutions
Aim: To find ways to move from problems to action by identifying specific, measureable, attainable, relevant, and time-bound solutions. The solutions should balance priorities based on burden and feasibility, and may be related to ongoing or one-off activities.
Questions to Ask: What changes are needed in each unit? What changes are within the sphere of control of the review committee? Are additional changes needed within linked health services, in the community, or at an administrative level?
STEP FIVE: Implement Solutions
Aim: To take immediate, medium-term, or long-term actions to prevent stillbirths and neonatal deaths, using successes to advocate for and spur further action.
Questions to Ask: What can I, or my team, do directly? How can we influence actors beyond our immediate sphere of control? Is our environment conducive to making positive changes?
STEP SIX: Evaluate Both Process and Outcomes, and Refine as Needed
Aim: To look back at what worked and what did not in order to ensure that future recommendations are informed by the collected data and lead to action.
Questions to Ask: How efficient is the system in identifying and reviewing deaths? How can review meetings be improved and used more effectively? How often and with whom are recommendations shared, and what are the gaps in this dissemination? How can engagement in audit processes, use of findings, and application of recommendations be improved? How do staffing issues such as rotations/turnovers influence review meetings?

Reporting Audit Findings

Dissemination of audit findings is important at multiple levels for getting key messages to those who can implement the findings and making a real difference towards saving babies' lives. While reports should be clear and straightforward about the potential for improved care, they should be framed to avoid placing blame on patients, individual clinicians, or teams.

Reports should:

- Be written in simple language
- Be easy to follow
- Include standard sections, such as:
  - Data trends
  - Case studies, including positive vignettes
  - Actions and timeline for follow-up

Community Involvement in Mortality Audit: Two Important Roles

1. Capturing deaths that occur in the community: In some settings, a large proportion of stillbirths and neonatal deaths still occur at home. These cases may be different than those occurring in health facilities; capturing and reviewing them can help complete the picture of why deaths are occurring and how they can be prevented. Due to constraints such as cost, training, or lack of staff for data collection, capturing these deaths and conducting a full review may not be possible within routine systems.

A verbal and social autopsy is a structured interview using a questionnaire administered to caregivers or family members of the deceased to elicit information about the circumstances leading up to the death. It includes questions about the health and status of the mother, details of labour and delivery, a checklist of symptoms and duration, an open narrative section, and questions about delays in seeking and receiving care. This information can be collated and reviewed in the community or in a coordinated process with the local health facility.

2. Ensuring community ownership for actions: Community engagement around the results of death review meetings can help identify locally appropriate solutions and address barriers to accessible care. Recommendations arising from mortality audit at the facility and from death review meetings may involve changes at the community level, and should be formulated in collaboration with community leaders and communicated in forms accessible to the community. In order to ensure recommendations are appropriate, facility- and district-level stakeholders may consider including a formal community representative on death review committees at each level.

Creating an Enabling Environment

The importance of leadership in forming an enabling environment cannot be overstated. **Leadership and supportive supervision** are essential to ensure completion of the audit cycle and maximise opportunities for learning.[8] Leaders have the ability to create a culture of accountability at all levels. This culture should involve correction, but also celebration, affirmation, encouragement, and reward.

In order to create a safe enabling environment, clear roles and responsibilities of various departments, ministries, professional associations, the private sector, and other relevant partners should be identified. National guidelines for stillbirth and neonatal death review may mandate that particular staff are designated to oversee the review system and name those responsibilities as part of their job description. **The involvement of health professionals from various disciplines is critical**, as is participation of other stakeholders such as managers and community liaisons. In settings where midwives provide the majority of care at birth and during the postnatal period, the review system should be developed so that midwives can complete the entire process and provide leadership at all levels.

Legal protection is essential and death review meetings should be strictly separated from any criminal investigations or professional disciplinary processes. It may be beneficial to have administrators seek local legal counsel early in the process of establishing a death review committee in order to enshrine the protection of staff and patients. Committees may want to introduce a code of practice that participants sign before each meeting as a way of affirming confidentiality.

In order to further ensure **confidentiality for the patient, families, and participants,** data collection forms, case summaries, review meeting minutes, and any reports or other dissemination of results should contain no personal or identifying information. Similarly, the minutes should be kept in such a way that actions taken cannot be linked to specific individuals or cases.

Conclusion

Each death reviewed has the potential to tell a story about what could have been done differently for a woman and her baby. There is a growing demand for information on how to implement and scale up mortality audits of stillbirths and neonatal deaths as an important element of a quality improvement strategy. Leaders are required to champion the process, especially to ensure a no-blame environment, and to reach out to change agents at other levels to address systemic concerns. The benefit of audit and feedback is already widely acknowledged in preventing unnecessary deaths of mothers; it should also be used to prevent the deaths of their babies.

Making Every Baby Count: Audit and Review of Stillbirths and Neonatal Deaths	
The following tools and forms are available as annexes to the guide:	
Stillbirth and neonatal death audit form	Captures information about the birth, cause of death, and critical delays and modifiable factors that can be targeted with interventions to prevent future deaths. Includes instructions for completion.
Births and deaths summary form	Captures information on a periodic basis (e.g., monthly) on key elements from the audit form to enable tracking of trends. Includes instructions for completion.
Minimum set of perinatal indicators to collect for all births and deaths	Identifies the minimum elements to collect for every birth and death.
Systems for classifying modifiable factors	Introduces a number of approaches ranging from simple to more analytical and complex.
Setting up a review committee	Information for establishing a review committee to lead mortality audits, including roles and responsibilities of members.
Sample meeting code of practice declaration	A sample form enshrining the principles of confidentiality and teamwork that can be adapted for participants to sign prior to each review meeting.
Sample calculations worksheet	An Excel spreadsheet with built-in formulas that enables calculation of rates and proportions for use in trend analysis.
Sample meeting minutes	A template that can be used to document recommendations and track follow-up in subsequent death review meetings.
Summary steps for establishing mortality audit	Step-by-step instructions for initiating an audit system.
Verbal and social autopsy tool	Questionnaire and instructions for capturing information on stillbirths and neonatal deaths that occur in the community.

References and Acknowledgements

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