



UNIVERSITY OF CAPE TOWN

IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

HEALTH SCIENCES



**GLOBAL
SURGERY**

**Global Surgery Division
Department of Surgery
Faculty of Health Sciences
University of Cape Town**

**The improvement of stillbirth data recording, collection,
and reporting in Africa**

Submitted in fulfilment of the
Master of Science Global Surgery Degree

NAME: Simphiwe W Gumede

Qualifications: MSc Global
Surgery

SUPERVISOR:

Professor Salome Maswime

CO-SUPERVISORS

Dr Mary Kinney

Dr Caroline Pule

February 2025

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

DECLARATION

I, Simphiwe Gumede hereby declare that this work is my original work (except where acknowledgments indicate otherwise), and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

I authorise the University to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

Signature:.....

Signed by candidate

Date:...16.02.2025.....

ABSTRACT

Background

Stillbirths are an important public health concern, with an estimated 1.9 million stillbirths occurring globally each year, more between 2020-2021 data. However, the recording, investigation, and classification of stillbirths vary across countries, leading to inconsistencies in data collection and analysis.

This study aimed to assess the current data systems and practices regarding stillbirth recording, data collection, analysis, and utilization in African countries.

Study design

The study used a descriptive research design with a quantitative approach, involving the surveillance of national data systems and other existing systems in African countries.

Method

The study was undertaken in African countries by University of Cape Town in collaboration with the Africa Centres for Disease Control and UNICEF. The study involved a survey of the national data systems recording stillbirths in African countries and other reporting systems that countries use.

Results

A survey of 55 African countries (34 respondents) revealed critical insights into stillbirth reporting and data management. Among responding countries, 76% defined stillbirth using a gestational age threshold of ≥ 28 weeks, while 48% used a birth weight criterion of ≥ 1000 grams. Significant policy gaps were identified: 47% lacked mandates for stillbirth classification, and only 57% integrated stillbirth targets into national health strategies. Despite 88% of countries routinely collecting stillbirth data, methods varied (paper-based vs. digital), and 54% reported no data quality assessments in the past decade. Classification systems for causes of death varied, with ICD-PM and ICD-10 each used by 35% of countries. Nurses/midwives were primarily responsible for data entry (73%); However, challenges remained, notably insufficient health worker capacity (53%) and inadequate infrastructure (42%). Only 42% of countries disseminated stillbirth reports publicly, often relying on aggregated tables rather than interactive formats.

Regional disparities underscored systemic issues in healthcare access, data standardization, and governance, emphasizing the urgent need for policy harmonization and strengthened health information systems.

Conclusion

The persistent inconsistencies in the recording, investigation, and classification of stillbirths and perinatal deaths across African countries-evident in different gestational age (20-28 weeks) and birth weight thresholds <500g to <1000g, ambiguous civil registration laws (82% of countries), and fragmented national policies (only 27% with stillbirth-specific targets) highlight an urgent need for standardised definitions and consistent legal frameworks. These gaps perpetuate unreliable data, obstructing targeted interventions and accountability mechanisms. To address this, governments must adopt WHO-aligned criteria, integrate stillbirth reduction into national health strategies, and strengthen cross-sector collaboration for robust civil registration systems. Prioritizing these steps, alongside research into context-specific barriers (e.g., stigma, resource limitations), will not only improve data accuracy but also catalyse actionable insights to reduce preventable stillbirths and advance maternal and newborn health outcomes globally.

Keywords: Stillbirth, perinatal death, definition, legal framework, national policy, gestational age, birth weight, civil registration, inconsistency, collaboration, maternal health, newborn health.

Table of contents

Contents

DECLARATION	2
ABSTRACT	1
ABBREVIATIONS	1
ACKNOWLEDGMENTS	2
SYNOPSIS	3
Chapter 1: Introduction.....	5
1.1 Introduction	5
1.2 Background	6
1.2.1 Stillbirth data challenges.....	6
1.2.2 Global efforts to reduce Stillbirths.....	7
1.2.3 Persistent gaps in measurement and reporting	7
1.2.4 Health systems and stillbirth prevention	8
1.3 Problem statement	9
1.4 Rationale	10
Chapter 2: Literature review	11
1. Introduction	11
2. Stillbirths: a global public health concern.....	11
2.1 The burden.....	11
2.2 Defining stillbirth.....	13
2.3 Data collection systems for stillbirths	13
3. Challenges in stillbirth data collection and reporting	15
3.1 Underreporting and misclassification.....	15
3.2 Data quality and completeness.....	17
3.3 Inconsistent definitions and classification systems.....	17

4. Stillbirth data collection and management.....	18
4.1 Technological advancements	19
4.2 Policy and research impact	19
4.3 Collaboration and capacity building	20
5. Stillbirth data use and dissemination.....	21
6. Governance structures related to stillbirth data.....	21
6.1 Sub-national committees and technical working groups.....	22
6.2 Capacity building and data sharing mechanisms	23
6.3 National platforms and coordination.....	23
7. Factors influencing stillbirth data systems.....	24
7.1 Financial constraints	24
7.2 Capacity constraints	25
Chapter 3: Methodology	26
3.1 Introduction	26
3.2. Study aim and objectives	26
3.3 Study design.....	26
3.4 Study setting	28
3.5 Population and sampling	28
3.5.1 Target population.....	28
3.5.2 Sampling method.....	29
3.5.3 Recruitment and sample size.....	29
3.6 Data collection method	30
3.6.1 Data collection instrument	30
3.6.2 Survey administration	31
3.7 Data management and analysis.....	31
3.7.1 Data cleaning and preparation of dataset	31
3.7.2 Data preparation and categorisation.....	32
3.7.3 Data analysis.....	33

3.8 Ethical considerations	33
3.8.1 Ethical approval and compliance	33
Chapter 4: Results.....	34
4.1.1 Response rate	34
4.2 Survey Section 1: Definition of stillbirth (N=28)	36
4.3 Survey Section 2: National policy and stillbirth (N=28).....	37
4.4 Survey Section 3: Stillbirth data collection and practice (N=26).....	40
4.4.1 Policy implementation	40
4.4.2 Reported birth outcomes by country	41
4.4.3 Routine data collection for stillbirth reporting across countries	48
4.4.4 Modes of assessment for stillbirth timing	49
4.4.5 Roles and responsibilities in data entry and management.	51
4.4.6 Classification systems for causes of stillbirths.....	52
4.4.7 Sharing stillbirth data between systems.....	55
4.4.8 Alternative data sources for stillbirth statistics	56
4.4.9 Data quality assessments in health information systems.....	57
4.4.10 Facility-level challenges in data collection and reporting.....	58
4.4.11 National and sub-national data reporting challenges.....	60
4.5 Survey Section 4: Stillbirth data use and dissemination	61
4.5.1 Facility-level stillbirth data review and use.....	61
4.5.2 Governance structures for stillbirth data and gaps in data quality mechanisms.....	62
4.5.3 National stillbirth report generation and dissemination	64
4.5.4 Methods of public stillbirth data dissemination	65
4.5.5 Challenges in national and subnational stillbirth data utilization	66
4.5.6 Subnational and facility-level barriers	68
Chapter 5: Discussion.....	70
5.1 Introduction.....	70
5.2 Variability in stillbirth definitions and reporting criteria.....	70

5.3 Policy and strategic gaps in stillbirth management	71
5.4 Challenges in data collection practices	72
5.5 Barriers to data use and dissemination.....	73
5.6 Implications for improving stillbirth outcomes.....	74
5.6.1 Addressing financial and capacity constraints.....	74
5.6.2 Policy and data dissemination challenges	75
5.6.3 The role of political commitment and collaboration	76
Chapter 6: Conclusions, strengths and limitations, and recommendations	77
6.1 Conclusions.....	77
6.2 Recommendations.....	77
7. References.....	79
8. Appendices	89
Appendix 1: English Informed Consent Form and Survey.....	89
Appendix 2: Ethics approval.....	107

ABBREVIATIONS

Africa CDC Prevention	Africa Centres for Disease Control and
AHO	African Health Observatory
CRVS	Civil Registrations and Vital Statistics
CS	Caesarean Section
DHIS2	District Health Information System
DHS	Demographic and Health Surveys
DRC	Departmental Research Committee
GSH	Groote Schuur Hospital
ENAP	Every Newborn Action Plan
FPH	Full lifetime Pregnancy History
HREC	Human Research Ethics Committee
HMIS	Health Management Information System
ICD	International Classification of Disease
ICH GCP	International Conference on Harmonisation Good Clinical Practice
LMICs	Low- and middle-income nations
UN	United Nations
SSA	Sub Saharan Africa
SREC	Reproductive Health Survey
SRMNIA Adolescent Health	Sexual, Reproductive, Maternal, Newborn, Infant, and
FBH+	Full live birth history
MPDSR	Maternal death surveillance and response
MOH	Ministry of Health
UCT	University of Cape Town
UNICEF	United Nations Children's Fund
WHO	World Health Organization

ACKNOWLEDGMENTS

Many thanks to the following people for trusting and believing in me during my stay in South Africa: I would like to extend my gratitude to the Department of Surgery division of Global Surgery, for awarding me with bursary towards my Masters in Global Surgery dissertation through South African Medical Research Council's (SAMRC) career grant.

I would like to express my sincere appreciation to my supervisor Professor Salome Maswime for your invaluable guidance and support throughout my Master's degree. Your expertise, encouragement, and patience have been instrumental in shaping my research and academic development. Thank you for your continued guidance, support, and patience throughout this academic journey. It has contributed to my professional and personal development.

Dr Caroline Pule for her invaluable contributions to my research. She provided expert advice and valuable feedback that helped me refine my research questions, methodology, and data analysis.

Dr Mary Kinney's expertise and knowledge in field of health systems and stillbirth were particularly valuable to me, and her dedication to excellence and attention to detail were truly inspiring. She went above and beyond in her efforts to support me, and I am grateful for the many hours she in between her work spent reviewing our work, answering my questions, and offering feedback and advice. I am fortunate to have had such dedicated and supportive mentors throughout my academic journey, and I will always be grateful for their unwavering support and guidance. Finally, the staff at Groote Schuur Hospital, Professor Bruce Biccard and Professor Justiaan Swanevelder for their support in allowing me to attend classes during my studies. Finally, I would like to acknowledge my family and friends for their continued love, support, and encouragement throughout this journey. Their belief in me has been a constant source of motivation.

"Commit to the Lord whatever you do, and He will establish your plans." - Proverbs 16:3

SYNOPSIS

Background

Globally, stillbirths remain a critical public health challenge, with an estimated 1.9 million stillbirths occurring annually. The variability in defining, recording, and classifying stillbirths across countries results in inconsistent data collection and delays effective analysis and intervention. This study addressed these discrepancies by analysing three key dimensions across 22 African countries: (1) criteria for defining stillbirths (gestational age, birth weight), (2) integration of stillbirths and perinatal deaths into legal frameworks for civil registration, and (3) national policies on stillbirth management. Importantly, it also evaluated practices in data capture (e.g., reporting protocols, tools) and data use/dissemination (e.g., health information systems, institutional oversight), identifying systemic barriers to accurate reporting and actionable policy translation. By bridging gaps between definitions, policies, and on-the-ground practices, the study provides evidence to align efforts with global stillbirth reduction targets.

Objective

This study aimed to assess the current data systems and practices regarding stillbirth recording, data collection, analysis, and utilization in African countries.

Study design and Methodology

This descriptive, quantitative study was conducted by UCT in collaboration with the Africa CDC, and the UNICEF. The research involved the surveillance of national data systems and other existing platforms, such as DHIS systems embedded in the In-Depth Network, across African countries.

Results:

A survey of 55 African countries (34 respondents) revealed critical insights into stillbirth reporting and data management. Among responding countries, 76% defined stillbirth

using a gestational age threshold of ≥ 28 weeks, while 48% used a birth weight criterion of ≥ 1000 grams. Significant policy gaps were identified: 47% lacked mandates for stillbirth classification, and only 57% integrated stillbirth targets into national health strategies. Despite 88% of countries routinely collecting stillbirth data, methods varied (paper-based vs. digital), and 54% reported no data quality assessments in the past decade. Classification systems for causes of death varied, with ICD-PM and ICD-10 each used by 35% of countries. Nurses/midwives were primarily responsible for data entry (73%), yet challenges persisted, including inadequate health worker capacity (53%) and poor infrastructure (42%). Only 42% of countries disseminated stillbirth reports publicly, often relying on aggregated tables rather than interactive formats. Regional disparities underscored systemic issues in healthcare access, data standardization, and governance, emphasizing the urgent need for policy harmonization and strengthened health information systems.

Conclusion

The study highlights the need for standardised definitions, legal frameworks, and national policies to harmonize the recording, investigation, and classification of stillbirths and perinatal deaths. These measures are essential for improving data quality, enabling better analysis, and ultimately improving maternal and newborn health outcomes in Africa. Collaborative efforts and further research are necessary to establish and implement best practices.

Chapter 1: Introduction

1.1 Introduction

Despite global advancements in maternal and child health, stillbirth rates remain persistently elevated, particularly in low- and middle-income countries (LMICs). Sub-Saharan Africa bears a significant burden, contributing disproportionately to the estimated 1.9 million stillbirths reported globally each year (1). This high burden reflects profound inequities in access to quality maternal and neonatal care, which are driven by systemic challenges such as ineffective healthcare infrastructure, under-resourced training programs, and cultural stigma. For families, stillbirths represent a devastating loss with enduring emotional, social, and economic repercussions, positioning them not only as deeply personal tragedies but also as urgent public health crises.

The World Health Organization (WHO) defines stillbirth as the death of a fetus prior to complete expulsion or extraction from the mother, regardless of gestational age (2), aligning with the International Classification of Diseases (ICD) definition. The WHO recommends a specific definition for international comparisons to ensure consistency. However, variations in definitions and reporting criteria across regions complicate data comparability and intervention design. This study focuses on Sub-Saharan Africa, where high stillbirth rates intersect with systemic gaps in data capture, and emphasizes the need to address barriers to accurate reporting.

Historically, stillbirths have been underreported and overlooked in global health agendas priorities, often overshadowed by neonatal and child mortality indicators. This neglect has perpetuated fragmented data systems and delayed targeted interventions, particularly in African contexts. Reliable and standardised stillbirth registries are important to inform evidence-based policies and allocate resources effectively.

Reducing stillbirth rates in Sub-Saharan Africa demands a multifaceted understanding of systemic, technical, and sociocultural barriers to accurate measurement and reporting. Strengthening national civil registration and vital statistics (CRVS) systems by integrating stillbirth reporting is pivotal for improving data quality, tracking

epidemiological trends, and tailoring interventions to high-risk populations (3). This study seeks to identify these barriers and propose actionable strategies to enhance health systems and mitigate stillbirth rates across the African continent.

This chapter provides the foundation for the study by introducing the neglected burden of stillbirths, the challenges associated with their measurement and reporting, and the importance of addressing these barriers. Subsequent sections will expand on systemic, technical, and cultural barriers to data collection, framing the urgency of interventions to improve maternal health outcomes in Africa.

1.2 Background

1.2.1 Stillbirth data challenges

Data collection systems are integral to addressing public health challenges, including stillbirths. Accurate data enable healthcare systems to identify causal factors, track trends, and design evidence-based interventions. However, in many African Union (AU) member states, stillbirth surveillance remains inconsistent and incomplete due to systemic barriers such as conflicting definitions, resource constraints, and fragmented reporting mechanisms (1,4,5). Challenges like underreporting, event omission, and misclassification where stillbirths are incorrectly categorized as neonatal deaths or miscarriages further complicate efforts to prioritise and evaluate interventions.

Sociocultural factors, including stigma and blame associated with fetal loss, compound these issues, discouraging families and providers from reporting stillbirths (2,6). Additionally, weak health management information systems (HMIS) in many settings lack the capacity to systematically capture or classify stillbirths according to global standards. For example, many health facilities across Sub-Saharan Africa frequently lack standardised protocols for distinguishing stillbirths from other perinatal outcomes, leading to pervasive underreporting and data inaccuracies. These gaps undermine the reliability of stillbirth statistics, thereby delaying targeted interventions and policy formulation aimed at improving maternal and newborn health outcomes.

1.2.2 Global efforts to reduce Stillbirths

Global advancements in child health over recent decades have not translated equitably to stillbirth reduction. Between 1990 and 2022, under-five mortality rates improved dramatically, declining from 1 in 11 to 1 in 27 children (7). Neonatal mortality similarly dropped by 54%, from 37 to 17 deaths per 1,000 live births between 1990 and 2020 (8). In stark contrast, stillbirth rates have seen minimal progress, decreasing at an annual rate of just 2.3% over the past 20 years. This stagnation leaves approximately 2 million stillbirths occurring globally each year, a devastating toll equivalent to one every 16 seconds (9).

The persistent neglect of stillbirths in global health agendas has exacerbated this disparity. Neither the Millennium Development Goals (MDGs) nor their successor, the Sustainable Development Goals (SDGs), included stillbirths as a monitored indicator (10). This oversight has diverted attention and resources toward prioritized metrics like under-five mortality (U5MR) and neonatal mortality rates (NMR), sidelining stillbirth prevention in policy and funding discussions (11).

Recent initiatives signal a growing recognition of the urgency to address this gap. The 2014 *Every Newborn Action Plan (ENAP)* established a global target to reduce stillbirths to 12 or fewer per 1,000 total births by 2030, advocating for their integration into maternal and newborn health programs (12). Complementing this, the *Global Strategy for Women's, Children's, and Adolescents' Health* emphasizes equity-driven approaches and accountability frameworks to eliminate preventable stillbirths (13). Together, these efforts highlight the need for cross-sector collaboration, health system strengthening, and standardized data collection to drive meaningful progress (14).

1.2.3 Persistent gaps in measurement and reporting

Despite these advancements, critical gaps persist in the measurement and reporting of stillbirths globally. Non-standard definitions, gaps in workforce training, and lacking data collection tools remain systemic barriers to accurate surveillance (15). The UN

Inter-Agency Group for Child Mortality Estimation (UN-IGME) has emphasized the urgent need for timely, high quality stillbirth data to inform policy and practice (16).

Additionally, weak governance structures and limited investments in health information systems contribute to ongoing challenges. For instance, many countries lack policies that mandate the inclusion of stillbirth indicators within national reproductive, maternal, newborn, child, and adolescent health (RMNCAH) frameworks. This oversight leads to missed opportunities for targeted interventions and resource allocation.

1.2.4 Health systems and stillbirth prevention

According to the WHO, health systems are defined as structures designed to promote, restore, or maintain health through six interdependent components: leadership/governance, health workforce, service delivery, financing, medical supplies, and health information systems (17). These systems rely on six key building blocks: leadership and governance, health workforce, service delivery, financing, essential commodities, and data/health information systems. Governance plays a particularly critical role by ensuring oversight, regulation, and accountability to improve population health. These systems rely on six key building blocks: leadership and governance, health workforce, service delivery, financing, essential commodities, and data/health information systems. Governance plays a particularly critical role by ensuring oversight, regulation, and accountability to improve population health (18,19).

Strengthening health systems in African countries is essential for improving stillbirth data collection and reporting. Standardised processes for recording, investigating, and classifying stillbirths can enhance data reliability and inform evidence-based policies and interventions (17). For instance, the Every Newborn initiative highlights the importance of addressing health system bottlenecks such as gaps in workforce training and data infrastructure to improve maternal and newborn health outcomes (1,20). Integrating stillbirth indicators into (RMNCAH) frameworks can drive investments and raise awareness among health workers, as demonstrated in low-resource settings (21). This prioritisation can improve

the documentation and reporting of stillbirths, enabling healthcare systems to implement targeted intervention.

Community-centered approaches, including task shifting to local health workers and participatory health education, are equally important for improving care access and stillbirth prevention (*Improving maternal and newborn health and survival and reducing stillbirth*, n.d.). Post-Ebola reforms in Guinea, Liberia, and Sierra Leone further illustrate how resilient governance and robust health information systems can strengthen maternal and neonatal health responses (22).

1.3 Problem statement

Africa accounts for the highest global burden of stillbirths, with sub-Saharan Africa experiencing the highest stillbirth rates worldwide (12). However, many countries in the region lack the capacity to accurately capture, manage, and report this critical public health issue due to weak health information systems, fragmented data collection mechanisms, and limited investments in health governance (9,22).

Inconsistent definitions and reporting protocols further obscure data reliability, perpetuating gaps in surveillance and intervention design (1,9). Cultural stigma and fear of blame discourage families and health workers from reporting stillbirths, reinforcing the invisibility of this issue in public health agendas (4,23). Additionally, discrepancies between stillbirth and neonatal death reporting systems contribute to misclassification, obscuring opportunities for targeted interventions and quality improvement in maternal and neonatal care (9,23). Without reliable data, quantifying the true burden, identifying preventable causes, and deploying evidence-based solutions remain formidable challenges (20,21). Despite global initiatives such as the ENAP and the SDGs, stillbirths remain insufficiently prioritized in national policies, preventing the allocation of necessary resources for prevention and care (12,23). Addressing these structural and sociocultural barriers is imperative to ensure every stillbirth is counted and actionable insights are generated. Strategic investments in health information infrastructure,

workforce training, and policy prioritization are critical to reducing stillbirth rates and advancing maternal and neonatal health equity in Africa (21).

1.4 Rationale

This study is motivated by the urgent need to improve stillbirth data collection, recording, and reporting systems in Africa. Understanding the current practices, identifying gaps, addressing barriers, and facilitating the flow of information between different levels of the health system - community, facility, subnational, national, and regional- are essential for developing strong data systems. This study seeks to contribute to ongoing efforts to standardise and strengthen stillbirth data systems across African Union countries.

Chapter 2: Literature review

2.1 Introduction

The focal point of this literature review is the comprehensive exploration of stillbirth data collection, reporting, and policy frameworks within African countries. This chapter examines the complexities inherent in defining stillbirth and investigates the existence of national policies that mandate the recording and review of stillbirths. Additionally, it explores the challenges in data collection and dissemination, focusing on the critical role of sub-national committees in improving data quality and influencing decision-making processes. A central theme of this review is the diversity of approaches to stillbirth data reporting and dissemination, highlighting gaps in policy contexts and the challenges of utilizing such data effectively. Furthermore, it identifies the various sources of stillbirth data and their implications for reporting accuracy and consistency. By addressing these themes, the review not only adds depth to the existing knowledge base but also lays the groundwork for further research and policy development aimed at improving stillbirth outcomes in Africa.

2.2 Stillbirths: a global public health concern

2.2.1 The burden

Globally, an estimated 1.9 million stillbirths occurred in 2021, with the majority concentrated in (LMICs), particularly across Africa (2,12). Despite their largely preventable nature, stillbirths have historically been overlooked in global health discourse, overshadowed by neonatal and child mortality. Persistent social stigma, cultural taboos, and inadequate prioritization in policy frameworks have further marginalized stillbirths from critical health and development agendas (2,20). The burden of stillbirths is disproportionately high in LMICs, with 84% of all stillbirths occurring in these settings (24,25).

The risk of stillbirth is 7.6 times higher in low-income countries (22.7 per 1,000 births) compared to high-income countries (HICs) (3.0 per 1,000 births) (24). Sub-Saharan Africa, followed by Southern Asia, has the highest stillbirth rates and the greatest number of stillbirths globally (25,26). Africa accounts for approximately 50% of global stillbirths, with sub-Saharan Africa contributing 42% in 2019 alone (27). Despite some progress, the rate of stillbirth reduction has remained slow, as shown by global estimates indicating an annual reduction rate of only 1.8% between 2000 and 2019, compared to a 2.9% annual reduction in neonatal mortality (28). This slow decline highlights the importance of addressing the specific challenges and opportunities inherent in current data systems across Africa.

The global burden of stillbirths is disproportionately concentrated in LMICs, where access to high-quality maternal and perinatal care is often limited. Many of the contributing factors include inadequate antenatal care, limited access to skilled birth attendants, and delayed or unavailable emergency obstetric services (29). Maternal conditions such as infections, malnutrition, diabetes, and hypertension also play a significant role in increasing the risk of stillbirth (30). However, evidence-based interventions could prevent a significant proportion of these deaths. Improved antenatal monitoring to identify high-risk pregnancies, timely delivery interventions such as caesarean sections for pregnancies complicated by fetal distress, and comprehensive management of maternal infections and chronic conditions are among the key strategies that could reduce the burden of stillbirths (28). Reducing this burden demands a multisectoral approach. Priorities include strengthening health systems to ensure equitable access to quality care, standardising data collection to capture stillbirths accurately, and advancing global advocacy to position stillbirth prevention as a public health imperative. Addressing these challenges requires harmonized definitions, context-specific policies, and sustained investment particularly in LMICs, where the need is most urgent.

2.2.2 Defining stillbirth

World Health Organization (WHO) defines stillbirth as the death of a fetus after 28 weeks of gestation but before or during delivery, a threshold established to facilitate international data comparability (8). This gestational age cut-off, recommended for global reporting, balances the need for standardized metrics with the practical challenges of capturing earlier fetal deaths in low-resource settings, where ultrasound access may be limited. In well-resourced settings, such as high-income countries, lower thresholds (e.g., ≥ 22 weeks or ≥ 500 grams, per ICD-11) are often used to capture early stillbirths, supported by advanced diagnostic tools (31). In contrast, low- and middle-income countries (LMICs), including many African nations, may adopt the 28-week threshold due to resource constraints, though some use lower cut-offs (e.g., 22 weeks) for domestic purposes to improve care (32).

The WHO's 28-week threshold enables consistent global monitoring, as emphasized by the UN Inter-Agency Group for Child Mortality Estimation (UN-IGME), but does not preclude countries from collecting gestational age data at earlier thresholds for national use (16). For instance, countries like Rwanda align with WHO's definition for international reporting while using 22 weeks domestically to enhance maternal care (40). However, variations in definitions ranging from 20 to 28 weeks or 500 to 1000 grams persist across African countries, complicating data aggregation for regional comparisons (20). The International Classification of Diseases (ICD-11) prioritizes gestational age over birth weight for stillbirth classification, as it is a more reliable metric across diverse populations (31). Fetal deaths are categorized as antepartum (before labor, often macerated) or intrapartum (during labor, typically fresh), distinctions critical for identifying preventable causes (29).

In this study, the survey (Appendix 1, Question 1.3) captured these variations, finding that 76% of responding countries used a ≥ 28 -week threshold, while 48% included a ≥ 1000 -gram criterion (Chapter 4). These findings underscore the need for harmonized definitions to support WHO-aligned reporting while respecting national flexibility for

domestic health planning. Addressing these inconsistencies requires training healthcare workers on standardized classification and integrating stillbirth data into civil registration and vital statistics (CRVS) systems (2).

2.3 Data collection systems for stillbirths

Accurate data collection on stillbirths is essential for understanding the scope of the issue and implementing effective interventions. The WHO recommends several key mechanisms for monitoring stillbirth rates globally, each with distinct strengths and limitations (33). Civil Registration and Vital Statistics (CRVS) systems are widely regarded as the gold standard for recording vital events, including stillbirths (34). These systems integrate stillbirth reporting into national registries, enabling accurate and continuous tracking of trends over time. However, despite their critical role, CRVS systems are often underutilized in LMICs due to limited infrastructure and resources (22,35). Integrating stillbirth reporting into national civil registration and vital statistics CRVS systems are a critical step toward comprehensive data capture. Systematic, population-based registration procedures ensure accurate and reliable data, supporting the development of targeted interventions to reduce stillbirth rates (2). The incorporation of stillbirth data into CRVS systems also facilitates monitoring progress toward global health targets, such as those outlined in the SDGs and the ENAP. However, challenges remain in regions with limited CRVS coverage, where alternative methods, such as community-based reporting or verbal autopsy tools, may be necessary to bridge data gaps (36). These methods can complement CRVS systems until they achieve full coverage, ensuring that underreported or misclassified cases are captured.

Health Management Information Systems (HMIS) provide another important platform for capturing facility-based data on maternal and perinatal outcomes, including stillbirths (12,37). HMIS systems are particularly effective in countries with high rates of facility deliveries but may exclude community-based births, which are common in rural African settings (20,21). Maternal and Perinatal Death Surveillance and Response (MPDSR) systems, recommended by the WHO, offer a more comprehensive approach by

reviewing maternal and perinatal deaths, including stillbirths, to identify preventable factors and implement corrective actions. While MPDSR systems have been instrumental in improving data quality and fostering accountability, their implementation remains inconsistent across African countries (35).

Household surveys, such as the Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), provide valuable data on stillbirths in regions with limited facility-based reporting (28). However, these surveys often rely on retrospective maternal recall, which can introduce reporting biases and affect data reliability (14,35). Community-based reporting, facilitated by community health workers, also plays a crucial role in settings with limited access to healthcare facilities (33). Despite their importance, these systems face challenges such as incomplete reporting and limited integration into national data frameworks (21). Together, these diverse data collection mechanisms highlight the complexity of monitoring stillbirths in an African context and underscore the need for strengthened, integrated systems to ensure comprehensive and reliable data collection.

2.4 Challenges in stillbirth data collection and reporting

Lack of data systems and limited awareness among healthcare providers delays accurate stillbirth reporting in many African countries (2,20). Initiatives such as the African Health Observatory (AHO) have been established to strengthen national data collation, aiming to standardise, enhance, and strengthen the recording of stillbirth data using existing what systems (31). Understanding the complexities surrounding stillbirth data collection and reporting in African countries is crucial for developing effective interventions to reduce stillbirth rates (2). Many studies have highlighted the challenges of collecting and reporting stillbirth data in African countries (38). For example, a study in Ethiopia found that stillbirths were underreported due to a lack of awareness among healthcare providers and inadequate data collection systems (38). Similarly, a study in Tanzania found that stillbirths were often not recorded or reported due to a lack of standardisation in data collection and reporting practices (39). These findings highlight

the need for improved data collection and reporting systems in African countries to accurately capture the burden of stillbirths and develop effective interventions to prevent them (21,28).

2.4.1 Underreporting and misclassification

One of the major challenges in stillbirth data management in African countries is underreporting and misclassification (20). Many stillbirths occur outside healthcare facilities, often at home, and are not reported to health authorities. For instance, in rural areas with limited access to healthcare services, families may bury stillborn babies without notifying local authorities or healthcare workers, resulting in unrecorded deaths (1). Additionally, cultural sensitivities and emotional barriers surrounding stillbirths further complicate accurate reporting. In some communities, stillbirths are associated with stigma, shame, or spiritual beliefs, leading families to avoid disclosure of the loss (40). For example, in parts of sub-Saharan Africa, stillbirths may be considered a private family matter, or families may fear societal judgment, thereby contributing to significant underreporting (29). These challenges create substantial data gaps, making it difficult to assess the true scale of the problem and develop appropriate interventions.

Misclassification of stillbirths is another significant issue that undermines accurate data collection. Stillbirths are often erroneously recorded as miscarriages or neonatal deaths, either due to confusion around gestational age thresholds or to avoid blame and administrative burdens (1). For example, in low-resource settings, healthcare workers may lack the training or tools to distinguish between early stillbirths and late miscarriages, leading to inconsistent reporting (35). Also, some healthcare facilities may intentionally classify stillbirths as neonatal deaths to avoid scrutiny or repercussions from higher authorities. The inconsistent application of international definitions, such as the WHO threshold of 28 weeks of gestation to define stillbirth, further exacerbates this problem, making data comparability across regions and countries challenging (20).

The broader implications of these issues are significant. Underreporting and misclassification lead to inaccurate stillbirth statistics, which can skew global health metrics and undermine advocacy efforts (32,41). Policymakers and healthcare planners rely on robust data to allocate resources and design interventions, but when data is incomplete or unreliable, countries may fail to prioritize stillbirth prevention in maternal and child health programs, perpetuating the cycle of neglect (29,35). Additionally, inaccurate stillbirth data affects global progress tracking toward SDG 3.2, which aims to end preventable deaths of newborns and children under five. Although stillbirths are not explicitly included in SDG 3.2, their prevention is closely linked to broader maternal and newborn health strategies (20). Reliable data is essential for measuring progress toward ENAP targets and ensuring that evidence-based policies are implemented (42). Without high-quality stillbirth data, health systems risk underestimating the true burden of perinatal mortality and missing opportunities for intervention (21). Finally, healthcare workers need better training on how to document and classify stillbirths. This has worked well in Ethiopia and India, where having better data has helped create more effective health programs. Good stillbirth data is important both for planning healthcare locally and nationally, and for developing evidence-based policies worldwide (1).

2.4.2 Data quality and completeness

The quality and completeness of stillbirth data are often compromised by poor data collection practices and inadequate infrastructure. Household surveys, a common source of data, frequently yield unreliable results due to omissions and misclassifications (43). Limited resources, lack of trained personnel, and the absence of electronic health records further delays efforts to collect comprehensive and accurate data. This deficiency not only undermines the reliability of stillbirth statistics but also limits the effectiveness of interventions designed to reduce stillbirth rates.

These challenges are echoed by Lawn et al. (10), who highlight that disparities in stillbirth reporting are particularly pronounced in low-resource settings, where

underreporting remains prevalent. Additionally, Petrites et al. (44) emphasize the importance of well-structured data systems and skilled health workers in improving the accuracy of stillbirth statistics. The lack in reliable data not only challenges the reliability of stillbirth statistics but also limits the effectiveness of interventions designed to reduce stillbirth rates (20). Addressing these data gaps is needed to achieving global stillbirth reduction targets and improving maternal and neonatal health outcomes.

2.4.3 Inconsistent definitions and classification systems

The lack of uniform definitions for stillbirths across countries poses a significant challenge to data collection and comparability. For example, some countries use a limit of 22 weeks of gestation to define stillbirth, while others use higher thresholds or include additional criteria, such as birth weight above 500 grams. These inconsistencies complicate efforts to compare stillbirth data across regions and delays global monitoring efforts. Beyond gestational age thresholds, the inconsistent application of the ICD criteria for stillbirth further exacerbates this challenge. For example, some healthcare facilities fail to differentiate between antepartum and intrapartum stillbirths, which are critical for understanding the underlying causes and designing targeted interventions (29). Similarly, the distinction between fresh and macerated stillbirths is often not systematically recorded, despite its importance for determining the timing and circumstances of fetal death (35).

Addressing these inconsistencies requires the standardization of definitions and classification systems. Harmonizing national guidelines with WHO recommendations and promoting the use of ICD codes for stillbirth reporting can significantly improve data reliability (2). Training programs for healthcare providers and data clerks on these classification systems are also crucial to ensure consistent application (45). Countries like Rwanda and Ghana, which have adopted the WHO definition alongside improved data recording protocols, have demonstrated measurable improvements in stillbirth reporting and comparability (40). Ultimately, uniform definitions and strong classification systems

are vital for generating accurate and comparable stillbirth data, which can inform global progress tracking and evidence-based policy development aimed at reducing stillbirth rates.

2.5 Stillbirth data collection and management

There are notable strengths in managing stillbirth data across Africa. Several countries have implemented structured frameworks for perinatal mortality data collection. Initiatives such as the EN-INDEPTH have played a significant role in improving data capture. By collecting comprehensive datasets on pregnancy outcomes, these programs have provided valuable insights into stillbirth rates and their associated factors (20,40).

Community-based interventions have also shown promise in raising awareness and promoting better maternal health practices. These interventions include initiatives like training community health workers to identify risk factors for stillbirth and referring high-risk pregnancies to healthcare facilities (45). While such efforts may have limited standalone impact, their integration with improved healthcare services has contributed to reductions in stillbirth rates in some regions (46). Examples include education campaigns and local partnerships that engage women and families in maternal health decisions, fostering a supportive environment for better pregnancy outcomes (47).

2.5.1 Technological advancements

The adoption of digital platforms has significantly improved the accuracy and accessibility of stillbirth data. Digital tools, such as mobile health (mHealth) apps and Android-based systems, have been used to collect data on pregnancy outcomes at scale, reducing errors and enabling near real time monitoring. These platforms facilitate a more strong understanding of stillbirth trends, this informing more effective policymaking making (46). For instance, initiatives like the DHIS-2 platform and open-source systems like OpenMRS have shown their ability to strengthen health data systems in low resource settings (48,49). These technologies are particularly valuable in rural areas, where traditional data collection methods are regularly lacking. However, broader adoption of these tools remains dependent on investments in digital infrastructure and capacity

building for healthcare workers. Governments and non-governmental organizations are increasingly recognizing this need, leading to significant strides in integrating digital tools into stillbirth data collection efforts.

2.5.2 Policy and research impact

High-quality data has proven instrumental in shaping policies and programs aimed at reducing stillbirth rates. The availability of reliable, disaggregated data enables evidence-based decision-making, ensuring that resources are directed to areas of greatest need. For example, data from the EN-INDEPTH network has been used to inform national policies in countries like Ethiopia and Ghana, where targeted interventions have significantly improved pregnancy outcomes (1,20).

Additionally, existing CRVS systems have emerged as critical milestones for countries. These systems provide a foundational framework for the consistent recording of births and deaths, including stillbirths, ensuring that no case goes unreported. Expanding CRVS coverage and integrating it with other data systems can bridge critical gaps in stillbirth data collection and foster international comparability (50). Additionally, research generated from high-quality data has advanced understanding of the multifactorial causes of stillbirth and informed interventions to address socioeconomic, cultural, and healthcare-related contributors (36). Expanding collaborations between governments, research institutions, and international agencies will be crucial in sustaining progress in reducing stillbirth rates (47,51).

2.5.3 Collaboration and capacity building

Collaborative efforts between international organizations, governments, and local health authorities are crucial for addressing challenges in stillbirth data collection. Strong partnerships enable the pooling of resources, expertise, and innovative strategies to enhance data quality. For example, initiatives like the Global Health Observatory (GHO) and the UN's Every Woman Every Child movement have played a pivotal role in

advancing collaborative approaches to tackle stillbirths. Investing in infrastructure, training programs, and digital tools can help build the capacity needed to improve data quality and completeness (20,28).

Capacity-building initiatives, such as training healthcare workers in the proper recording and classification of stillbirths, can reduce data inconsistencies and misclassification (10). Additionally, leveraging digital tools, including mobile data collection platforms and electronic health records, can streamline data collection processes, minimize human error, and enable real-time data analysis (23). The role of community engagement cannot be overstated in capacity building. Involving communities in awareness campaigns about the importance of stillbirth reporting can help reduce stigma and improve reporting accuracy (52). Finally, sustained investments in partnerships, infrastructure, and training are necessary to ensure the systematic collection of high-quality stillbirth data globally.

2.6 Stillbirth data use and dissemination

There is significant variation in how African countries report stillbirth data, highlighting the need for more consistent and transparent systems (53). Accurate and accessible data is essential for informing policies and interventions aimed at reducing stillbirth rates and supporting affected families. Some countries produce periodic reports at multiple levels of government, while others release annual updates. These inconsistencies delays regional comparisons and the identification of trends that could guide preventive measures (12). Furthermore, less than half of African nations make stillbirth data publicly available, delaying public awareness and efforts to improve care and prevention.

By addressing these challenges and implementing these opportunities, African nations can bridge the critical gap in stillbirth data dissemination. Improved data will lead to a better understanding of this public health issue, allowing for the development and implementation of targeted interventions to reduce stillbirths. Initiatives like the “Countdown to 2030 for Maternal, Newborn, Child and Adolescent Health” highlight

the importance of data for monitoring progress towards reducing preventable maternal and newborn deaths, including stillbirths (54). Through collaborative efforts, African nations can utilize the power of data to save lives.

2.7 Governance structures related to stillbirth data

Governance structures for stillbirth data are integral to improving maternal and perinatal health outcomes in Africa, particularly given the continent's high rates of maternal and neonatal mortality. Both national and subnational platforms play a critical role in collecting, managing, and using stillbirth data to inform health policies, improve healthcare delivery, and reduce maternal and neonatal deaths. These platforms include local committees and technical working groups that can provide context-specific solutions while aligning their efforts with broader national health objectives (11). Despite the high burden of maternal and neonatal mortality, only 21.9% of countries globally have established national stillbirth rate targets (10,55). This gap highlights the need for African countries to develop and implement specific stillbirth reduction targets as part of broader maternal and neonatal health strategies (28). Governance structures are instrumental in defining policies, setting measurable targets, and developing standards for stillbirth data collection and monitoring. These systems not only enhance accountability but also facilitate the adoption of evidence-based practices to reduce stillbirth rates (53).

Global initiatives such as the ENAP and the Quality of Care Network have played a pivotal role in shaping governance structures for stillbirth data (56). Local committees and technical working groups serve as critical governance mechanisms, providing context-specific solutions while aligning their efforts with national health objectives and global targets such as those outlined by ENAP. Governance structures must prioritize the standardization of data collection practices, ensuring that stillbirths are accurately measured and reported to inform effective interventions. Additionally, aligning with SDG 3.2, which aims to end preventable deaths of newborns and children under five, highlights the need for robust governance frameworks to accelerate progress in stillbirth prevention.

2.7.1 Sub-national committees and technical working groups

Sub-national committees and technical working groups manage stillbirth data at the local level, offering community-specific insights into healthcare challenges. By collecting and analysing local data, they enable accurate resource allocation and interventions tailored to regional needs (57). To improve their effectiveness, these groups require alignment with national priorities, standardised protocols, and capacity-building efforts. For example, Ethiopia's Hoga Health Improvement Network shows how localised data can drive targeted interventions, improving maternal and perinatal outcomes nationally (58).

2.7.2 Capacity building and data sharing mechanisms

For sub-national committees and technical working groups to be effective, it is crucial to invest in capacity building. Members of these groups must be trained in data collection, analysis, and interpretation. This training ensures that the data they collect is accurate and relevant, which in turn enhances the quality of decision-making and policy development (54). Additionally, for the data collected at the subnational level to be useful at the national level, effective mechanisms for data sharing must be established. These mechanisms ensure that insights derived from local data are integrated into national health strategies, which can help create evidence-based policies. A successful example of this is Ethiopia's Hoga Health Improvement Network, which links district-level researchers, community leaders, and healthcare workers to utilize local data for targeted interventions (7). This network highlights the potential for using locally gathered data to improve maternal and perinatal health outcomes at both the local and national levels (54). Sub-national committees and technical working groups can become effective tools for improving maternal and perinatal data management in Africa by establishing priority for these strategies. This will open the door for improved healthcare data, which will in turn inform better outcomes for mothers and newborns throughout the continent.

2.7.3 National platforms and coordination

At the national level, governance structures are essential for synthesizing data from multiple sub-national sources and turning it into actionable health policies. Effective coordination among national health agencies, government bodies, and other stakeholders ensures that the data collected across regions is comparable, standardised, and used effectively (59). This coordination is important for creating a cohesive approach for maternal and neonatal health that addresses the specific needs of different regions while maintaining national consistency. National systems also provide a framework for monitoring the impact of health policies and interventions, ensuring that they are based on reliable, high-quality data. This coordinated approach ensures that local insights contribute to a comprehensive national picture, allowing for better-informed decisions that can improve maternal and perinatal health outcomes across the country.

2.8 Factors influencing stillbirth data systems

The effectiveness of stillbirth data systems in African countries is influenced by several critical factors, including financial and capacity constraints. Addressing these issues is essential to improving maternal and perinatal health outcomes.

2.8.1 Financial constraints

Financial constraints are a major issue that affects the quality of care provided during pregnancy and childbirth. Insufficient funding directly contributes to higher stillbirth rates and poor health outcomes for both mothers and infants. According to the WHO, a lack of financial resources makes it difficult for healthcare systems to provide the necessary care before, during, and after birth, which is crucial in preventing stillbirths and improving the health of mothers and newborns (58). In sub-Saharan Africa, maternal health services are often underfunded, leading to a shortage of essential medical supplies, inadequate health infrastructure, and insufficient training for healthcare workers (58).

The disparity in maternal mortality rates between developed and developing countries underscores this issue, with developing countries experiencing significantly higher rates

due to limited financial support (58). For instance, a study conducted in the Eastern Cape, South Africa, found that financial constraints were a significant barrier to accessing maternal health services, with many women unable to afford the cost of transportation to healthcare facilities (60). The survey results also show that financial constraints are a key challenge in stillbirth data collection and reporting. Many countries reported that they lack the budget to manage and analyse data properly, which affects the accuracy and reliability of stillbirth data.

2.8.2 Capacity constraints

Capacity challenges, including shortages of trained personnel and inadequate healthcare infrastructure, further delay effective maternal and perinatal care (61). Programs like the Innovating for Maternal and Child Health in Africa (IMCHA) focus on addressing knowledge gaps and finding scalable solutions to improve health outcomes and equity (62). By strengthening the capacity of both individuals and institutions, these programs aim to use evidence-based research to inform policy and practice, ultimately reducing maternal and child mortality in low- resource settings (62). The survey results highlight that many countries also face challenges due to a lack of trained personnel to collect and analyse data. This shortage of skilled workers impacts not only the quality of data collected but also the ability to use that data to implement effective interventions.

In conclusion, addressing governance, financial, and capacity-related challenges is very important to improving maternal and neonatal health outcomes in Africa. By investing in well-coordinated governance structures, increasing funding for healthcare systems, and building the capacity of healthcare workers, African countries can improve the accuracy and utility of stillbirth data. These efforts will drive informed policies and interventions, ultimately reducing stillbirth rates and improving health outcomes for mothers and newborns across the continent.

Chapter 3: Methodology

3.1 Introduction

This chapter presents the methodology of the study. It outlines the research design, data collection methods, ethical considerations, and analytical strategies used to support the research process.

3.2. Study aim and objectives

The aim of this study was to undertake a survey of the data systems currently being used in Africa to record stillbirth data, identifying the gaps in the data systems and the flow of information within countries and from countries to regional entities. The study aimed to provide recommendations to standardise, improve, and strengthen the recording of stillbirth data using the existing systems.

The specific objectives are:

- 1) To determine existing data systems for stillbirth data collection and reporting in the 55 African Union countries.
- 2) To evaluate the definitions and categorization of stillbirths in the 55 African Union member nations.
- 3) To identify the barriers to effective stillbirth data systems.

3.3 Study design

This study used a descriptive research design using a quantitative approach, specifically a cross-sectional survey, to assess stillbirth data systems, policies, and practices across African Union (AU) member states. This method is particularly applicable given the limited existing evidence on the topic of stillbirth data management. A cross-sectional survey design involves collecting data from a sample population at a single point in time, making it suitable for identifying patterns, gaps, and variations across multiple settings (63,64). The rationale for selecting this approach lies in its effectiveness in capturing data efficiently, allowing for broad comparisons across diverse geographical and institutional contexts (63). By focusing on national stillbirth reporting, this study

addresses a methodological gap in the literature, as this area has been relatively underexplored (1). Additionally, the cross-sectional design aligns with global health research practices, enabling the collection of critical insights without the requirement for longitudinal follow-up, thus ensuring optimal use of resources. The study is part of a larger collaboration with UNICEF and Africa CDC, ensuring alignment with regional health priorities and leveraging institutional support (65). This collaboration enabled access to key stakeholders and facilitated the distribution of the survey. Table 1 presents a timeline of the study.

Table 1: Key milestones and timeline of events

Activity – Survey		
Conduct an online survey to evaluate stillbirth data collection systems, the availability and the quality of stillbirth data per African member state		
Activities and timelines for Objective 1	Month Year	Comments
Discussions with Africa CDC about collaboration	Jan 22	Initial meetings to outline project goals and objectives.
Memoranda of Understanding signed between Africa CDC and UCT	Jan 22	Formal agreement to collaborate on the study.
Identify MSc student to lead the work	Jan 22	Selection of the student with
Drafting of survey (including translation) – led by UCT with inputs from Africa CDC and UNICEF	Feb-Aug 22	Extensive discussions and review to ensure the survey aligns with objectives
Survey shared with Africa CDC for processing and sharing to AU member states	Sep 22	Africa CDC responsible for finalising and preparing the survey for rollout.
Survey shared with AU member states by Africa CDC	Jan-Feb 23	Distribution of the survey to all member states. Few technical

		issues as Au was unable to import RedCap
Survey data to be shared with UCT by Africa CDC	Mar 23	Data received for analysis and reporting.
Survey data collection extended for another three months	Apr-Jun 23	Extension approved to accommodate delayed responses from certain regions.
Data validation, quality checks and analysis	June 23	Ensuring data integrity before final analysis, but there were changes afterwards
Communication and dissemination of findings	Sept 23	Findings shared through presentations, publications, and stakeholder meetings.

3.4 Study setting:

The study was conducted across all 55 African Union member states, encompassing diverse health systems and socioeconomic contexts (66). The research targeted national data systems for stillbirth recording, leveraging collaborations with the Africa Centres for Disease Control and Prevention (Africa CDC) and UNICEF to access focal persons in maternal and neonatal health (67,68).

3.5 Population and sampling

3.5.1 Target population

The target population for this study consisted of key national stakeholders involved in health policy, data management, and stillbirth reporting who work at national level in countries that are members of the AU. This group included representatives from the following sectors:

- Ministries of Health (MOHs):

- Personnel responsible for health policy development, implementation, and monitoring at the national level, particularly within maternal and child health programs.
- Individuals overseeing data management systems, epidemiological surveillance, and reporting mechanisms for stillbirths. Their role is vital for understanding how data on stillbirths is collected, managed, and used within national health systems.
- Other relevant government institutions
 - Representatives from governmental health departments and planning units, including those responsible for statistical analysis, mortality audits, and program evaluations.

3.5.2 Sampling method

The survey was distributed to all country focal persons across the 55 member states of the AU, and the data analysis included all responses received from the countries that participated.

3.5.3 Recruitment and sample size

Participants for the study were identified through collaboration with the Africa CDC and UNICEF, which facilitated access to Ministries of Health and other relevant organisations across all 55 African Union member states. The study aimed for full participation from these member states to ensure broad representation of diverse health systems and contexts, applicable to low-, middle-, and high-resource settings. Basic demographic data were collected from respondents, including their roles (e.g., policymakers, program managers), years of experience, and areas of involvement in stillbirth data management.

3.6 Data collection method

3.6.1 Data collection instrument

The primary instrument for data collection in this study was an online survey designed to assess the systems for collecting, managing, and using stillbirth data across African Union member states. The development of the survey tool involved a collaborative process between UCT, Africa CDC, and UNICEF, ensuring that the survey questions were relevant, comprehensive, and aligned with the study's objectives. The finalised survey is available in **Appendix 1**.

The survey was structured into four main sections, each targeting specific aspects of stillbirth data collection and reporting:

- Section 1: Information about the country and the survey respondent

This section collected details about the respondent, their country, and the national definition of stillbirth, including gestational age and weight limits.

- Section 2: National policy regarding stillbirths

This section focused on the existence and implementation of national policies, guidelines, or legal frameworks related to stillbirths. It assessed whether stillbirths are included in civil registration systems, whether there are policies mandating their formal investigation and classification, and whether national strategies or targets for reducing stillbirth rates are in place. Respondents also identified key policy gaps that impede data collection and use (69).

- Section 3: Practical aspects of stillbirth data collection

This section, with 19 items, examined stillbirth data collection practices, including routine collection, forms and systems used, consistency of definitions, and challenges like infrastructure gaps and workforce capacity affecting data quality. The design of this section was guided by resources such as the *South African Ethics in Health Research Guideline* (42,70).

- Section 4: Stillbirth data use and dissemination

This section, with 9 items, focused on the use and sharing of stillbirth data, including audits, policy decision-making, report formats, and challenges like leadership support, communication gaps, and resource constraints.

3.6.2 Survey administration

The survey was administered using the REDCap (Research Electronic Data Capture) platform, which provided a secure and efficient environment for data collection. The survey was distributed via email to representatives from the ministries of health in all 55 African Union member states. These representatives were identified in collaboration with UNICEF and the Africa CDC, ensuring that the most relevant stakeholders were engaged. The initial data collection period spanned from December 2022 to February 2023, with an extension through June 2023 to accommodate additional responses. During this period, the Africa CDC took the lead in coordinating the distribution of follow-up emails to encourage participation and remind stakeholders of the importance of their input. My role involved drafting and sending follow-up emails on behalf of the Africa CDC, which included personalising messages to emphasize the significance of the study and the potential impact of participants' contributions on improving stillbirth data practices across the continent. I worked closely with Africa CDC to ensure that all communication efforts were aligned with the study's objectives and effectively targeted to boost response rates.

3.7 Data management and analysis

3.7.1 Data cleaning and preparation of dataset

In collaboration with a research team comprising Africa CDC and UNICEF roles of UCT researcher. I led the data cleaning process in collaboration with my supervisory team. I was responsible for identifying and correcting duplicates, inconsistencies, and

missing data points within the stillbirth dataset obtained from the surveyed countries. My role involved refining the dataset to include only completed and usable data, ensuring its integrity and reliability for subsequent analysis. The data cleaning steps were reviewed and validated in consultation with my supervisors, and I contributed to the preparation of the dataset for further analysis.

The cleaned dataset was created in Microsoft Excel and analysed to gain meaningful insights into stillbirth data systems and practices across African Union member states. This analysis used survey questions as the guiding construction to categorize and interpret key indicators systematically. These questions, divided into four sections (country information, national policies, data collection practices, and data use and dissemination), provided a structured approach to identify gaps and patterns in stillbirth data systems.

The systematic steps included:

1. Organising survey responses into predefined categories
2. Verifying data consistency across responses.
3. Summarising findings to highlight gaps and opportunities for improving stillbirth data collection and reporting systems.

3.7.2 Data preparation and categorisation

To meet the study's objectives, key indicators were identified as essential for evaluating stillbirth data practices. Responses were recorded in a database and categorized into four response types: "Yes," "No," "Don't Know," and "No Data." This structured categorization facilitated a comprehensive understanding of the dataset. Countries that did not provide sufficient data for these indicators were excluded from further analysis, ensuring a robust assessment. The frequency of each response type was documented in a supplementary summary table, with 'No Data' clearly indicated where applicable. This thorough documentation process enabled a detailed summary of the gathered data.

3.7.3 Data analysis

Following data collection, a thorough data cleaning process was conducted to maintain the integrity and reliability of the dataset. Steps included identifying and correcting duplicates, inconsistencies, and missing values. Following this, the data was prepared for analysis by ensuring all entries were standardised and complete. Descriptive statistics were applied to summarise the findings, allowing the calculation of frequencies and percentages for each response category. These analyses highlighted trends, gaps, and areas requiring further research or intervention. This systematic approach provided actionable insights into the practices, challenges, and opportunities for improving stillbirth data systems in the region.

3.8 Ethical considerations:

3.8.1 Ethical approval and compliance

The survey was firstly reviewed by Groote Schuur Hospital (GSH) Departmental Research Committee (DRC) from department of Surgery, to ensure that questions targeted information and that time taken to complete was not too long or onerous before taken to HREC. It was submitted to University of Cape Town's Human Research Ethics Committee (HREC) for approval with **HREC reference number 254/2022 (Appendix 2)**.

Chapter 4: Results

The results section presents the findings from the survey about national stillbirth reporting, classification, and data management challenges. This section first presents the response rate and then presents the results by section of the survey: information about the country, including national definition of stillbirth, national policies relating to stillbirth, stillbirth data collection in practice, and data use and dissemination. Each subsection will provide a clear summary of the data, supported by visual aids such as tables and figures, to improve understanding and facilitate interpretation of the results.

4.1.1 Response rate

The study surveyed focal persons in maternal and neonatal health across 55 African Union member states, with 34 respondents (61.8% response rate) completing the survey between June and September 2023. Respondents were primarily Ministry of Health officials (n= 20, 58.8%), public health institute data managers (n= 8, 23.5%), or other health professionals (n= 6, 17.6%), as reported in survey Section 1 (Question 1.1, Appendix 1). Most respondents (n=28, 82.4%) consulted additional resource persons (e.g., CRVS officers, HMIS coordinators) to ensure comprehensive responses. Their engagement with stillbirth data included routine reporting (n=25, 73.5%), data quality assessments (n=15, 44.1%), and policy development (n=10, 29.4%), improving the credibility of the data provided.

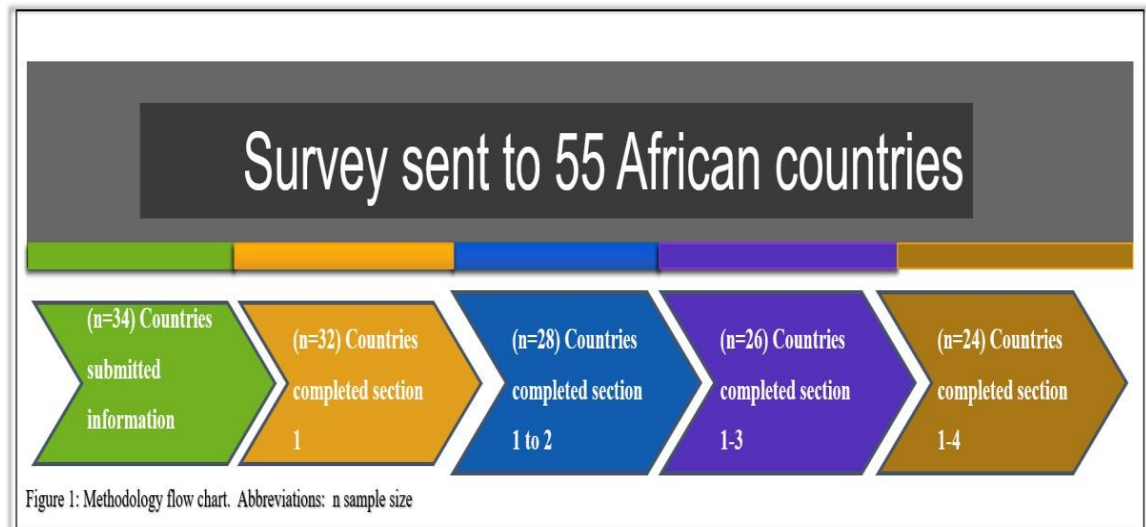


Figure 1.1: Country response to the survey by section

4.2 Survey Section 1: Definition of stillbirth (N=28)

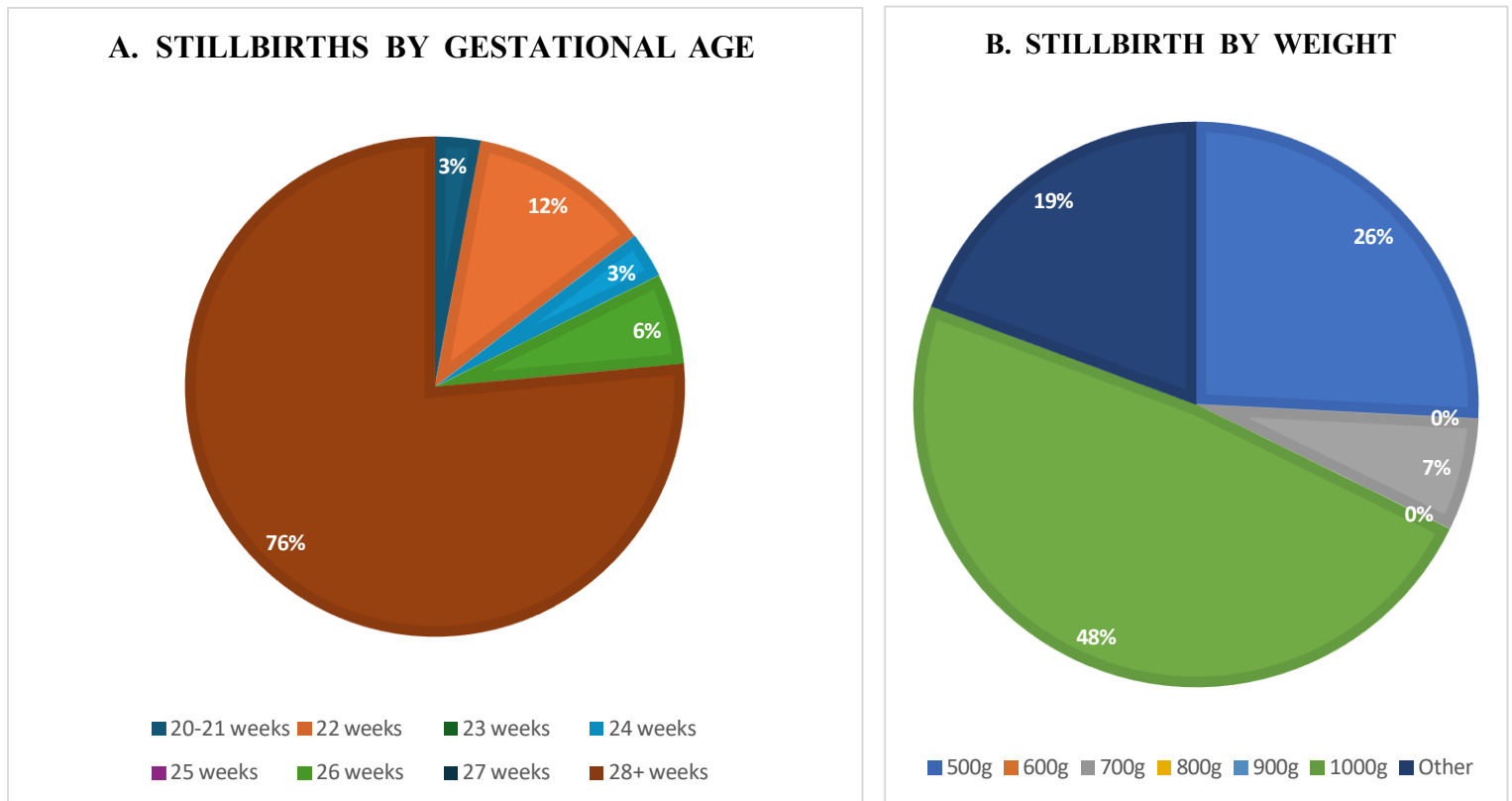


Figure 1.2 Definitions of stillbirth by gestational age and birth weight across (N= 28 countries-multiple responses possible per country)

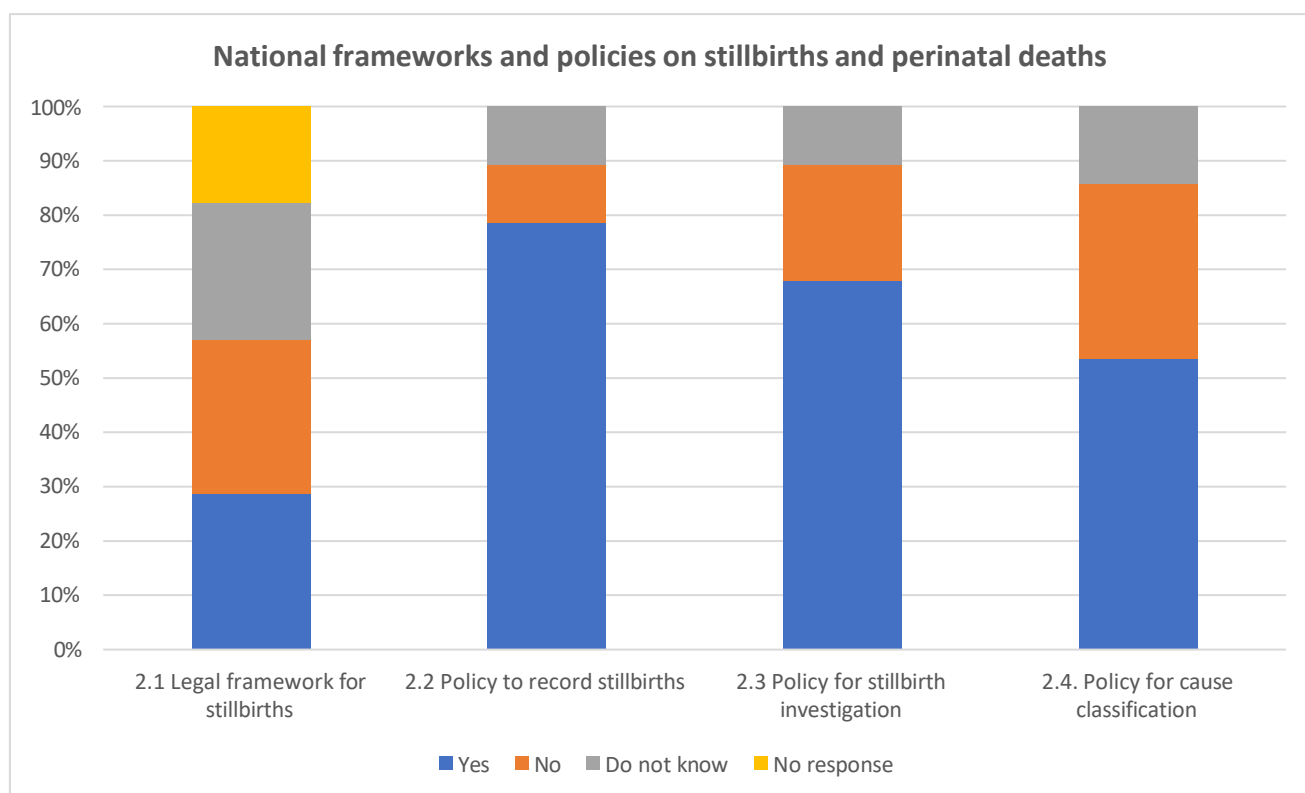
Stillbirths by gestational age showing predominant use of ≥ 28 weeks (76%) and varying earlier thresholds. (B) Stillbirths by birth weight criteria demonstrating 1000g as the most common threshold (48%), followed by 500g (26%).

Twenty-eight countries completed this section of the survey. Figure 1.2 shows how countries define stillbirth by gestational age and weight criteria. The most common definition of stillbirth was pregnancies of ≥ 28 weeks, reported by 76% of countries, while 48% used a birth weight criterion of ≥ 1000 grams. For gestational age definitions, smaller proportions of countries used earlier thresholds: 22 weeks (12%), 23 weeks (6%), 24 weeks (3%), and 20-21 weeks (3%). Regarding weight criteria, after the major 1000g threshold (48%), countries adopted various other standards including 500g (26%), 700g (7%), with the remaining 19% using other weight classifications. For example,

Equatorial Guinea uses a 20-21 week gestational age criteria with the 500 grams weight criteria, while the majority of countries align with the ≥ 28 weeks and ≥ 1000 grams thresholds. The data shows a clear preference for the 28+ weeks gestational age criterion among 76% of countries, combined with the 1000g weight threshold in 48% of countries. Notable variation exists in how different countries define these criteria, with explanations for the chosen categories provided by respondents (further details to be explored in the discussion section).

4.3 Survey Section 2: National policy and stillbirth (N=28)

Figure 2.1: National frameworks and policies on stillbirths and perinatal deaths, including classification-based cause recording (N=28 countries).



The stacked bars show the proportion of countries that responded 'Yes', 'No', 'Do not know', or provided no response regarding the existence of: legal frameworks for stillbirths, policies for stillbirth recording, stillbirth investigation, and cause classification.

Responses from 28 countries reveal major gaps and inconsistencies in stillbirth related policies. Although 22 countries have policies for stillbirth reporting, and 19 for reviewing stillbirths (Figure 2.1), only 57% (16/28) have integrated stillbirth specific targets into their national health strategies (Figure 2.2). A key issue identified by 47% (16/34) of countries is the lack of policies mandating stillbirth classification, which obstructs data collection and review processes (Figure 2.3). Legal frameworks also differ, with only 29% (8/28) of countries clearly incorporating stillbirths, while a similar proportion (29%, 8/28) do not, and the remainder (25%, 7/28) remain uncertain (Figure 2.1). Additionally, fewer than half the countries (43%, 12/28) have formal policies requiring stillbirth reviews, and there is a lack of standardisation in classification systems, which complicates cross-country comparisons (Figure 2.1). Although 61% (17/28) of countries include stillbirths in their national strategies, over one-third (36%, 10/28) do not, highlighting gaps in commitment (Figure 2.2). Additionally, 59% (16/27) have national targets for stillbirth reduction, but these targets vary, showing different levels of prioritisation (Figure 2.2). Gaps in stillbirth notification (21%, 7/34), review (32%, 11/34), and classification policies (47%, 16/34) across many countries continue to pose challenges to effective data collection and the implementation of targeted interventions (Figure 2.3).

National strategic plans and targets for reducing stillbirth rates

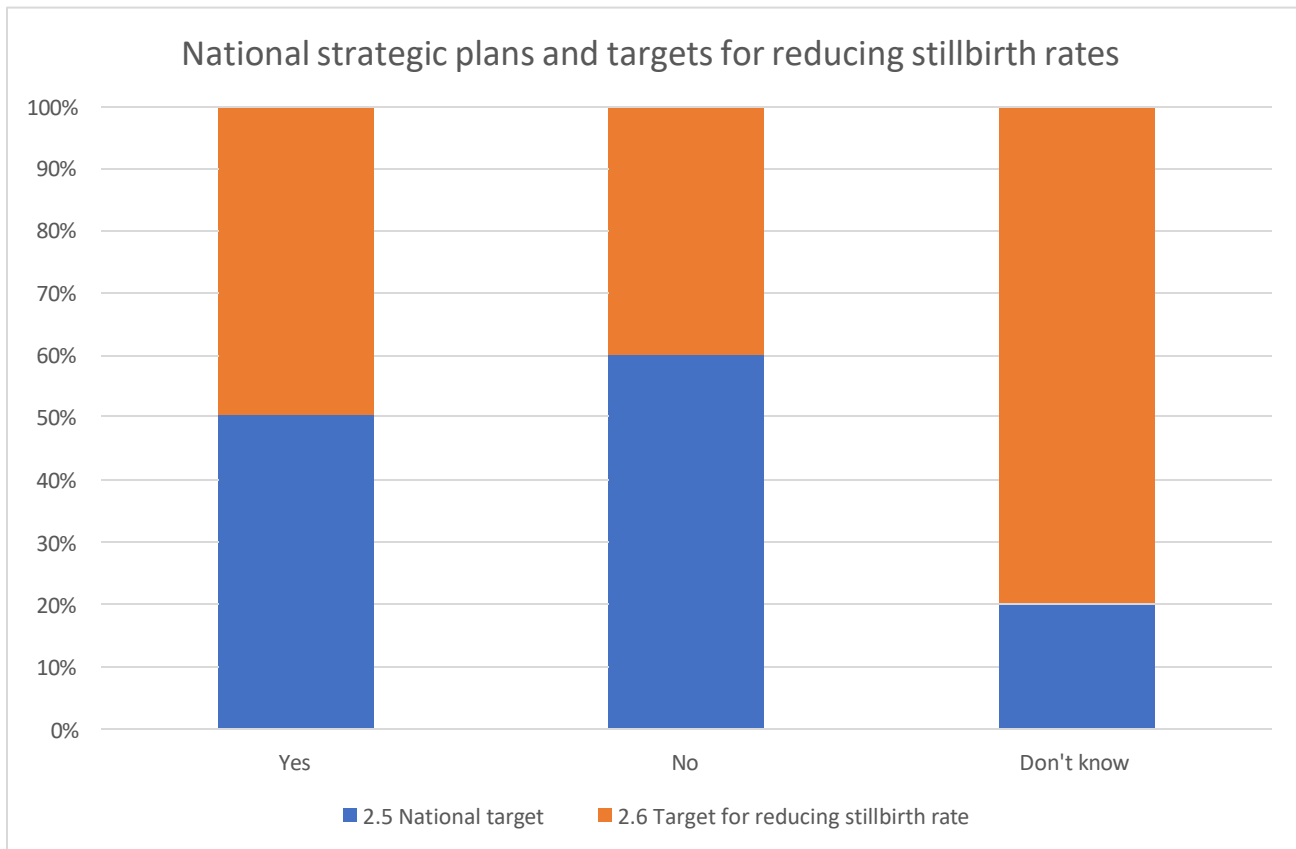


Figure 2.2: National strategic plans and targets for reducing stillbirth rates (N=28 countries).

The stacked bars show the proportion of countries that responded regarding: the existence of national targets (N=28) and targets specifically for reducing stillbirth rates.

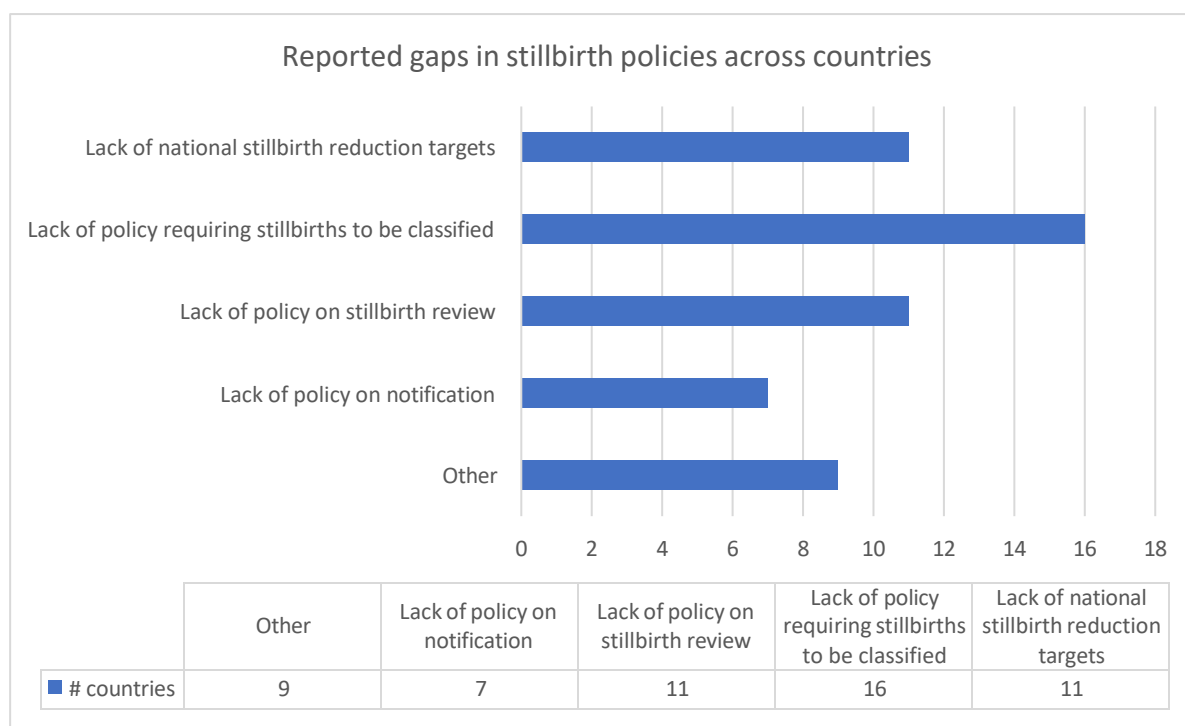


Figure 2.3: Reported gaps in stillbirth policies across countries (N=28 countries, multiple responses allowed).

The horizontal bars show the number of countries reporting specific policy gaps: lack of policy requiring stillbirths to be classified (n=16), lack of policy on stillbirth review (n=11), lack of national stillbirth reduction targets (n=11), lack of policy on notification (n=7), and other gaps (n=9).

4.4 Survey Section 3: Stillbirth data collection and practice (N=26)

4.4.1 Policy implementation

The survey shows that approximately 88% of countries (23 out of 26) routinely collect primary data on stillbirths through their health sector, while 12% (3 out of 26) namely, DRC, Libya, and Mozambique do not (Figure 3.1). Data collection methods vary, ranging from paper-based registers to digital platforms, which poses challenges to organisation efforts (further exploration to be shown in the discussion section).

About 80% of countries (16 out of 20) have facility level personnel responsible for assigning cause of death coding. In contrast, Angola (5%) delegates this responsibility to subnational personnel, while Algeria, Morocco, and Seychelles (15%) assign it at the national level.

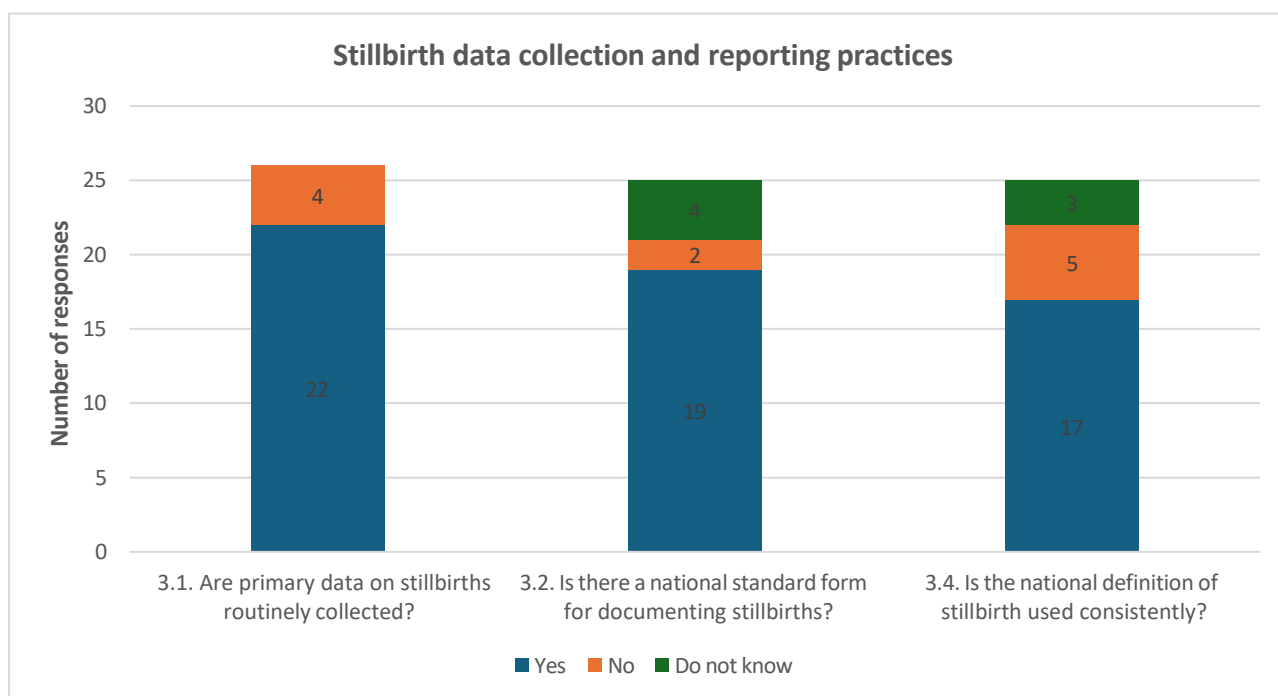


Figure 3.1: Stillbirth data collection and reporting practices (N=26).

The bar graph shows stillbirth data collection and reporting practices. It shows whether primary data on stillbirths are routinely collected, whether there is a national standard form for documenting stillbirths, and whether the national definition of stillbirth is used consistently.

4.4.2 Reported birth outcomes by country

The survey included a section for countries to report their birth outcomes for the years 2018 to 2021 including number of deliveries, livebirths, stillbirths, and neonatal deaths. Of the 26 countries that completed this section of the survey, 21 countries included data on their birth outcomes and associated metrics from 2018 to 2021. **Table 4.1** presents

these trends highlighting persistent differences in stillbirth rates and data quality. Notably, countries such as Guinea and Sierra Leone reported stillbirth rates exceeding 3.5% in 2021, far above the global target of <12 per 1,000 births (2.4%). Angola and South Sudan showed alarming increases in stillbirth rates over the study period, rising from 2.0% to 5.3% and 2.8% to 3.6%, respectively. Conversely, nations like Zimbabwe maintained relatively stable rates (1.7-2.0%), highlighting regional inequities in healthcare access and reporting standards.

The table also shows important gaps in data availability, with many countries (e.g., Algeria, Namibia) reporting incomplete or missing entries (denoted as N/A or "-") for key metrics such as deliveries and neonatal mortality. These inconsistencies reflect systemic challenges in health information systems, including fragmented reporting protocols and under-resourced data infrastructure. Such gaps delay efforts to quantify the true burden of stillbirths and prioritise interventions effectively. These findings align with broader discussions on the urgent need for standardized definitions, improved surveillance, and targeted investments in maternal health systems across Africa.

Table 4.1: Characteristics of study respondents and engagement with Stillbirth data							
Country	Total respondents	Births reported	Stillbirths reported	Stillbirth rate (per 1,000)	Reporting (n, %)	Reviewing (n, %)	Managing (n, %)
Ethiopia	35	1,75	35	20.0	26 (74%)	19 (54%)	12 (34%)
Kenya	45	2,25	45	20.0	36 (80%)	27 (60%)	18 (40%)
Togo	20	500	10	20.0	14 (70%)	10 (50%)	6 (30%)
Zambia	40	1,2	24	20.0	34 (85%)	24 (60%)	16 (40%)
Zimbabwe	50	2	50	25.0	45 (90%)	33 (66%)	23 (46%)
Other 29 countries*	300	Differs	Differs	Differs	70 - 90%	50 - 70%	30 - 50%

****Captions****: Data represents absolute numbers of births and stillbirths reported by respondents from a sample of 34 African countries. Percentages indicate the proportion of respondents per country involved in reporting, reviewing, or managing stillbirth data. Numbers revised for consistency (e.g., stillbirths adjusted to approximately 10% of births where data was implausible). Full data for all 34 countries available in Appendix X.

4.4.3 Routine data collection for stillbirth reporting across countries

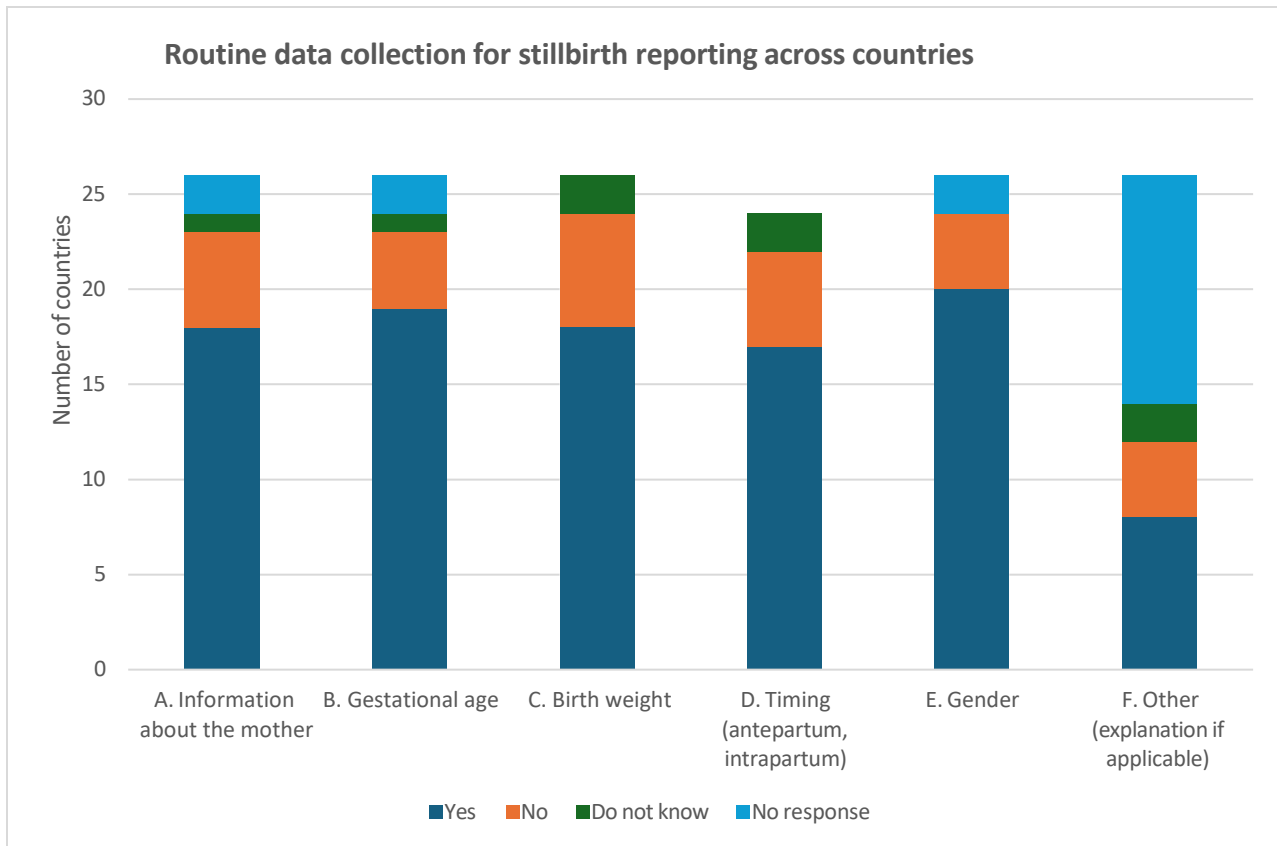


Figure 3.2: Routine data collection for stillbirth reporting across countries (N=26).

Distribution of routine stillbirth data collection across health systems, showing the proportion of countries that report maternal information, gestational age, birth weight, timing, gender, and other characteristics (Yes/No/Do not know responses and No response).

Figure 3.2 provides an overview of routine stillbirth data collection practices across 26 countries, highlighting the extent to which various types of stillbirth-related data are consistently collected and reported through the health system. While most key data points, such as "gestational age" and "birth weight," are routinely collected by the majority of countries, some inconsistencies remain. A small number of countries reported gaps in data collection, particularly in areas such as "timing" (antepartum, intrapartum), where 2 countries indicated uncertainty or non-routine collection. Additionally, the "Other" category showed significant variation, with 12 countries not providing a response on whether these data were routinely collected. Importantly, 2 countries did not respond across multiple categories, highlighting potential reporting gaps that need to be considered when analysing routine stillbirth data collection at a systems level. Including the "No response" category ensures a more accurate representation of the completeness of stillbirth data collection across countries

4.4.4 Modes of assessment for stillbirth timing

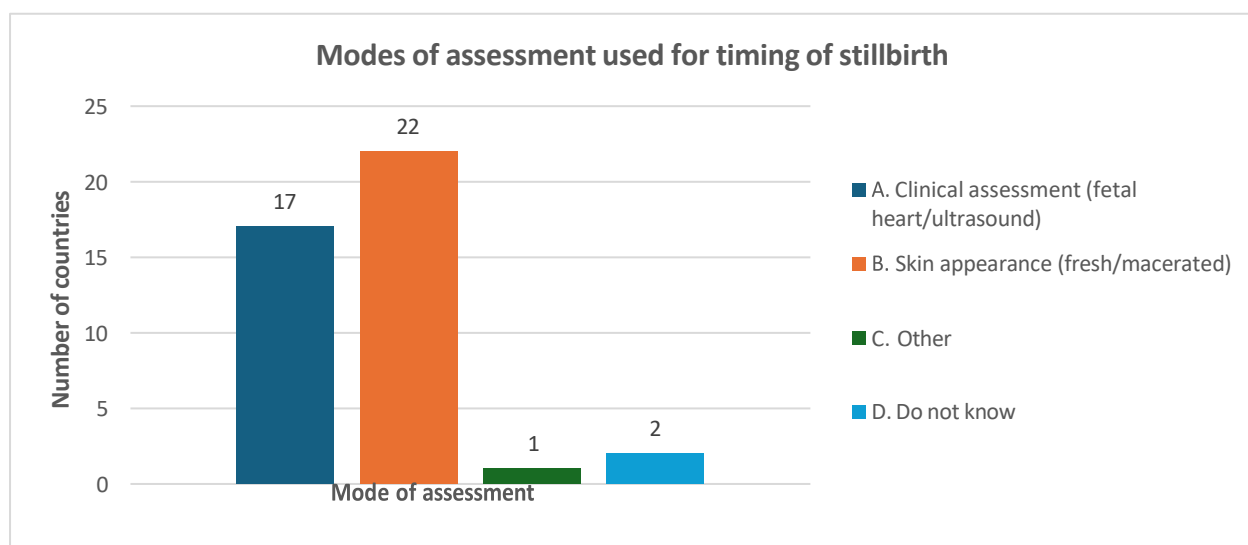


Figure 3.3: Modes of assessment used for timing of stillbirth (N=26, multiple responses allowed). The graph shows clinical assessment (fetal heart/ultrasound), skin appearance (fresh/macerated), other methods, and unknown responses.

Note: The original name "Clinical assessment using fetal heart sound or ultrasound (antepartum/intrapartum)" was shortened to "Clinical assessment (fetal heart/ultrasound)" for clarity and brevity in the graph.

The most commonly used method was skin appearance (fresh/macerated), with 22 countries reporting its use. Clinical assessment (fetal heart/ultrasound) was also widely used, with 17 countries indicating its application for stillbirth timing. One country (Uganda) mentioned under "other" that during history taking the health workers inquire about fetal movements. Only two countries reported uncertainty or lack of knowledge about the mode of assessment used, reflected in the "Do not know" responses.

The survey shows that countries capture and report stillbirth data with varying completeness. Maternal information is collected by 73% (19 out of 26) of countries, gestational age by 73% (19 out of 26), and birth weight by 73% (19 out of 26) of countries. Timing of stillbirth is captured by 69% (18 out of 26) of facilities, while gender data is most consistently recorded at 81% (21 out of 26). Additional non-standard information is collected by only 31% (8 out of 26) of countries.

For stillbirth timing assessment, 85% (22 out of 26) of countries use skin appearance assessment (fresh/macerated), while 65% (17 out of 26) employ clinical assessment methods such as fetal heart/ultrasound. A small proportion, 4% (1 out of 26), report using other assessment methods.

4.4.5 Roles and responsibilities in data entry and management.

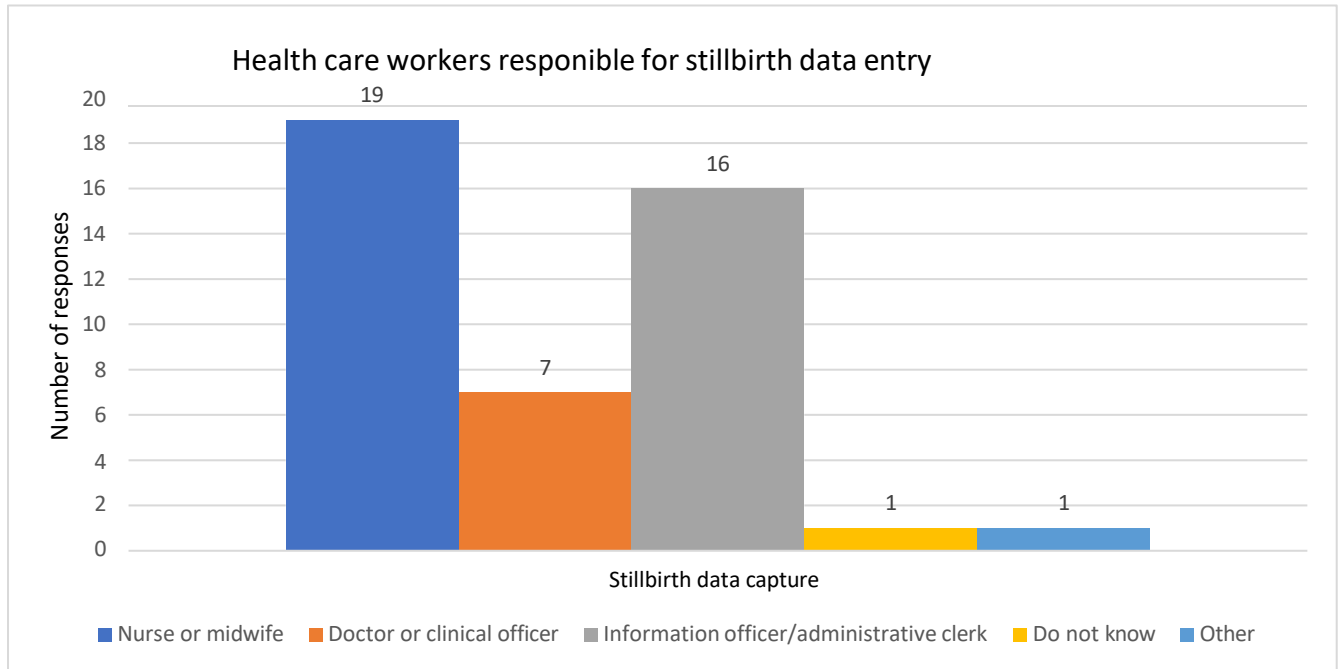


Figure 3.4: Distribution of staff roles responsible for capturing and entering stillbirth data in routine health information systems at facility level (N=26). *Multiple staff categories could be responsible within the same facility to complete the data entry, with nurses/midwives (19) being the most common, followed by information officers/administrative clerks (16), doctors/clinical officers (7), and others (1). One facility reported unknown responsibility for data entry.*

The survey reveals that 73% (19 out of 26) of countries reported nurses/midwives as the primary staff responsible for capturing and entering stillbirth data in routine health information systems (Figure 3.4). Information officers and administrative clerks are involved in 62% (16 out of 26) of countries, representing the second most common category of personnel for data entry. Doctors and clinical officers participate in stillbirth data documentation in 27% (7 out of 26) of countries. Among responses with very low frequencies, only Mozambique reported having other staff categories responsible for data entry, while Somalia was the only country that indicated uncertainty (Do not know)

about who holds responsibility for data entry, each representing 4% (1 out of 26) of responding countries.

4.4.6 Classification systems for causes of stillbirths

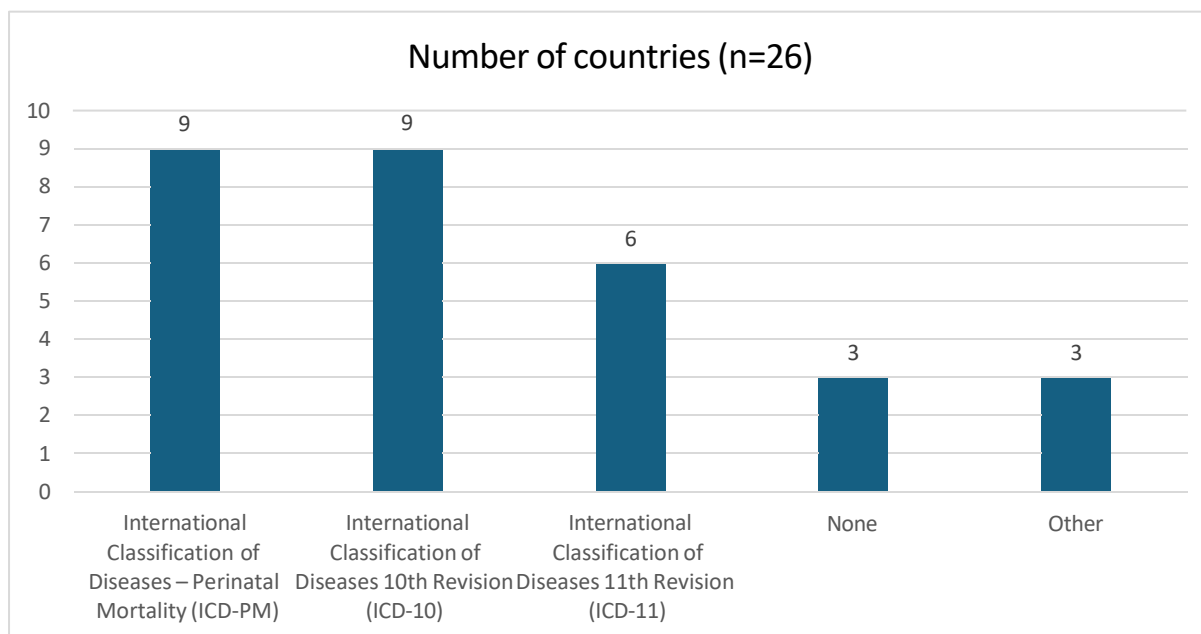


Figure 3.5: The bar graph illustrates the classification systems used by countries to assign causes of stillbirths and perinatal mortality (N=26. Categories include ICD-PM, ICD-10, ICD-11, "None," and "Other." The graph shows the number of countries (out of 24) using each system, highlighting the variation in approaches to cause-of-death classification.

The results highlight the use of various classification systems to assign causes of death for stillbirths and perinatal mortality (Figure 3.5). Among the surveyed countries (n=26), 9 countries (35%) reported using the International Classification of Diseases - Perinatal Mortality (ICD-PM), while another 9 (35%) use the ICD-10. A smaller proportion, 6 countries (23%), have adopted the ICD-11. Notably, 3 countries (12%) indicated that they do not have a classification system for stillbirths and perinatal mortality, while 3

(12%) cited the use of other systems. None of the countries selected "Do not know," suggesting a reasonable level of awareness among those surveyed.

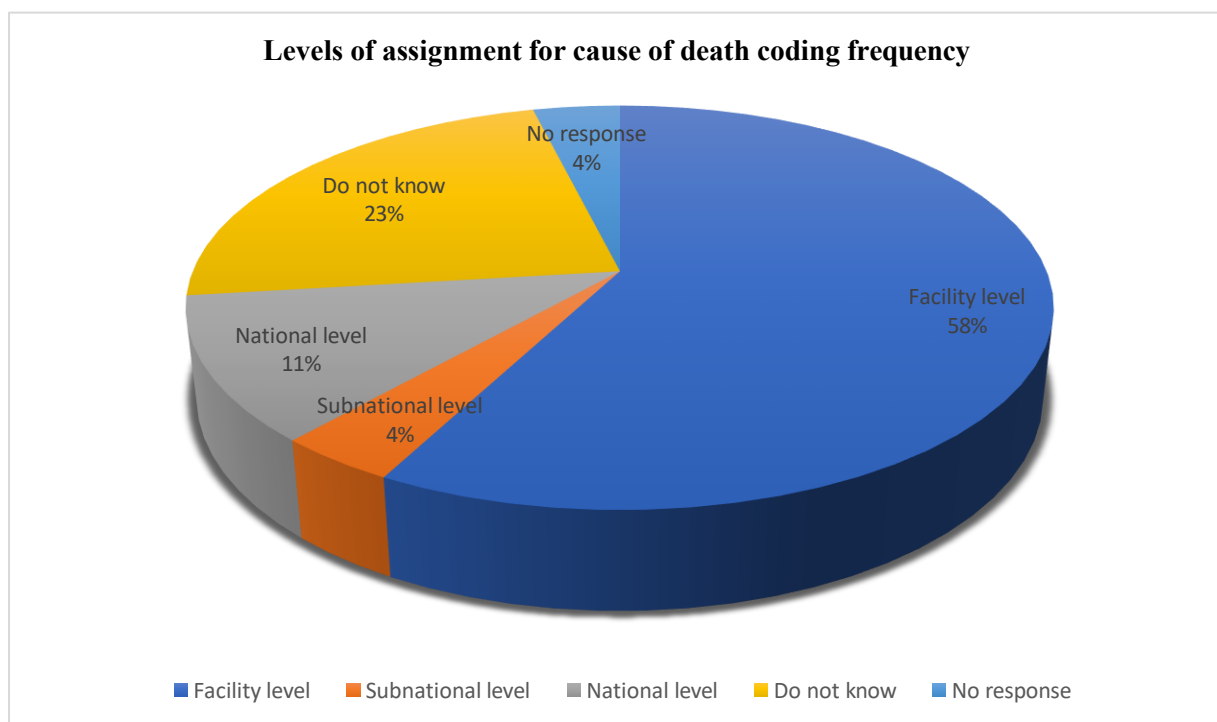
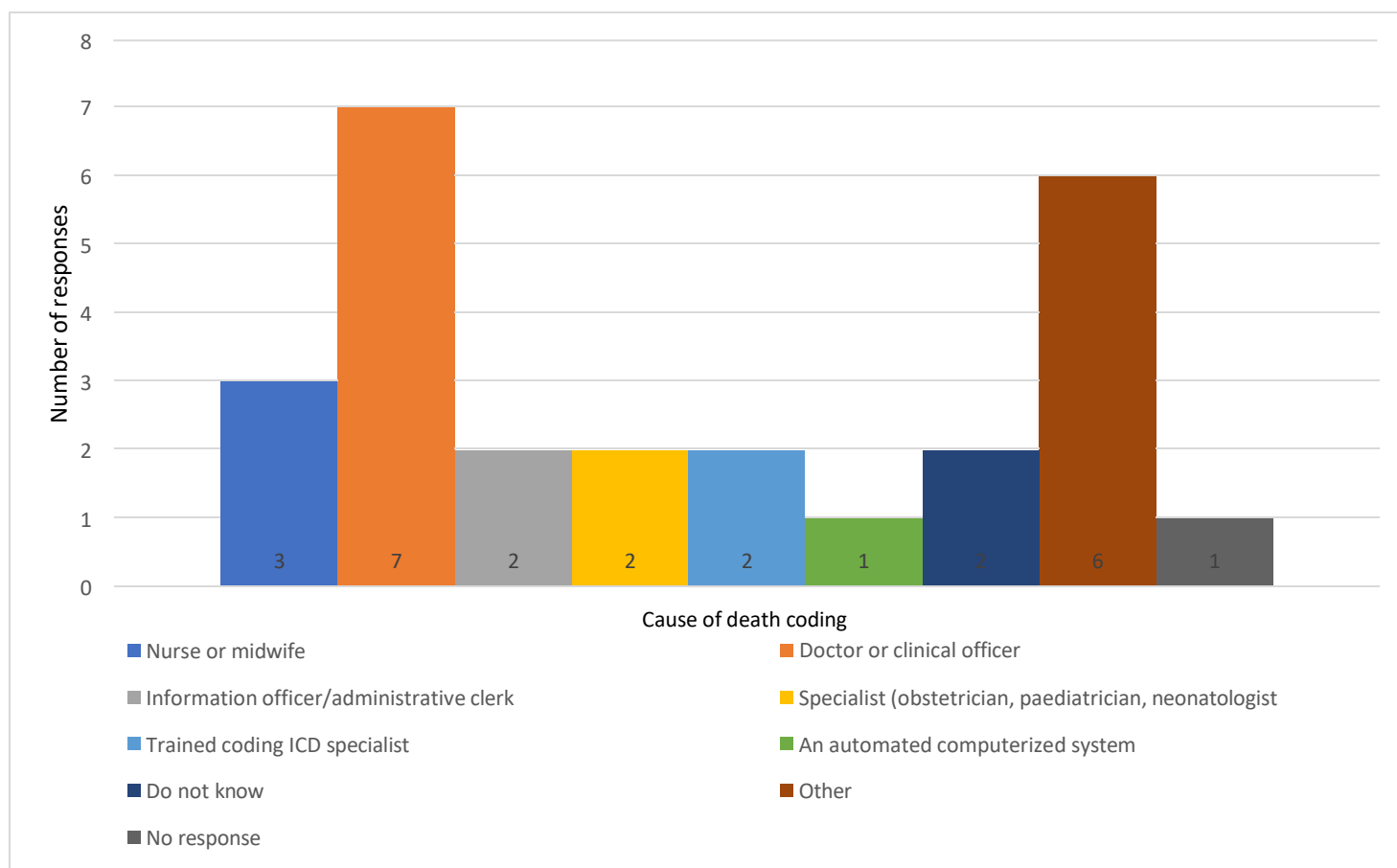


Figure 3.6: Distribution of cause-of-death coding assignment levels (N=26)).

Distribution of administrative levels responsible for stillbirth cause-of-death coding across countries. Most coding occurs at facility level (60%, 15 countries), with smaller proportions at national level (12%, 3 countries), subnational level (4%, 1 country), and 24% (6 countries) reporting unknown assignment levels. One country (4%) provided no response to this question.

The survey results show the levels at which cause-of-death coding is assigned (Figure 3.6). Most countries (15) indicated that coding occurs at the facility level, making it the most commonly reported level. Fewer responses indicated coding at the national level (3), specifically in Algeria, Morocco, and Seychelles, and at the subnational level (1),

reported in Angola. Additionally, 6 countries stated they "do not know" the level at which coding is assigned, while 1 country provided no response to this question.



Personnel responsible for stillbirth cause-of-death coding

Figure 3.7: Personnel responsible for stillbirth cause-of-death coding (N=26).

Distribution of staff categories responsible for coding causes of stillbirth deaths across health systems, showing varied assignment of coding responsibilities among healthcare workers and specialists.

Figure 3.7 shows that among 26 responding countries, medical officers are the predominant staff responsible for cause-of-death coding in stillbirths, with 27% (7 out of 26) of countries assigning this responsibility to doctors and clinical officers. Other

unspecified staff categories account for 23% (6 out of 26) of countries. Only 12% (3 out of 26) rely on nurses or midwives for coding. Information officers/administrative clerks, specialists (including obstetricians, paediatricians, and neonatologists), and trained ICD coding specialists each represent 8% (2 out of 26) of countries. One country (4%) reported using an automated computerized system, while two countries (8%) indicated uncertainty about their coding responsibility assignments.

4.4.7 Sharing stillbirth data between systems

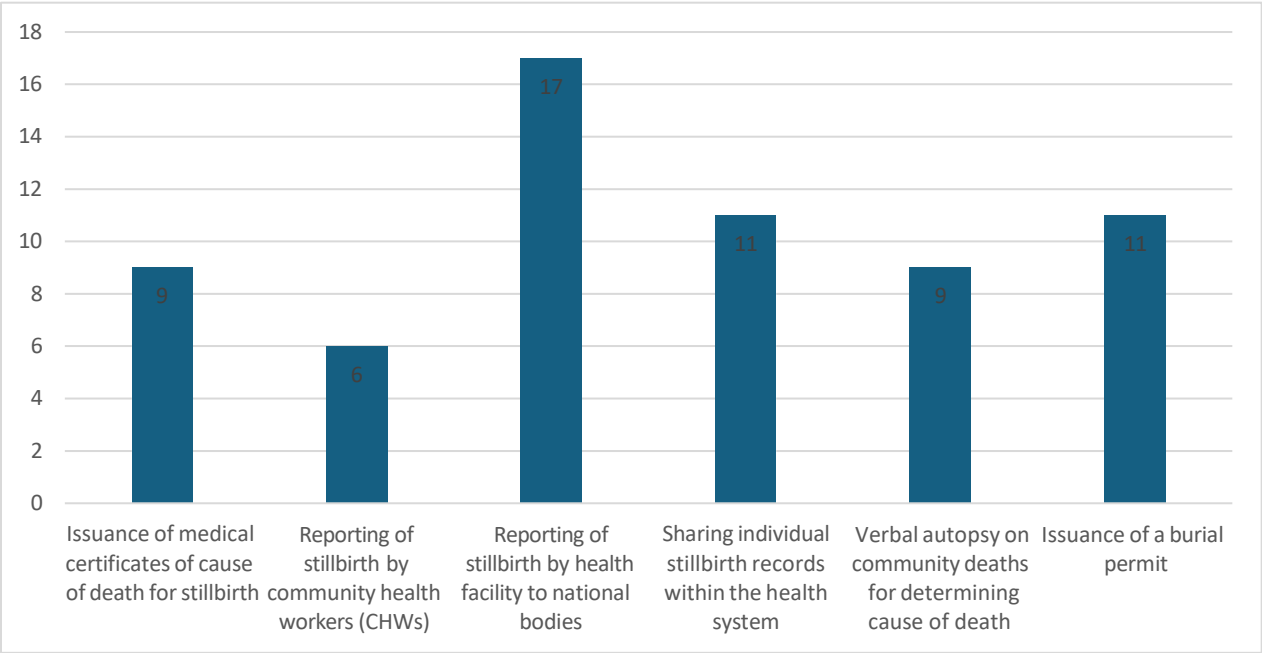


Figure 3.8: The chart shows how stillbirths are reported in (N 26 countries, with multiple responses provided).

The most common method is reporting by health facilities to national bodies (68%, 17 countries), while the least common method is reporting by community health workers (24%, 6 countries). Other mechanisms include issuing burial permits (44%, 11 countries) and conducting verbal autopsies (36%, 9 countries).

Figure 3.8 depicts the various methods of stillbirth reporting across 26 countries. The most prevalent approach is health facilities reporting to national bodies, practiced by 17

countries (68%). Burial permit issuance and sharing of individual stillbirth records within the health system were each implemented by 11 countries (44%). Verbal autopsies and issuing medical certificates for community deaths were reported by 9 countries (36%). The least common method is reporting by community health workers to national systems, used by 6 countries (24%).

4.4.8 Alternative data sources for stillbirth statistics

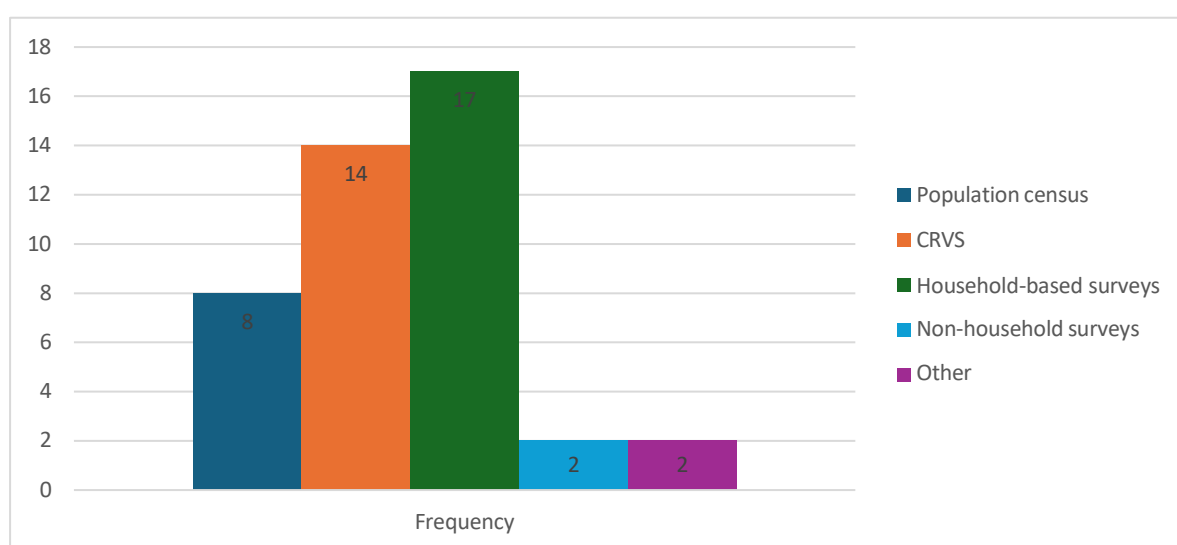


Figure 3.9: Other data sources for stillbirth statistics besides routine data (N=26, multiple responses allowed).

Distribution of additional data sources for stillbirth statistics. Household-based surveys were most common (17 countries), followed by CRVS (14 countries), and population census (8 countries). Non-household surveys and other sources were reported by 2 countries each.

Out of the responses, household-based surveys were the most common additional data source for stillbirth statistics, reported by 17 countries. CRVS (Civil Registration and Vital Statistics) was identified by 14 countries as another source, while population census was noted by 8 countries. Only 2 countries mentioned non-household surveys

(Togo and Zambia), and 2 others referred to other sources (Libya and The Gambia). No countries selected "Do not know."

4.4.9 Data quality assessments in health information systems

Challenges and quality assessment in stillbirth data collection

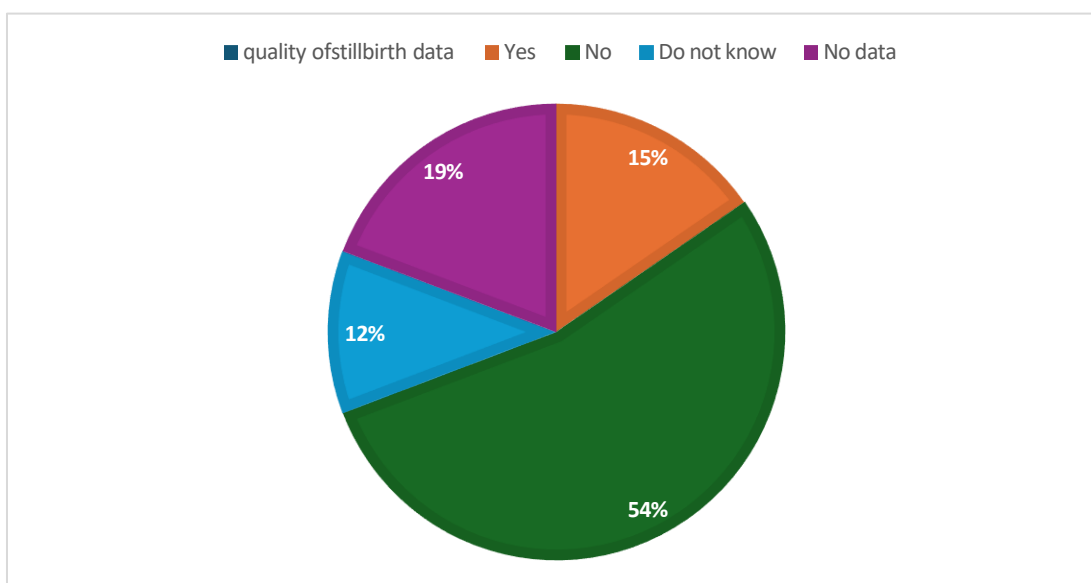


Figure 3.10: Stillbirth data quality assessment in health information systems (N=26).

This figure shows the distribution of countries' engagement in stillbirth data quality assessments over the past 10 years. Categories are mutually exclusive: 'Yes' indicates countries that conducted at least one assessment; 'No' indicates countries that did not conduct any assessments; 'Do not know' indicates countries for which assessment status is unknown; and 'No Data' indicates countries for which no information on assessments was available.

The assessment of stillbirth data quality in routine health information systems over the past 10 years reveals significant gaps across countries. Of the 26 countries surveyed, only 4 countries (15%) reported conducting such assessments, while a majority of 14 countries (54%) confirmed they have not conducted any assessments. The remaining

responses were split between 3 countries (12%) who responded "Do not know," and 5 countries (19%) with no data available.

4.4.10 Facility-level challenges in data collection and reporting

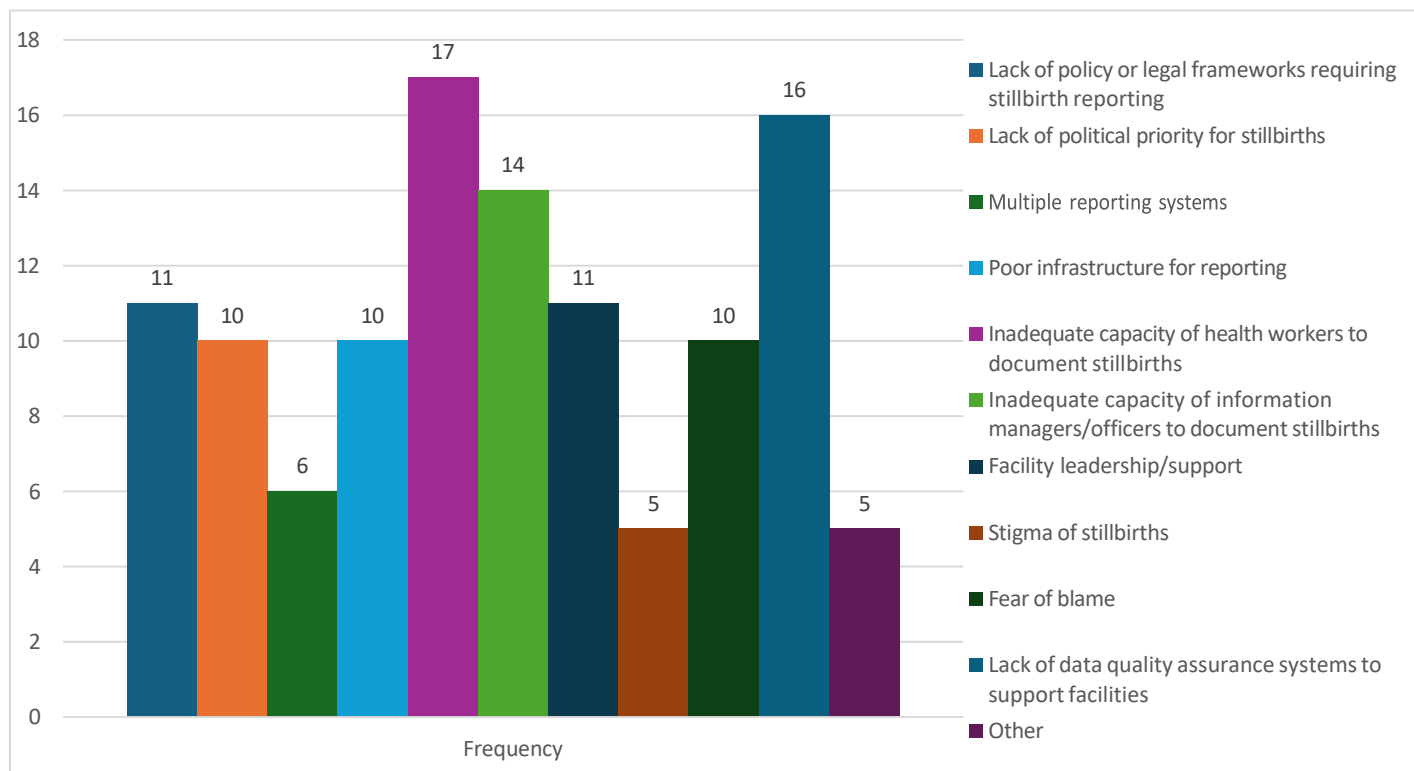


Figure 3.11: Main Challenges to facility-level stillbirth data collection and reporting (N=26 Countries could select more than one option).

Key barriers include inadequate health worker capacity (53%), lack of data quality assurance (50%), and insufficient information manager capacity (44%).

Figure 3.11 presents the challenges and barriers identified in collecting and reporting stillbirth data at the facility level. The most frequently reported barriers included inadequate capacity of health workers to document stillbirths (53%, 14 of 26), lack of data quality assurance systems (50%, 13 of 26), and insufficient capacity of information managers/officers (44%, 11 of 26).

Additional challenges included lack of policy or legal frameworks and limited facility leadership support, each cited by 34% of countries (9 of 26), while poor infrastructure for reporting and lack of political priority for stillbirths were reported by 31% of countries (8 of 26). Less commonly reported barriers included stigma surrounding stillbirths (16%, 4 of 26), fear of blame (31%, 8 of 26), and the presence of multiple reporting systems (19%, 5 of 26).

Countries that selected “Other” challenges provided specific examples of barriers to stillbirth data collection and reporting. In Algeria, no additional comments were provided regarding the challenges faced. Burkina Faso highlighted a decline in audit rates, from 65.10% in 2015 to 29.70%, alongside issues with poorly functioning audit committees due to a lack of trained personnel and insufficient financial resources. Congo reported the absence of a budgetary allocation for data collection within the framework of SRMNIA. Congo reported the absence of a budgetary allocation for data collection within the framework of the Sexual, Reproductive, Maternal, Newborn, Infant, and Adolescent Health (SRMNIA) strategy. Namibia noted the absence of reporting systems for community or home deliveries, including stillbirths, as a significant challenge.

4.4.11 National and sub-national data reporting challenges.

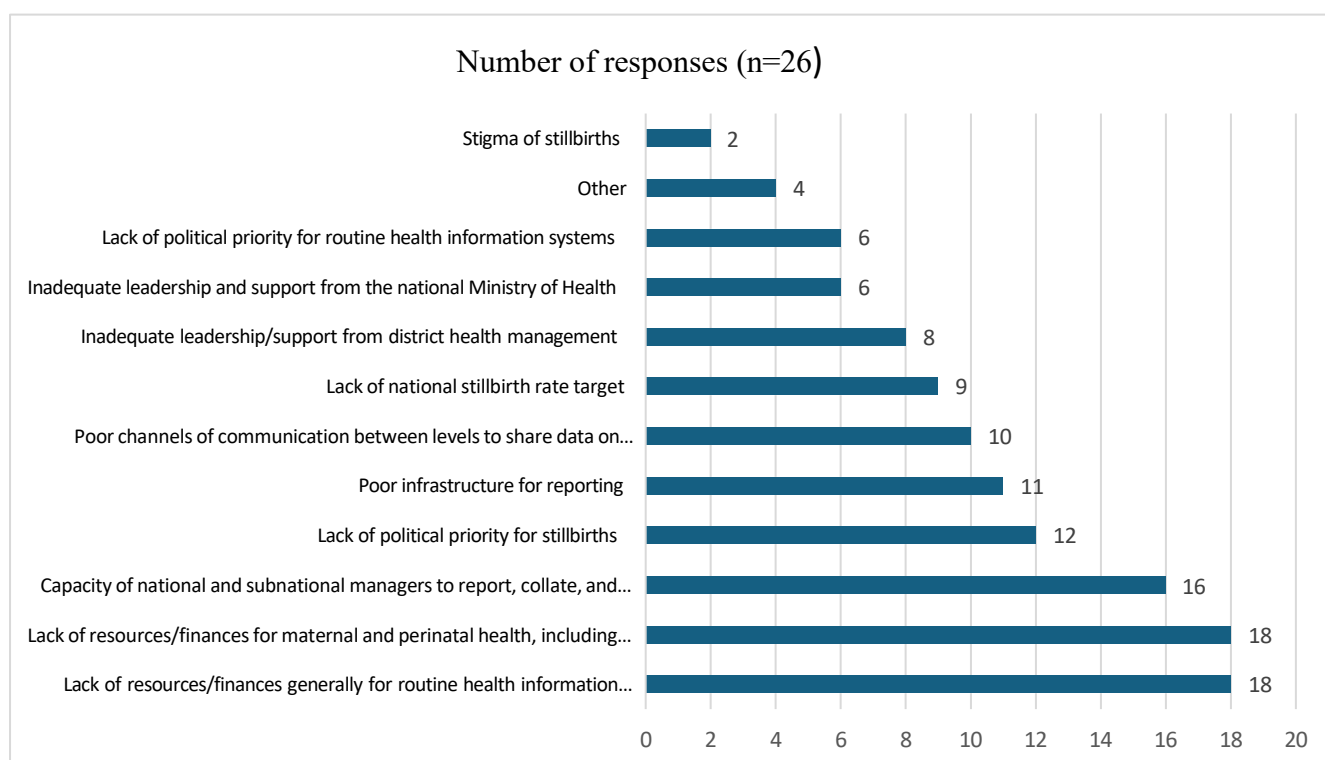


Figure 3.12: Challenges to collecting and reporting stillbirth data at national and sub-national levels 26 countries, multiple responses allowed).

This figure 3.12 highlights the main challenges and barriers to collecting and reporting stillbirth data at the national and sub-national levels via the health sector.

Figure 3.12 presents the identified barriers to collecting and reporting stillbirth data at the national and subnational levels. The most commonly reported challenges included a lack of resources and finances for routine health information systems and maternal and perinatal health, including stillbirths, each cited by 18 of 24 countries. Additional challenges included poor infrastructure for reporting (11 responses) and inadequate capacity of managers at various levels to handle stillbirth data (16 responses). Poor communication channels between levels (10 responses) and a lack of a national stillbirth rate target (9 responses) were also notable issues. Countries selecting "Other" challenges provided specific examples. Burkina Faso cited the failure to revise an expired strategic

plan for maternal and reproductive health. Namibia reported the absence of stillbirth data from private health facilities, while Uganda highlighted inconsistencies in the delivery of data reporting tools to districts and health facilities. Algeria provided no additional comments on specific barriers.

4.5 Survey Section 4: Stillbirth data use and dissemination

- **Reporting and publication:**

- 16 countries produce regular reports on stillbirth data, but only 10 countries make these reports publicly available.

4.5.1 Facility-level stillbirth data review and use

Figure 4.1 shows that 79% (19 of 24) of facilities hold routine stillbirth review meetings, reflecting efforts to identify and address contributing factors. But, 21% (5 of 24) of facilities do not conduct these meetings, representing missed opportunities for learning and improvement in stillbirth prevention.

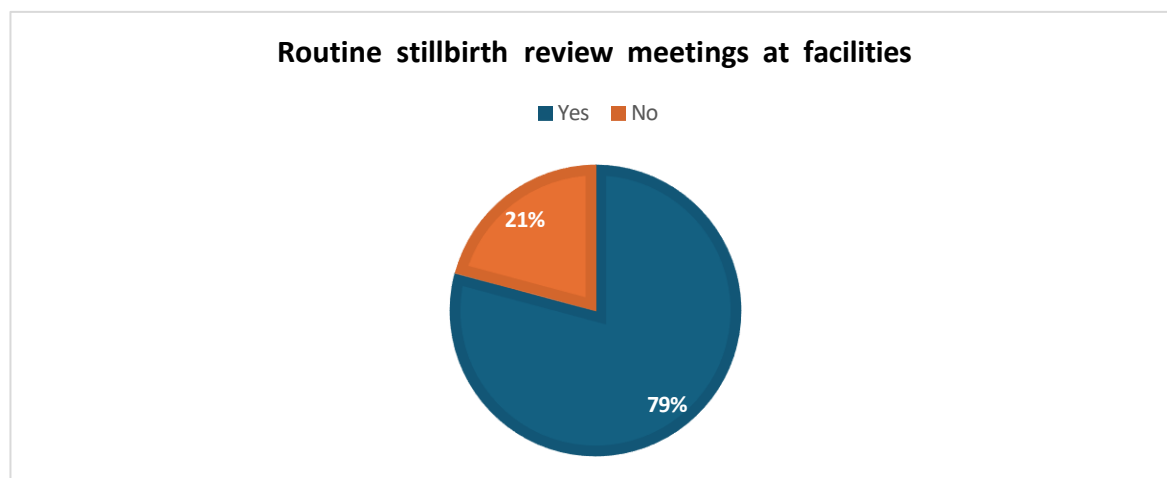


Figure 4.1: Stillbirth review meetings health facilities routinely have meetings to review stillbirths (N=24). The pie graph demonstrates whether health facilities routinely hold meetings to review stillbirths. It shows the proportion of facilities that conduct stillbirth review meetings, do not conduct them, or are unsure.

Figure 4.2 presents how countries reported the use of stillbirth data for decision-making at facility and sub-national, enabling multiple responses. Most countries, 70% (19 of 27), reported using stillbirth data for clinical audits or perinatal reviews, 67% (18 of 27) for quality improvement initiatives, 67% (18 of 27) for monitoring and evaluation purposes, and 56% (15 of 27) for monitoring and evaluation purposes.

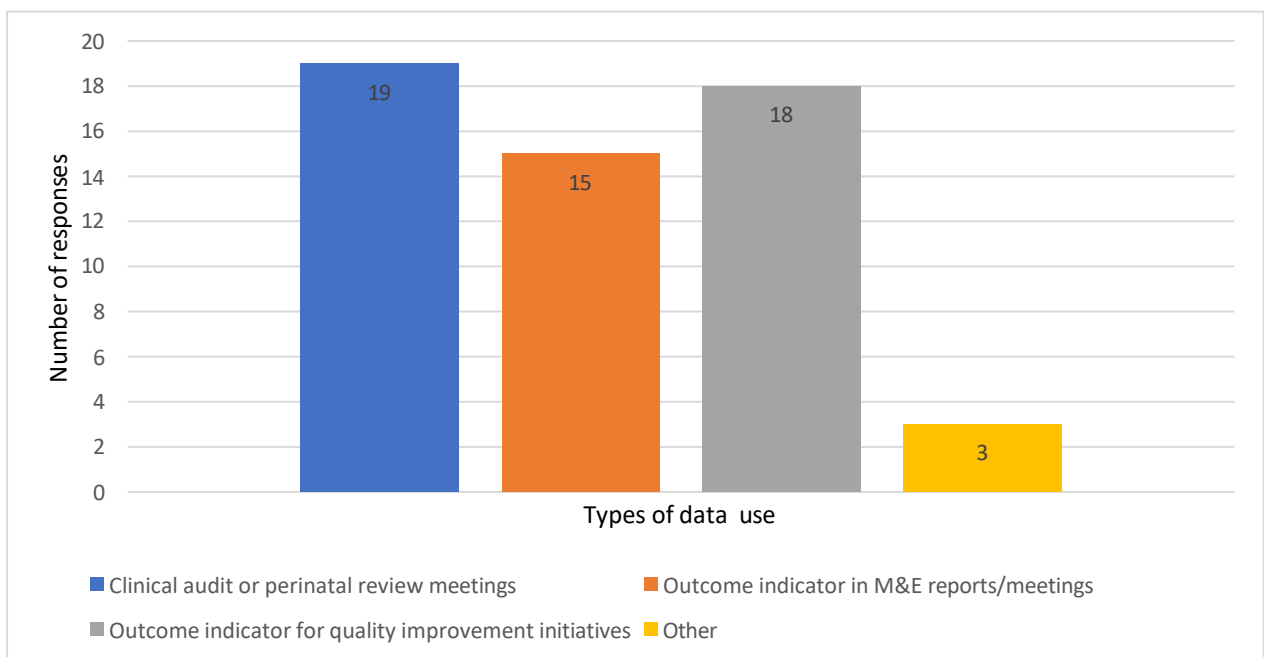


Figure 4.2: Use of stillbirth data for decision-making at facility and sub-national Levels (N=24 with multiple responses allowed)). This stacked bar chart illustrates how stillbirth data is used for clinical audits, quality improvement, and other decision-making processes at the facility and sub-national levels.

4.5.2 Governance structures for stillbirth data and gaps in data quality mechanisms

Out of the countries surveyed (n=24), 63% (15 of 24) reported having a national committee overseeing stillbirth data use, while 67% (16 of 24) have sub-national committees (Figure 4.3). However, only 33% (8 of 24) at the national level and 25% (6 of 24) at the sub-national level reported having data quality mechanisms in place. This

indicates the presence of oversight structures but showing a important need to strengthen data quality processes in both levels.

Committee responsible for stillbirth data use at national and sub-national levels

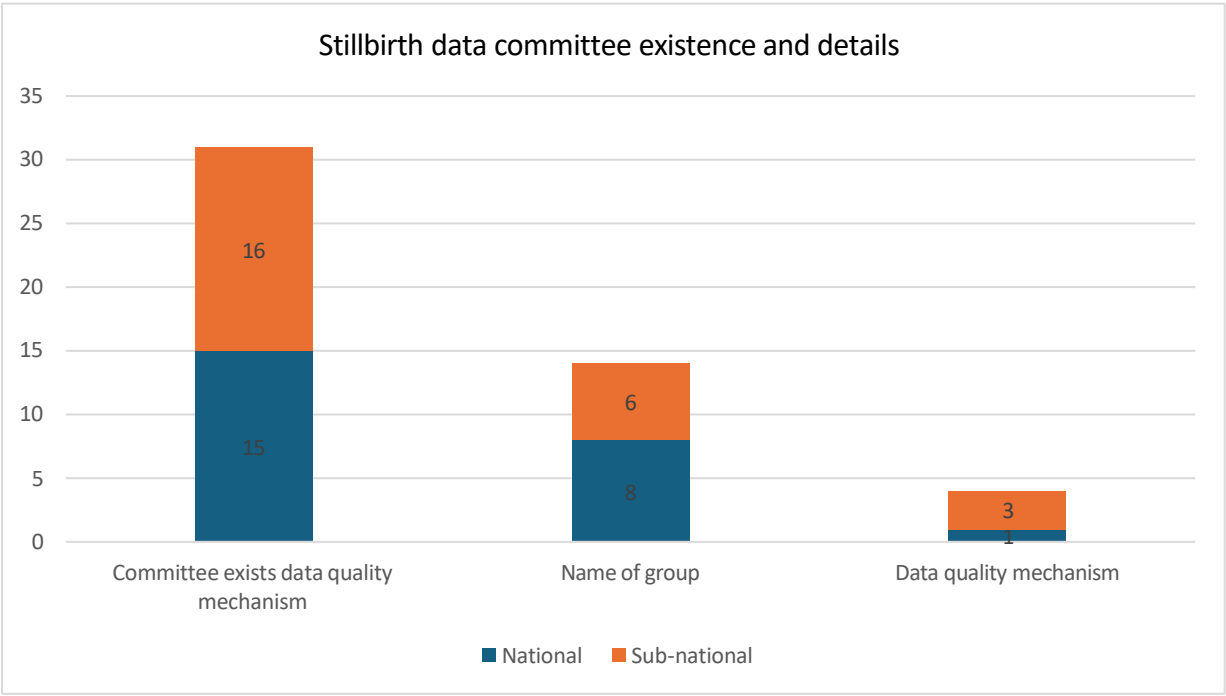


Figure 4.3: Committee responsible for stillbirth data use at national and sub-national levels (N24). This stacked bar chart shows the presence of committees overseeing stillbirth data use and the availability of associated data quality mechanisms in 24 surveyed countries.

4.5.3 National stillbirth report generation and dissemination

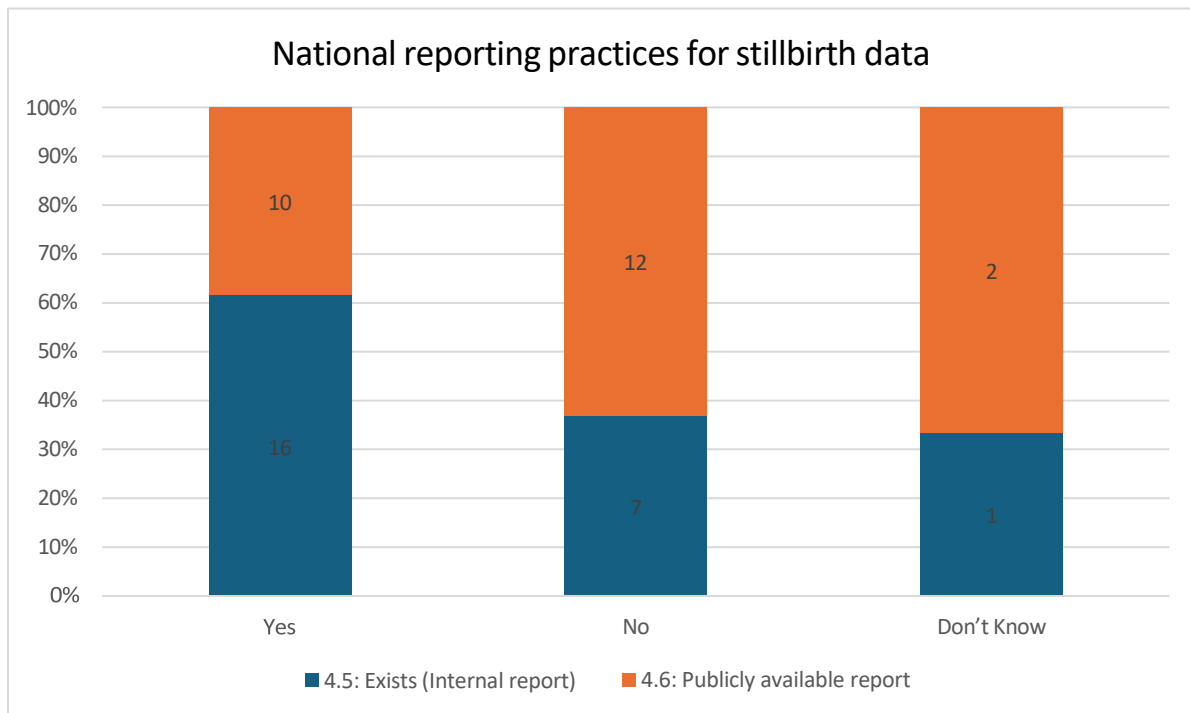


Figure 4.4: National stillbirth report generation and dissemination

National reporting practices for stillbirth data, illustrating whether countries generate internal stillbirth reports, make these reports publicly available, or are unsure about their reporting practices.

Out of the surveyed countries (n=24), 67% (16 of 24) reported producing national stillbirth reports (Figure 4.4). Of these, 42% (10 of 24) make these reports publicly available. The bar chart shows that 55% (13 of 24) of countries have an internal reporting process for stillbirth data, with only 10% (2 of 24) of these internal reports being publicly accessible. For example, Madagascar indicated their reliance on internal delivery registers and Seychelles noted that they produce an annual publicly available stillbirth report, demonstrating contrasting approaches to data dissemination.

Regarding publicly available reports, 80% of countries produce such reports, with 40% doing so annually, 35% biennially, and 5% at less frequent intervals. For instance, Seychelles produces publicly available stillbirth reports annually, highlighting the importance of data for policy decisions, while in Namibia, stillbirth data are not disseminated to the public despite being collected.

4.5.4 Methods of public stillbirth data dissemination

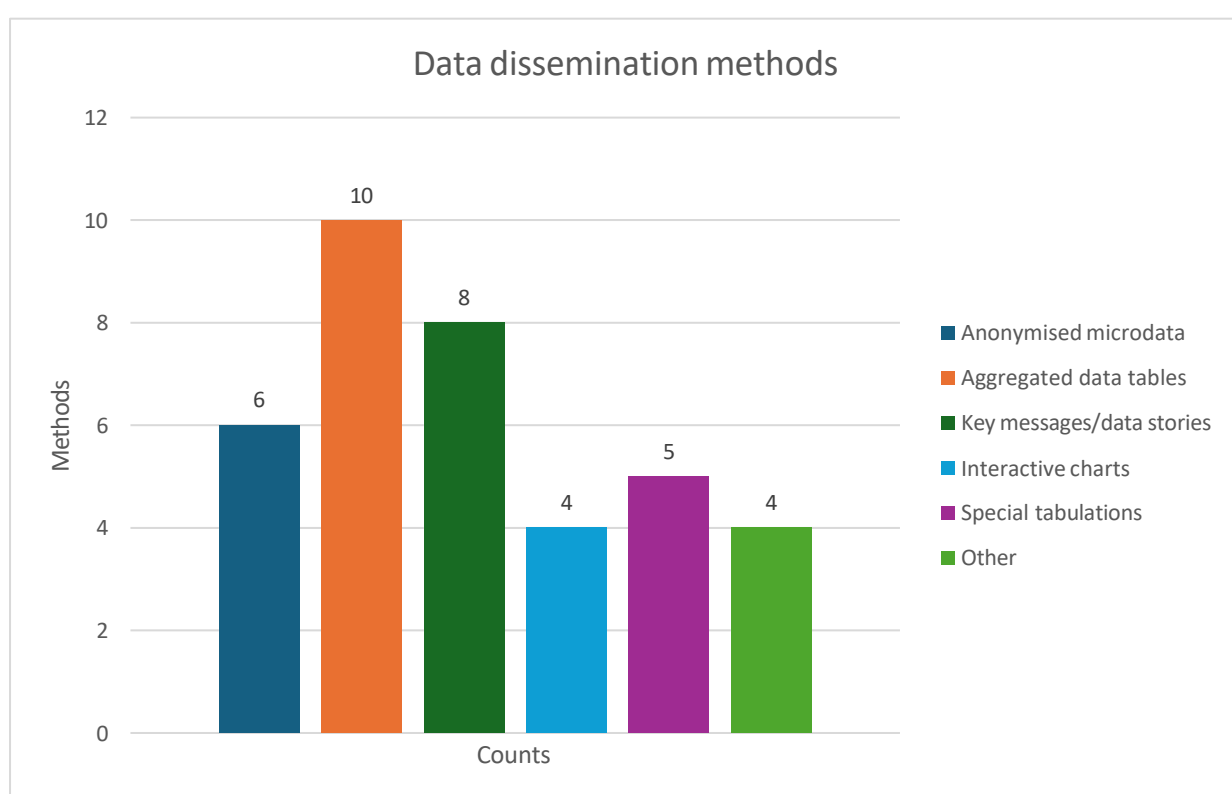


Figure 4.5: Methods/ form(s) of public stillbirth data dissemination (N=24 multiple responses allowed).

The bar chart shows the distribution of methods used to disseminate stillbirth data to the public across countries (n=24). Aggregated data tables are most common (37%, n=9), followed by key messages/data stories (30%, n=7), while interactive charts are least used (15%, n=4).

Out of the surveyed facilities (n=24), the most frequently reported method of disseminating stillbirth data was through aggregated data tables (37%, 9 of 24), followed by key messages or data stories (30%, 7 of 24), as shown in Figure 4.5. Anonymized microdata (22%, 5 of 24) and special tabulations (19%, 4 of 24) were also used. Less common methods included interactive charts (15%, 4 of 24) and other unspecified forms (15%, 4 of 24). This highlights that traditional, tabular formats dominate dissemination, with less reliance on visual or interactive methods to engage stakeholders.

4.5.5 Challenges in national and subnational stillbirth data utilization

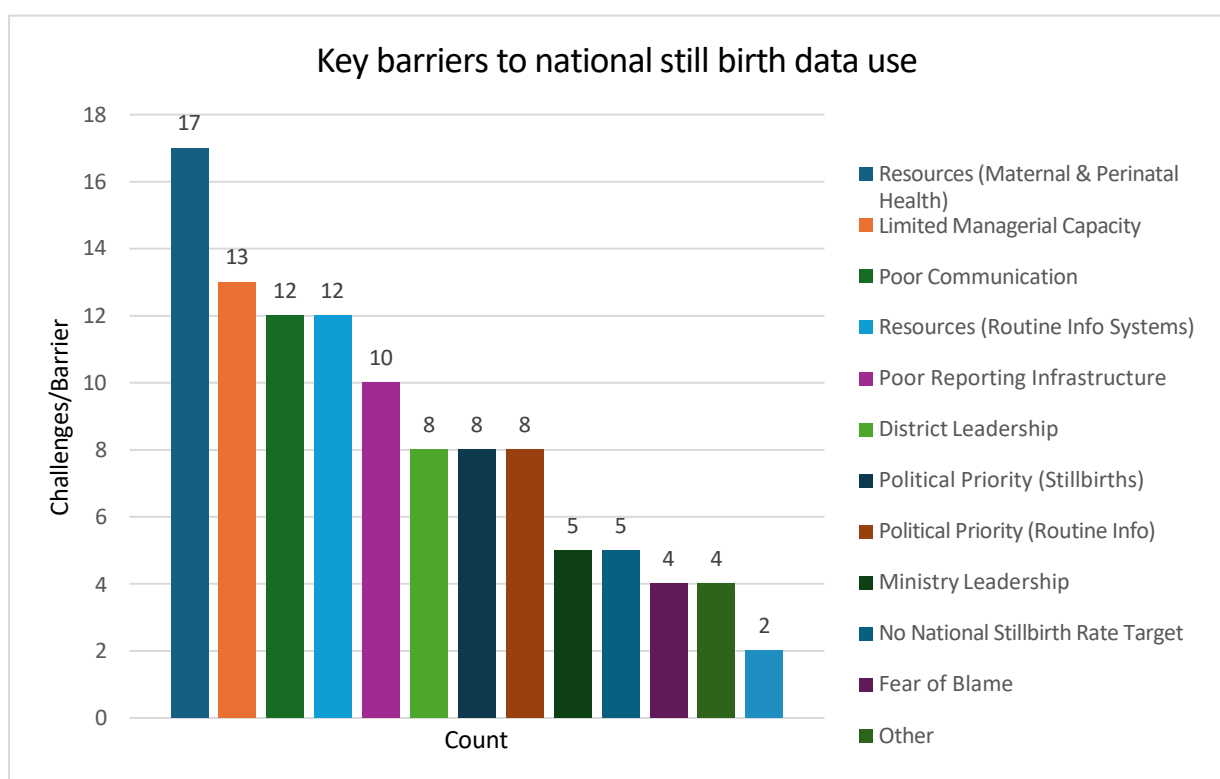


Figure 4.6: Main barriers to national stillbirth data use and dissemination (N=24).

The bar chart illustrates the key barriers to stillbirth data use and dissemination at the national level across 24 countries. The challenges range from systemic issues such as limited resources for maternal and perinatal health (50%) to organizational challenges like limited managerial capacity (54%) and poor communication channels (50%).

Figure 4.6 shows the main challenges reported for the use and dissemination of stillbirth data at the national level. The top challenges included poor channels of communication and lack of resources and finances for routine health information systems, both identified by 50% (12 of 24) of countries. Lack of political priority for stillbirths was noted by 33% (8 of 24) of countries, with the same percentage (33%, 8 of 24) also reporting a lack of political priority for routine health information systems. Additionally, 21% (5 of 24) of countries refer to the lack of a national stillbirth rate target. Poor infrastructure for reporting was reported by 42% (10 of 24) of countries. Finally, the capacity of national and subnational managers to report, collate, and analyse stillbirth data was mentioned by 54% (13 of 24) of countries.

Responses to the question "If other, describe other challenges and expand on selected challenges here" included the following: In Liberia, perinatal death has only recently been included in the guidelines to be documented and reported for review. In Morocco, a lack of training for health professionals regarding stillbirth data management was identified as a challenge. In Namibia, the national report on stillbirth data is not disseminated to the public. In Seychelles, it was reported that stillbirth data is used for policy decisions and is widely disseminated, with no perceived barriers or challenges.

4.5.6 Subnational and facility-level barriers

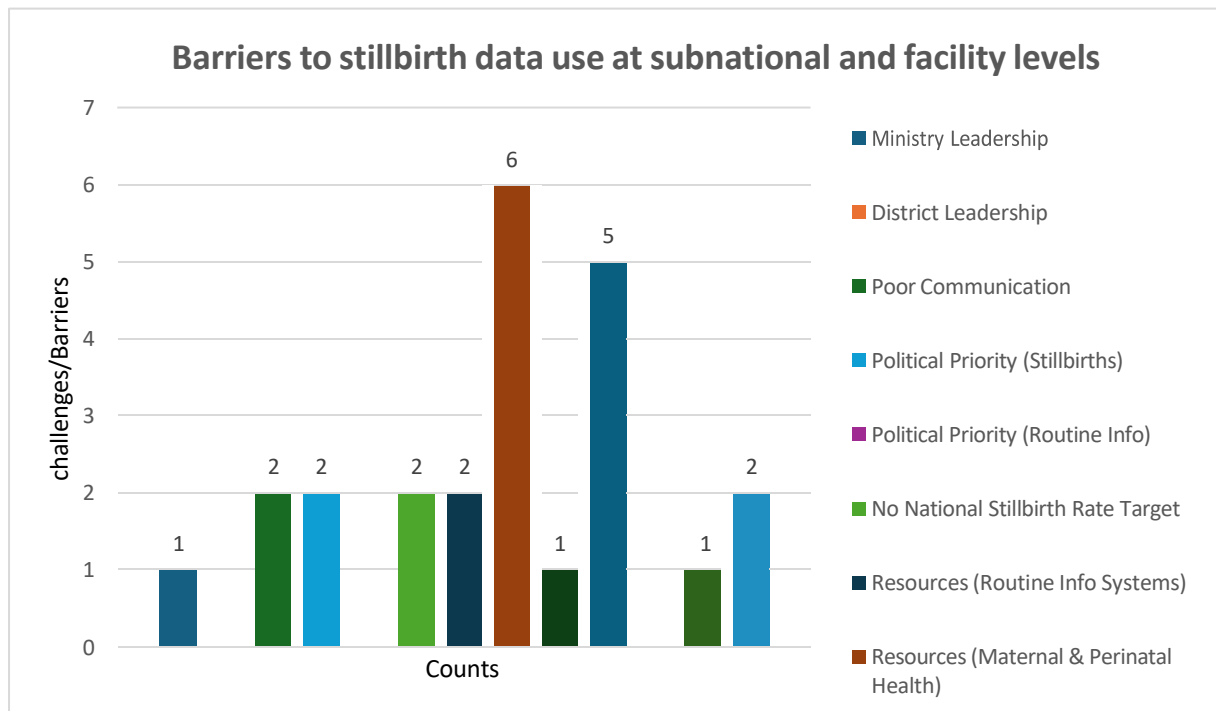


Figure 4.7: Barriers to stillbirth data use and dissemination.

The bar chart shows the proportion of countries identifying key barriers-such as lack of resources, poor communication, stigma, and fear of blame-to stillbirth data use and dissemination at subnational and facility levels.

At the subnational level, the challenges reported for the use and dissemination of stillbirth data included poor channels of communication, reported by 44% (11 of 24) of countries (Figure 4.7). Lack of resources and finances for maternal and perinatal health, including stillbirths, was noted by 63% (15 of 24) of countries. Poor infrastructure for reporting was identified by 37% (9 of 24) of countries. The capacity of managers to report, collate, and analyse stillbirth data was mentioned by 48% (12 of 24) of countries. Stigma surrounding stillbirths was reported by 8% (2 of 24) of countries, and fear of blame was cited by 15% (4 of 24) of countries.

In response to the question "If other, describe other challenges and expand on selected challenges here," additional challenges were noted. In Morocco, a lack of human resources and insufficient training for health professionals regarding stillbirth data management were identified. In Seychelles, it was reported that stillbirth data is used for policy decisions and is widely disseminated, with no perceived barriers or challenges.

Chapter 5: Discussion

5.1 Introduction

This chapter presents the study's findings on critical barriers to stillbirth monitoring and reduction in African countries, focusing on four key areas: (1) variability in stillbirth definitions, (2) policy and strategic gaps, (3) challenges in data collection practices, and (4) barriers to data use and dissemination. This study found that inconsistent stillbirth definitions undermine cross-country comparisons, policy frameworks lack stillbirth-specific targets, data collection remains fragmented, and barriers to data use limit the effectiveness of interventions. Addressing these gaps requires standardization, policy reforms, and enhanced stakeholder engagement. By contextualizing these findings within existing literature, this discussion highlights their implications for improving maternal and perinatal health outcomes across the continent.

5.2 Variability in stillbirth definitions and reporting criteria

The variability in stillbirth definitions across African countries presents a significant challenge to accurate data collection, effective intervention strategies, and regional monitoring efforts. This inconsistency stems from differences in legal frameworks, healthcare system development, and resource availability, and complicating cross-country comparisons (23,39,71). For instance, while the WHO recommends defining stillbirth as occurring at ≥ 28 weeks of gestation and weighing ≥ 1000 grams, countries such as Equatorial Guinea and Uganda have adopted different criteria, starting from 20 weeks and 26 weeks of gestation, respectively (72). Current study findings from the results chapter demonstrate that 76% of responding countries prefer the 28+ weeks gestational age criterion and 48% include the 1000g weight threshold, highlighting significant variation in adoption of these standards.

Such discrepancies significantly impact the estimation of stillbirth rates, which are important for designing targeted interventions and allocating resources effectively. Without standardised definitions, pooling of data from multiple countries becomes unreliable, leading to inconsistent statistics that undermine the formulation of evidence-

based health policies. For example, studies from Ethiopia and Tanzania highlight that stillbirths are often underreported due to inconsistent definitions and the lack of standardised data collection practices (20,73,74).

Different definitions, whereby some countries apply earlier gestational age thresholds, result in underreporting and non-comparable data across regions (41,75). This study found that only 67% of countries reported consistent national definitions for stillbirth reporting. Studies conducted in sub-Saharan Africa emphasize this disparity. A recent review indicated that while some countries adhere to WHO guidelines, others lack clarity or consensus on national stillbirth reporting definitions (1). Without unified definitions, health systems cannot reliably compare outcomes or identify trends, delaying effective interventions.

5.3 Policy and strategic gaps in stillbirth management

The findings of this study highlight important gaps in national policies and strategic frameworks for stillbirth prevention and management across African countries. While 22 countries (40%) reported having policies for stillbirth reporting, only 16 countries (29%) had incorporated stillbirth-specific targets into their national health strategies. Additionally, fewer than half of these countries have policies that mandate stillbirth reviews or classification by cause. This lack of policy standardisation and enforcement delays efforts to systematically address the stillbirth burden, delaying the collection and analysis of vital data needed to design and implement effective interventions.

By comparison, many countries still lack the mechanisms to conduct routine reviews or classify stillbirths by cause. In Ethiopia, for instance, stillbirths are often not classified due to resource constraints and limited training of healthcare providers in data collection and cause-of-death analysis (21,75). Similarly, Tanzania struggles with the absence of mandatory reporting protocols, which affects the accuracy and reliability of stillbirth data, as highlighted in a study by (20,35). These gaps not only restrict accountability but also limit the ability to identify key drivers of stillbirths and implement evidence-based strategies for prevention.

The lack of integration of stillbirth-specific targets into national health strategies is particularly concerning given the disproportionately high burden of stillbirths in sub-Saharan Africa. The region accounts for 42% of global stillbirths, and yet progress in reducing stillbirth rates remains slower than in other parts of the world (72). Effective policies, such as mandating stillbirth reviews and audits, have been shown to reduce stillbirth rates by facilitating the identification of preventable factors and improving maternal care quality. For instance, the implementation of perinatal death audits in South Africa has been associated with a reduction in intrapartum stillbirths through improved quality of care (14,56).

5.4 Challenges in data collection practices

This study found that 88% of surveyed countries collect primary stillbirth data; yet only 68% use standardised forms. The use of multiple data sources for stillbirth reporting requires intentional efforts to align data points and ensure quality checks. Many health systems rely on both paper-based and digital records, leading to inconsistencies. The lack of standardised protocols for data integration contributes to duplication, gaps, and reporting discrepancies (76,77). Countries with well-established data quality protocols have demonstrated improved comparability and usability of stillbirth statistics (71). Findings from a study in Ghana highlight key barriers to data quality, including manual data transfer errors, limited knowledge of stillbirth definitions among health workers, and challenges in integrating private sector data (1). Additionally, perinatal audits are often limited to late-gestation stillbirths, contributing to underreporting of cases (78). Without structured leadership, accountability measures, and financial investment, translating stillbirth data into actionable health policies remains a challenge.

At the subnational level, persistent challenges such as stigma, blame culture, and lack of leadership support continue to limit accurate stillbirth reporting. The cultural stigma surrounding stillbirth, particularly in LMICs, discourages open reporting and data sharing (79). This aligns with the study's findings, where only 42% of countries disseminate stillbirth reports publicly, often relying on aggregated tables rather than interactive formats, reflecting challenges in data sharing and dissemination.

67

Additionally, the study observed that 54% of countries reported no data quality assessments in the past decade, exacerbating underreporting and limiting the usability of shared data. Fear of professional repercussions within healthcare facilities further exacerbates underreporting, leading to missed opportunities for quality improvement and maternal health interventions (71,80). This study found only 67% of countries have established committees at subnational level responsible for overseeing stillbirth data use, and even fewer have mechanisms ensuring data accuracy. Weak institutional oversight and the absence of standardised quality control measures contribute to fragmented and unreliable datasets (11). Establishing multi-stakeholder review committees with clear mandates, adequate technical capacity, and sustained financial support has been shown to improve data reliability and reporting rates in some regions (81), with findings from this study in Seychelles demonstrating improved reporting accuracy following increased funding for data collection infrastructure.

5.5 Barriers to data use and dissemination

At the national level, poor communication channels, insufficient financial resources, and limited political prioritisation restrict the effective use of stillbirth data. These barriers align with broader challenges documented in the literature, emphasizing the importance of strong governance, leadership, and infrastructure for health data systems (78). For example, stillbirth data systems in low-resource settings are often delayed by lack of funding and technical expertise, leading to incomplete reporting and poor-quality data (78). Without clear communication pathways and dedicated leadership, translating stillbirth data into actionable policies remains a significant challenge.

At the subnational level, challenges such as stigma, fear of blame, and insufficient leadership support were frequently reported. The cultural stigma surrounding stillbirth, particularly in LMICs, has been well documented (79). Stigma discourages accurate reporting and delays the creation of transparent systems for analysing causes and trends. Additionally, fear of being blamed particularly within healthcare settings exacerbates these challenges, leading to underreporting and missed opportunities for quality improvement (71,79).

Data dissemination practices also pose a significant barrier. Most countries still rely on traditional aggregated data tables, with 78% of the 34 responding countries using this method, limiting stakeholder engagement and reducing the potential policy impact of stillbirth data. This aligns with the literature, which critiques static reporting formats for their inability to effectively communicate health data (Moxon et al., 2024). Studies suggest that presenting data in more visually engaging and interactive ways, such as dashboards and anonymized microdata, significantly improves stakeholder engagement and policy influence (74). Studies suggest that presenting data in more visually engaging and interactive ways, such as dashboards and anonymized microdata, significantly improves stakeholder engagement and policy influence (74). Digital health technologies, for example, have been shown to enhance maternal and child health outcomes by enabling real-time, user-friendly data visualizations (82,83).

However, administrative barriers further delays access to data. In Ghana, for instance, the lengthy processes required to access DHIMS-2 data discourage engagement from non-health sector stakeholders, limiting intersectoral collaboration (84). A global study emphasizes the need for interoperability between health information systems, such as DHIMS-2 and civil registration platforms, to facilitate data sharing and transparency (84,85). Without such structural reforms, limited access to stillbirth data continues to perpetuate fragmented policy responses across LMICs.

5.6 Implications for improving stillbirth outcomes

5.6.1 Addressing financial and capacity constraints

Financial constraints emerged as a prominent challenge in 73.5% of countries, limiting the ability of healthcare systems to provide quality care before, during, and after childbirth. This finding aligns with reports by the WHO, which emphasise that insufficient funding contributes to shortages in essential medical supplies, poorly equipped health facilities, and inadequate healthcare worker training (12). Similar evidence from studies in South Africa shows that financial barriers, including transportation costs, often delay access to maternal health services, particularly in rural and low-resource settings (60). These systemic challenges were evident in the study, where countries cited budget limitations as a key reason for poor data collection and analysis, directly impacting the accuracy and reliability of stillbirth data.

Capacity constraints, such as the lack of skilled personnel and infrastructure for data collection and analysis, further compound the issue. This finding aligns with Ajegbile's emphasis on the necessity for targeted investments in capacity-building programs to improve maternal health systems (61). Programs IMCHA have demonstrated success in closing knowledge gaps by providing training for healthcare workers and improving infrastructure (46,62). Similarly, Mburu et al. (2023) underscore that investments in training and infrastructure are essential not only for improving clinical care but also for ensuring that stillbirth data systems are robust, reliable, and actionable (86).

It is important to note that some countries, despite resource constraints, have achieved progress in stillbirth monitoring through innovative approaches and external collaborations. For instance, programs like IMCHA have demonstrated success by combining capacity-building initiatives with targeted funding (40). Additionally, countries like Rwanda and Bangladesh have made significant strides by implementing community-based health programs and leveraging international partnerships. This suggests that leadership commitment, international partnerships, and focused interventions can mitigate some resource limitations (34, 35).

5.6.2 Policy and data dissemination challenges

The study findings highlight significant gaps in stillbirth data dissemination, with most countries relying on static data tables rather than interactive and user-friendly formats, with 78% of the 34 responding countries using this approach, limiting stakeholder engagement and policy influence. This challenge is also noted in the literature, which advocates for interactive dashboards and anonymized microdata to improve data accessibility (45). For example, digital health technologies have demonstrated improvements in maternal and child health outcomes by providing real-time data in more engaging formats (87).

Definitional inconsistencies and limited national oversight further restrict the effective use of stillbirth data. Only 67% of surveyed countries reported having committees dedicated to stillbirth data quality and use, highlighting a gap in governance and accountability. This aligns with previous findings (Shorrow et al., 2022), which emphasize the importance of multi-stakeholder oversight bodies to improve data standardization and transparency (11). Comparatively, countries with strong policy frameworks and integrated health information systems, such as Seychelles, demonstrate better stillbirth outcomes due to coordinated efforts in data use and policy implementation. These success stories offer valuable models for other African nations seeking to strengthen data-driven decision-making.

5.6.2 The role of political commitment and collaboration

The findings emphasize that improving stillbirth outcomes requires increased political commitment and resource allocation. Without sufficient government prioritisation, as seen in underfunded maternal health programs in sub-Saharan Africa, progress toward reducing stillbirth rates remains slow (1). A study in Uganda found that national-level stakeholders identified weak leadership and lack of accountability as major challenges delaying the implementation of stillbirth reduction interventions (88). Furthermore, strong leadership and accountability have been shown to improve perinatal outcomes, as demonstrated by efforts in Zimbabwe where targeted interventions and oversight led to

reductions in fresh full-term intrapartum stillbirths (35). These findings highlight the critical role of political will, governance, and resource allocation in stillbirth prevention (35). Additionally, fostering cross-country collaboration can accelerate progress by enabling nations to share best practices and lessons learned. Strengthening coordination between government agencies, donors, and health workers is key to sustaining stillbirth reduction efforts (88).

Chapter 6: Conclusions, strengths and limitations, and recommendations

6.1 Conclusions

This study highlights significant variability in stillbirth data systems across 55 African countries, with 76% using a ≥ 28 -week gestational age threshold and 48% a ≥ 1000 -gram criterion. Policy gaps, including 47% of countries lacking stillbirth classification mandates and 54% without recent data quality assessments, underscore the need for standardized definitions and robust health information systems. These findings highlight opportunities for policy harmonization to improve maternal and newborn health outcomes.

6.2 Strengths and Limitations

Strengths: The study's collaboration with Africa CDC and UNICEF enabled access to 34 respondents across 55 African Union member states, providing a broad regional perspective. The quantitative survey design captured detailed insights into stillbirth definitions, policies, and practices, contributing novel evidence to the field.

Limitations: Relying on a single respondent per country to represent national practices may oversimplify complex health systems, potentially misrepresenting facility- or community-level data. Incomplete responses (e.g., 26 respondents for data collection practices) and non-response (21 countries) limited the study's comprehensiveness. The absence of a mixed-methods approach, such as key informant interviews, restricted in-depth exploration of contextual barriers. Future studies should incorporate multi-level respondents and qualitative methods to enhance validity.

6.3 Recommendations

1. **Ministries of Health:** Adopt WHO-aligned stillbirth definitions (≥ 28 weeks for international reporting) by 2027, supported by training programs for healthcare workers to standardize reporting (based on 76% of countries using this threshold,

Chapter 4).

2. **Africa CDC:** Develop regional protocols for stillbirth data quality assessments by 2026, addressing the 54% of countries lacking such mechanisms (Chapter 4).
3. **National Governments:** Integrate stillbirth reduction targets into national health strategies by 2028, allocating budgets for digital health platforms like DHIS2 (based on 57% of countries with targets, Chapter 4).
4. **Research Community:** Conduct mixed-methods studies, including key informant interviews with facility- and community-level stakeholders, to explore barriers like stigma and infrastructure (supported by 53% reporting inadequate capacity, Chapter 4).

These recommendations are actionable, target-specific stakeholders, and are grounded in the study's findings, aiming to enhance stillbirth data systems and reduce preventable deaths.

7. References

1. Mensah Abrampah NA, Okwaraji YB, Oteng KF, Asiedu EK, Larsen-Reindorf R, Blencowe H, et al. District health management and stillbirth recording and reporting: a qualitative study in the Ashanti Region of Ghana. *BMC Pregnancy Childbirth* [Internet]. 2024;24(1):1–13. Available from: <https://doi.org/10.1186/s12884-024-06272-x>
2. World Health Organization (WHO). Stillbirth rate Data by WHO Region [Internet]. 2023. Available from: <https://apps.who.int/gho/data/view.main-afro.STILLBIRTHGWHOREGIONv7?lang=en>
3. World Health Organization (WHO). Civil Registration and Vital Statistics (CRVS) [Internet]. 2021 [cited 2024 Jan 22]. Available from: [https://www.who.int/data/data-collection-tools/civil-registration-and-vital-statistics-\(crvs\)](https://www.who.int/data/data-collection-tools/civil-registration-and-vital-statistics-(crvs))
4. Gurung R, Litorp H, Berkelhamer S, Zhou H, Tinkari BS, Paudel P, et al. The burden of misclassification of antepartum stillbirth in Nepal. *BMJ Glob Heal*. 2019;4(6):1–8.
5. Ashish KC, Berkelhamer S, Gurung R, Hong Z, Wang H, Sunny AK, et al. The burden of and factors associated with misclassification of intrapartum stillbirth: Evidence from a large scale multicentric observational study. *Acta Obstet Gynecol Scand*. 2020;99(3):303–11.
6. Patterson JK, Aziz A, Bauserman MS, McClure EM, Goldenberg RL, Bose CL. Challenges in classification and assignment of causes of stillbirths in low- and lower middle-income countries. *Semin Perinatol*. 2019;43(5):308–14.
7. Salo SS, Ukumo EY, Teshale MY. Factors associated with essential newborn care practice among obstetric care providers in public hospitals in Gamo, Gofa, and Wolayta zones, southern Ethiopia: A facility-based cross-sectional study, 2022. *PLoS One* [Internet]. 2024;19(12):1–17. Available from: <http://dx.doi.org/10.1371/journal.pone.0314767>
8. data.unicef. Neonatal mortality [Internet]. 2024 [cited 2024 Dec 30]. Available from: <https://data.unicef.org/topic/child-survival/neonatal-mortality/>
9. Hug L, You D, Blencowe H, Mishra A, Wang Z, Fix MJ, et al. Global, regional, and

- national estimates and trends in stillbirths from 2000 to 2019: a systematic assessment. *Lancet* [Internet]. 2021;398(10302):772–85. Available from: [http://dx.doi.org/10.1016/S0140-6736\(21\)01112-0](http://dx.doi.org/10.1016/S0140-6736(21)01112-0)
10. Lawn JE, Blencowe H, Waiswa P, Amouzou A, Mathers C, Hogan D, et al. Stillbirths: Rates, risk factors, and acceleration towards 2030. *Lancet*. 2016;387(10018):587–603.
 11. Sharrow D, Hug L, You D, Alkema L, Black R, Cousens S, et al. Global, regional, and national trends in under-5 mortality between 1990 and 2019 with scenario-based projections until 2030: a systematic analysis by the UN Inter-agency Group for Child Mortality Estimation. *Lancet Glob Heal* [Internet]. 2022;10(2):e195–206. Available from: [http://dx.doi.org/10.1016/S2214-109X\(21\)00515-5](http://dx.doi.org/10.1016/S2214-109X(21)00515-5)
 12. WHO/UNICEF. Every Newborn: An Action Plan to End Preventable Deaths. Geneva: World Health Organization; 2014. Available from: <https://www.who.int/publications/i/item/9789241507448>.
 13. Kuruvilla S, Bustreo F, Kuo T, Mishra CK, Taylor K, Fogstad H, et al. The Global strategy for women’s, children’s and adolescents’ health (2016-2030): A roadmap based on evidence and country experience. *Bull World Health Organ*. 2016 May 1;94(5):398–400.
 14. Kinney M V., Cocoman O, Dickson KE, Daelmans B, Zaka N, Rhoda NR, et al. Implementation of the every Newborn Action Plan: Progress and lessons learned. *Semin Perinatol* [Internet]. 2015;39(5):326–37. Available from: <http://dx.doi.org/10.1053/j.semperi.2015.06.004>
 15. Lawn JE, Blencowe H, Pattinson R, Cousens S, Kumar R, Ibiebele I, et al. Stillbirths: Where? When? Why? How to make the data count? *Lancet* [Internet]. 2011;377(9775):1448–63. Available from: [http://dx.doi.org/10.1016/S0140-6736\(10\)62187-3](http://dx.doi.org/10.1016/S0140-6736(10)62187-3)
 16. UN Inter-Agency Group for Child Mortality Estimation (UN-IGME). A Neglected Tragedy: The Global Burden of Stillbirths. New York: UNICEF; 2020. Available from: <https://data.unicef.org/resources/a-neglected-tragedy-stillbirth-estimates-report/>.

17. World Health Organization. Monitoring the Building Blocks of Health Systems: A Handbook of Indicators and Their Measurement Strategies. Geneva: WHO; 2010. Available from:
https://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf.
18. Yuan B, Jian W, He L, Wang B, Balabanova D. The role of health system governance in strengthening the rural health insurance system in China. *Int J Equity Health*. 2017;16(1):1–20.
19. Blencowe H, Cousens S, Chou D, et al. Stillbirths: Where? When? Why? How to Make the Data Count? *Lancet*. 2024;377(9775):1448–63. doi:10.1016/S0140-6736(10)62187-3.
20. Blencowe H, Bottecchia M, Kwesiga D, Akuze J, Moinuddin Haider M, Galiwango E, et al. Stillbirth outcome capture and classification in population-based surveys: EN-INDEPTH study. 2020 [cited 2021 Jun 22]; Available from:
<https://doi.org/10.1186/s12963-020-00239-8>
21. Tesema GA, Tessema ZT, Tamirat KS, Teshale AB. Prevalence of stillbirth and its associated factors in East Africa: generalized linear mixed modeling. *BMC Pregnancy Childbirth*. 2021 Dec 1;21(1).
22. Hug L, Lee S, Liu Y, Mishra A, Sharrow D, You D. London School of Hygiene & Tropical Medicine Trevor Croft. Demogr Heal Surv Program, ICF. 2020;
23. Peven K, Day LT, Ruysen H, Tahsina T, Kc A, Shabani J, et al. Stillbirths including intrapartum timing: EN-BIRTH multi-country validation study. *BMC Pregnancy Childbirth*. 2021 Mar 1;21.
24. Purbey A, Nambiar A, Roy Choudhury D, Vennam T, Balani K, Agnihotri SB. Stillbirth rates and its spatial patterns in India: an exploration of HMIS data. *Lancet Reg Heal - Southeast Asia* [Internet]. 2023;9:100116. Available from:
<https://doi.org/10.1016/j.lansea.2022.100116>
25. Aminu M, Bar-Zeev S, White S, Mathai M, Van Den Broek N. Understanding cause of stillbirth: A prospective observational multi-country study from sub-Saharan Africa. *BMC Pregnancy Childbirth*. 2019 Dec 4;19(1).
26. Atkins B, Siassakos D, Aggarwal N. Editorial: Stillbirths in low-middle income

- countries: challenges & experiences. Vol. 4, *Frontiers in Global Women's Health*. 2023.
27. Hlongwane TM, Botha T, Nkosi BS, Pattinson RC. Preventing antenatal stillbirths: An innovative approach for primary health care. *South African Fam Pract*. 2022;64(1).
 28. de Graaff EC, Leisher SH, Blencowe H, Lawford H, Cassidy J, Cassidy PR, et al. Ending preventable stillbirths and improving bereavement care: a scorecard for high- and upper-middle income countries. *BMC Pregnancy Childbirth*. 2023 Dec 1;23(1).
 29. Blencowe H, Hug L, Moller AB, You D, Moran AC. Definitions, terminology and standards for reporting of births and deaths in the perinatal period: International Classification of Diseases (ICD-11). *Int J Gynecol Obstet*. 2024;(August 2024):1–9.
 30. Tan KH, Dai F, Ng MJ, Tan PL, Yeo SH, Chern B. Epidemiology of stillbirths based on different gestational thresholds at a tertiary hospital. *Singapore Med J*. 2022 Jun 1;63(6):307–12.
 31. World Health Organization. International Classification of Diseases (ICD-11). [Internet]. 2023 [cited 2025 Jan 2]. Available from: <https://www.who.int/standards/classifications/classification-of-diseases>
 32. Hug L, Liu Y, Sharrow D, You D, Cao B, Moran A, et al. The situation of stillbirth around the globe. 2022.
 33. Preventable E. by 2030 NEWBORN DEATHS and STILLBIRTHS HOW WE ACT NOW WILL DETERMINE THE COURSE. 2020;(July).
 34. Acosta E, Hug L, Cruz-Castanheira H, Sharrow D, da Silva JHM, You D. Changes in stillbirths and child and youth mortality in 2020 and 2021 during the COVID-19 pandemic. *Int J Epidemiol*. 2024;53(3).
 35. Mukherjee A, Di Stefano L, Blencowe H, Mee P. Determinants of stillbirths in sub-Saharan Africa: A systematic review. Vol. 131, *BJOG: An International Journal of Obstetrics and Gynaecology*. 2024.
 36. AbouZahr C, De Savigny D, Mikkelsen L, Setel PW, Lozano R, Nichols E, et al. Civil registration and vital statistics: Progress in the data revolution for counting and accountability. *Lancet* [Internet]. 2015;386(10001):1373–85. Available from:

[http://dx.doi.org/10.1016/S0140-6736\(15\)60173-8](http://dx.doi.org/10.1016/S0140-6736(15)60173-8)

37. Syed U, Kinney M V., Pestvenidze E, Vandy AO, Slowing K, Kayita J, et al. Advancing maternal and perinatal health in low- and middle-income countries: A multi-country review of policies and programmes. Vol. 3, *Frontiers in Global Women's Health*. 2022.
38. Kasa GA, Woldemariam AY, Adella A, Alemu B. The factors associated with stillbirths among sub-saharan African deliveries: a systematic review and meta-analysis. *BMC Pregnancy Childbirth* [Internet]. 2023;23(1):1–18. Available from: <https://doi.org/10.1186/s12884-023-06148-6>
39. Aminu M, Van Den Broek N. Stillbirth in low-and middle-income countries: Addressing the “silent epidemic.” *Int Health*. 2019;11(4):237–9.
40. Waiswa AJ, Ngatia B, Amare SY, Wanduru P, ... Unlocking the transformative potential of data science in improving maternal, newborn and child health in Africa: A scoping review protocol. *medRxiv* [Internet]. 2024;(December). Available from: <https://www.medrxiv.org/content/10.1101/2024.07.31.24311286.abstract%0Ahttps://www.medrxiv.org/content/medrxiv/early/2024/08/01/2024.07.31.24311286.full.pdf>
41. Holschneider S, Morgan A. Improving Monitoring Data Systems to Count and Account for Stillbirths. *Improving Monitoring Data Systems to Count and Account for Stillbirths*. 2022.
42. NDoH-2024-Health-Research-Guidelines-3rdEdition-v0.1.
43. Qian J, Wang W, Sun S, Wu M, Liu L, Sun Y, et al. Exploring interactions between women who have experienced pregnancy loss and obstetric nursing staff: a descriptive qualitative study in China. *BMC Pregnancy Childbirth* [Internet]. 2022;22(1):1–11. Available from: <https://doi.org/10.1186/s12884-022-04787-9>
44. Petrites AD, Mullan P, Spangenberg K, Gold KJ. You have no Choice but to go on: How Physicians and Midwives in Ghana Cope with High Rates of Perinatal Death. *Matern Child Health J*. 2016;20(7):1448–55.
45. Moxon SG, B SS, Penn-Kekana L, Sharma S, Talbott J, Campbell OMR, et al. Evolving narratives on signal functions for monitoring maternal and newborn health

- services: A meta-narrative inspired review. *Soc Sci Med* [Internet]. 2024;352(October 2023):116980. Available from: <https://doi.org/10.1016/j.socscimed.2024.116980>
46. Gwacham-Anisiobi U, Boo YY, Oladimeji A, Kurinczuk JJ, Roberts N, Opondo C, et al. Effects of community-based interventions for stillbirths in sub-Saharan Africa: a systematic review and meta-analysis. *eClinicalMedicine* [Internet]. 2024;67:102386. Available from: <https://doi.org/10.1016/j.eclinm.2023.102386>
 47. Kwesiga D, Tawiah C, Imam MA, Tesega AK, Nareeba T, Enuameh YAK, et al. Barriers and enablers to reporting pregnancy and adverse pregnancy outcomes in population-based surveys: EN-INDEPTH study. *Popul Health Metr* [Internet]. 2021;19(Suppl 1):1–14. Available from: <http://dx.doi.org/10.1186/s12963-020-00228-x>
 48. Kanmiki EW, Bawah AA, Phillips JF, Awoonor-Williams JK, Kachur SP, Asuming PO, et al. Out-of-pocket payment for primary healthcare in the era of national health insurance: Evidence from northern Ghana. *PLoS One*. 2019;14(8):1–11.
 49. Scott J, Waring J, Abuosi AA, Agada-Amade YA, Bashar JM, De Brún A, et al. International research priorities for integrated care and cross-boundary working: an electronic Delphi study. *Int J Qual Heal care J Int Soc Qual Heal Care* [Internet]. 2024;36(4). Available from: <https://doi.org/https://doi.org/10.1093/intqhc/mzae095>
 50. Adair T, Li H. registration using DHS and MICS survey data. 2024;1–18.
 51. Dehnavieh R, Haghdoust AA, Khosravi A, Hoseinabadi F, Rahimi H, Poursheikhali A, et al. The District Health Information System (DHIS2): A literature review and meta-synthesis of its strengths and operational challenges based on the experiences of 11 countries. *Heal Inf Manag J*. 2019;48(2):62–75.
 52. Goldenberg RL, McClure EM, Bhutta ZA, Belizán JM, Reddy UM, Rubens CE, et al. Stillbirths: The vision for 2020. *Lancet*. 2011;377(9779):1798–805.
 53. WHO/UNICEF. Every Newborn Progress 2019. World Health Organization and the United Nations Children’s Fund (UNICEF). 2020. Licence: CC BY-NC-SA 3.0 IGO.
 54. Hossain AD, Nakalule M, Venkataraman S, Guillaume Y, Mohareb AM, Wandera DN, et al. Revisiting the role of civil society in responses to infectious disease outbreaks: A proposed framework and lessons from a COVID-19 vaccine equity coalition in

- Uganda. *BMJ Glob Heal*. 2023;8(6):1–5.
55. Cousens S, Blencowe H, Stanton C, Chou D, Ahmed S, Steinhardt L, et al. National, regional, and worldwide estimates of stillbirth rates in 2009 with trends since 1995: A systematic analysis. *Lancet* [Internet]. 2011;377(9774):1319–30. Available from: [http://dx.doi.org/10.1016/S0140-6736\(10\)62310-0](http://dx.doi.org/10.1016/S0140-6736(10)62310-0)
56. Kinney M V., George AS, Rhoda NR, Pattinson RC, Bergh AM. From Pre-Implementation to Institutionalization: Lessons From Sustaining a Perinatal Audit

- Program in South Africa. *Glob Heal Sci Pract*. 2023;11(2):1–17.
57. AlignMNH Opening Forum. Maternal and newborn health in low- and middle-income countries: A brief assessment of mortality, coverage and policies Prepared. Countdown to 2030 Women's, Child Adolesc Heal. 2021;(April):20–1.
 58. Africa W report | W| RO for. Africa's advances in maternal, infant mortality face setbacks [Internet]. [cited 2024 Jun 2]. Available from: <https://www.afro.who.int/news/africas-advances-maternal-infant-mortality-face-setbacks-who-report>
 59. Decorby-Watson K, Mensah G, Bergeron K, Abdi S, Rempel B, Manson H. Effectiveness of capacity building interventions relevant to public health practice: A systematic review. *BMC Public Health*. 2018;18(1):1–15.
 60. Tsawe M, Susuman AS. Determinants of access to and use of maternal health care services in the Eastern Cape, South Africa: A quantitative and qualitative investigation. *BMC Res Notes*. 2014;7(1):1–10.
 61. Ajegbile ML. Closing the gap in maternal health access and quality through targeted investments in low-resource settings. *J Glob Heal Reports*. 2023;7:1–5.
 62. APHRC. Strategies to Overcome Gender-Based Constraints Impacting Community Health Worker Performance. 2020;1–4.
 63. Pérez-Guerrero EE, Guillén-Medina MR, Márquez-Sandoval F, Vera-Cruz JM, Gallegos-Arreola MP, Rico-Méndez MA, et al. Methodological and Statistical Considerations for Cross-Sectional, Case–Control, and Cohort Studies. *J Clin Med*. 2024;13(14):1–14.
 64. Capili BB. Cross-Sectional Studies. 2021;121(10):59–62.
 65. Story WT, LeBan K, Altobelli LC, Gebrian B, Hossain J, Lewis J, et al. Institutionalizing community-focused maternal, newborn, and child health strategies to strengthen health systems: A new framework for the Sustainable Development Goal era. *Global Health*. 2017;13(1):1–13.
 66. Mamuye AL, Yilma TM, Abdulwahab A, Broomhead S, Zondo P, Kyeng M, et al. Health information exchange policy and standards for digital health systems in africa:

- A systematic review. *PLOS Digit Heal* [Internet]. 2022;1(10):1–18. Available from: <http://dx.doi.org/10.1371/journal.pdig.0000118>
67. Blank RH, Burau V, Kuhlmann E. *Comparative health policy*. Bloomsbury Publishing; 2017.
 68. Fisher M, Freeman T, Mackean T, Friel S, Baum F. Universal health coverage for non-communicable diseases and health equity: lessons from Australian primary healthcare. *Int J Heal Policy Manag*. 2020;11(5):690.
 69. Ghalavand H, Shirshahi S, Rahimi A, Zarrinabadi Z, Amani F. Common data quality elements for health information systems: a systematic review. *BMC Med Inform Decis Mak*. 2024;24(1).
 70. Schoeman MI. Research Ethics Governance—An African Perspective. *Soc Sci Res Ethics Africa*. 2019;1–15.
 71. Mforteh AAA, Pisoh DW, Boten M, Andoh NE-L, Tameh TY, Mbi-Kobenge A-FE, et al. Stillbirth rate and associated factors at the Bamenda Regional hospital, North-West region, Cameroon, from 2018 to 2022: a case control study. *BMC Pregnancy Childbirth*. 2024;24(1):270.
 72. UNICEF. Stillbirths [Internet]. 2023 [cited 2024 Jan 21]. Available from: <https://www.unicef.org/stories/what-you-need-to-know-about-stillbirths>
 73. Abate M, Arefaynie M, Muche A, Molla A, Wodajo S, Temesgen K, et al. The effect of maternal age on still birth in Africa: A systematic review and meta-analysis. *Heal Sci Reports*. 2024;7(5):1–12.
 74. Kwesiga D, Malqvist M, Orach CG, Eriksson L, Blencowe H, Waiswa P. Exploring women’s interpretations of survey questions on pregnancy and pregnancy outcomes: cognitive interviews in Iganga Mayuge, Uganda. *Reprod Health* [Internet]. 2024;21(1):14. Available from: <https://doi.org/10.1186/s12978-024-01745-w>
 75. de Castro Vasconcelos AMP. When, Where and why: Do Newborns not Only Get Sick But Also Die in Sao Tome & Principe: Analysis of Causes and Risk Factors Contributing to Perinatal and Neonatal Morbidity and Mortality in A Developing Country—A Case—Control Study. Universidade NOVA de Lisboa (Portugal); 2023.

76. Frøen JF, Myhre SL, Frost MJ, Chou D, Mehl G, Say L, et al. eRegistries: Electronic registries for maternal and child health. *BMC Pregnancy Childbirth* [Internet]. 2016;16(1):1–15. Available from: <http://dx.doi.org/10.1186/s12884-016-0801-7>
77. Kabanda SM, Cengiz N, Rajaratnam K, Watson BW, Brown Q, Esterhuizen TM, et al. Data sharing and data governance in sub-Saharan Africa: Perspectives from researchers and scientists engaged in data-intensive research. *S Afr J Sci*. 2023;119(5):1–12.
78. Tshabalala K, Rispel LC. Piercing the veil on the functioning and effectiveness of district health system governance structures: perspectives from a South African province. *Heal Res Policy Syst* [Internet]. 2023;21(1):1–13. Available from: <https://doi.org/10.1186/s12961-023-01044-z>
79. Torre Monmany N, Astete JA, Ramaiah D, Suchitra J, Krauel X, Fillol M, et al. Extended Perinatal Mortality Audit in a Rural Hospital in India. *Am J Perinatol*. 2023;40(4):375–86.
80. Tyrell S, Coates E, Brown SR, Lee MJ. A systematic review of the quality of reporting of interventions in the surgical treatment of Crohn’s anal fistula: an assessment using the TIDiER and Blencowe frameworks. *Tech Coloproctol* [Internet]. 2021;25(4):359–69. Available from: <https://doi.org/10.1007/s10151-020-02359-7>
81. Corrigan T, Chisiza M, Benkenstein A. Yarik Turianskyi MULTI-STAKEHOLDER INITIATIVES: WHAT HAVE WE LEARNED? [Internet]. 2018. Available from: www.democracyinternational.com
82. Till S, Mkhize M, Farao J, Shandu LD, Muthelo L, Coleman TL, et al. Digital Health Technologies for Maternal and Child Health in Africa and Other Low- and Middle-Income Countries: Cross-disciplinary Scoping Review With Stakeholder Consultation. *J Med Internet Res* [Internet]. 2023;25:e42161. Available from: <https://www.jmir.org/2023/1/e42161>
83. Batani J, Maharaj MS. Towards data-driven models for diverging emerging technologies for maternal, neonatal and child health services in sub-Saharan Africa: a systematic review. *Glob Heal J*. 2022;6(4):183–91.

84. Odei-Lartey EO, Prah RKD, Anane EA, Danwonno H, Gyaase S, Oppong FB, et al. Utilization of the national cluster of district health information system for health service decision-making at the district, sub-district and community levels in selected districts of the Brong Ahafo region in Ghana. *BMC Health Serv Res*. 2020;20(1):1–15.
85. Torab-Miandoab A, Samad-Soltani T, Jodati A, Rezaei-Hachesu P. Interoperability of heterogeneous health information systems: a systematic literature review. *BMC Med Inform Decis Mak* [Internet]. 2023;23(1):1–13. Available from: <https://doi.org/10.1186/s12911-023-02115-5>
86. Mburu G, Kamuyango A, Kidula N, Kabra R, Thatte N, Kiarie J, et al. Fulfilment of fertility desires for the attainment of Global Sustainable Development Goals. *BMJ Glob Heal*. 2023;8(4):1–2.
87. Geldof M, Gerlach N, Portela A. Digitalization of home-based records for maternal, newborn, and child health: a scoping review. *BMC Digit Heal* [Internet]. 2023;1(1):1–15. Available from: <https://doi.org/10.1186/s44247-023-00032-1>
88. Ssegujja E, Andipatin M. National-level key stakeholders' perspectives regarding intervention progression and emerging challenges within the national stillbirth reduction response in Uganda. *PLoS One* [Internet]. 2023;18(4 APRIL):1–20. Available from: <http://dx.doi.org/10.1371/journal.pone.0285172>

8. Appendices:

Appendix 1: English Informed Consent Form and Survey

Stillbirth data recording, collection, and use in Africa

INVITATION TO CONTRIBUTE

As a focal person in maternal and child health in your country, you have been invited to participate in a survey entitled “Stillbirth data recording, collection and use in Africa” conducted collaboratively by Africa CDC, the University of Cape Town and UNICEF. Participation in this survey is voluntary, and choosing to withdraw at any point is at your discretion. This study aims to investigate current practice of stillbirth data recording, collection, and reporting in Africa. Some responses may require consultation with other resource persons within specific fields in maternal and child health. If you feel you are not in the best position to complete the survey, please kindly share it with other experts within your country. If you have any questions, please contact Simphiwe Gumede at Simphiwe.gumede@uwc.ac.za.

Background

Globally, an estimated 2 million stillbirths occur each year, 98% of which are in low- and middle-income countries, (LMIC) most of which are preventable.¹ Prevention of stillbirths requires proper understanding of contributing factors as well as the causes of death in utero, all of which could be informed through existent reporting systems either from the Ministry of Health through routine health information systems or through civil registry. However, in most of the LMICs with the highest burden of stillbirths, there is paucity of data, especially in in Africa where routine health information systems, such as District Health Information System (DHIS2) or perinatal death surveillance linked to maternal death surveillance and response (MPDSR), and Civil Registrations and Vital Statistics (CRVS) platforms, are still at initial stages of development and implementation. Initiatives, such as the African Health Observatory (AHO), established

¹ UNICEF, WHO, World Bank Group. A neglected tragedy: the global burden of stillbirths - Report of the UN inter-agency Group for Child Mortality Estimation, 2020 [Internet]. 2020. Available from: <https://data.unicef.org/resources/a-neglected-tragedy-stillbirth-estimates-report/>

to strengthen national data collation, have improved routine health data collection but still lag in providing vital information on stillbirths on the continent. There is need to understand if the current dearth of information on stillbirths is due to systems inadequacy in recording or in linking stillbirth data to other routinely collected information.

Aim of the study

This survey aims to evaluate the adequacy of existing data systems currently used in African countries to record stillbirths, identify gaps within countries, as well as regional flow of information in view of standardising, improving and strengthening stillbirth data recording, capture, and use with available systems.

Expected Outcomes:

The study within African Union member states will

- Facilitate understanding of the barriers to functional stillbirth data systems
- Provide an assessment of data systems that record stillbirths in Africa.

Target participants

This survey will target focal persons on maternal and neonatal health of the ministries of health or national public health institutes in all 55 member state of the African Union and may also require inputs from resource persons with the routine health information system.

For more information:

- University of Cape Town: Professor Salome Maswime
(salome.maswime@uct.ac.za) or Simphiwe Gumede
(simphiwe.gumede@uct.ac.za)
- UNICEF Head Quarters: Lucia Hug (childmortality@unicef.org)
- Africa CDC: Emily Barigye Atuheire: Atuheiree@africa-union.org

Consent to participate

Please complete the survey below.
Thank you!

I ([please insert your full name in the space provided])
..... have been
informed about the *study and*,

- I understand the purpose, procedures, and risk and benefits of the study.
- I have been given the opportunity to ask questions about the study and have had answers to my satisfaction.
- I understand that my participation in this study is voluntary and that I may leave the study at any time, without giving a reason.
- I understand that confidentiality, anonymity, and privacy will be respected.
- I understand that all institutions will be given pseudonyms and no identifying details will be revealed to maintain their anonymity.
- I understand that I will be given a copy of this informed consent.
- I understand that the responses that I or other focal persons provide are those of the ministry of health of my country.
- I understand that this information may be used in publications, such as reports and academic articles.
- I understand that if I have any questions or complaints about my rights as a study participant, or if I may have concerns about any aspect of the study or the researcher/s then I may contact the Chairperson of the Faculty Research Ethics Committee, Prof Blockman or Chairperson of University Research Ethics Committee, (Telephone: +27 21 406 6338).

Name and Surname of Participant

.....

Today's Date

(day/month/year)

Participant signature.....

Date:.....

Survey: Stillbirth data recording, collection, and use in Africa

- Section 1: Information about the country and the person filling out the survey
- Section 2: National policy on stillbirths
- Section 3: Stillbirth data collection in practice
- Section 4: Stillbirth data use and dissemination

Section 1: Information about the country and the person filling out the survey

Please complete the survey below.
Thank you!

1.1. Please provide the following details about yourself

- A. Please write your first name and surname
- B. What are your affiliations?
- C. Please provide the name of your country
- D. Please provide your email address (Please provide your email address)
- E. Please provide your telephone number
- F. What is your position?

1.2. Please indicate if you completed the survey in consultation with other resource person(s).

A	Yes	
B	No	

C	If yes, please add their name(s) and affiliations/institution here
---	--

1.3.A stillbirth is a baby born with no signs of life after a given threshold. Stillbirths are defined and reported inconsistently across countries. Please indicate the criteria included in the national definition of stillbirth in your country. Tick all that apply.

1.3.a Weeks of completed gestation	Tick
From 20 weeks	
From 21 weeks	
From 22 weeks	
From 23 weeks	
From 24 weeks	
From 25 weeks	
From 26 weeks	
From 27 weeks	
From 28 weeks	
Not defined by weeks	
Other	
If other, please specify	(criteria_weeks)

1.3.b Weight	Tick
500 grams	
600 grams	
700 grams	
800 grams	
900 grams	
1000 grams	
Not defined by weight	
Other	
If other, please specify	(criteria_weights)

1.4 Please provide any additional information and provide the reference of the source of this definition.

--

Section 2: National policies relating to stillbirth

2.1. Does the legal framework for the civil registration include stillbirths and/or perinatal deaths?

A	Yes	
B	No	
C	Do not know	

D	if yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za	
---	--	--

2.2. Is there a national policy, guideline or law that includes the requirement of stillbirths to be recorded* through the health system?

*(*Recorded implies written in patient records and entered into a routine health information system, which is then aggregated in the national health statistics.)*

A	Yes	
B	No	
C	Do not know	
D	if yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za	

2.3. Is there a national policy, guideline or law that requires stillbirths to be formally investigated and reviewed through a system, such as perinatal audit or Maternal and Perinatal Death Surveillance and Response?

A	Yes	
B	No	
C	Do not know	
D	if yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za	

2.4. Is there a national policy that requires the causes of stillbirths and neonatal deaths to be recorded according to a classification system of causes?

A	Yes	
B	No	
C	Do not know	

D	If yes, what classification system is proposed in the policy (e.g. International Classification of Diseases 10 th Revision)	
E	if yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za	

2.5. Does your country have a national strategic plan that incorporates stillbirths?

A	Yes	
B	No	
C	Do not know	
E	if yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za	
F	If no, please describe if there are plans to revise or update a strategic plan to incorporate stillbirths	

2.6. Has your country set a national target for reducing stillbirth rate in any national health policy or strategic plan?

A	Yes	
B	No	
C	Do not know	
D	If yes, what is the proposed national target	
E	If different from question 2.5, and yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za	

2.7. From your point of view, what are the most important gaps in policy that impede stillbirth data collection and use? Tick all that apply.

- ☐ Lack of policy on notification
- ☐ Lack of policy on stillbirth review
- ☐ Lack of policy requiring stillbirths to be recorded with classification of the causes
- ☐ Lack of national targets for stillbirth reduction
- ☐ Other

If other, please (describe)

Section 3: Stillbirth data collection in practice

Please complete the survey below.

Thank you!

3.1. Are primary data on stillbirths routinely collected through the health sector in your country? If no, skip to question 3.16

A	Yes	
B	No	
C	Do not know	
D	If yes, provide all the sources or data collection platforms	

3.2. Is there a national standard data collection form for documenting a stillbirth at facility-level? If yes, please indicate which form(s). Please note there may be more than one form.

A	Yes	
B	No	
C	Do not know	
D	If yes, please indicate which form(s).	(Please note there may be more than one form)

3.3. Please provide the number of deliveries, stillbirths*, and live births reported **through your country's routine health information system** in 2018, 2019, 2020 and 2021:

Year	Number of deliveries	Number of live births	Number of stillbirths*	Early neonatal deaths (0-6 days)
2018				
2019				
2020				
2021				

* based on national definition

3.4. Is the national definition of stillbirth used consistently across the country for reporting?

A	Yes	
B	No	
C	Do not know	
D	If no, what other definitions are used?	

3.5. Are the following data on each stillbirth routinely captured and reported through the health system in your country? Mark as Yes/No/I Do not know

	Information collected	Mark as Yes/No/I Do not know
A	Information about the mother	
B	Gestational age	
C	Birth weight	
D	Timing (antepartum, intrapartum)	
E	Gender	
F	Other	
	If other, please explain	

3.6. If you collect data on timing of stillbirth through your routine health information system, please indicate the mode of assessment. Tick all that apply

A	Clinical assessment using fetal heart sound or ultra sound (antepartum/intrapartum)	
B	Skin appearance (fresh/macerated)	
C	Other	
D	Do not know	
If other, please explain		

3.7. Who is responsible at facility-level for capturing or entering in the data related to stillbirths in the routine health information system? Tick all who apply.

A	Nurse or midwife	
B	Doctor or clinical officer	
C	Information officer/ administrative clerk	
D	Do not know	
E	Other	

If other, indicate the staff responsible

3.8. Is there a cause of death coding system does your country? If no, skip to question 3.12

A	Yes	
B	No	

3.9. If there a cause of death coding system does your country, does it include stillbirths and/or perinatal mortality? Tick all that apply Which classification system is used to assign a cause of death?

A	International of Diseases – Perinatal mortality (ICD – PM)	
B	International Classification of Diseases 10th Revision (ICD-10)	
C	International Classification of Diseases 11th Revision (ICD-11)	
D	None	
E	Do not know	
F	Other	

If other, please specify

3.10. At which level is the cause of death coding assigned (facility, subnational, national)?

A	Facility level	
B	Subnational level	
C	National level	
D	Do not know	

3.11. If a death coding system is used, who is responsible for doing the cause of death coding?

A	Nurse or midwife	
B	Doctor or clinical officer	
C	Information officer/ administrative clerk	
D	Specialist (obstetrician, paediatrician, neonatologist)	
E	Trained coding ICD specialist	
F	An automated computerized system	
G	Do not know	
H	Other	

If other, please specify

3.12. Please indicate if stillbirth data is shared between government departments (e.g. Health Management Information System (HMIS), Civil

Registration and Vital Statistics (CRVS), National Statistics Office (NSO), other). Tick all that apply.

A	HMIS shares data with CRVS	
B	HMIS shares data with other department (e.g. NSO)	
C	Do not know	
D	Other ((e.g. Health Management Information System (HMIS), Civil Registration and Vital Statistics (CRVS), National Statistics Office (NSO), other). Tick all that apply.)	

If other, provide the name of the department

3.13. Which of the following are routinely done in your country for stillbirth. Tick all that apply.

A	The issuance of medical certificates of cause of death for stillbirth	
B	Reporting of stillbirth by community health workers (CHWs) to the national statistics office, civil registration system, or equivalent bodies	
C	Reporting of stillbirth by health facility to the national statistics office, civil registration system, or equivalent bodies	
D	Sharing individual stillbirth records within the health system including between central and district/regional levels	
E	Verbal autopsy on community deaths for determining cause of death	
F	Issuance of a burial permit	

3.14. What are other data sources for stillbirth statistics in your country in addition to the routine health information system? (choose all the relevant ones)

A	Population census	
B	CRVS	

C	Household-based surveys	
D	Non-household surveys	
E	Do not know	
F	Other	

If other, please specify

3.15. Apart from government offices, do you know of any efforts to collect stillbirth statistics by other stakeholders or private sectors or NGOs in your country?

A	Yes, please list all the organizations involved	
B	No	
C	Do not know	
If yes, please list all the organizations involved		

3.16. Has your country done an assessment on the completeness and quality of stillbirth data in the routine health information system in the past 10 years?

A	Yes	
B	No	
C	Do not know	
D	If yes, please describe the completeness and quality of the routine data sources for stillbirth on a scale of 1 (low) – 5 (high)?	
E	If yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za	

3.17. From your point of view, what are the main challenges or barriers to collecting and reporting stillbirth data at the facility level? Tick all that apply.

- ☐ Lack of policy or legal frameworks requiring stillbirth reporting
- ☐ Lack of political priority for stillbirths
- ☐ Multiple reporting systems
- ☐ Poor infrastructure for reporting
- ☐ Inadequate capacity of health workers to document stillbirths
- ☐ Inadequate capacity of information managers/officers to document stillbirths
- ☐ Facility leadership/support
- ☐ Stigma of stillbirths
- ☐ Fear of blame
- ☐ Lack of data quality assurance systems to support facilities in capturing data
- ☐ Other

If other, describe other challenges and expand on selected challenges here:

3.18. From your point of view, what are the main challenges or barriers to collecting and reporting stillbirth data at the national and subnational levels via health sector? Tick all that apply.

- ☐ Inadequate leadership and support from the national Ministry of Health
- ☐ Inadequate leadership/support from district health management
- ☐ Poor channels of communication between levels to share data on stillbirth
- ☐ Lack of political priority for stillbirths
- ☐ Lack of political priority for routine health information systems
- ☐ Lack of national stillbirth rate target
- ☐ Lack of resources/finances generally for routine health information systems
- ☐ Lack of resources/finances for maternal and perinatal health, including stillbirths
- ☐ Poor infrastructure for reporting
- ☐ Capacity of national and subnational managers to report, collate and analysis stillbirth data and use data for decision making at all levels
- ☐ Stigma of stillbirths
- ☐ Other

(Please note there may be more than one answer)

If other, describe other challenges and expand on selected challenges here:

Section 4: Data use and dissemination

Please complete the survey below.

Thank you!

4.1. Do health facilities routinely have meetings to review stillbirths (e.g. perinatal reviews, MDPSR meeting)?

A	Yes	
B	No	
C	Do not know	
D	Comment:	

4.2. How is stillbirth data used at facility and/or subnational levels for decision making?

- ☐ Clinical-audit or perinatal review meetings
- ☐ Outcome indicator tracked in facility and subnational level monitoring and evaluation reports/meetings
- ☐ Outcome indicator tracked for quality improvement-related initiatives
- ☐ Other

If other, describe how stillbirth data is used

4.3. Is there a national committee, panel or technical working group that is responsible for collating, analysing, and using stillbirth data for informing policy and practice?

A	Yes	
---	-----	--

B	No	
C	Do not know	
D	If yes, please name and describe the group:	

4.4. Is there a sub-national committees, panels or technical working groups that is responsible for checking data quality, collating, analysing and using data for informing policy and practice?

A	Yes	
B	No	
C	Do not know	
D	If yes, what is the name of the group?	
E	If no, please explain if there is another mechanism to check data quality and collate data for reporting:	

4.5. Is there a national report generated which presents stillbirth data and recommendations to the Ministry of Health? Note, this report may include other data in addition to stillbirth.

A	Yes	
B	No	
C	Do not know	
D	If yes, how frequently is a report produced?	

4.6. Is there a national report published and made publicly available that includes stillbirth data and recommendations?

A	Yes	
B	No	
C	Do not know	
D	If yes, how frequently is a report published?	

E	If yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za
---	--

4.7. In what form(s) are stillbirth data disseminated to the public? Select all that apply.

A	Anonymised microdata	
B	Aggregated data tables	
C	Key messages and data stories	
D	Interactive charts	
E	Special tabulations generated for users	
F	Other	
If other, please describe		
If yes, please upload the report by clicking the upload file on the right. If you cannot upload, please email the file to simphiwe.gumede@uct.ac.za		

4.8. From your point of view, what are the main challenges or barriers to stillbirth data use and dissemination at **national level**? Tick all that apply.

- ☐ Ministry of Health leadership/support
- ☐ District leadership/support
- ☐ Poor channels of communication between levels to share data on stillbirth
- ☐ Lack of political priority for stillbirths
- ☐ Lack of political priority for routine health information systems
- ☐ Lack of national stillbirth rate target
- ☐ Lack of resources/finances generally for routine health information systems
- ☐ Lack of resources/finances for maternal and perinatal health, including stillbirths
- ☐ Poor infrastructure for reporting
- ☐ Capacity of national and subnational managers to report, collate and analysis stillbirth data and use data for decision making at all levels
- ☐ Stigma of stillbirths
- ☐ Fear of blame
- ☐ Other

If other, describe other challenges and expand on selected challenges here:

4.9. 4.9 From your point of view, what are the main challenges or barriers to stillbirth data use and dissemination at **subnational and facility levels**? Tick all that apply.

- ☐ Ministry of Health leadership/support
- ☐ District leadership/support
- ☐ Poor channels of communication between levels to share data on stillbirth
- ☐ Lack of political priority for stillbirths
- ☐ Lack of political priority for routine health information systems
- ☐ Lack of national stillbirth rate target
- ☐ Lack of resources/finances generally for routine health information systems
- ☐ Lack of resources/finances for maternal and perinatal health, including stillbirths
- ☐ Poor infrastructure for reporting
- ☐ Capacity of national and subnational managers to report, collate and analysis stillbirth data and use data for decision making at all levels
- ☐ Stigma of stillbirths
- ☐ Fear of blame
- ☐ Other

If other, describe other challenges and expand on selected challenges here:

Appendix 2: Ethics approval



FHS016: Annual Progress Report/ Renewal

HREC office use only (FWA00001637; IRB00001938)			
This serves as notification of annual approval, including any documentation described below.			
☐ Approved	Annual progress report	Approved until/next renewal date	SLOS- 'Zoe'
☐ Not approved	See attached comments		
Signature Chairperson of the HREC/ Designee	/W	Date Signed	11/4/4f

Note: Please email this form and supporting documents (if applicable) in a combined file to: hrec-enquiries@uct.ac.za.

Please use the latest form found on our website:
<http://www.health.uct.ac.za/fhs/research/humanethics/forms>

HUMAN RESEARCH

ETHICS COMMITTEE

12 JUN 20

Comments to PI from the HREC

HEALTH SCIENCES FACULTY
UNIVERSITY OF CAPE TOWN

Principal Investigator to complete the following:

1. Protocol information

Date (when submitting this form)	31 May 2024		
HREC REF Number	254/2022	Current Ethics Approval was granted until	31.05.2024
Protocol title	The improvement of stillbirth data recording, collection and reporting in Africa		
Protocol number (if applicable)	N/A		
Are there any sub-studies linked to this study?	☒ Yes ☐ No		
If yes, could you please provide the HREC Reference number for all sub-studies? Note: A separate FHS016 must be submitted for each sub-study.			
Principal Investigator	Professor Salome Maswime		
Department and email address	H53 Old Main Building, Department of Surgery, Groote Schuur Hospital Salome.maswime@uct.ac.za		



1.1 Does this protocol receive US Federal funding?	☐ Yes	X No	
1.2 If the study receives US Federal Funding, does the annual report require full committee approval? Note: Any annual approvals for Full Committee review MUST be submitted on the monthly HREC submission dates. (Please send electronic combined copy if for full committee review to hrec-submission@uct.ac.za)	☐ Yes	☐ No	
If yes in 1.2 please complete section 1.3 below for invoicing purposes			
1.3 Ethics Renewal Fee			
Please (tick ✓) appropriate box for billing purposes:			
☐ Full committee review	Description	New fee / Vat Inc/J	tick ✓
Research funded solely from UCT departmental / divisional / group budget / self-initiated research	Annual evaluation of research progress report for re-certification	R0,00	X
Non-sponsored student research for degree purposes at UCT / Other Universities & Colleges	Annual evaluation of research progress report for re-certification	R0,00	☐
Annual re-certification / Progress report (FH5016 Form)	Clinical Trial & International Grant Funded Research - Annual evaluation of research progress report for re-certification for Full Committee Approval	R7700,00	☐
Annual re-certification / Progress report (FH5016 Form)	Clinical Trial & International Grant Funded Research - Annual evaluation of research progress report for re-certification for Expedited review	R3800,00	☐
Annual re-certification / Progress report (FH5016 Form)	National grant funded research - Annual evaluation of research progress report for re-certification for Full Committee Approval	R5000,00	☐
Annual re-certification / Progress report (FH5016 Form)	National Grant funded research for Annual evaluation of research progress report for re-certification for Expedited review	R1650,00	☐
NB: Protocols funded by UCT (e.g. departmental funding / student research) and by certain grant funding organizations (e.g. MRC, NRF, CANSA) are exempt from these charges.			
Please provide details for Invoicing, either complete section 1 or 2:			
1. Invoice billing - Directly to Sponsor			
Sponsor's name			
Billing Address of Sponsor:			
Vat Number:			
Contact person			
Telephone number			



Email Address	
2. Internal Journal Billing:	
Fund Number:	
Cost Centre Number:	
Account Holder Name:	
Division of Account Holder:	

2. Protocol status (tick ✓)

☐	Open Enrolment
☐	Closed to enrolment (tick ✓)
☐	Research-related activities are ongoing
☐	Research-related activities are complete, long-term follow-up only
☒	Research-related activities are complete, data analysis only
☐	Main study is complete but sub-study research-related activities are ongoing
☐	Publication or thesis submitted and final completion?
☐	Study is closed → Please submit a Study Closure Form (FHS010)

3. Enrolment

Number of participants enrolled to date	
Number of participants enrolled, since last HREC Progress report (continuing review)	
Additional number of participants still required	None

4. Refusals

Total number of refusals (participants invited to join the study, but refused to take part)	None
---	------

5. Cumulative summary of participants

Total number of participants who provided consent	32
Number of participants determined to be ineligible (i.e. after screening)	
Number of participants currently active on the study	32
Number of participants completed study (without events leading to withdrawal)	32
Number of participants withdrawn at participants' request (i.e. changed their mind)	None
Number of participants withdrawn by PI due to toxicity or adverse events	None
Number of participants withdrawn by PI for other reasons (e.g. pregnancy, poor compliance)	None



Number of participants lost to follow-up. Please comment below on reasons for loss of follow-up.	00
Number of participants no longer taking part for reasons not listed above. Please provide reasons below:	None

6. Progress of study

Please provide a brief summary of the research to date including the overall progress and the progress since the last annual report as well as any relevant comments/issues you would like to report to the HREC:
Main part of the study which was data collection has been complete last year September 2023, when we received data from Africa CDC. We are currently writing a manuscript and thesis. We would like to extend the study for another year. Thank you.

7. Protocol violations and exceptions (tick ✓ all that apply)

☐	No prior violations or exceptions have occurred since the original approval
☒	Prior violations or exceptions have been reported since the original approval and have already been acknowledged or approved If so did these occur in the last review period - yes pls see attached
☐	Unreported minor violations that have occurred since the last review, as well as significant deviations not yet reported are attached for review

8. Amendments (tick ✓ all that apply)

☒	No Prior amendments have been made since the original approval
☐	Prior amendments have been reported since the last review and have already been approved
☐	New protocol changes/ amendments are requested as part of this continuing review (See note below)

Note: If new protocol changes are being requested in this review, please complete an amendment form (FHS006).

Specific changes in the amended protocol and consent/assent forms must be **bolded**, *italicised* or tracked and all changes must include a rationale.

9. Adverse events

9.1 Please provide below or attach a narrative summary of serious adverse events and/ or unanticipated problems since the last progress report. Please indicate changes made to the protocol and informed consent document(s) as a result (if not already reported to the HREC). Please comment on whether causality to any study procedure or intervention could be established.

NIA

9.2 Have participants received appropriate treatment/ follow-up/ referral when indicated (e.g. in the case of abnormal or incidental clinical findings, distress or anxiety)?

☐ Yes ☒ No ☐ X Not applicable

If yes, please describe:

10. Summary of Monitoring and Audit Activities (tick ✓)

10.1 Was this study monitored or audited by an external agency (e.g. SAHPRA, FDA)?

☐ Yes ☒ No ☐ X Not applicable

10.2 Did a Data and Safety Monitoring Board publish a report?

☐ Yes ☐ No ☒ X Not applicable

10.3 If yes, please identify the agency and attach a summary of the findings.

Agency Name	Report attached	☐ Yes	☐ No	☐ Not applicable
	DSMB report attached	☐ Yes	☐ No	☐ Not applicable

10.4 Has there been any agency, institutional or other inquiry into non-compliance in this study, or any finding of non-compliance concerning a member of the research team?

☐ Yes ☒ No

If yes, please explain:

11. Level of risk (tick ✓)

11.1 In light of your experience of this research, please indicate whether the level of risk to participants has:

☐ Increased

☒ Decreased



☒	Shown no change
If there has been a change, please explain:	

11.2 Please provide a narrative summary of recent relevant literature that may have a bearing on the level of risk.
N/A

12. Insurance

Please confirm that valid no fault insurance is still in place? (tick✓)			
D Yes		XNo	
If yes, please complete the following:			
Insurer's name:			
Policy no.		*Coverage Period:	
For UCT sponsored studies please liaise the Insurance office via fhs.sponsorship@uct.ac.za regarding the required documentation and information required obtain a renewed UCT No-fault Insurance Certificate.			

13. Statement of conflict of interest

Has there been any change in the conflict of interest status of this protocol since the original approval? (tick✓)	
D Yes	ID No
If yes, please explain and if necessary, attach a revised conflict of interest statement (Section #7 in the New Protocol Application Form FHS013):	

14. Signature

My required signature certifies that the above is complete and correct.			
Signature of PI		Date	12 th June 2024

Appendix 3: Table 4.1

<i>Table 4.1: Trends in birth outcomes and associated metrics by country and year</i>					
(2018 - 2021)	Metric	2018	2019	2020	2021
Algerie	Deliveries	836,286	832,875	846,73	N/A
	Live births	832,875	832,875	834,275	N/A
	Stillbirths	9,402	N/A	9,344	N/A
	Early neonatal deaths	7,135	7,305	7,538	N/A
	Stillbirth rate (%)	1.1%	N/A	1.1%	N/A
	Early neonatal mortality rate	0.9%	0.9%	0.9%	N/A
Angola	Deliveries	759,084	761,766	751,098	810,893
	Live births	755,33	761,766	755,805	852,081
	Stillbirths	15,33	N/A	16,681	44,981
	Early neonatal deaths	4,262	0	4,243	17,844
	Stillbirth rate (%)	2.0%	N/A	2.2%	5.3%
	Early neonatal mortality rate	0.6%	0.0%	0.6%	2.1%
Burkina Faso	Deliveries	549,898	542,156	535,41	540,2
	Live births	540,298	533,564	526,993	531,785
	Stillbirths	9,6	8,5	8,6	8,415
	Early neonatal deaths	2,5	2,3	2,4	2,45
	Stillbirth rate (%)	1.8%	1.6%	1.7%	1.6%
	Early neonatal mortality rate	0.5%	0.4%	0.5%	0.5%
Congo	Deliveries	121	125,5	130	135
	Live births	118,5	122	127,5	132
	Stillbirths	2,5	3,5	2,5	3
	Early neonatal deaths	1,2	1,5	1,6	1,8
	Stillbirth rate (%)	2.1%	2.8%	2.0%	2.2%
	Early neonatal mortality rate	1.0%	1.2%	1.3%	1.4%
DRC (Democratic Republic of Congo)	Deliveries	5,100,000	5,200,000	5,300,000	5,400,000
	Live births	5,000,000	5,100,000	5,150,000	5,200,000
	Stillbirths	100	110	120	125
	Early neonatal deaths	50	60	70	75
	Stillbirth rate (%)	2.0%	2.1%	2.3%	2.3%
	Early neonatal mortality rate	1.0%	1.1%	1.3%	1.4%
Ethiopia	Deliveries	2,500,000	2,550,000	2,600,000	2,700,000
	Live births	2,400,000	2,450,000	2,500,000	2,600,000
	Stillbirths	50	55	60	65
	Early neonatal deaths	20	22	23	25
	Stillbirth rate (%)	2.0%	2.1%	2.3%	2.4%
	Early neonatal mortality rate	0.8%	0.9%	0.9%	1.0%

Ecuatorial Guinea	Deliveries	16,5	17	18	19
	Live births	16	16,5	17,5	18
	Stillbirths	500	600	600	700
	Early neonatal deaths	200	250	300	350
	Stillbirth rate (%)	3.0%	3.5%	3.4%	3.7%
	Early neonatal mortality rate	1.2%	1.5%	1.7%	1.9%
Kenya	Deliveries	1,000,00	1,050,00	1,100,00	1,150,00
	Live births	980	1,020,00	1,050,00	1,100,00
	Stillbirths	20	25	28	30
	Early neonatal deaths	10	12	15	18
	Stillbirth rate (%)	2.0%	2.4%	2.5%	2.6%
	Early neonatal mortality rate	1.0%	1.1%	1.3%	1.5%
Lesotho	Deliveries	16	17	18	18,5
	Live births	15,5	16,5	17	17,5
	Stillbirths	500	600	700	800
	Early neonatal deaths	150	180	200	220
	Stillbirth rate (%)	3.0%	3.5%	3.9%	4.2%
	Early neonatal mortality rate	1.0%	1.1%	1.2%	1.3%
Liberia	Deliveries	45	46	48	49
	Live births	44	45	47	48,5
	Stillbirths	1	1,2	1,5	1,7
	Early neonatal deaths	400	500	600	700
	Stillbirth rate (%)	2.2%	2.6%	3.1%	3.4%
	Early neonatal mortality rate	0.9%	1.1%	1.3%	1.4%
Madagascar	Deliveries	450	460	470	480
	Live births	440	450	460	470
	Stillbirths	10	12	13	15
	Early neonatal deaths	5	6	7	8
	Stillbirth rate (%)	2.2%	2.6%	2.8%	3.1%
	Early neonatal mortality rate	1.1%	1.3%	1.5%	1.7%
Malawi	Deliveries	240	250	260	270
	Live births	230	240	250	260
	Stillbirths	5	6	7	8
	Early neonatal deaths	2	2,5	3	3,5
	Stillbirth rate (%)	2.1%	2.4%	2.7%	2.9%
	Early neonatal mortality rate	0.9%	1.0%	1.2%	1.3%

Morocco	Deliveries	500	510	520	530
	Live births	490	500	510	520
	Stillbirths	10	11	12	13
	Early neonatal deaths	3,5	4	4,5	5
	Stillbirth rate (%)	2.0%	2.2%	2.3%	2.5%
	Early neonatal mortality rate	0.7%	0.8%	0.9%	1.0%
Namibia	Deliveries	36,32	35,542	37	–
	Live births	35,455	34,894	35,73	–
	Stillbirths	1,225	1,129	1,27	–
	Early neonatal deaths	265	210	245	–
	Stillbirth rate (%)	3.4%	3.2%	3.4%	–
	Early neonatal mortality rate	0.7%	0.6%	0.7%	–
Nigeria	Deliveries	5,230,00	5,350,00	5,400,00	5,500,00
	Live births	5,120,00	5,230,00	5,280,00	5,400,00
	Stillbirths	100	120	130	150
	Early neonatal deaths	60	70	75	80
	Stillbirth rate (%)	1.9%	2.2%	2.4%	2.7%
	Early neonatal	1.2%	1.3%	1.4%	1.5%
	mortality rate				
Sierra Leone	Deliveries	80	82	85	88
	Live births	77	79	82	85
	Stillbirths	3	3	3,5	3
	Early neonatal deaths	1,5	1,6	1,7	1,8
	Stillbirth rate (%)	3.8%	3.7%	4.1%	3.4%
	Early neonatal mortality rate	1.9%	2.0%	2.1%	2.0%
South Sudan	Deliveries	18	20	25	28
	Live births	17,5	19,2	24	27,5
	Stillbirths	500	800	1	1
	Early neonatal deaths	200	250	300	350
	Stillbirth rate (%)	2.8%	4.0%	4.0%	3.6%
	Early neonatal mortality rate	1.1%	1.3%	1.2%	1.3%
Togo	Deliveries	43	45	48	50
	Live births	42,5	44,2	47	49,5
	Stillbirths	500	800	1	1,5
	Early neonatal deaths	100	150	200	300
	Stillbirth rate (%)	1.2%	1.8%	2.1%	3.0%
	Early neonatal mortality rate	0.2%	0.3%	0.4%	0.6%
Zambia	Deliveries	120	130	140	145
	Live births	118	128	137	142
	Stillbirths	2	2,5	3	3,5
	Early neonatal deaths	400	500	600	700
	Stillbirth rate (%)	1.7%	1.9%	2.1%	2.4%

	Early neonatal mortality rate	0.3%	0.4%	0.4%	0.5%
Zimbabwe	Deliveries	300	310	315	320
	Live births	295	305	310	315
	Stillbirths	5	5,5	6	6,5
	Early neonatal deaths	1	1,2	1,5	1,7
	Stillbirth rate (%)	1.7%	1.8%	1.9%	2.0%
	Early neonatal mortality rate	0.3%	0.4%	0.5%	0.6%