

Understanding the Problem of Maternal and Perinatal Deaths in Uganda

Key messages

Maternal Deaths

- The Institutional Maternal mortality ratio (IMMR) in Uganda declined from 93 to 86 deaths per 100,000 live births between FY 2020/21 and 2023/24, but remains above the SDG target of less than 70 deaths
- Regional disparities persist, with Kampala consistently reporting over 100 deaths per 100,000 live births and significant underreporting of maternal deaths
- Direct causes of maternal deaths primarily include puerperal sepsis (30.9%) and obstetric hemorrhage (21.6%), while indirect factors like HIV/AIDS and lack of antenatal care are significant predictors

Perinatal Deaths

- The institutional perinatal mortality rate declined from 20 to 17 per 1,000 total births between FY 2020/21 and 2023/24, with regional improvements noted, particularly in Bukedi
- Kampala, Bunyoro and Acholi regions continued to perform poorly for perinatal mortality
- Perinatal deaths are influenced by low birth weight and inadequate antenatal care, with major causes being neonatal sepsis (71.4%) and respiratory distress syndrome

Where did this Rapid Response come from?

This document was created in response to a specific question from a policy maker in Uganda.

It was prepared by the Center for Rapid Evidence Synthesis (ACRES), at the Uganda country node of the Regional East African Community Health (REACH) Policy Initiative

+ Included:

- **Key findings** from research
- **Considerations about the relevance** of this research for policy decisions in Uganda

✗ Not included:

- Recommendations
- Detailed descriptions



Short summary

Background: Maternal and perinatal mortality in Uganda remains a significant public health issue despite various healthcare interventions. Maternal mortality is defined as the death of a woman during pregnancy or within 42 days of its termination due to related causes, while perinatal mortality includes fetal deaths from 28 weeks of gestation to seven days after birth. Although maternal mortality has decreased from 336 to 189 deaths per 100,000 live births between 2016 and 2022, this rate still falls short of the Sustainable Development Goal target of fewer than 70 deaths by 2030. Perinatal mortality also remains high, with rates of 38 per 1,000 births, significantly above the World Health Organization's target of less than 12. In response, Uganda has implemented several health interventions, including maternal audits and increased antenatal care, yet the country continues to face challenges in achieving acceptable mortality rates. The Ministry of Health aims to better understand the stagnant rates of maternal and perinatal deaths to inform effective interventions.

Rapid Response Question: Understanding the problem of increasing maternal and perinatal deaths in Uganda by synthesizing the literature and analyzing data on current trends

Findings: The analysis of maternal and perinatal deaths in Uganda from the financial year 2020/21 to 2023/24 reveals a declining institutional maternal mortality rate (IMMR), which fell from 93 to 86 deaths per 100,000 live births, although this remains above the Sustainable Development Goal target of less than 70. Regional disparities persist, with Kampala consistently reporting over 100 deaths per 100,000 live births and significant underreporting of maternal deaths. Institutional perinatal mortality also decreased from 20 to 17 per 1,000 total births, with regional improvements noted, particularly in Bukedi, while Kampala, Bunyoro, and Acholi regions continued to perform poorly. Direct causes of maternal deaths primarily include puerperal sepsis and obstetric hemorrhage, with indirect factors like HIV/AIDS and lack of antenatal care being significant predictors. Perinatal deaths are influenced by factors such as low birth weight and inadequate antenatal care, with conditions like neonatal sepsis and respiratory distress syndrome being major causes.

Conclusion: While Uganda has made some progress in reducing maternal and perinatal mortality rates, significant challenges remain that hinder the achievement of international health targets. The persistent high rates of maternal and perinatal deaths, particularly in certain regions, underscore the critical need for targeted interventions and improved healthcare access. Addressing the underlying factors contributing to these deaths, such as inadequate antenatal care and regional disparities, is essential for enhancing maternal and newborn health outcomes. The Ministry of Health's commitment to analyzing data and understanding these trends is vital for developing effective strategies that can ultimately save lives and improve the overall health of mothers and infants in Uganda.

Background

Maternal and perinatal mortality remains a significant public health challenge in Uganda despite implementing several maternal and newborn healthcare interventions.

According to the Uganda maternal and perinatal death surveillance response guidelines, maternal mortality refers to the death of a woman while she is pregnant or within 42 days of the pregnancy's termination, regardless of the length of the pregnancy or the location of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but excluding accidental or incidental causes; whereas any foetal mortality from 28 completed weeks of gestation to seven completed days after birth is considered a perinatal death (1). It includes stillbirths and early newborn deaths (0-7 days). Over time, there has been a gradual decline in the number of Ugandan women losing their lives while giving birth. Maternal mortality has declined from 336 deaths per 100,000 live births in 2016 to 189 deaths per 100,000 live births in 2022, as revealed by the Uganda Health and Demographic Survey (UDHS) (2). Even so, this reduction is still far below the Sustainable Development Goal (SDG) target of 3.1, which is to have fewer than 70 maternal deaths per 100,000 live births by 2030.

Similarly, according to UDHS 2016, perinatal mortality was 38 per 1,000 births way below the World Health Organisation/Every Newborn Action Plan (ENAP) target of less than 12 deaths per 1,000 births.

In response to these high rates, the country has implemented several reproductive, maternal, newborn, child and adolescent health interventions such as maternal and perinatal death audits, increasing antenatal care coverage, increasing the proportion of births attended to by a skilled birth attendant, essential newborn care package, and family planning. Despite this, the country is still struggling to reduce these rates to acceptable levels. Thus, the Ministry of Health, through the assistant commissioner, Division of Health Information, is interested in characterising the nature of the problem of stagnant maternal and perinatal deaths in Uganda to support the Department of Reproductive Health in recommending effective interventions.

Rapid Response question: Understanding the problem of increasing maternal and perinatal deaths in Uganda by synthesizing the literature and analyzing data on current trends

Summary of findings

We analysed routine health information from financial year 2020/21 to 2023/24 and synthesised the evidence for the last 10 years to understand the problem of maternal and perinatal deaths in Uganda. We present the evidence in two sections:

- i. Current trends in maternal and perinatal deaths

How this Rapid Response was prepared

After clarifying the question being asked, we searched for systematic reviews, local or national evidence from Uganda, and other relevant research.

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- ii. Specific causes/factors/predictors/determinants of maternal and perinatal deaths

Current trends in institutional maternal and perinatal deaths

Based on routinely collected data of the last four financial years, we found that the institutional maternal mortality rate (IMMR) declined from 93 deaths in FY 2020/21 to 86 deaths per 100,000 live births in FY 2023/24. On average, the IMMR decreased over time, for each additional year, there was a 1.6 decline in IMMR. Although, this is still below the SDG target of less than 70 deaths per 100,000 live births. However, only 33% of the variance can be explained by the linear model (**Figure 1**).

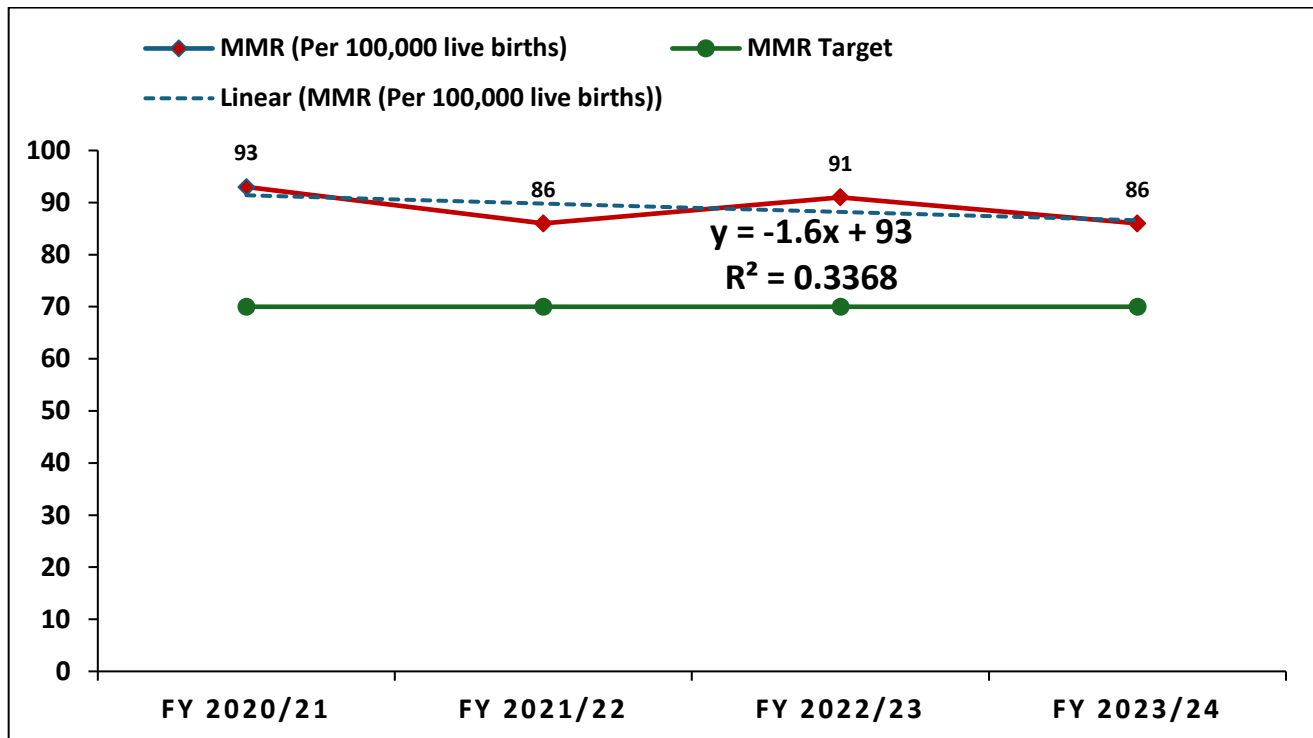


Figure 1: Institutional maternal mortality ratio per 100,000 live births (Source: DHIS)

We found that there was a general improvement in regional performance as shown by the traffic light changes over the 4 years. However, Kampala consistently performed poorly, with an IMMR of over 100 maternal deaths per 100,000 live births for all four years (**Figure 2**).

To note, a study assessing the quality of routine data on deliveries, livebirths, and maternal deaths in Kampala found the completeness of data for maternal deaths was less than 2%, indicating underreporting. Inconsistencies over time were mainly observed for maternal deaths. Underreporting of maternal deaths was noted, particularly in one of the EmOC facilities verified (3). Even with underreporting on maternal deaths, in Kampala continues to underperform with regard to maternal deaths.

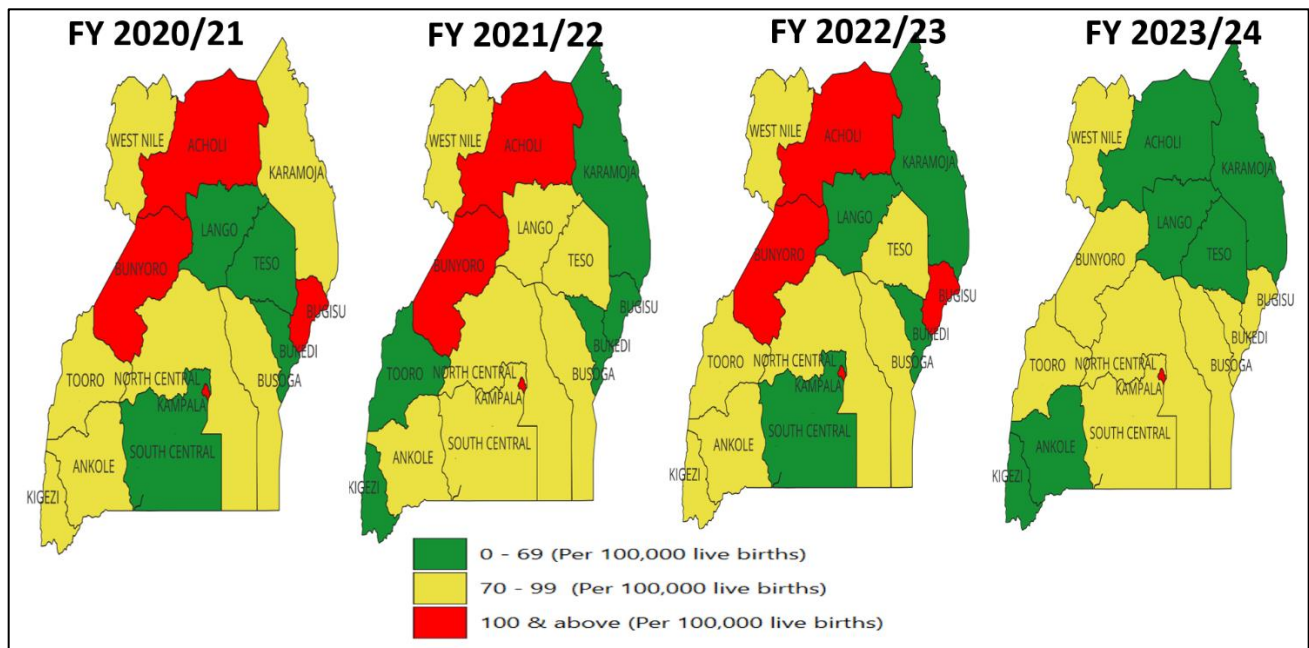


Figure 2: Institutional Maternal Mortality Rates by Region from FY 2020/21 to 2023/24

The national perinatal mortality rate declined from 20 to 17 perinatal deaths per 1,000 total births over the four years. It declined at a rate of 0.9 per year with 85% of the observed trend explained by the linear trend model (*Figure 3*).

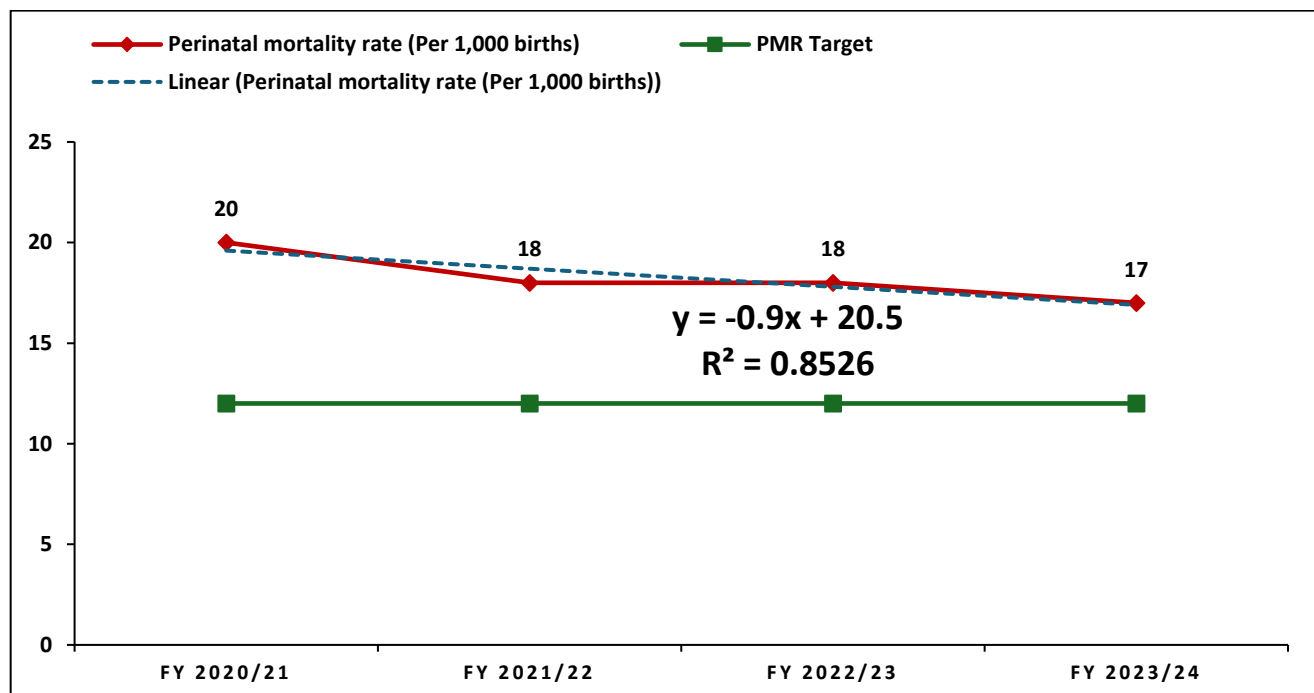


Figure 3: Institutional perinatal mortality rate per 1,000 births

We observed an improvement in the number of regions with a perinatal mortality rate of over 20 deaths per 1,000 births. Bukedi region has performed well for 3 years consecutively. However, the three regions of Kampala, Bunyoro and Acholi performed consistently poorly over the four years (*Figure 4*).

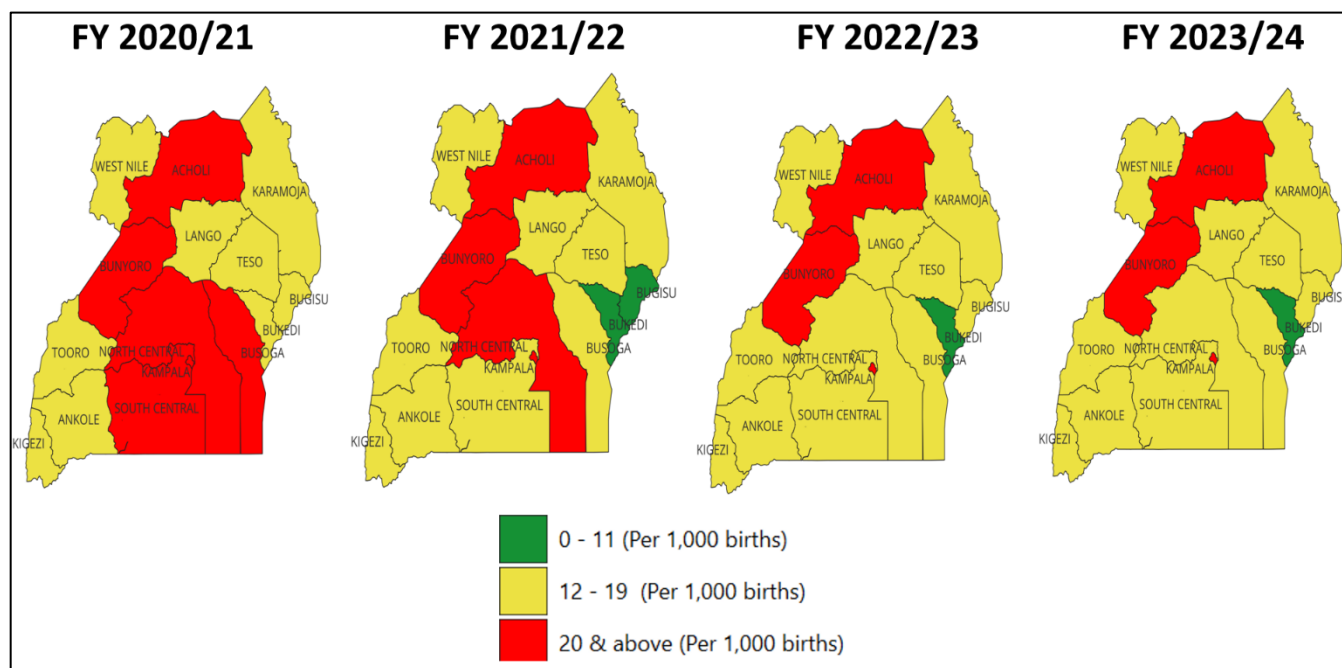


Figure 4: Institutional Perinatal Mortality Rates by region from FY 2020/21 to FY 2023/24

These results are similar to those of a trend analysis of routine health information from 2014 to 2020 which revealed that the national annual incidence of stillbirths decreased from 24 per 1,000 deliveries to 17 per 1,000 deliveries. The central region had the highest incidence rate, although it experienced the largest decline, while the eastern region saw the smallest decline. Certain districts, such as Mubende, Kalangala, Hoima, and Nebbi, consistently had high stillbirth rates exceeding 30 per 1,000 deliveries (4). However, these results should be interpreted with caution, given a decline in reporting rates from 71% to 46% during the same period.

Specific causes/factors/predictors/determinants of maternal and perinatal deaths
Maternal deaths

Maternal deaths are influenced by a range of direct and indirect causes, with varying factors contributing to these outcomes. Below is a synthesis of recent findings from multiple studies:

Causes of Maternal Deaths

In a study conducted at Mbarara Regional Referral Hospital, direct causes accounted for 78% of maternal mortality, with puerperal sepsis (30.9%), obstetric haemorrhage (21.6%), hypertensive disorders in pregnancy (14.4%), and abortion complications (10.8%) being the most frequent. Indirect causes contributed 22%, with malaria being the most common, accounting for 8.92% (5).

In a study of severe obstetric complications among 3,100 women, 4.2% resulted in maternal deaths. Pre-eclampsia and postpartum haemorrhage were the most frequent severe conditions. High case-fatality rates were observed for uterine rupture and eclampsia. Factors predicting maternal death included thrombocytopenia, circulatory collapse, and need for extensive blood transfusions (6).

A study conducted at Mulago National Referral Hospital found that independent predictors of maternal death included HIV/AIDS (OR 5.1), no antenatal care attendance (OR 4.0), not using oxytocics (OR 4.0), lack of necessary medicines (OR 3.6), and unavailability of blood for transfusion (OR 53.7) (7).

Pregnant women experienced a complicated pathway that resulted in delays in receiving emergency obstetrics and newborn care (EmONC) after arriving at Lacor Hospital in northern Uganda. There were five reasons given for these delays: insufficient blood, a scarcity of medications and supplies, inadequate staffing levels, insufficient staff expertise, and delays in the interfacility referral system. The majority of the paths were characterised by a shortage of supplies and medications, which was manifested in three distinct patterns: treatment delays, back and forth movements to purchase supplies or medications, and repeated referrals across facilities (8).

Similarly, a study conducted at Lira Hospital on obstetric referrals found 10 maternal deaths among referrals, primarily due to obstetric haemorrhage and obstructed labour. Eight deaths occurred within 6 hours of admission, with common complications including preeclampsia, intrauterine fetal demise and previous caesarean section scars (9).

In addition, a health facility survey conducted in Napak and Moroto districts found a direct obstetric case fatality rate of 3%. Key issues included shortages of personnel, medications, and infrastructure, along with inadequate use of available prenatal, intrapartum, and postnatal care services (10).

Lastly, a study on heart disease among pregnant women found that heart disease had an attributable risk of maternal mortality of 88.6% in the exposed population and 10.8% in the overall population. Rheumatic heart disease was the most common condition, with advanced stages of cardiovascular disease often undiagnosed until severe. High complication rates among women with heart disease especially heart failure (33%). Neonatal deaths in women with heart disease were primarily due to preterm birth. The majority of women were unaware of their heart disease and had limited access to echocardiography and specialist care outside major cities which contributed to poor outcomes (11).

Factors Influencing Maternal Deaths

These studies reveal that issues such as delays in seeking healthcare, inadequate use of facilities, and poor infrastructure contribute significantly to maternal deaths (5, 8, 10).

Maternal conditions and risk factors like HIV/AIDS, not attending antenatal care, and lack of oxytocics and blood for transfusion are major predictors of maternal death (5, 7).

Additionally, severe conditions like pre-eclampsia, uterine rupture, and heart disease have high case-fatality rates. Limited access to specialized care exacerbates these conditions (6, 11).

Geographic and socioeconomic factors like rural residence and limited access to specialized care contribute to higher maternal mortality, highlighting the need for improved healthcare delivery in underserved areas (9, 10).

Perinatal deaths

Perinatal mortality in Uganda is influenced by a range of factors. Below is a summary of the findings from various studies, highlighting the main causes, associated factors, and key differences:

Perinatal Mortality Rates

A study in eastern Uganda found a perinatal mortality rate of 36 per 1,000 births, with an early neonatal death risk of 22 per 1,000 live births. Significant factors included maternal age, parity, inadequate antenatal care attendance, and low birth weight (12).

While a study conducted at Fort Portal Regional Referral Hospital found an in-hospital neonatal mortality rate among preterm neonates of 31.6%, with 65.8% of these deaths occurring within 72 hours of admission (13).

Additionally, a study conducted at Virika Hospital, Fort Portal District revealed a high stillbirth rate, with 517 neonates not surviving, of which 430 were stillborn. Women living 51-100 km from the hospital had a significantly higher risk of stillbirth (14).

Similarly, a study on intrapartum complications in Uganda and Tanzania found a stillbirth rate of 151 per 1,000 complicated deliveries. Risks were higher for preterm deliveries, caesarean sections, and hospital-based deliveries (15).

Causes of Perinatal Deaths

One study found presumed neonatal sepsis was the direct cause in 71.4% of deaths followed by aspiration pneumonia and suspected cot death; each accounted for 14.3% of neonatal deaths among low birth weight neonates (16). A second study found that respiratory distress syndrome (RDS) was a significant cause of death among preterm neonates (13).

Among indirect causes, low birth weight was associated with increased mortality (12). Another study found that hypothermia and apnea were notable conditions contributing to mortality among preterm neonates (13). Additionally, older maternal age (≥ 35 years) and higher parity were linked to higher perinatal mortality rates (13).

Inadequate antenatal care attendance was significantly associated with higher perinatal mortality. Conversely, more than four antenatal care visits were protective (13).

The need for resuscitation and diagnosis of neonatal sepsis during admission were strong predictors of mortality (16).

Women living 51-100 km from health facilities had higher stillbirth risks. Additionally, adolescent pregnancies, especially unintended ones, showed a significantly higher neonatal death rate compared to older mothers (15, 17).

Both studies conducted at Fort Portal Regional Referral Hospital and Virika Hospital highlight the significant impact of preterm birth and low birth weight on neonatal survival (13, 15).

There is a consistent emphasis on the need for improved healthcare access and quality, particularly regarding antenatal and emergency obstetric care (12-14).

Varied maternal factors (e.g., age, antenatal care) and neonatal characteristics (e.g., gestation age, birth weight) are significant across studies, reflecting the multi-layered nature of perinatal mortality (13, 16).

Conclusions

Although there has been a gradual decline in maternal and perinatal mortality rates in Uganda, significant challenges remain that hinder progress toward achieving the sustainable development goal targets. The persistent regional disparities, particularly in areas like Kampala for maternal deaths, underscore the urgent need for targeted interventions and improved data collection to accurately reflect the situation. Addressing the direct and indirect causes of these deaths, such as inadequate antenatal care and the prevalence of conditions like puerperal sepsis and neonatal sepsis, is crucial. The Ministry of Health's commitment to understanding and addressing these issues is essential for implementing effective strategies that can ultimately save lives and improve maternal and newborn health outcomes across the country. Continued efforts must focus on enhancing healthcare access, quality, and responsiveness to the needs of vulnerable populations to ensure sustainable improvements in maternal and perinatal health in Uganda.

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What is Rapid Response?

Rapid Responses address the needs of policymakers and managers for research evidence that has been appraised and contextualised in a matter of hours or days, if it is going to be of value to them. The Responses address questions about arrangements for organising, financing and governing systems, and strategies for implementing changes.

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**Regional East African
Community Health Policy
Initiative**



EVIPnet

Glossary

of terms used in this report: [01
sure rapid response guides
2011 11.pdf \(cochrane.org\)](#)

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Conflicts of interest

None known.

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