



Perinatal deaths in Kampala Metropolitan Area: A descriptive analysis of trends, 2020-2023

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Summary

Background: Uganda's perinatal death (PD) rate was 17.8/1,000 births in 2022/2023, higher than Every Newborn Action Plan and SDG 3 target of ≤ 12 per 1,000 births by 2030. To reduce the burden, Uganda is implementing the maternal and perinatal death surveillance and response (MPDSR) in health facilities. We described the trends, and distribution of perinatal deaths in Kampala Metropolitan Area (KMA) and avoidable delays contributing to perinatal deaths in Kampala city, 2020-2023.

Method: We abstracted quarterly PD and total births data for KMA, i.e., Kampala, Wakiso, Mukono, and Mpigi districts from the District Health Information Software (DHIS2) for the period 2020–2023. Data on delays were available from the PD reviews that are carried out by health facilities using the MPDSR tool and uploaded into the DHIS2. PDs were calculated as a sum of macerated stillbirths (MSB), fresh stillbirths (FSB), and early neonatal deaths (END). PD rate was calculated as number of PDs per 1,000 births and stratified by district. Descriptive statistics and trend analysis were used to summarize changes in PD overall and at district level. We assessed the significance of PD rate trends using the Mann-Kendall test. We analyzed the Kampala PD reviews results to identify delays contributing to PD.

Results: Overall, KMA recorded 17,184 PDs during 2020–2023: 13,008 (75.7%) from Kampala, 2,498 (14.5%) for Wakiso, 1,154 (6.7%) for Mukono, and 524 (3.1%) for Mpigi. The average annual PD rate in KMA was 17/1,000 births, declining from 18.2/1,000 births (2020) to 15.8/1,000 births (2023) ($p=0.0078$). The average PD rate was highest in Kampala: (29.2/1,000 births) and lower in Mpigi (12.7/1,000 births), Mukono (12.2/1,000 births), and Wakiso (12.1/1,000 births) districts. The most common contributing factors for PDs in Kampala were delays in seeking healthcare (28%, $n=10,192$) and delays in reaching the health facility (23%, $n=10,192$).

Conclusion: The reduction in PD rate shows positive progress towards prevention of perinatal deaths in KMA particularly in Mpigi, Mukono, and Wakiso where the target has almost been achieved. However, more efforts are needed to reduce the burden in Kampala where the burden is still two-fold higher compared to the target of 12/1,000 births. Continuous education of mothers on timely seeking of care will be needed to save the lives of babies.



Background

A perinatal death is a fetal demise at 28 weeks of gestation onwards to a 7 days' brief survival of a live birth(1). Perinatal deaths comprise of stillbirths (fresh still births (FSB), macerated still births (MSB) and early neonatal deaths (END) that survive for only a week. In the financial year 2022/2023, Uganda registered a perinatal death rate of 17.8/1,000 births reported by health facilities(3).

To avert perinatal deaths, Uganda conducts surveillance on perinatal deaths using the maternal perinatal death surveillance and response (MPDSR) guidelines as a quality improvement tool for preventing their re-occurrence (1). Under the MPDSR system, perinatal deaths are reviewed using the three delays model to identify gaps at deciding to seek care (delay 1), reaching/ linking to care (delay 2), and the quality of care received before, during and after child birth (delay 3)(1). Uganda is working towards achieving and maintaining the ENAP and SDG 3 target of reducing perinatal deaths by decreasing the still birth rate to $\leq 12/1,000$ births and neonatal death rate to $\leq 12/1,000$ live births by 2030 (4).

The country has continued to implement several interventions towards quality perinatal health, including increased access to care for pregnant women, surveillance, and perinatal death reviews (3,5). Despite the increased access to care among urban dwellers, the KMA continues to experience perinatal deaths. We described the trends, and distribution of perinatal deaths in KMA and avoidable delays contributing to perinatal deaths in Kampala city, 2020-2023.

Methods

We considered the four districts that fall under the political jurisdiction of the Ministry of Kampala metropolitan affairs. These include Kampala, Wakiso, Mukono, and Mpigi

We conducted a descriptive study using perinatal deaths surveillance data for KMA and avoidable delays that contributed to perinatal deaths in Kampala, 2020-2023. Data was abstracted from the District Health Information Software 2 (DHIS2). Additionally, health facilities carry out perinatal death reviews using the MPDSR guidelines and upload the findings on possible delays contributing to perinatal deaths into DHIS2.

We abstracted quarterly data on macerated stillbirths (MSB), fresh stillbirths (FSB), and early neonatal deaths (END), total births, livebirths from 2020 to 2023, from Wakiso, Mukono, Mpigi and Kampala. Perinatal deaths were a sum of MSB, FSB and END.

We further abstracted data on delays to calculate the proportions of the delays contributing to perinatal deaths in Kampala city over the study period.

We calculated quarterly and annual perinatal death rate for the districts in KMA. The study used $\leq 12/1,000$ births as the target against which to measure perinatal death rate. We further calculated the average annual percentage change in perinatal death rate for KMA and the districts. We calculated the proportions of each avoidable delays as a



percentage of the total number of delays abstracted for Kampala city over the study period.

We described annual trends in perinatal death rates using line graphs and performed Mann Kendal test to establish significance of the trends.

We obtained a non-research determination from the US CDC. The data was aggregated with no individual identifiers, stored on a password protected computer and only accessed by the study team.

Results

Perinatal death rate in Kampala metropolitan area, 2020–2023

A total of 17,184 perinatal deaths for KMA were reported during 2020-2023. Of these, 6,438 (37.5%) were MSB, 5,225 (30.4) FSB and 5,521 (32.1%) END. Most of the perinatal deaths were from Kampala District at 13,008 (75.7%), followed by Wakiso with 2,498 (14.5), Mukono, 1,154 (6.7%), and Mpigi 524 (3.1%).

Overall, the average perinatal death rate for KMA for the study period was 17/1,000 births of which Kampala District reported 29.2/1,000 births, Mukono, 12.2/1,000 births, Mpigi, 12.7/1,000 births, and Wakiso, 12.1/1,000.

Temporal trends in perinatal death rate KMA, 2020 – 2023

Overall, KMA had a 13% reduction in perinatal death rate over the study period, from 18/1,000 in 2020 to 16/1,000 in 2023 (P=0.028). Similarly, Mpigi reduced by 33% from 16/1,000 births to 11/1,000 births (P=0.036), Mukono dropped by 25% from 14/1,000 births to 11/1,000 births (P=0.002), Kampala and Wakiso had nonsignificant (P=0.78) reduction in perinatal death rates (Figure 1).

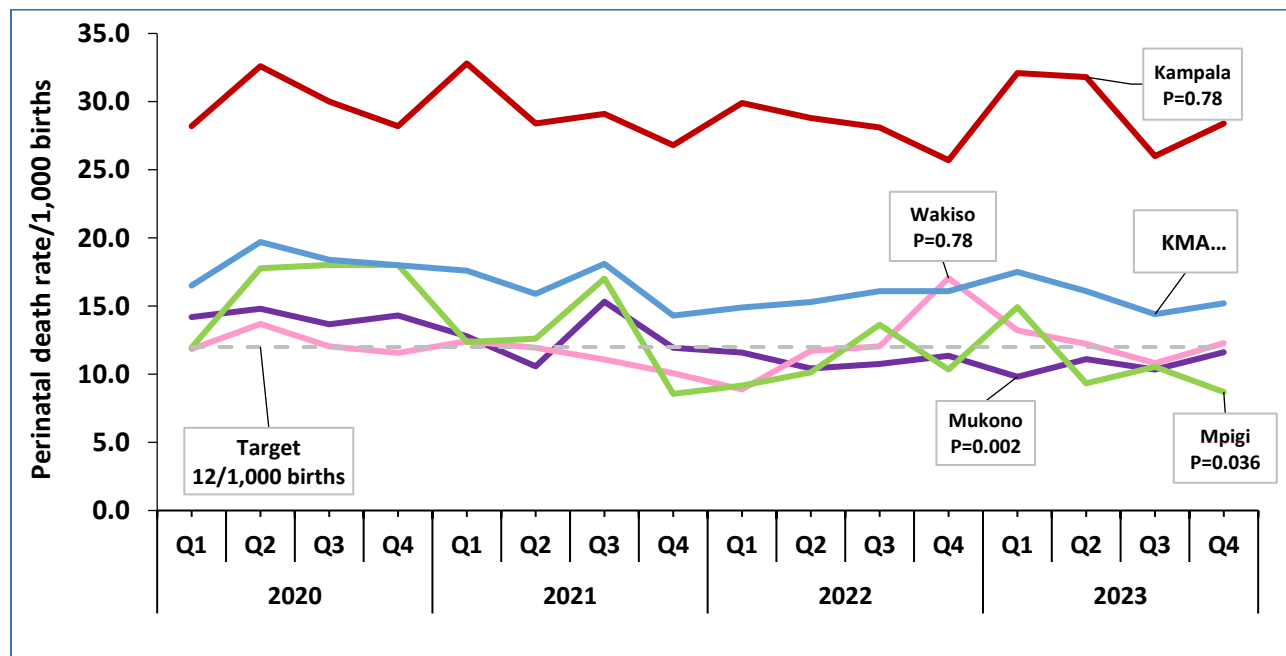


Figure 1: Trends of perinatal deaths in Kampala Metropolitan Area districts, 2020-2023



Proportion of avoidable delays that lead to perinatal deaths, Kampala, 2020-2023

The most common avoidable risk influencing perinatal deaths was delay for mothers to seek health care services (Figure 2).

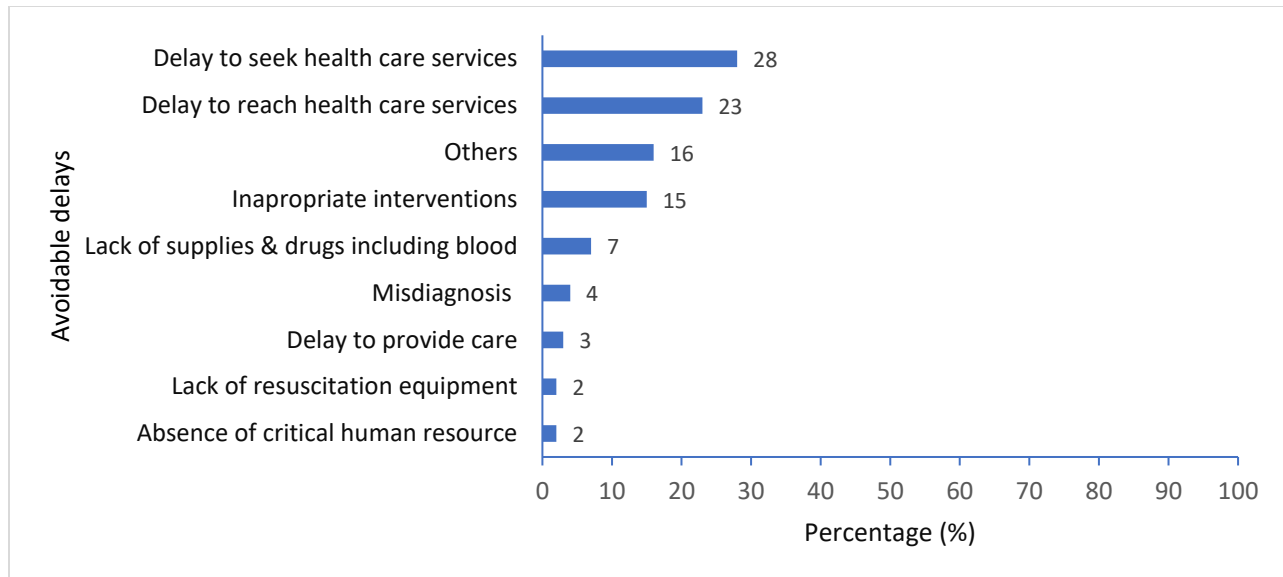


Figure 2: Avoidable delays for perinatal deaths, Kampala, 2020-2023

Discussion

We described the temporal and spatial trends of perinatal deaths at KMA. We further described the delays contributing to perinatal deaths in Kampala city. We observed that although there was a significant reduction in perinatal death rate in KMA, it was still above the $\leq 12/1,000$ births target. Most of the perinatal deaths within KMA were from Kampala. Delay to seek health services contributed to most of the avoidable delays linked to perinatal deaths within Kampala City. The decline in the perinatal death rate for KMA is similar to the global and national picture (2,3). This could be due to the continued implementation of MPDSR in Uganda through which gaps are identified and interventions are implemented to prevent similar occurrences (3).

There were variations in the perinatal death rate for each of the individual KMA districts with Kampala having a consistently high rate during the study period. This could be because Kampala hosts the national referral and specialized women's hospitals hence receives most of the critical patients in addition to its numerous social challenges associated with slums and informal settlements (6,7,8).

This study found out that delay in seeking care was the most frequently reported avoidable factor linked to perinatal deaths in Kampala. This can be addressed by continuously educating women to prioritize women related health needs such as antenatal care and community engagement using already existing structures like the Village Health Team (VHT) system (9,10,11).



Study limitations

The study utilized secondary data characterized by missing data. This could lead to either over or under estimation of the study outcomes.

Conclusion

There was a significant reduction in perinatal death rate for KMA showing positive progress towards prevention of perinatal deaths. The most reported avoidable delay contributing to perinatal deaths in Kampala was a delay in seeking care.

Recommendations

Further studies are recommended to determine where mothers who utilize KMA health facilities reside in order for the Ministry of health to assess and address specific challenges associated with the quality of maternal and newborn care in those particular regions. Additionally, Kampala Capital City Authority may consider involving the community in their own health by engaging community health workers or VHTs teams to carry out community sensitization and conduct home visits to pregnant women and newborns, as a way of ensuring that they attend and receive timely antenatal and postnatal services.

Conflict of interest

None

Authors Contribution

JN, AN, GM conceived and designed the analysis. JN and GM contributed to the data analysis. JN, wrote the bulletin. AN, GM, PA, and AA reviewed the bulletin to ensure scientific integrity.

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