



**Family Health Bureau
Ministry of Health –
Sri Lanka**

ANALYSIS OF MATERNAL DEATHS - 2024

FINAL REPORT

Report No: MMMSU/Publication/2025/02

**Maternal Morbidity and Mortality
Surveillance Unit**

Outcome of Maternal Death Surveillance and Response – 2024

Maternal mortality is widely regarded as a crucial measure of the effectiveness of a nation's health system. It not only reflects the quality of care provided during pregnancy, childbirth, and the postpartum period, but also serves as a broader marker of women's health, their access to services, and the ability of the healthcare system to meet their needs.

Maternal Death Surveillance and Response (MDSR) is an essential component of public health systems, designed to reduce preventable maternal deaths through systematic identification, investigation, and corrective action. Sri Lanka pioneered its MDSR mechanism in 1959, later strengthening it in 1985 by introducing mandatory notification of probable maternal deaths. Since 2009, additional quality-focused elements have been incorporated, making the system more comprehensive. Sri Lanka's MDSR framework is recognized internationally as a well-structured model for maternal health surveillance and response.

MDSR Process

Notification of maternal deaths has been established as a legal obligation through a gazette notification issued to all practitioners providing care to women in Sri Lanka. All deaths of women in the reproductive age group, irrespective of cause, occurring during pregnancy or within one year following termination of pregnancy must be notified to the Family Health Bureau (FHB). Following notification, a detailed review is carried out both at the field level and at the institution where the mother received care. At the FHB, the Maternal Morbidity and Mortality Surveillance Unit maintains a central database and develops comprehensive case scenarios. Institutional maternal death reviews are conducted for all pregnancy related deaths up to one-year post-partum, with participation from both institutional and field health staff involved in the case. These reviews provide a forum for healthcare professionals to analyze the circumstances of each death, identify shortcomings and make recommendations to prevent similar occurrences.

Cases are subsequently desk-reviewed by a national expert panel comprising specialists from diverse disciplines of maternal care. Each maternal death is examined within the framework of the three delays model (delays in deciding to seek care, reaching care, and receiving appropriate care). The insights gained are used to strengthen maternal health services, programs, and policies at district and national levels.

In 2022, as part of the continued strengthening of maternal mortality surveillance, the Confidential Enquiry into Maternal Deaths (CEMD) was introduced as a pilot initiative in the Western and Southern Provinces of Sri Lanka. In 2024, the pilot was extended to the Central Province. A total of 26 maternal deaths from these pilot areas were reviewed using the CEMD methodology, while the remaining maternal deaths were reviewed through the routine Maternal Death Surveillance and Response (MDSR) process.

From 2025 onward, the CEMD process has been implemented nationwide. Under this system, anonymized CEMD formats are completed by individual health staff, from both institutional and field services, to document the care provided to each index case. All cases undergo a pre-review by senior consultant obstetricians nominated by the Sri Lanka College of Obstetricians and Gynecologists

(SLCOG) to support a more streamlined national review. Additionally, all patient-related documentation is fully anonymized, ensuring the removal of personal identifiers of the deceased and of the institutions and healthcare personnel involved, prior to national-level assessment. This approach introduces an added layer of systematic and confidential evaluation, aligning Sri Lanka's maternal death surveillance processes with internationally recognized best practices.

Definition of a Maternal Death

Sri Lanka adopts the WHO definition on maternal deaths: The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (WHO).

Review Methodology

Family Health Bureau was notified of 117 probable maternal deaths during the year 2024. The Maternal Morbidity & Mortality Surveillance Unit gathered comprehensive information from family members, field workers, hospital staff, and medico-legal experts to create case scenarios for analysis. Institutional maternal death reviews were held for these cases with the participation of institutional and field health staff involved in the care of the index mother.

Out of the notified deaths, 55 deaths were identified as true maternal deaths due to direct or indirect causes. Central level desk review meetings (n=11) were conducted for these 55 cases categorized according to major disease entities (eg- Obstetric Hemorrhage, Heart Disease, Respiratory Disease etc.) during the period 2024 –2025. A panel of experts comprised of representatives from Sri Lanka College of Obstetricians and Gynecologists, College of Anesthesiologists and Intensivists of Sri Lanka, Sri Lanka College of Internal Medicine, College of Forensic Pathologists of Sri Lanka National Program Managers from FHB, relevant Consultant Community Physicians and representatives from other related professional bodies reviewed the cases. For each index death, the desk review discussed the following;

1. Confirmation as a maternal death
2. Determination of the underlying cause of death
3. Determination of the category of maternal death (direct / indirect / incidental)
4. Identification of service deficiencies / provision of care and other issues
5. Formulation of recommendations

Maternal Mortality Metrics

Maternal Mortality Ratio (MMR) is the globally accepted indicator to quantify the burden of maternal deaths in a country. MMR evaluates obstetric risk, or the possibility that a woman could die during pregnancy. It is calculated as the number of maternal deaths per 100,000 live births. MMR is also used as an indicator to assess the overall maternal health and the health status of a country.

In the year 2024, out of all reported deaths, 55 deaths were categorized as maternal deaths giving a national Maternal Mortality Ratio (MMR) of 24.9 per 100,000 live births (Figure 1). Live births reported by the Registrar General's Department for the year 2024 was taken as the denominator (220,761) which showed a reduction from the 2023 figure of 247,900.

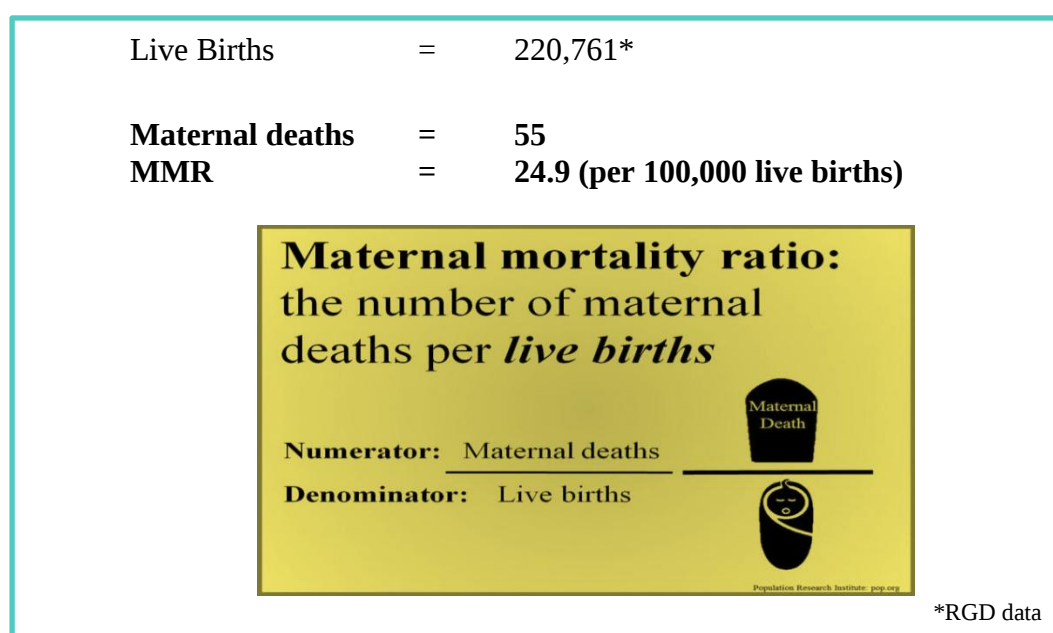


Figure 1: Calculation of MMR

Figure 2 presents the number of confirmed maternal deaths in Sri Lanka from 2001 to 2024. A gradual decline is observed up to 2020. However, in 2021, during the peak of the COVID-19 pandemic, a sharp increase in maternal deaths occurred. By 2022, the numbers had returned to the pre-pandemic level, despite the ongoing post-pandemic challenges and the concurrent national financial crisis. In 2024, maternal deaths further declined, with seven (n=7) fewer cases compared to 2023, bringing the final confirmed total to 55.

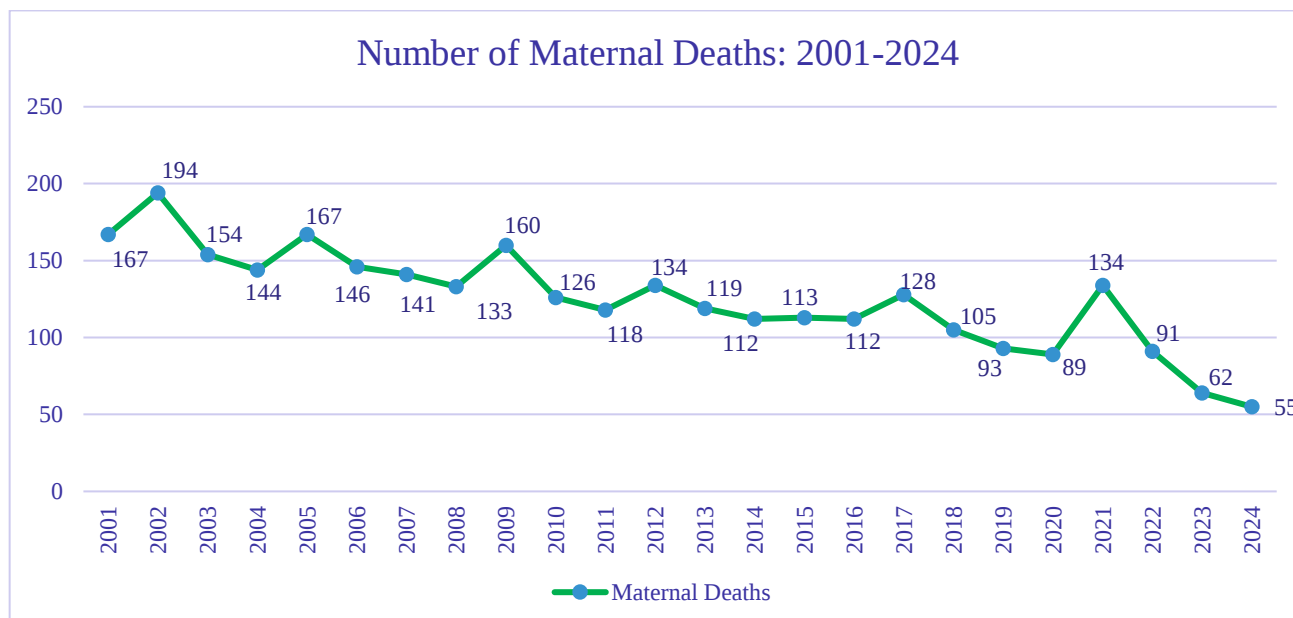


Figure 2: Number of maternal deaths (2001 – 2024)
Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Although the absolute number of maternal deaths declined, the drop in the MMR was minimal in 2024 due to falling birth rates. Figure 3 illustrates the trend in MMR from 2001 to 2024. While the country's MMR showed a steady decline over the years, a sharp rise was recorded in 2021, coinciding with the impact of the COVID-19 pandemic. In 2022, the MMR returned to its previous downward trajectory. And by 2024, the MMR dropped slightly to 24.9 per 100,000 live births, which is marginally lower than the figure reported for 2023.

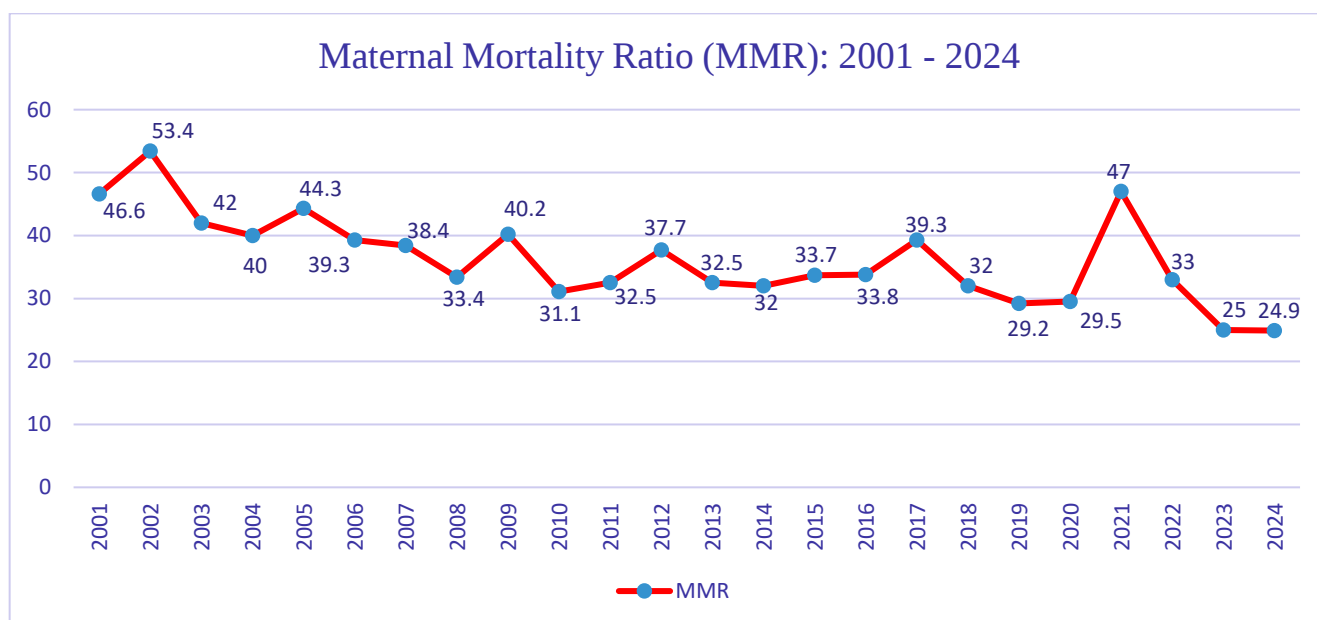


Figure 3: Maternal Mortality Ratio (2001 – 2024)
Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Figure 4 shows the number of deaths and MMR of each district calculated based on the number of live births reported by Registrar General's department for each district. When considered the district variability of MMR, the highest MMR was reported from Mullaitivu as 118 per 100,000 live births (n=1). Other leading districts were Mannar and Moneragala each with 2 deaths. The highest number of deaths were reported from Colombo with 7 deaths followed by Kandy district with 5 deaths. Four districts (Vavuniya, Puttalam, Matara and Kilinochchi) reported zero maternal deaths.

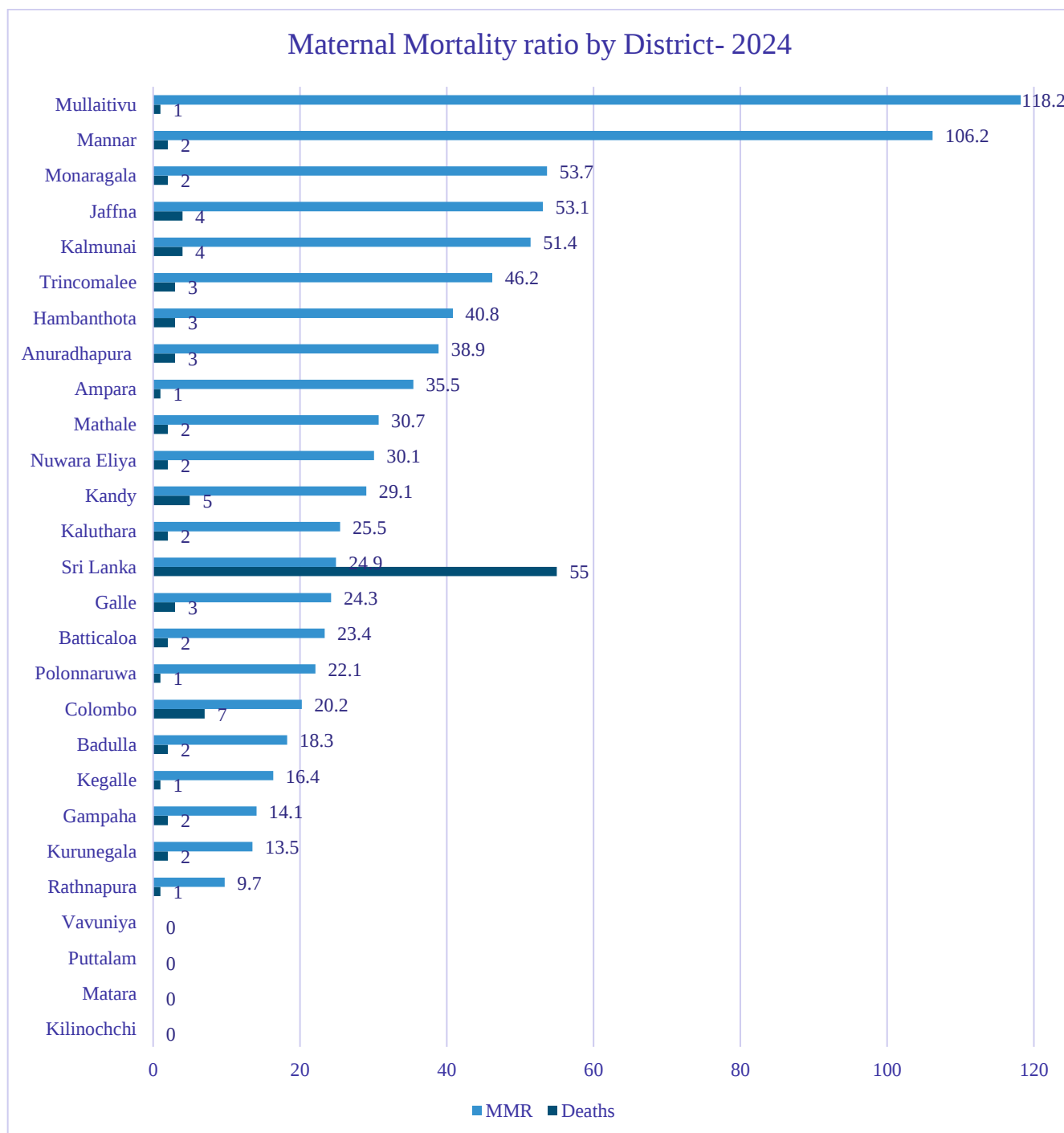


Figure 4: Maternal Deaths and MMR by District – 2024
Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

Maternal deaths are classified into two distinct categories: direct and indirect. Direct obstetric deaths: are deaths resulting from obstetric complications of the pregnancy state (pregnancy, labour and the puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above. Indirect obstetric deaths are those resulting from previous existing disease or disease that developed during pregnancy and which was not due to direct obstetric causes, but which was aggravated by physiologic effects of pregnancy.

A majority of maternal deaths in 2024 were direct maternal deaths (n=28, 50.9%) while 27 (49.1%) were indirect maternal deaths. This is a reduction in the proportion of direct maternal deaths when compared with 2023 (Figure 5).



Figure 5: Direct and Indirect Maternal Deaths – 2023 and 2024

Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Figure 6 shows the causes for maternal deaths reported in the year 2024 while figure 8 shows how selected causes of deaths have changed over the years from 2020 to 2024. The leading cause of maternal deaths was reported as heart disease (n=10, 18.2%). Heart disease was reported as the ninth commonest cause in 2023 with only 3 cases (4.8%) which shows a significant increase has happened in 2024. Obstetric haemorrhage which was the commonest cause in of maternal death in 2023 (n=12, 19.3%) is now the fifth commonest with only 5 cases (9.1%), among which there were only 3 cases where cause of death was postpartum hemorrhage. Respiratory disorders in pregnancy was ranked second commonest cause with 7 deaths (12.7%). Intentional self-harm and hypertension jointly were reported as the 3th commonest causes with six confirmed cases (10.9%), of which intentional self-harm showed an increase from the 2023 figure of 5 cases. When considering the change from 2023 to 2024, though the number of maternal death and the MMR has reduced significantly, the causality pattern of maternal deaths seems to have undergone a change as well.

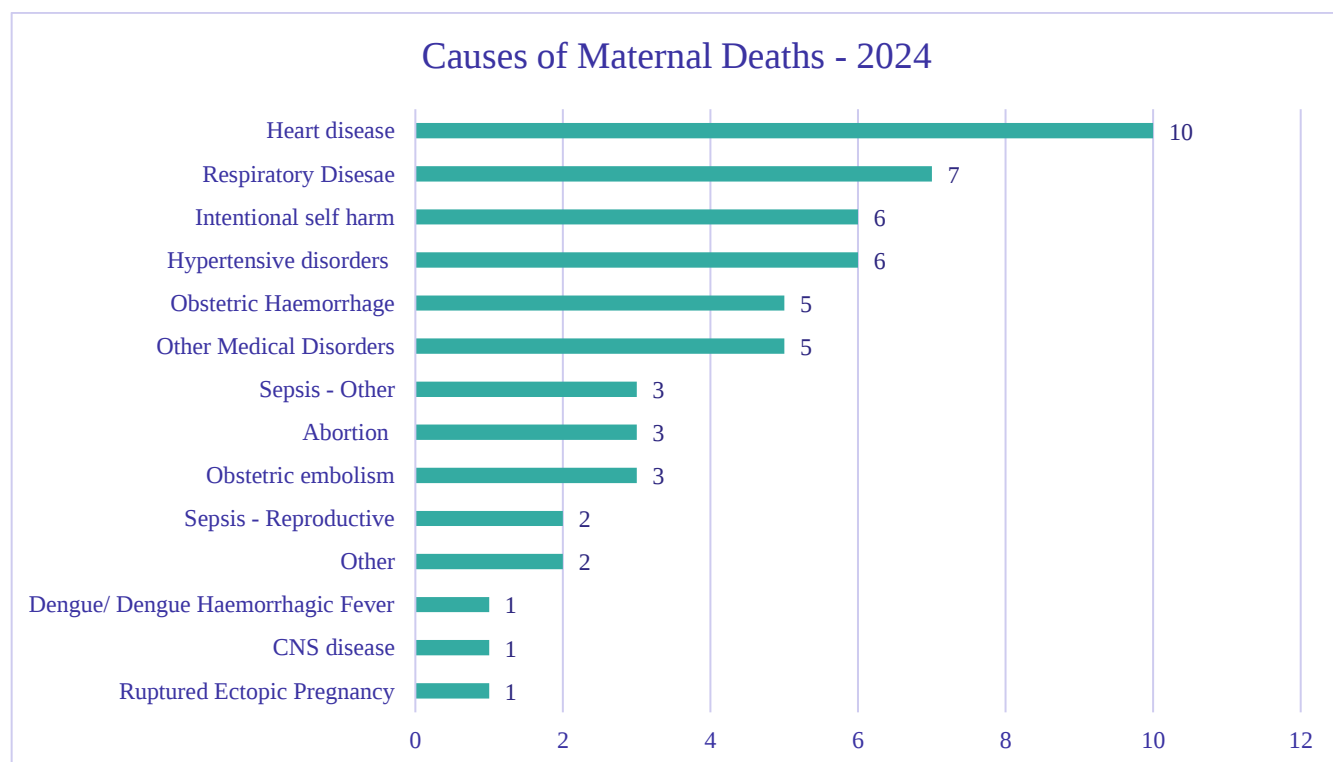


Figure 6: Causes of maternal deaths -2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

Among the deaths attributed to heart disease, cardiomyopathies accounted for the highest proportion (3 of 10; 30%). Two deaths were attributed to myocarditis and two to acute myocardial infarction. Single cases were recorded for congenital heart disease, aortic dissection, and myxomatous valve disease. Seven of these happened in the postpartum/ post abortion period while three happened in the antenatal period. Of the seven deaths due to respiratory causes, six were caused by pneumonia, while the remaining case was non-cardiogenic pulmonary edema in a patient with SLE. Out of the 5 other medical disorders 2 were due to renal diseases, 2 were due to gastroenterological diseases and one was caused by diabetic ketoacidosis.

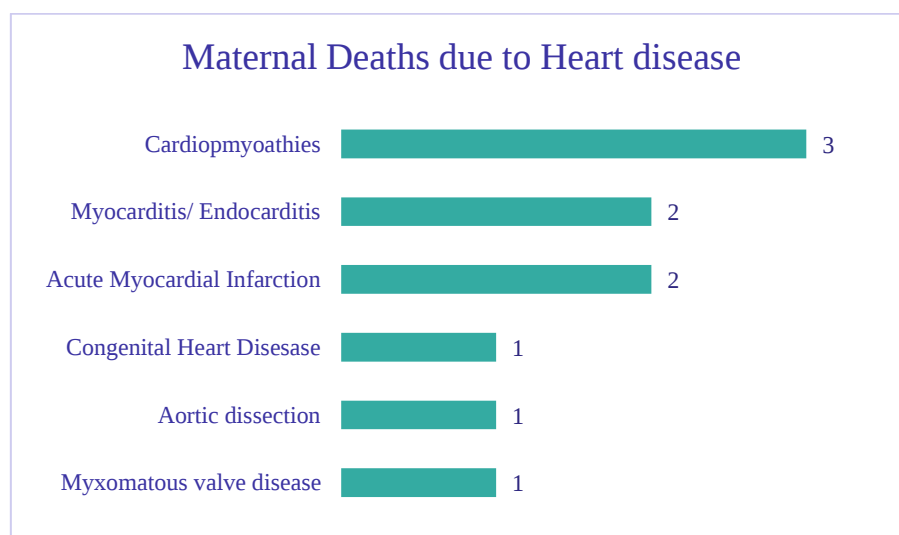


Figure 7: Causes of maternal deaths -2024
Source: Maternal Morbidity, Mortality Surveillance Unit –FHB

Figure 8 illustrates the trends in maternal deaths from selected causes over the past few years.

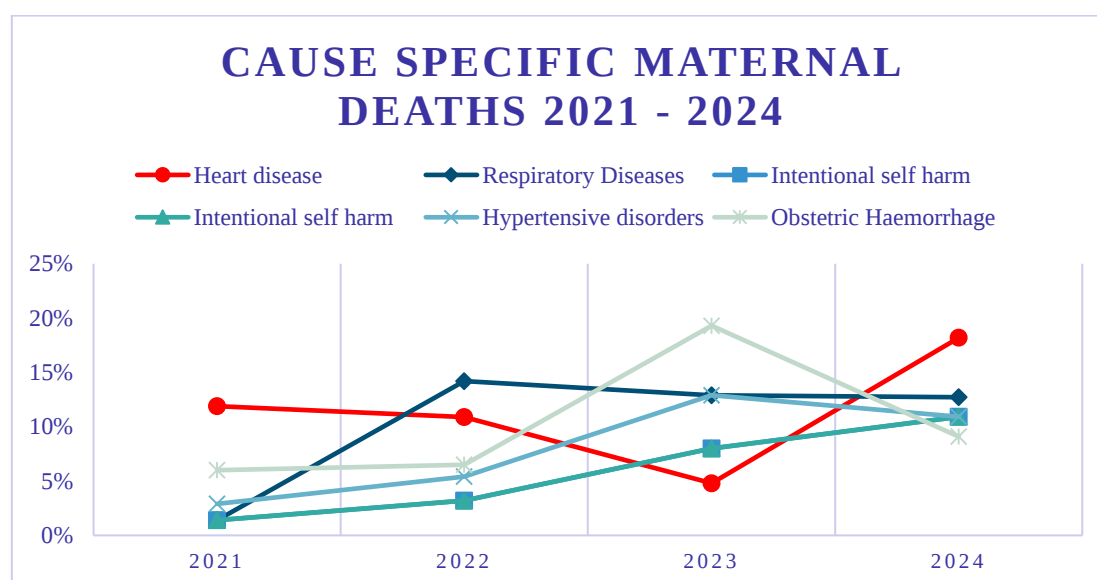


Figure 8: Causes of maternal deaths as a percentage of total maternal deaths -2021 to 2024
Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Among the reported deaths, 37 deaths (67.3%) were reported from rural sector while 15 deaths (27.3%) were reported from urban sector. And notable there were 3 deaths (5.4%) reported from the estate sector. This was following no reported estate sector deaths in 2023. The ethnic composition included; Sinhala (n=26, 47.3%), Tamil (n=21, 38.2%) and Muslim (n=8, 14.5%). There has been a noticeable increase in the number of deaths among Tamil mothers compared to 2023 when there were

only 14 deaths (22.5%). A majority were married at the time of death (n=50, 90.9%) while 2 were divorced (3.6%), 2 mothers were living together with their partners (3.6%) while one mother was unmarried and living alone at the time of death (1.8%).

Considering the age distribution of the maternal deaths there were no deaths which happened in a mother less than 18 years of age, while the majority of deaths occurred within the age range of 31 to 35 years (n=23, 41.8%) (Figure 9).

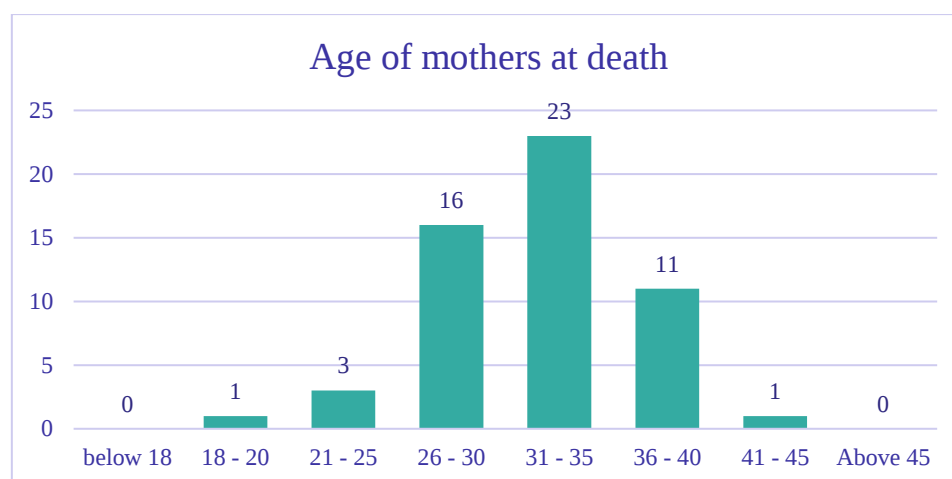


Figure 9: Age category of Maternal Deaths – 2024

Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Of all the maternal deaths 14 mothers were primi mothers (25.5%) while 41 were multiparous (74.5%).

Figure 10 shows the parity of the maternal mortality cases in 2024 and how it has changed from 2022.

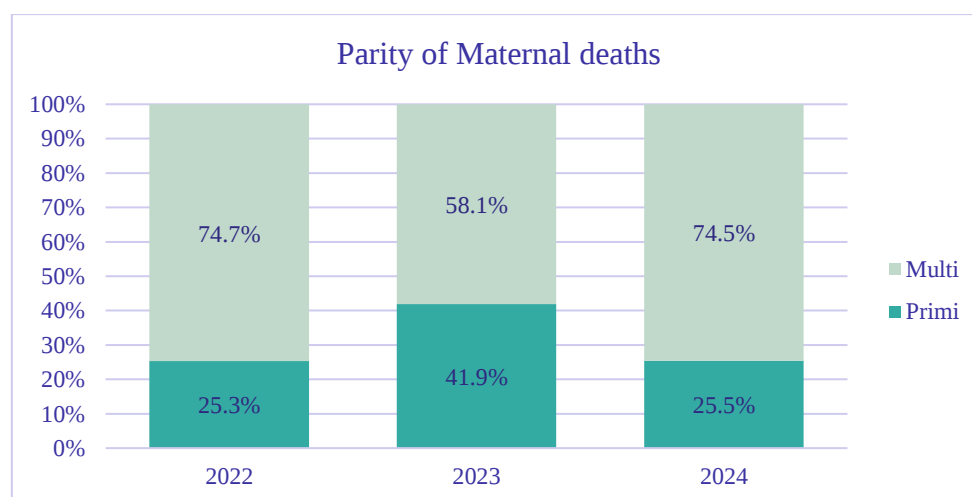


Figure 10: Parity of maternal deaths – 2022 to 2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

Considering the timing of the maternal death, antenatal period deaths were much less in proportion 30.9% (n =17) compared to the postpartum 56.4% (n =31) and post abortion 12.7% (n =7). Out of the postpartum maternal deaths the majority (n=24, 77.4 %) occurred during the period between postpartum day 02 - day 42. Of the 7 deaths that happened in the first 24 hours of postpartum period, 5 deaths happened within the first 12 hours. Among the deaths that occurred during the antenatal period, most were reported in the second and third trimesters (n=7, 41.2%).

Figure 11 shows the timing of maternal deaths.

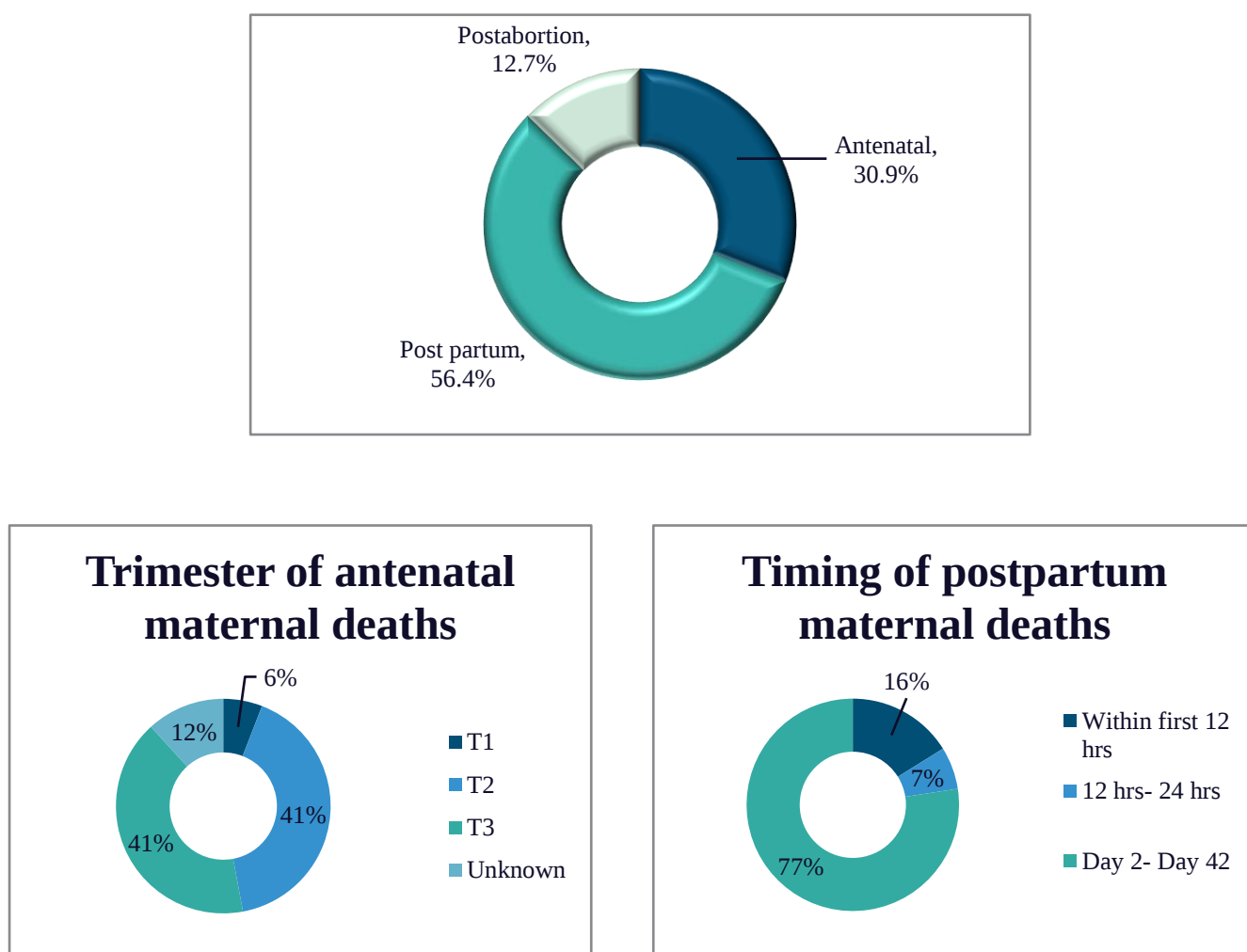


Figure 11: Timing of death of Maternal deaths - 2024
Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

The majority of maternal deaths occurred in hospitals (n = 42, 76.4%), representing a decrease from 2023, when 51 deaths (86%) were hospital-based. Four mothers (7.3%) were confirmed dead upon admission to a hospital. Two deaths occurred during transit between hospitals. And seven mothers died at home or in the close vicinity of their residence. Of these, four were due to suicide, two resulted from sudden cardiac arrest in women with underlying myocarditis and hypertrophic cardiomyopathy and one was attributed to septic abortion.

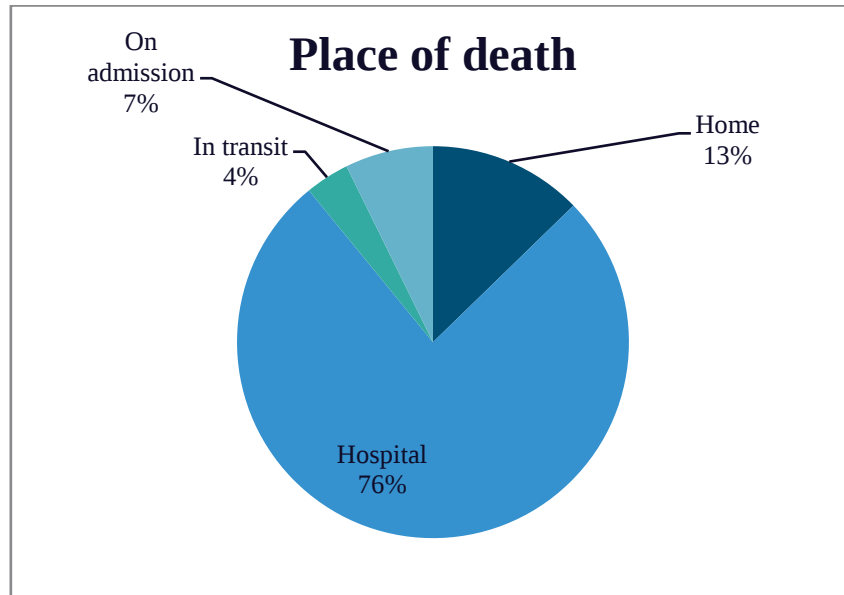


Figure 12: Place of occurrence of death - 2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

Majority of hospital death occurred in teaching hospitals (n=17, 40.5%) while n=11 (26.2%) occurred at district general hospitals and there were two deaths reported from private hospitals (Figure 13).

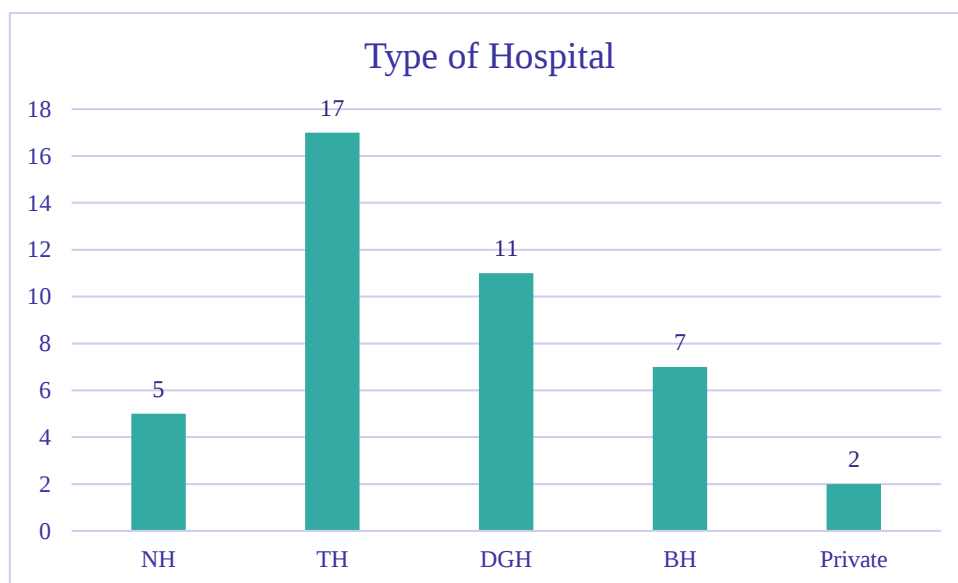


Figure 13: Type of Hospital - 2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

In a majority of maternal death cases the present pregnancy ended up in a live birth (n=26, 47.3%) and in 16.4% (n=9) cases it ended in a still birth or IUD and in 9.1% (n=5) of maternal deaths the outcome was an abortion. And in one case it was an ectopic pregnancy. Of all maternal deaths 25.5% (n=14) of mothers died without delivering the baby. Figure 14 shows the outcome of the present pregnancy.

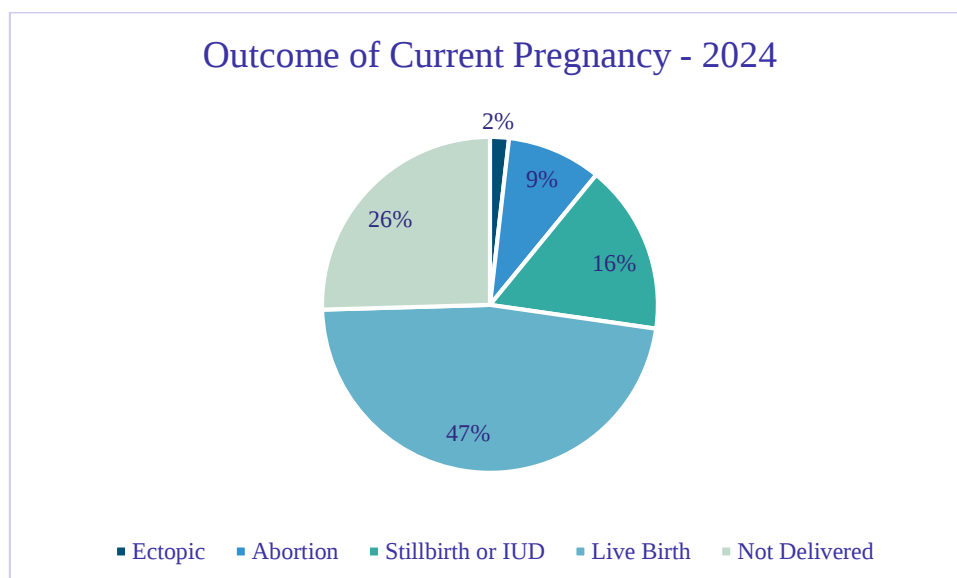


Figure 14: Outcome of pregnancy - 2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

Cesarean sections and hysterotomy (38.1%, n =21) were reported as the commonest mode of delivery among the mothers who ended up as a maternal death, out of which 3 were hysterotomies. Among the LSCS mothers n= 14 were reported as emergency and two (2) were performed as elective sections. while another two (2) mothers underwent perimortem caesarian sections as an attempt to save the life of the baby. Majority of the cesarean sections and hysterotomies were performed by the consultant (n=12, 57.1%) while n=5 (23.9%) were performed by the senior house officer and the rest by other categories including registrars and senior registrars (n=4, 19%)

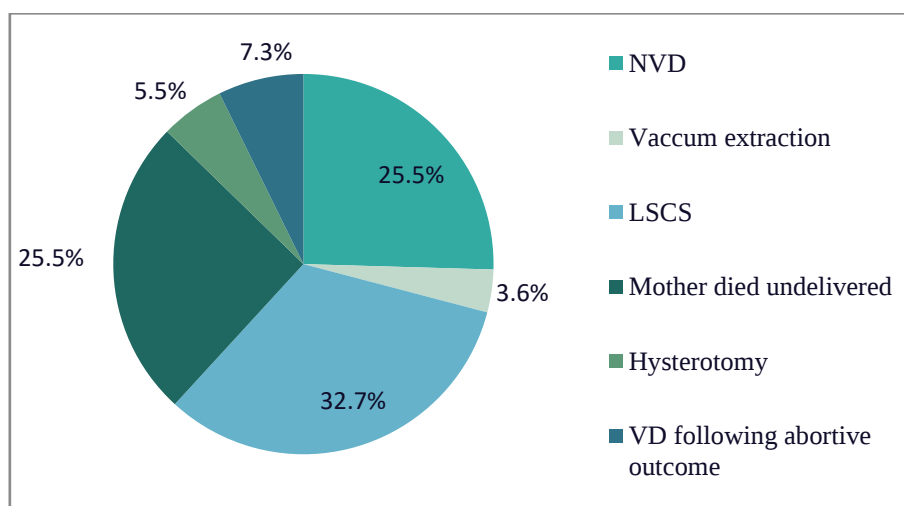


Figure 15: Mode of delivery of Maternal deaths - 2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

The graph in Figure 16 illustrates the monthly distribution of maternal deaths throughout the year 2024. Notably, the month of July reported the highest number of maternal deaths which was 7 while October reported the lowest number which was 1.



Figure 16: Monthly frequency of maternal deaths - 2024
Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Evaluation of Delays

According to the three delay model which is used in analysis, among all maternal deaths in the year 2024, 78.2%, (n=43) showed one or more delay types while 21.8% (n=12) reported no delays. This indicates a reduction in the proportion of maternal deaths associated with delays compared to 2023, when 50 cases (80.6%) involved a delay. When the specific delay types were considered among the maternal deaths, 43.6% reported delay one (delay in seeking care) either as the single delay or associated with other types of delays, while 54.5% reported delay three. Delay two (delay in reaching a health care institution) was only seen in 5.5% of maternal deaths.

Delay	N	%
No delay	12	21.8
Delay present	43	78.2
Type of delay (n=55)		
Delay 1	24	43.6%*
Delay 2	3	5.5%*
Delay 3	30	54.5%*

Table 1: Analysis of delays

**Note - Certain cases of maternal death had multiple delays associated with it, so percentages will total to more than 100%*

Figure 17 shows the proportion of maternal deaths with a delay in 2023 and 2024. This shows that the overall proportion of delays has reduced slightly in 2024 compared to 2023.

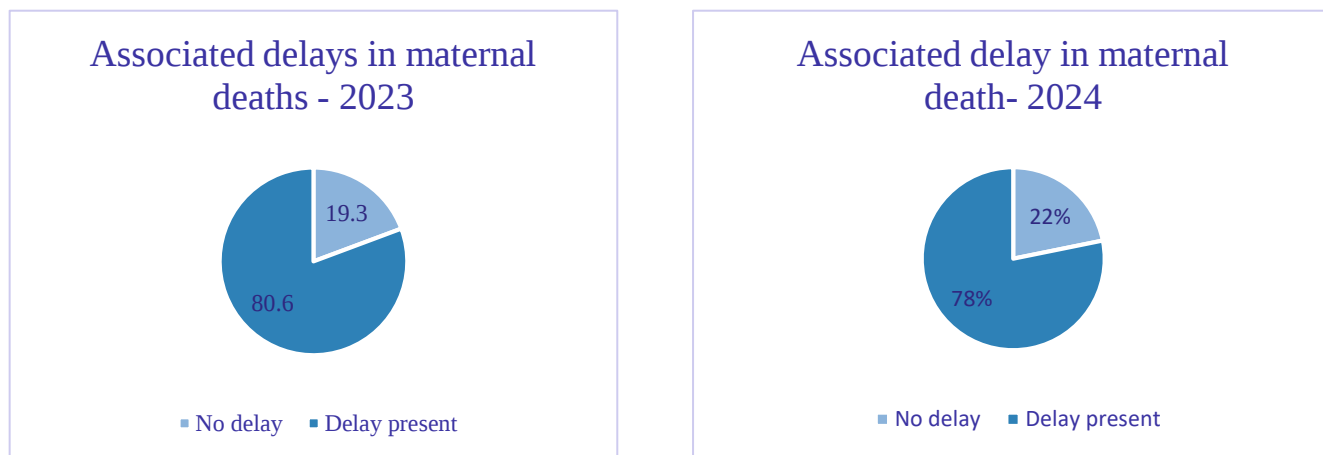


Figure 17: Presence of delays in maternal deaths –2023/2024
Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Figure 18 shows the how the types of delays have changed between 2023 and 2024.

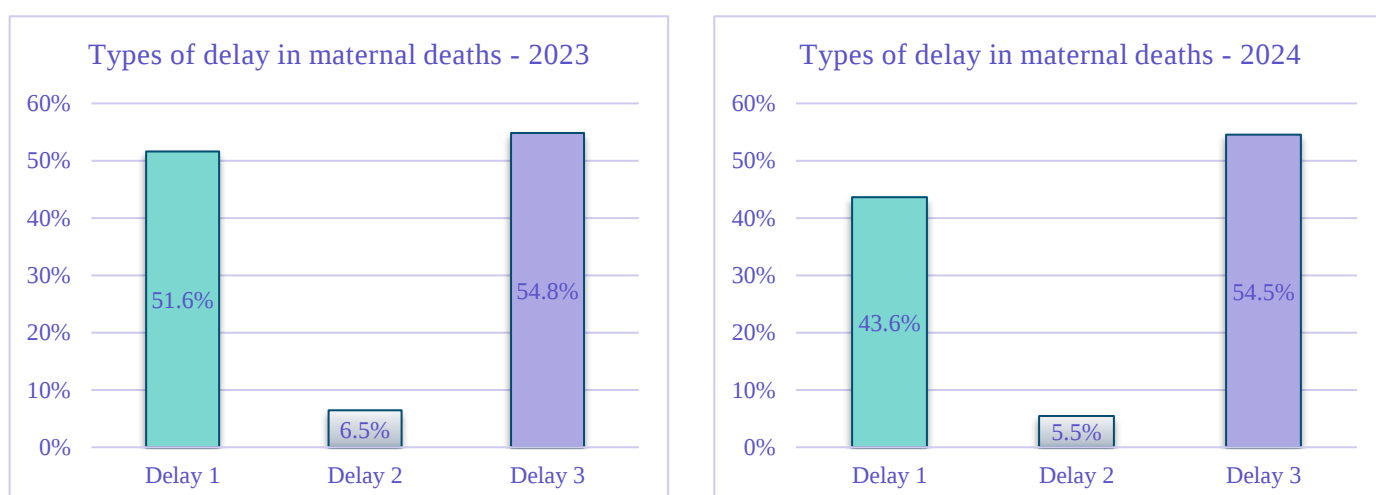


Figure 18: Types of delay in maternal deaths – 2023 / 2024
Source: Maternal Morbidity, Mortality Surveillance Unit - FHB

Not all maternal deaths are non-preventable. One of the main objectives of maternal mortality surveillance is to identify the preventability of maternal deaths. The national and global target is to achieve zero prevalence of preventable maternal deaths. Over the years the preventable portion of maternal deaths was in a reducing trend till 2021 when COVID maternal deaths increased the preventable portion to a very high figure. In 2023, the percentage of preventable maternal deaths have increased up to 66.1% (n=41). In 2024, the proportion of preventable maternal deaths have further rose to 70.9% (n=39) of the reported maternal deaths. Only 11 deaths out of 55 maternal deaths (20%) were deemed to be not preventable and in 5 cases (9.1%) preventability could not be conclusively established.

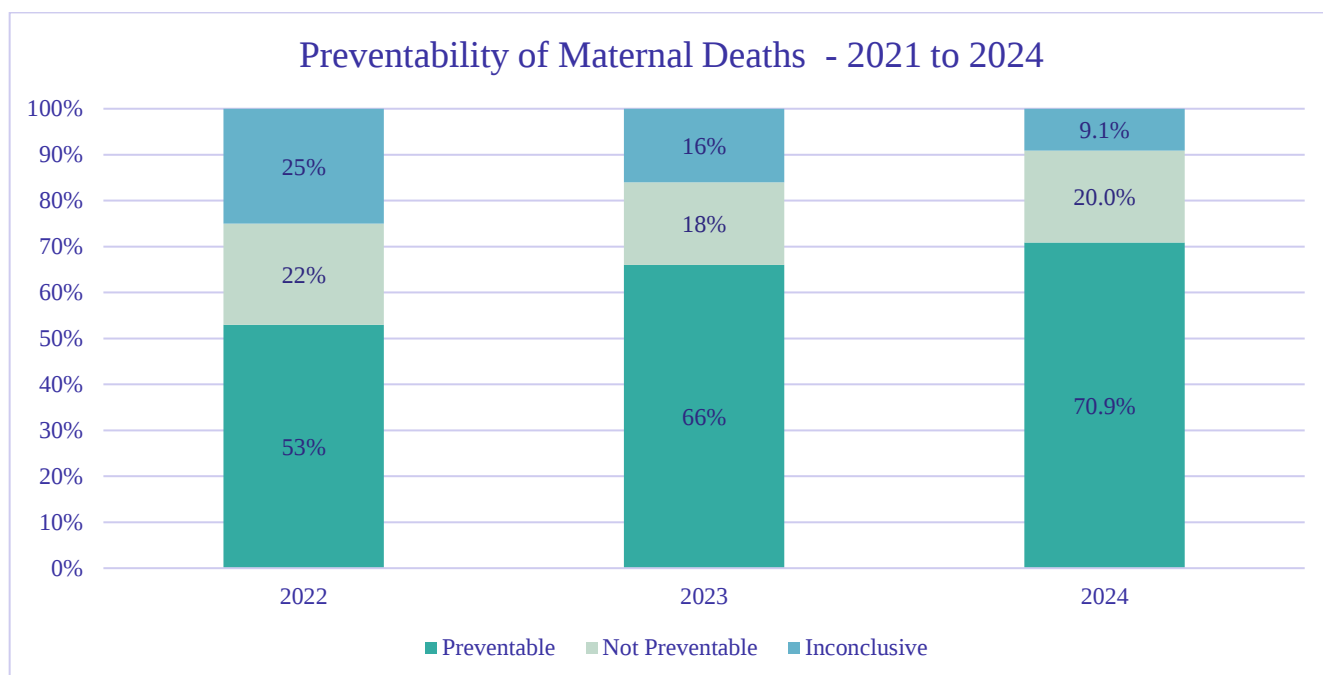


Figure 19: Preventability of maternal deaths - 2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

The service provision for maternal care is an important area to follow as the pregnancy outcome is greatly influenced by it. Unmet need of family planning is one indicator to assess the service provision in maternal health. Unmet need of family planning is defined as a woman or couple who are sexually active but do not practice a credible family planning method despite the fact that they do not intend to conceive and have a baby for a period of at least two years. Considering the maternal deaths in 2024, 22% (n =12) displayed unmet need of family planning while 78% (n =33) deaths did not show any unmet need of family planning. This figure of unmet need is much higher compared to the prevalence of unmet need of family planning among the eligible families in Sri Lanka for the year 2024 which is 5.2%.

Unmet need of family planning 2024

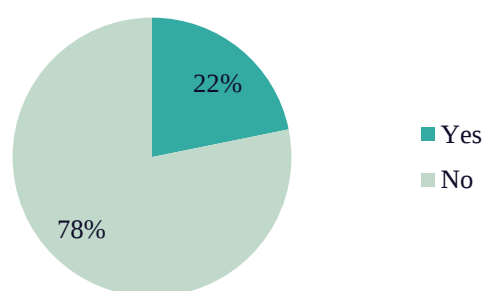


Figure 20: Unmet need of family planning among maternal deaths - 2024

Source: Maternal Morbidity, Mortality Surveillance Unit – FHB

Considering service provision, the relevant field Public Health Midwife (PHM) area was vacant in 5 (9.1%) cases of maternal deaths. The provision of antenatal field care for the index cases was deemed satisfactory in 42 (76.4%) of the cases while this figure was 47 (85.5%) with regard to antenatal clinic care.

Ongoing Developments

Confidential Enquiry in to Maternal Deaths (CEMD)

This system of maternal Death review was introduced as a pilot project in 2022 with the collaboration with the Sri Lanka College of Obstetricians and Gynecologists (SLCOG). During the year 2024, there were 26 maternal deaths reported from the pilot areas. All 26 maternal deaths were subjected to CEMD expert panel meetings and covered at eight meetings conducted at central level. Recommendations made had been communicated to the national level and also the regional and institutional level.

The main objective of this new system is to use individual level information and observations in a confidential manner to make general recommendations on the management of all pregnant mothers.

Maternal and Perinatal Death Surveillance and Response (MPDSR) system

As a step towards further reduction of maternal and perinatal mortality Sri Lanka has adopted the WHO initiative of MPDSR to enhance the already established maternal death surveillance system in the country. Adaptation of this new initiative is expected to provide a forum for planning and follow up of recommendations implementation, generated from the maternal and perinatal death reviews. Establishment of MPDSR committees at Central level, regional level and the institutional level conducting regular meetings is expected to have a positive impact on the process of implementation. The membership of these committees should be decision making level individuals of the institutions. The system has been introduced to the entire country and the trainings conducted in Western, Southern and Central provinces were completed by 2023. Trainings for Uva and Eastern province were carried out in 2025.

Issues and Recommendations

The review of maternal deaths in Sri Lanka in 2024 highlighted a range of community, clinical, health system, and policy-related gaps contributing to preventable mortality. The following section presents the issues and corresponding recommendations in a structured manner to guide targeted interventions and strengthen maternal health outcomes.

Community & Social Factors

Field health staff should pay special attention to these issues and recommendation.

Identified Issue	Recommendation
Delay in seeking care and non-compliance with referrals due to poor awareness among mothers/families regarding danger signs and emergency actions	All pregnant women and partners/ caregivers should be educated on danger signs and the importance of early hospital attendance.
	Field health staff must follow up the referral status of referred mothers to ensure they complete the referral.
	Develop short videos and posts on danger signs for use in clinics and social media.

Inadequate pre-pregnancy and interpregnancy care of high-risk mothers; inappropriate family planning use; poorly controlled chronic illness	Identify women of reproductive age with high-risk conditions at field level and provide tailored services, including referral for specialized services, family planning or pre-pregnancy counseling.
	Interpregnancy care at field level, needs to improve especially for women with diagnosed medical conditions.
Failure of field staff to escalate care when clients refuse certain service like family planning	When clients refuse key health services, they should be promptly referred to higher-level health staff, up to the MOH, to ensure comprehensive counseling and advocacy.
Certain mothers have not been registered at field level (managed only in private sector, frequent residence change)	Need to issue circular to register all mothers attending private clinics in the field system to ensure continuity of care across residences
There is a rising trend of maternal deaths among women from ‘migratory mothers’ who frequently shift residence between MOH areas or who split residence between different MOH areas leading to gaps in continuity of care and follow-up.	Ensure coordination and communication between field health staff across MOH areas to ensure uninterrupted follow-up and service provision for these migratory mothers

Clinical Care Factors

This section lays out issues identified at hospital level.

Identified Issue	Recommendation
Delayed recognition, diagnosis, and escalation of obstetric emergencies (Postpartum Haemorrhage, sepsis, Pre-Eclampsia, Amniotic Fluid Embolism etc) at GP level and ETU/OPD level	Adherence to established protocols/guidelines on emergency management with regular in-service training
	Compulsory CPD-linked continuous learning opportunities for all doctors
Suboptimal management of critical conditions at wards (DKA, sepsis, AKI, pulmonary oedema)	Same as above
There is no standardized protocol for performing anomaly scans and there is a lack of proper established management protocol when fetal anomalies are identified.	Develop and implement national guidelines outlining standardized procedures for conducting anomaly scans, including client counselling and consent prior to scan.
	Establish clear referral pathways and multidisciplinary management protocols (including psychiatry and medicolegal input) when fetal anomalies are detected.
Suboptimal antibiotic coverage and delayed antiviral therapy in respiratory infections	Implement guidelines for timely initiation of antibiotics/antivirals

Late or inadequate Multi-Disciplinary Team (MDT) approach	Ensure early MDT meetings for critical patients with complicated medical conditions and early senior involvement.
Gaps in discharge follow-up for critical conditions.	Discharge plans to be agreed by MDT and communicated to patient and field staff.
	Consider inviting field health staff for certain MDTs where field follow up is deemed to be crucial.

Health System / Service Delivery Factors

The following are health system factors which needs to evaluated from a health system point of view.

Identified Issue	Recommendation
Lack of adequate specialist staff (Obstetricians, Anaesthetists, Pediatricians, Neonatologists) in peripheral hospitals.	Ensure adequate HR (consultants, MOs, nurses, midwives, others) for smooth functioning as well as proper system of coverup in instances of specialist staff taking leave.
Service gaps for women with special needs (psychological, disabilities)	Establishment of structured psychosocial support services and early assessment of psychosocial risk factors
Shortage of essential drugs, facilities, logistics in first-contact institutions	Strengthen supply/logistics of essential drugs, facilities specially to health care institutional, especially tertiary care institutes.
Poor communication between field and institutional staff	Strengthen coordination and communication mechanisms including referral and back referral systems
Lack of a unified record across private and public care	Introduce one comprehensive document/file for all care

Acknowledgements:

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