

Curbing Delays in Emergency Obstetric Care: Effective Strategies for Resource-Limited Settings

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ABSTRACT

This review on curbing delays in emergency obstetric care: effective strategies for resource limited settings was conceived because emergency obstetric care (EmOC) is crucial in reducing maternal and neonatal mortality through specific interventions during pregnancy, delivery, and the postnatal period. The "Three Delays" model, developed in the 1990s, identifies factors contributing to maternal mortality and has been widely used to understand and reduce maternal mortality. These delays include decision to seek care, transportation delay and health facility delay. The review seeks to contribute to the reduction in maternal and neonatal mortality by examining evidence-based solutions to address delays in emergency obstetric care. The objectives are to: describe the different types of delays in EmOC, expose the contributing factors to delays in EmOC, to explore the effectiveness of implemented strategies in mitigating delays and to outline the successes achieved in curbing delays in EmOC. The review draws on literature from journals, books, and internet. Delays in accessing EmOC significantly contribute to adverse maternal and neonatal outcomes. Key factors contributing to delays include lack of awareness of pregnancy danger signs and need for prompt medical intervention, geographical inaccessibility, inadequate communication between healthcare centers and referral hospitals, and high patient loads. Effective strategies to mitigate these delays have been implemented in several countries, including enhancing availability and quality of services, national ambulance systems, community financing schemes for transportation, improved equipment at health facilities, and educational programs targeting women. These initiatives have resulted in reduced maternal mortality, highlighting the importance of timely and effective access to EmOC in improving maternal and neonatal outcomes. Reducing delays in EmOC is essential to lowering maternal and neonatal mortality. Strategies like improving service access and community education are effective.

Keywords

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Introduction

Emergency obstetric care (EmOC) refers to care provided in health facilities to treat direct obstetric emergencies that cause the vast majority of maternal deaths during pregnancy, at delivery and during the postpartum period (Geleto *et al.*, 2018). EmOC is an evidence-based service required to manage potentially life-threatening complications that affect many women during pregnancy, childbirth, and the immediate postpartum period. There are two complementary types of EmOC facilities: basic emergency obstetric care (BEmOC) and comprehensive emergency obstetric care (CEmOC) facilities (Geleto *et al.*, 2018).

A BEmOC facility can provide six crucial obstetric services which include administration of parenteral antibiotics, parenteral anticonvulsants, and parenteral uterotonics, removal of retained products; manual removal of the placenta; and assisted vaginal delivery (AVD). A CEmOC facility provides caesarean sections and blood transfusions, in addition to the six signal functions of BEmOC (Geleto *et al.*, 2018).

Three Delays is a model that was created in the 1990s as a tool to analyze the circumstances underlying maternal death. It has since been applied in nations all over the world to comprehend and reduce maternal mortality (Eshetu *et al.*, 2023). Maternal delays were described as having three levels which have been named first, second and third maternal delays respectively. The first delay is in deciding to seek care during pregnancy related complications. It occurs because of family and community associated factors. The second delay is in reaching health care facility and due to road conditions, lack of transport or locations. The third delay occurs at health care facility (Eshetu *et al.*, 2023).

Timely access to emergency obstetric care is seen as crucial to avert any negative outcome that could result from unpredictable complications that could arise during pregnancy and childbirth. Timely access to emergency care is thus seen as an indication of a successful health system. The inability of most women to access timely Emergency Obstetric Care (EmOC) remains one major challenge in addressing the burden of maternal mortality worldwide (Nahar *et al.*, 2011).

Maternal mortality and morbidity are serious public health concerns that have a devastating impact on children, families, and communities worldwide (Kurjak

et al., 2023). Despite significant efforts with limited resources, maternal morbidity and mortality remain high in developing countries (Tiruneh *et al.*, 2020).

The World Health Organization (WHO) has defined maternal mortality as the death of a woman during any stage of pregnancy (irrespective of the site and duration) or within 42 days following childbirth due to causes associated with or worsened by the pregnancy and/or its management, excluding those resulting from incidental and accidental causes (Kurjak *et al.*, 2023).

Statement of problem

Globally, maternal mortality remains a significant challenge, with approximately 800 women dying each day from pregnancy or childbirth-related complications, the majority of which occur in low- and middle-income countries (LMICs). Despite global progress toward Sustainable Development Goal (SDG) 3 which aim to reduce maternal mortality to fewer than 70 per 100,000 live births by 2030. LMICs still face disproportionately high maternal mortality rates due to inadequate healthcare access, insufficient skilled birth attendants, and limited emergency obstetric care (EmOC) (Nahar *et al.*, 2011; Ekwuazi *et al.*, 2023).

In LMICs, particularly in sub-Saharan Africa, maternal mortality ratio (MMR) remains alarmingly high, largely due to delays in accessing care. These delays are often exacerbated by poor infrastructure, lack of transportation, limited health literacy, and cultural practices. In Cameroon, the maternal mortality ratio has improved from 782 per 100,000 live births in 2011 to 467 per 100,000 in 2018, yet the country failed to meet Millennium Development Goal (MDG) 5 of reducing maternal mortality by 75% by 2015. Now, facing the ambitious target set by SDG 3, Cameroon continues to struggle with barriers such as high fertility rates, inadequate health infrastructure, and common early childbearing among its young population (Nahar *et al.*, 2011; Meh *et al.*, 2020; Talom *et al.*, 2021). Delays in accessing EmOC often prove fatal for women experiencing obstetric complications during pregnancy and delivery. These delays remain a primary contributor to maternal deaths globally (Eshetu *et al.*, 2023). Despite efforts to improve maternal health services, such as antenatal care and skilled birth attendance, gaps persist in ensuring timely access to EmOC (Nahar *et al.*, 2011; Tiruneh *et al.*, 2020; Alam *et al.*, 2015). The Government of Cameroon has focused on initiatives such as family

planning programs, infection control measures, and increased healthcare training. However, delays in accessing emergency obstetric care remain a critical challenge. The three-delay model highlights these barriers: delays in deciding to seek care, delays in reaching health facilities, and delays in receiving appropriate care upon arrival (Tiruneh *et al.*, 2020; Ekwuazi *et al.*, 2023; Geleto *et al.*, 2018).

While some reviews have addressed barriers to accessing obstetric care, they have not specifically focused on delays in emergency obstetric care (EmOC). Moreover, other studies have examined the facilitators and obstacles to facility-based deliveries or implementation of international guidelines for EmOC (Henri *et al.*, 2020). Therefore, this systematic review aims to identify effective strategies for addressing these delays in a resource limited setting.

The main objectives of this study includes to describe the different types of delays in emergency obstetric care. To expose the contributing factors to delays in emergency obstetric care. To explore the strategies implemented to curb delays in emergency obstetric care and their effectiveness. To outline successes registered in reducing delays in emergency obstetric care.

Types of Delays in Emergency Obstetric Care (EmOC)

Delays in receiving timely and appropriate care during obstetric emergencies are a significant contributor to maternal mortality, particularly in resource-limited settings. These delays are often categorized into three distinct phases, each with specific challenges and underlying causes. The following table outlines the types of delays, the reasons contributing to them, and recommended strategies to mitigate these delays, as discussed in the current literature (Nahar *et al.*, 2011; Tiruneh *et al.*, 2020; Geleto *et al.*, 2018).

Factors Contributing to Delays in Emergency Obstetric Care

Multiple factors contribute to the delays experienced in accessing timely and appropriate emergency obstetric care (EmOC). These factors vary across the three phases of delay and are influenced by socioeconomic, cultural, and infrastructural barriers, particularly in resource-

limited settings. Understanding these factors is critical to developing effective strategies to reduce maternal mortality (Tiruneh *et al.*, 2020; Ekwuazi *et al.*, 2023; Meh *et al.*, 2020).

Strategies Implemented to Curb Delays in Emergency Obstetric Care and their Effectiveness

The consensus strategy to reduce deaths related to pregnancy and childbirth, emphasized by the Sustainable Development Goals (SDGs), focuses on increasing access to prompt emergency obstetrical care (EmOC) provided by skilled health personnel (Banke-Thomas and Avoka, 2022).

Successes Registered in Reducing Delays in Emergency Obstetric Care

Several countries have seen measurable success in reducing maternal mortality through various strategies (Banke-Thomas and Avoka, 2022).

Delays in accessing emergency obstetric care (EmOC) are a critical factor contributing to adverse maternal and neonatal outcomes. The three primary delays include the decision to seek care during pregnancy, the time taken to reach a healthcare facility, and the delay in receiving timely care at the healthcare facility. Key contributors to these delays include a lack of awareness of pregnancy danger signs and the need for prompt medical intervention, geographical inaccessibility, inadequate communication between healthcare centers and referral hospitals, and high patient loads.

However, several countries have successfully mitigated these delays through strategies such as enhancing the availability and quality of services, implementing national ambulance systems, introducing community financing schemes for transportation, improving the equipment at health facilities, and launching educational programs targeting women.

Such initiatives have demonstrated measurable success in reducing maternal mortality, underscoring the importance of timely and effective access to EmOC in improving maternal and neonatal outcomes.

Table.1 Types of delays in emergency obstetric care (emoc)

Type of Delay	Reason for Delay	Recommendation
Delay 1: Delay in Deciding to Seek Care	Cultural practices that promote gender inequality and subjugate women's rights, illiteracy, ignorance of pregnancy complications, previous negative experiences in healthcare, and financial constraints (Talom <i>et al.</i> , 2021; Henri <i>et al.</i> , 2020; Vidler <i>et al.</i> , 2023; Tesfay <i>et al.</i> , 2022).	Implement community education on maternal health and complications (Talom <i>et al.</i> , 2021); introduce women's empowerment programs (Henri <i>et al.</i> , 2020); provide financial support and healthcare incentives for low-income families.
Delay 2: Delay in Identifying and Reaching Care	Lack of transportation, high transportation costs, long travel distances, sparsely distributed EmOC facilities, ineffective referrals, and geographic challenges such as rural terrain (Meh <i>et al.</i> , 2020; Tesfay <i>et al.</i> , 2022; Hirose <i>et al.</i> , 2015).	Strengthen transportation services by subsidizing travel costs, develop better referral networks to reduce delay times, increase the number of EmOC facilities, especially in rural and hard-to-reach areas.
Delay 3: Delay in Receiving Quality Care	Inadequate equipment, shortage of skilled personnel, poorly motivated healthcare workers, and dysfunctional referral systems within healthcare facilities (Geleto <i>et al.</i> , 2018; Henri <i>et al.</i> , 2020; Tesfay <i>et al.</i> , 2022).	Increase staffing and provide ongoing professional training for healthcare workers (Geleto <i>et al.</i> , 2018); improve medical infrastructure and supply chains for essential equipment, incentivize and provide support for healthcare workers to enhance motivation (Teskay <i>et al.</i> , 2022).

Table.2 Factors contributing to delays in emergency obstetric care

Factors Contributing to Delay	Reason for Delay	Recommendations
Delay in Deciding to Seek Care	Lack of awareness of pregnancy danger signs and the importance of timely medical intervention. Women may not recognize symptoms that need immediate care (Nahar <i>et al.</i> , 2011; Assefa and Berhane, 2020).	Conduct community awareness programs on pregnancy complications and educate women about the importance of early care.
	Sociocultural barriers, such as the inability of women to make autonomous decisions about their health, especially in rural areas where male decision-makers dominate (Tiruneh <i>et al.</i> , 2020; Ayalew Tiruneh <i>et al.</i> , 2021).	Promote women's autonomy through education, engage family decision-makers, and advocate for gender equality in health.
	Perceived inequity and mistreatment by healthcare providers, causing women to avoid institutional care (Tiruneh <i>et al.</i> , 2020).	Implement training programs for healthcare workers to improve respectful maternity care and reduce mistreatment.
	Financial barriers, including costs for transportation and healthcare services, deter timely decisions to seek care, especially in low-income settings (Ekwuazi <i>et al.</i> , 2023; Hutchinson <i>et al.</i> ,	Offer financial subsidies or community-based health insurance schemes to reduce financial barriers for families.

	2018). Preference for home deliveries by traditional birth attendants or family members, especially in rural communities (Assefa and Berhane, 2020; Jammeh <i>et al.</i> , 2011).	Regulate traditional birth attendants and integrate them into the healthcare system to ensure timely referrals.
Delay in Reaching Care	Geographical inaccessibility in rural areas, poor road conditions, and long distances to healthcare facilities (Afari <i>et al.</i> , 2014).	Improve road infrastructure, especially in rural areas, and ensure that EmOC services are accessible within shorter distances.
	Inadequate and unreliable transportation systems, such as broken ambulances and shortages of drivers, delay arrival at facilities (Anne Austin <i>et al.</i> , 2015).	Strengthen transportation systems by maintaining ambulances, increasing ambulance availability, and training more drivers.
	Poor road conditions, particularly during bad weather, limit accessibility to healthcare facilities (Afari <i>et al.</i> , 2014; Assefa and Berhane, 2020).	Invest in better road networks and implement measures to make roads usable year-round, regardless of weather conditions.
	High transportation costs prevent families from seeking care, especially for long-distance travel (Ekwuazi <i>et al.</i> , 2023; Afari <i>et al.</i> , 2014).	Introduce affordable or subsidized transport options for pregnant women in remote areas.
Delay in Receiving Care at Healthcare Facilities	Lack of communication and coordination between referring centers and hospitals, which delays preparation for emergency cases (Afari <i>et al.</i> , 2014).	Establish a standardized referral process and improve communication systems between health centers and hospitals.
	Overcrowded healthcare facilities, which lead to long wait times and delayed emergency obstetric interventions (Anne Austin <i>et al.</i> , 2015).	Expand healthcare facilities, recruit more staff, and improve the triage system to manage emergency cases more efficiently.
	Shortages of skilled personnel, particularly at night, prevent immediate care for emergency cases (Knight <i>et al.</i> , 2013).	Increase the number of healthcare workers and introduce night shifts for emergency obstetric care.
	Lack of necessary infrastructure, equipment, and essential drugs, which delays life-saving interventions (Knight <i>et al.</i> , 2013).	Improve supply chains for medical equipment and drugs, and upgrade infrastructure to handle obstetric emergencies.
	Inefficiencies in the referral system, including unreliable ambulances and lack of personnel to accompany patients, delay timely care (Anne Austin <i>et al.</i> , 2015; Knight <i>et al.</i> , 2013).	Create a more reliable ambulance system, ensure that accompanying personnel are available, and streamline referral protocols.

Table.3 Strategies implemented to curb delays in emergency obstetric care and their effectiveness.

Strategy	Effectiveness
Education and Empowerment	Delays childbearing, reduces fertility rates, and increases uptake of family planning and maternal healthcare services (Ekwuazi <i>et al.</i> , 2023).
Community Health Worker Competency Development	Enhances community engagement, improves health outcomes (Nahar <i>et al.</i> , 2011).
Involving Communities in Health Education	Increases awareness, promotes timely decision-making (Ekwuazi <i>et al.</i> , 2023).
Ghana National Ambulance System	Initially showed promise, but faces challenges in scaling up (Banke-Thomas <i>et al.</i> , 2022; Pacagnella <i>et al.</i> , 2014).
Community Financing Schemes	Addresses transportation barriers, increases access to care (Afar <i>et al.</i> , 2014).
Mobile Health Apps	Coordinates referrals, reduces transportation delays (Relyea <i>et al.</i> , 2021).
Training Tricycle Riders and Private Taxi Drivers	Increases transportation options, reduces delays (Banke-Thomas <i>et al.</i> , 2022).
Strengthening Healthcare Infrastructure	Improves quality of care, reduces facility delays (Ekwuazi <i>et al.</i> , 2023).
Obstetric Triage Systems	Prioritizes emergency cases, reduces delays (David M. Goodman <i>et al.</i> , 2017).

Table.4 Successes registered in reducing delays in emergency obstetric care lessons learned.

Country	Successes Registered	Lessons Learned
Bangladesh	Reduced maternal mortality ratio from 322 to 194 per 100,000 live births (Panciera <i>et al.</i> , 2016).	Community engagement and empowerment initiatives require expansion and support (Nahar <i>et al.</i> , 2011).
Nepal	Decreased maternal deaths, improved women's health (Pokharel and Budhathoki, 2019)	Incentivizing healthcare services can improve outcomes
Ethiopia	Decline in maternal deaths through community-based programs (Tesfay <i>et al.</i> , 2022)	Addressing regional disparities and ensuring healthcare services reach vulnerable populations is crucial
Ghana	Implemented national referral policy, but faces resource constraints and communication issues (Banke-Thomas <i>et al.</i> , 2022).	Sustainable solutions require addressing socioeconomic factors and transportation barriers (Banke-Thomas <i>et al.</i> , 2022).

Recommendations

- Implement community education programs to raise awareness about pregnancy danger signs and emphasize the need for swift decision-making to seek emergency obstetric care and engage
- Expand national ambulance services and develop community-based transportation schemes, especially in rural and remote areas, to reduce geographical barriers
- Establish efficient communication channels between primary health centers and referral hospitals to ensure timely coordination and preparedness for emergency cases.
- Ensure that healthcare facilities, especially in resource-limited settings, are adequately staffed and

equipped with essential resources to handle emergency obstetric cases.

Author Contributions

J. N. Tosi: Investigation, formal analysis, writing—original draft. K. N. Liforter: Validation, methodology, writing—reviewing. M. B. S. Atanga:—Formal analysis, writing—review and editing.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical Approval Not applicable.

Consent to Participate Not applicable.

Consent to Publish Not applicable.

Conflict of Interest The authors declare no competing interests.

References

Afari H, Hirschhorn LR, Michaelis A, Barker P, Sodzi-Tetty S. Quality improvement in emergency obstetric referrals: qualitative study of provider perspectives in Assin North District, Ghana. *BMJ Open*. 2014 May 15;4(5):e005052. <https://doi.org/10.1136/bmjopen-2014-005052>

Alam N, Hajizadeh M, Dumont A, Fournier P. Inequalities in maternal health care utilization in sub-Saharan African countries: a multiyear and multi-country analysis. *PloS One*. 2015;10(4):e0120922. <https://doi.org/10.1371/journal.pone.0120922>

Assefa EM, Berhane Y. Delays in emergency obstetric referrals in Addis Ababa hospitals in Ethiopia: a facility-based, cross-sectional study. *BMJ Open*. 2020 Jun 23;10(6):e033771. <https://doi.org/10.1136/bmjopen-2019-033771>

Ayalew Tiruneh G, Melkamu Asaye M, Solomon AA, Tiruneh Arega D. Delays during emergency obstetric care and their determinants among mothers who gave birth in South Gondar zone hospitals, Ethiopia. A cross-sectional study design. *Glob Health Action*. 2021 Jan 1;14(1):1953242. <https://doi.org/10.1080/16549716.2021.1953242>

Banke-Thomas A, Avoka CK on, Gwacham-Anisiobi U, Omololu O, Balogun M, Wright K, *et al.*, Travel of pregnant women in emergency situations to hospital and maternal mortality in Lagos, Nigeria: a retrospective cohort study. *BMJ Glob Health*. 2022 Apr;7(4):e008604. <https://doi.org/10.1136/bmjgh-2022-008604>

Barriers to providing quality emergency obstetric care in Addis Ababa, Ethiopia: Healthcare providers' perspectives on training, referrals and supervision, a mixed methods study | *BMC Pregnancy and Childbirth* | Full Text [Internet]. [cited 2023 Dec 30]. Available from:

<https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-015-0493-4>

Ekwuazi EK, Chigbu CO, Ngene NC. Reducing maternal mortality in low-and middle-income countries. *Case Rep Womens Health* [Internet]. 2023 [cited 2024 Sep 18];39. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10636262/>

Eshetu D, Aschalew Z, Bante A, Fikedu G, Abebe M, Gomora D, *et al.*, Delay in receiving emergency obstetric care and associated factors among mothers who gave birth in public hospitals of Bale and East Bale zones, Oromia region, South East Ethiopia: Facility based cross-sectional study. *Heliyon*. 2023 Jul;9(7):e18217. <https://doi.org/10.1016/j.heliyon.2023.e18217>

Geleto A, Chojenta C, Musa A, Loxton D. Barriers to access and utilization of emergency obstetric care at health facilities in sub-Saharan Africa: a systematic review of literature. *Syst Rev*. 2018 Nov 13;7(1):183. <https://doi.org/10.1186/s13643-018-0842-2>

Geleto A, Chojenta C, Mussa A, Loxton D. Barriers to access and utilization of emergency obstetric care at health facilities in sub-Saharan Africa-a systematic review protocol. *Syst Rev*. 2018 Apr 16;7(1):60. <https://doi.org/10.1186/s13643-018-0720-y>

Henri E, Gregory HE, Thomas EO, Theophile NN, Roger M, Colette NM, *et al.*, (2020) Maternal Mortality in Cameroon: Prevalence Survey and Epidemiological Aspects at the Laquintinie Hospital in Douala from 2011 to 2016. <https://doi.org/10.35248/2161-10932.2020.10.522>

Hirose A, Borchert M, Cox J, Alkozai AS, Filippi V. Determinants of delays in travelling to an emergency obstetric care facility in Herat, Afghanistan: an analysis of cross-sectional survey data and spatial modelling. *BMC Pregnancy Childbirth*. 2015 Feb 5;15:14. <https://doi.org/10.1186/s12884-015-0435-1>

Hutchinson K, Bryant M, Bachman DeSilva M, Price D, Sabin L, Bryson L, *et al.*, Delayed access to emergency obstetrical care among preeclamptic and non-preeclamptic women in Port-Au-Prince, Haiti. *BMC Pregnancy Childbirth*. 2018 Aug 20;18(1):337. <https://doi.org/10.1186/s12884-018-1961-4>

Jammeh A, Sundby J, Vangen S. Barriers to emergency obstetric care services in perinatal deaths in rural

- gambia: a qualitative in-depth interview study. *ISRN Obstet Gynecol.* 2011;2011:981096. <https://doi.org/10.5402/2011/981096>
- Knight HE, Self A, Kennedy SH. Why are women dying when they reach hospital on time? A systematic review of the “third delay.” *PloS One.* 2013;8(5):e63846. <https://doi.org/10.1371/journal.pone.0063846>
- Kurjak A, Stanojević M, Dudenhausen J. Why maternal mortality in the world remains tragedy in low-income countries and shame for high-income ones: will sustainable development goals (SDG) help? *J Perinat Med.* 2023 Feb 23;51(2):170–181. <https://doi.org/10.1515/jpm-2022-0061>
- Meh C, Thind A, Terry AL. Ratios and determinants of maternal mortality: a comparison of geographic differences in the northern and southern regions of Cameroon. *BMC Pregnancy Childbirth.* 2020 Dec;20(1):194. <https://doi.org/10.1186/s12884-020-02879-y>
- Nahar S, Banu M, Nasreen HE. Women-focused development intervention reduces delays in accessing emergency obstetric care in urban slums in Bangladesh: a cross-sectional study. *BMC Pregnancy Childbirth.* 2011 Jan 30;11:11. <https://doi.org/10.1186/1471-2393-11-11>
- Pacagnella RC, Cecatti JG, Parpinelli MA, Sousa MH, Haddad SM, Costa ML, *et al.*, Delays in receiving obstetric care and poor maternal outcomes: results from a national multicentre cross-sectional study. *BMC Pregnancy Childbirth.* 2014 Dec;14(1):159. <https://doi.org/10.1186/1471-2393-14-159>
- Pancierera R, Khan A, Rizvi SJR, Ahmed S, Ahmed T, Islam R, *et al.*, The influence of travel time on emergency obstetric care seeking behavior in the urban poor of Bangladesh: a GIS study. *BMC Pregnancy Childbirth.* 2016 Dec;16(1):240. <https://doi.org/10.1186/s12884-016-1032-7>
- Pokharel HP, Budhathoki SS. A Call for Action to Further Improve Maternal Health and Reduce Maternal Deaths in Nepal. *Birat J Health Sci.* 2019 Jan 1;3(3):511–3. <https://doi.org/10.3126/bjhs.v3i3.22165>
- Relyea B, Wringe A, Afaneh O, Malamas I, Teodoro N, Ghafour M, *et al.*, Stakeholders’ Perspectives on the Challenges of Emergency Obstetric Referrals and the Feasibility and Acceptability of an mHealth Intervention in Northern Iraq. *Front Glob Womens Health.* 2021;2:662256. <https://doi.org/10.3389/fgwh.2021.662256>
- Talom AK, Ymele FF, Nzene EM, Fouedjio J, Foumane P. Maternal mortality in two reference hospitals in the city of Yaounde (Cameroon): epidemiological, clinical and prognostic aspects. *Open J Obstet Gynecol.* 2021;11(5):610–625. <https://doi.org/10.4236/ojog.2021.115057>
- Tesfay N, Tariku R, Zenebe A, Mohammed F, Woldeyohannes F. Area of focus to handle delays related to maternal death in Ethiopia. *PloS One.* 2022;17(9):e0274909. <https://doi.org/10.1371/journal.pone.0274909>
- The third delay: understanding waiting time for obstetric referrals at a large regional hospital in Ghana | *BMC Pregnancy and Childbirth* [Internet]. [cited 2023 Dec 30]. Available from: <https://link.springer.com/article/10.1186/s12884-017-1407-4>
- Tiruneh GA, Arega DT, Kassa BG, Bishaw KA. Delay in making decision to seek care on institutional delivery and associated factors among postpartum mothers in South Gondar zone hospitals, 2020: A cross-sectional study. *Heliyon.* 2022 Mar;8(3):e09056. <https://doi.org/10.1016/j.heliyon.2022.e09056>
- Vidler M, Kinshella MLW, Sevene E, Lewis G, von Dadelszen P, Bhutta Z, *et al.*, Transitioning from the “Three Delays” to a focus on continuity of care: a qualitative analysis of maternal deaths in rural Pakistan and Mozambique. *BMC Pregnancy Childbirth.* 2023 Oct 23;23(1):748.

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