

International Digital Organization for Scientific Research
IDOSR JOURNAL OF SCIENCE AND TECHNOLOGY 12(2):73-77, 2026.
<https://doi.org/10.59298/IDOSR/JST/26/122.7377>

IDOSR JST/26/1220000

Examining Hypertension and Maternal Mortality Rates in West Africa: A Narrative Review

Ernest Nsubuga

Department of Clinical Pharmacy Kampala International University Uganda
Email: ernest.nsubuga@studwc.kiu.ac.ug

ABSTRACT

Maternal mortality remains disproportionately high across West Africa, reflecting a convergence of clinical risk (hypertensive disorders of pregnancy, HDP), delayed recognition of danger signs, and health-system constraints. Hypertension in pregnancy, chronic HTN, gestational HTN, pre-eclampsia, and eclampsia drive preventable maternal deaths through stroke, pulmonary edema, renal failure, HELLP syndrome, and multisystem organ dysfunction. This review synthesizes evidence on (i) the burden and patterns of maternal mortality in West Africa, (ii) mechanistic links between HTN/HDP and maternal death, (iii) contextual determinants (the “3 delays,” quality of care, referral pathways, and commodity readiness), and (iv) high-impact interventions—from antenatal risk detection to emergency management (MgSO₄, rapid BP control, timely delivery). We highlight implementation gaps and propose a pragmatic, West Africa-adapted action agenda to reduce HDP-related mortality.

Keywords: West Africa, maternal mortality, hypertension, pre-eclampsia, eclampsia, HELLP, magnesium sulfate, emergency obstetric care

INTRODUCTION

Maternal mortality, defined as the death of a woman during pregnancy, childbirth, or within 42 days postpartum from pregnancy-related causes, remains one of the clearest indicators of health system performance, service quality, and equity. While the world has recorded measurable progress in reducing maternal deaths since the early 2000s, these gains have not been evenly distributed. Maternal deaths remain disproportionately concentrated in low- and lower-middle-income countries, where health systems often face constraints in financing, workforce capacity, referral networks, commodities, and timely access to emergency obstetric care [1]. Within this global context, West Africa continues to carry a substantial burden of maternal mortality and severe maternal morbidity, reflecting both high-risk population profiles and persistent gaps in coverage and quality of maternal health services. A large proportion of maternal deaths in the region are attributable to direct obstetric causes: conditions that arise from pregnancy itself or from its management. Among these, hypertensive disorders of pregnancy (HDP), including chronic hypertension, gestational hypertension, pre-eclampsia, eclampsia, and pre-eclampsia superimposed on chronic hypertension, consistently rank among the leading causes of maternal death, often alongside obstetric hemorrhage and sepsis [2]. HDP also contributes substantially to “near-miss” events, where a woman narrowly survives a life-threatening complication, leaving lasting physical, psychological, and socioeconomic consequences for her and her household.

Hypertension in pregnancy matters for four practical reasons. First, it is common, affecting a meaningful proportion of pregnancies and placing a large absolute number of women at risk. Second, it is frequently silent until severe; many women may not feel ill until complications develop, especially when routine blood pressure monitoring and urine protein testing are inconsistent. Third, the disease trajectory can be rapid and unpredictable, particularly for pre-eclampsia and eclampsia, where progression from mild symptoms to seizures, stroke, pulmonary edema, renal failure, placental abruption, or death may occur within hours to days. Fourth—and most importantly, it is highly preventable and treatable when detected early and managed with evidence-based protocols, including reliable screening, timely risk stratification, antihypertensive therapy for severe hypertension, magnesium sulfate for seizure

prevention and treatment, corticosteroids when preterm delivery is anticipated, and well-coordinated delivery planning and referral [3].

Despite the availability of effective interventions, the real-world outcomes of HDP in West Africa are shaped by multiple interacting factors. These include late initiation of antenatal care, limited continuity of care, inadequate screening tools or commodities, delays in recognizing danger signs, and barriers to emergency referral such as transport costs, long distances, poor roads, and limited ambulance systems. Facility-level challenges may include shortages of skilled providers, inconsistent adherence to clinical guidelines, limited laboratory capacity, stock-outs of magnesium sulfate and antihypertensives, and insufficient critical care support for women with complications. Social and structural determinants like poverty, low health literacy, gender dynamics affecting decision-making, and unequal access to care can further amplify risks [4]. As a result, women may present late with advanced disease, making management more difficult and increasing the likelihood of adverse maternal and perinatal outcomes. Beyond maternal death, HDP is a major driver of perinatal morbidity and mortality. Pre-eclampsia is associated with fetal growth restriction, preterm birth (often iatrogenic to save the mother), low birth weight, stillbirth, and neonatal complications requiring specialized care. These outcomes place additional burdens on families and health systems, and they contribute to a cycle of poor health and economic vulnerability. Therefore, addressing HDP is central not only to reducing maternal mortality, but also to improving newborn survival and long-term population health [5].

Although hypertensive disorders of pregnancy (HDP) are preventable and treatable, West Africa still records avoidable maternal and perinatal deaths and severe morbidity from eclampsia, stroke, and organ failure. This ongoing burden implies failures across the care pathway: late antenatal attendance and weak routine screening lead to missed/late diagnosis; frontline facilities may delay magnesium sulfate, inadequately control severe hypertension, or lack essential supplies; referral systems are often slow, with delayed transfers to higher-level care; and guideline adherence varies due to limited training and supervision [6]. Uneven service organization and access to emergency obstetric care further widen outcomes. Yet locally relevant data on HDP patterns, management, and outcomes remain insufficient to guide policy and quality improvement. The study aims to assess the burden and patterns of adverse maternal outcomes linked to hypertensive disorders of pregnancy (HDP) in West Africa and to identify the key clinical and health-system factors driving these outcomes. Operationally, this can include estimating the prevalence/incidence of HDP, describing major maternal complications and near-miss events, and examining determinants such as timing and adequacy of antenatal care (ANC), referral delays, availability and use of magnesium sulfate and antihypertensives, and adherence to standard management protocols. The significance of this work is fivefold: it supports preventable maternal death reduction and equity by targeting a leading cause of mortality; it strengthens quality of care by pinpointing breakdowns such as late detection, delayed treatment, stock-outs, weak referral pathways, and guideline non-compliance; it guides resource allocation toward high-impact inputs (BP devices, urine dipsticks, essential drugs, labs, and transport); it improves perinatal outcomes by reducing stillbirth, prematurity, and neonatal complications; and it contributes region-specific evidence to inform policy, MDSR, guideline adaptation, and implementation research on feasible innovations in West African settings.

Maternal mortality burden in West Africa: where we are

Maternal mortality remains unacceptably high across West Africa, reflecting a structural risk environment shared with the wider Western and Central Africa subregion, where modelled maternal mortality ratios (MMR) still sit in the hundreds of deaths per 100,000 live births. While regional aggregates signal the scale of the problem, country-level UN inter-agency, World Bank, and WHO trend datasets highlight substantial within-region variation, yet few countries have achieved the pace of decline needed to meet global targets [7]. The persistence of high risk is driven less by a single cause than by interacting health-system and social constraints. On the care continuum, many women book antenatal care (ANC) late and have fewer contacts, limiting early detection of hypertensive disorders, anemia, infection, and other complications. Facility-level risk stratification is often weak, with inconsistent blood pressure measurement, proteinuria testing, and symptom screening [8]. When complications occur, emergency transport and referral pathways may be slow or fragmented, while essential commodities (e.g., magnesium sulfate, antihypertensives) and basic monitoring equipment are not reliably available. Workforce gaps, uneven protocol adherence, and quality-of-care deficits further compound risk. Financial barriers and sociocultural constraints especially limited decision-making autonomy- reinforce care-seeking delays. Collectively, these factors map tightly onto the “3 delays” model: delays in deciding, reaching, and receiving effective care [9].

Hypertension in pregnancy: definitions and clinical spectrum

Hypertensive disorders of pregnancy (HDP) comprise a continuum of conditions defined by the timing of hypertension onset and the presence (or absence) of maternal and fetoplacental complications. Chronic hypertension refers to blood pressure elevation that predates conception or is first recognized before 20 weeks' gestation, implying pre-existing vascular disease or unmasked essential hypertension [10]. In contrast, gestational hypertension is new-onset hypertension at ≥ 20 weeks without proteinuria or other features of end-organ involvement, but it requires close surveillance because it may evolve into pre-eclampsia. Pre-eclampsia (PE) is characterized by hypertension

plus proteinuria and/or evidence of maternal organ dysfunction (e.g., renal impairment, hepatic injury, thrombocytopenia, neurologic symptoms) and/or uteroplacental dysfunction (e.g., fetal growth restriction) [11]. Eclampsia represents the convulsive form of PE, defined by the occurrence of seizures not attributable to other neurologic causes. A particularly severe phenotype is HELLP syndrome hemolysis, elevated liver enzymes, and low platelets often considered a variant of severe PE with high maternal–fetal risk. Importantly, PE can be fatal even without seizures, through catastrophic complications such as intracranial hemorrhage or stroke, pulmonary edema, hepatic rupture, disseminated intravascular coagulation, and acute kidney injury, underscoring the need for early recognition and rapid escalation of care [12].

Epidemiology: how common is HDP in the region

HDP is a major obstetric burden in Sub-Saharan Africa, with prevalence consistently described as substantial, though estimates vary widely across countries and facilities because of differences in diagnostic thresholds, case definitions (e.g., gestational HTN vs PE/eclampsia), gestational age at assessment, and whether data come from community samples or high-risk referral hospitals. Even with this heterogeneity, the public health signal is clear: HDP contributes disproportionately to severe maternal morbidity and to preventable perinatal harm, including stillbirth, prematurity, fetal growth restriction, and neonatal complications linked to placental dysfunction and iatrogenic early delivery [13]. Evidence from Nigeria underscores the gravity of the problem; recent systematic review/meta-analytic data focusing on pre-eclampsia/eclampsia indicate meaningful prevalence alongside high rates of catastrophic outcomes such as seizures, stroke, organ failure, and maternal death, highlighting that HDP is not only common but also highly lethal when care pathways break down. Crucially, the progression from HDP to mortality is rarely inevitable or due to missing biomedical knowledge. Rather, deaths are frequently mediated by health-system delays (late recognition, late presentation, slow referral, transport barriers) and quality gaps within facilities (inconsistent BP/proteinuria screening, delayed magnesium sulfate/antihypertensives, limited laboratory monitoring, blood shortages, ICU constraints, and weak postpartum follow-up). Thus, epidemiology in the region reflects both true disease burden and the consequences of fragile response systems [14].

Contribution of hypertension to maternal deaths: the signal from facility data

Facility audits consistently flag hypertensive disorders of pregnancy (HDP) as a major driver of maternal mortality, sending a clear signal from high-acuity hospital data. In Ghana, for example, facility reviews repeatedly identify eclampsia and HELLP syndrome among the leading immediate causes of HDP-related deaths. While hospital datasets can over-represent severe referred cases, they offer granular, “high-resolution” insight into the terminal pathways through which women die, insight that is indispensable for prevention [15]. Clinically, hypertension kills through several mechanisms that require rapid recognition and decisive care: (i) cerebrovascular catastrophe, where severe blood pressure precipitates intracerebral hemorrhage or ischemic stroke, especially when BP control and monitoring are delayed; (ii) pulmonary edema and cardiac failure, driven by endothelial leak, fluid shifts, and sometimes iatrogenic overload, with anemia or infection compounding risk; (iii) coagulopathy overlapping with hemorrhage, as PE/HELLP progresses to thrombocytopenia and DIC, amplifying postpartum bleeding so that “hemorrhage” and “HDP” often interact rather than compete; and (iv) renal and hepatic failure, including AKI and severe liver dysfunction from late-presenting HELLP, demanding stabilization plus delivery capability. In West Africa, these risks are intensified by delays and weak referral loops, inconsistent magnesium sulfate readiness and protocol adherence, and data quality gaps that misclassify causes and undercount HDP deaths [16].

Antenatal care (ANC): detect early, classify risk, prevent progression

Antenatal care (ANC) is the first, best chance to detect hypertensive disorders early, classify risk, and prevent progression to severe pre-eclampsia/eclampsia. At every contact, a minimum package should be reliably delivered: blood pressure measurement using validated devices, a focused symptom screen (headache, visual disturbance, right-upper-quadrant pain, dyspnea, and reduced fetal movements), and urine protein testing where feasible. Equally important are clear, locally agreed thresholds for referral plus same-day escalation pathways so that abnormal findings trigger action rather than delays. For women at higher risk, prevention should be targeted: context-appropriate risk stratification, prophylaxis and closer follow-up aligned to national and WHO-consistent guidance, and practical counseling on adherence and early warning signs. During labour and emergencies, the priority shifts to “treat now, deliver safely.” A core bundle for severe pre-eclampsia/eclampsia includes magnesium sulfate for seizure prevention/treatment, rapid blood pressure control with appropriate antihypertensives and close monitoring, and basic labs (platelets, creatinine, AST/ALT) when available, but investigations must never delay stabilization or referral [17]. Timely delivery, when maternal or fetal indications are met, is often definitive. Postpartum remains a missed window: many severe events occur after birth, so blood pressure monitoring for ≥ 48 hours, danger-sign counseling at discharge, early postnatal review for HDP, and transition to long-term cardiovascular risk management are essential.

Implementation priorities for West Africa

West Africa needs a pragmatic, facility-to-community action agenda to cut hypertensive disorders of pregnancy (HDP) deaths quickly and measurably. First, standardize HDP triage and emergency care at every level of the health

system using one-page algorithms, routine drills, and bedside checklists so recognition and response are consistent, not clinician-dependent. Second, guarantee uninterrupted magnesium sulfate (MgSO_4) supply and correct administration through commodity security, competency-based training, and on-the-job mentorship. Third, tighten referral systems by mandating pre-referral MgSO_4 and an initial antihypertensive dose, structured referral communication, and realistic transport plans that anticipate delays. Fourth, expand maternal death surveillance and response (MDSR) with explicit HDP audit triggers for late diagnosis, absent MgSO_4 , delayed delivery, and inadequate monitoring to convert each death into prevention actions [18]. Fifth, implement task-sharing with quality safeguards by empowering midwives and nurses to screen, initiate stabilization, and escalate via clear supervision pathways. Sixth, strengthen community demand: birth preparedness, early ANC booking, and danger-sign literacy, explicitly including postpartum warning signs when risk often persists. Research priorities include standardized national/subnational HDP-attributable mortality estimates, implementation trials of HDP care bundles, cost-effectiveness of essential commodity packages, and equity-focused studies in conflict and hard-to-reach settings.

CONCLUSION

West Africa can reduce HDP deaths fastest by moving from broad commitments to a pragmatic facility-to-community execution agenda with clear indicators and accountability. Standardized triage and emergency care simple one-page algorithms, routine drills, and bedside checklists—can make timely recognition and response predictable across all levels of care. Ensuring uninterrupted MgSO_4 availability and correct administration through commodity security, competency-based training, and mentorship is non-negotiable. Referral pathways must be redesigned for reality: mandatory pre-referral MgSO_4 plus a first antihypertensive dose, structured communication, and transport plans that anticipate delays. MDSR should explicitly trigger HDP audits for late diagnosis, missing MgSO_4 , delayed delivery, and inadequate monitoring, turning every death into corrective action. Task-sharing can safely expand coverage when paired with supervision and escalation protocols. Community demand must be strengthened via early ANC, birth preparedness, and postpartum danger-sign literacy. Priority research should produce comparable HDP mortality estimates and test scalable care bundles, costs, and equity impact.

REFERENCES

1. Ekwuazi, E.K., Chigbu, C.O., Ngene, N.C.: Reducing maternal mortality in low- and middle-income countries. Case Rep. Womens Health. 39, e00542 (2023). <https://doi.org/10.1016/j.crwh.2023.e00542>
2. Souza, J.P., Day, L.T., Rezende-Gomes, A.C., Zhang, J., Mori, R., Baguiya, A., et al.: A global analysis of the determinants of maternal health and transitions in maternal mortality. Lancet Glob. Health. 12, e306–e316 (2024). [https://doi.org/10.1016/S2214-109X\(23\)00468-0](https://doi.org/10.1016/S2214-109X(23)00468-0)
3. Karrar, S.A., Martingano, D.J., Hong, P.L.: Preeclampsia. In: StatPearls. StatPearls Publishing, Treasure Island (FL) (2025)
4. Tchibozo, E.M.C., Gado, T.A.A., Sonou, Y.C.H., Amidou, S.A., Lacroix, P., Houinato, D.S., Bezanahary, H.: Late initiation of antenatal care and its associated factors among pregnant women in Benin: a facility based cross-sectional study. BMC Pregnancy Childbirth. 25, 1008 (2025). <https://doi.org/10.1186/s12884-025-08170-2>
5. Adonu C. C, Ugwu O. P. C, Bawa A, Ossai E. C, Nwaka A.C (2013). Intrinsic blood coagulation studies in patients suffering from both diabetes and hypertension. *Int Journal of Pharmaceutical Medicine and Bio Science*, 2 (2), 36-45.
6. Khan, Z.L., Balie, G.M., Chauke, L.: Hypertensive Disorders of Pregnancy Deaths: A Four-Year Review at a Tertiary/Quaternary Academic Hospital. Int. J. Environ. Res. Public. Health. 22, (2025). <https://doi.org/10.3390/ijerph22070978>
7. Onambele, L., Guillen-Aguinaga, S., Guillen-Aguinaga, L., Ortega-Leon, W., Montejo, R., Alas-Brun, R., et al: Trends, Projections, and Regional Disparities of Maternal Mortality in Africa (1990–2030): An ARIMA Forecasting Approach. Epidemiologia. 4, 322–351 (2023). <https://doi.org/10.3390/epidemiologia4030032>
8. Uti, D. E., Nwadum, S. K., Bawa, I., Alum, E. U., Mordi, J. C., Okoro, E. O., et al Buchholzia coriacea Leaves Attenuated Dyslipidemia and Oxidative Stress in Hyperlipidemic Rats and Its Potential Targets In Silico. *Pharmaceutical Fronts*. 2023; 05(03): e141-e152. DOI: 10.1055/s-0043-1772607.
9. Gilardi, E., Marsiliani, D., Nicolò, R., Petrucci, M., Torelli, E., Racco, S., et al.: Magnesium sulphate in the Emergency Department: an old, new friend. Eur. Rev. Med. Pharmacol. Sci. 23, 4052–4063 (2019). https://doi.org/10.26355/eurrev_201905_17836
10. Longhitano, E., Siligato, R., Torreggiani, M., Attini, R., Masturzo, B., Casula, V., et al: The Hypertensive Disorders of Pregnancy: A Focus on Definitions for Clinical Nephrologists. J. Clin. Med. 11, (2022). <https://doi.org/10.3390/jcm11123420>
11. Mohamed F. Y. M, Selim T, Hussein H M, Hassan A A A, Said A A, Said M S, et al (2024). Exploring the prevalence, clinical spectrum, and determinants of uncontrolled hypertension in the emergency department:

- Insights from a hospital-based study in Somalia. *Current Problems in Cardiology*, 102589. <https://doi.org/10.1016/j.cpcardiol.2024.102589>.
12. Magley, M., Hinson, M.R.: Eclampsia. In: StatPearls. StatPearls Publishing, Treasure Island (FL) (2025)
 13. Mwaniki, M.C., Omwodo, K.A., Ogutu, O., Pulei, A., Kosgei, R.J., Nyakundi, G.G., et al.: Comparing the risk of maternal and perinatal complications among women with hypertensive disorders of pregnancy to normotensive women: an institution-based cohort review in Kenya. *BMC Pregnancy Childbirth*. 25, 1166 (2025). <https://doi.org/10.1186/s12884-025-07941-1>
 14. Khan, Z.L., Balie, G.M., Chauke, L.: Hypertensive Disorders of Pregnancy Deaths: A Four-Year Review at a Tertiary/Quaternary Academic Hospital. *Int. J. Environ. Res. Public. Health*. 22, 978 (2025). <https://doi.org/10.3390/ijerph22070978>
 15. Boafor, T.K., Sepenu, P., Tamatey, A., Sefogah, P., Swarray-Deen, A., Sepenu, N.A., et al: Hypertensive pregnancy deaths: a three-year review at Ghana's largest referral hospital. *AJOG Glob. Rep.* 5, 100471 (2025). <https://doi.org/10.1016/j.xagr.2025.100471>
 16. Uduak E U, Netete B. V, Timbuak J. A, Ibegbu A. O, Musa S. A, Hamman W. O (2014). Dermatoglyphics and Cheiloscopy Pattern in Hypertensive Patients; A Study in Ahmadu Bello University Teaching Hospital, Zaria, Nigeria and Environs. *International Journal of Scientific and Research Publications*, 4, (5), 1-5.
 17. Poster Presentations. *Int. J. Gynecol. Obstet.* 171, 121–653 (2025). <https://doi.org/10.1002/ijgo.70503>
 18. Adhikari, B., Shrestha, L., Bajracharya, M., Aryal, N., Rajbhandari, A., Maharjan, R.K., et al.: Triage practices for emergency care delivery: a qualitative study among febrile patients and healthcare workers in a tertiary care hospital in Nepal. *BMC Health Serv. Res.* 24, 180 (2024). <https://doi.org/10.1186/s12913-024-10663-3>

CITE AS: Ernest Nsubuga. (2026). Examining Hypertension and Maternal Mortality Rates in West Africa: A Narrative Review. IDOSR JOURNAL OF SCIENCE AND TECHNOLOGY 12(2):73-77, 2026. <https://doi.org/10.59298/IDOSR/JST/26/122.7377>