

Despite global efforts to reduce preventable maternal and neonatal mortality, Nigeria's maternal mortality ratio is estimated at 576 deaths per 100,000 live births and neonatal death is estimated at 37 per 1,000 live births¹.

Maternal and newborn deaths due to pre-eclampsia and eclampsia (PE/E) are preventable, yet in Nigeria this is the most significant direct cause of maternal deaths.

To appreciate the enormity of this problem at country and state levels, a landscape analysis was conducted by the Population Council in 2015 on PE/E in seven states in Nigeria. The main objectives of the landscape analysis were:

- To understand the level of programmatic and policy support for PE/E prevention and treatment;
- To analyze the gaps in providers' knowledge and competence in preventing, detecting, and managing PE/E;
- To determine primary health care (PHC) facilities' capacities to manage PE/E;
- To assess community awareness, beliefs, and experiences around PE/E;
- To understand the volume of research on PE/E in the last 15 years; and
- To determine priority areas for research and programmatic interventions around PE/E.

The Ending Eclampsia project seeks to expand access to proven, underutilized interventions and commodities for the prevention, early detection, and treatment of pre-eclampsia and eclampsia and strengthen global partnerships.

PE/E IN BRIEF

- Pre-eclampsia is a condition in pregnant women marked by an increase in blood pressure and protein in urine after 20 weeks gestation.
- Providing high quality antenatal care improves the prevention and early detection of pre-eclampsia and can prevent its progression to eclampsia.
- Eclampsia is a life-threatening condition characterized by convulsions in women with PE.
- Women in developing countries are 300 times more likely to die from eclampsia than women in developed countries.
- Prescribing low-dose aspirin and calcium to at-risk women can prevent pre-eclampsia and eclampsia.
- Pre-eclampsia and eclampsia can be managed by administering anti-hypertensive drugs and magnesium sulphate (MgSO₄).
- MgSO₄ is the safest and most effective treatment for severe PE/E, and is one of 13 UN Life-Saving Commodities for Women and Children.
- PE/E and other hypertensive disorders in pregnancy increase the risk of pre-term births, which can lead to low birth weight, anemia, and stunting.
- Improved prevention, increased detection, and effective treatment of PE/E can prevent unnecessary maternal and newborn deaths.

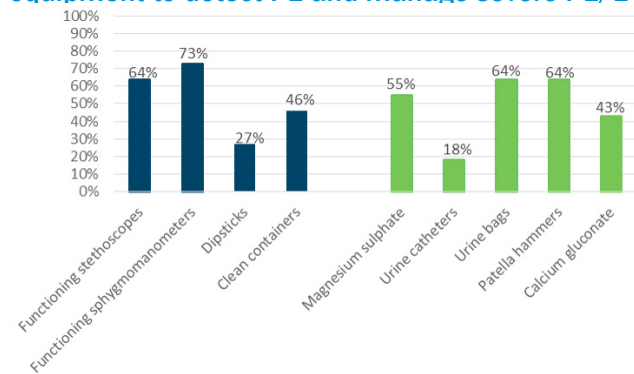


FACILITY CAPACITY AND PREPAREDNESS

To assess institutional preparedness, researchers visited eleven facilities in Ondo State and recorded that only three (27%) of the facilities had guidelines available for management of pre-eclampsia, two (18%) had all ANC equipment for the detection of PE/E and six (55%) use MgSO₄ for the treatment of eclampsia.

During these facility assessments, researchers determined whether the facilities had the key ANC equipment required to detect pre-eclampsia, manage severe PE/E, and monitor for MgSO₄ toxicity (figure 1).

FIGURE 1 Proportion of facilities with key equipment to detect PE and manage severe PE/E



Contrary to the facility assessment, five (46%) facility managers reported always using MgSO₄ to treat PE/E, two (18%) said it is sometimes used, and four (36%) reported that it is never used. When asked how they obtain MgSO₄, 43% of managers said they receive it routinely from central supply, 29% ask clients to purchase it and 9% said they procure it elsewhere (such as NGOs).

Although hospitals have the capacity to provide signal functions for emergency obstetric and neonatal care (EmONC), Table 1 shows that PHCs have limited capacity for conducting even basic EmONC.

TABLE 1 Signal functions for emergency obstetric and newborn care (EmONC)

	Tertiary/Secondary health facilities (n=7)		Primary Health facilities (n=4)	
	Capacity	Done in the last three months	Capacity	Done in the last three months
Parenteral antibiotics	6	6	4	4
Parenteral oxytocics	6	6	4	4
Parenteral anticonvulsants (MgSO ₄)	6	6	4	1
Manual removal of placenta	6	6	1	1
Removal of retained products	6	6	4	4
Assisted vaginal delivery	6	6	4	2
Blood transfusion	6	6	4	4

“In the past we were using diazepam to treat eclampsia but studies have shown MgSO₄ is the best option. Due to that, we started adopting MgSO₄, but I have not seen a national protocol written as such.”

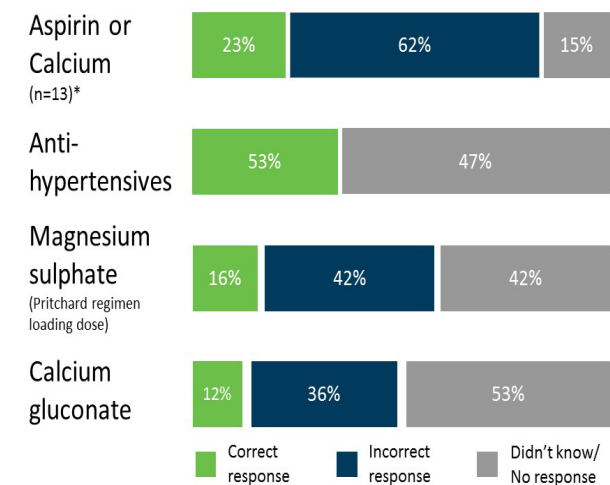
—POLICYMAKER, ONDO

PROVIDER KNOWLEDGE AND SKILLS

Providers had fine knowledge on signs and symptoms of PE (71%), E (75%), and chronic hypertension (61%) and only 12% could identify severe PE correctly.

Researchers also assessed health providers’ knowledge of drugs used for preventing and managing PE/E as well as calcium gluconate to treat MgSO₄ toxicity (figure 2).

FIGURE 2 Provider knowledge of drugs for PE/E prevention and management (n=59)



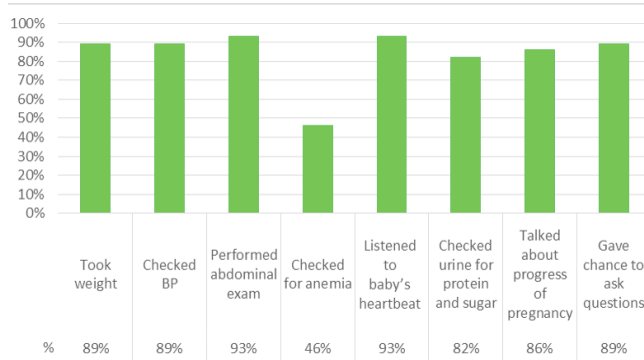
*Number of providers who had reported awareness of prophylactic drugs for PE/E

Figure 2 shows limited provider knowledge on prophylactic use of calcium and aspirin for women at risk of PE and which anti-hypertensives (aldomet or nifedipine) to use for managing high BP during pregnancy. The Pritchard regimen for MgSO₄ administration is considered the ‘gold standard’ for preventing and treating convulsions in severe PE/E, but few providers (15%) could accurately describe the appropriate doses of MgSO₄ or name the antidote for MgSO₄ toxicity, calcium gluconate (12%).

QUALITY OF CARE

Quality of care was assessed through observations of 22 client-provider interactions and 22 client exit interviews with the same pregnant women. Researchers assessed eight essential components of quality antenatal care (ANC). Figure 3 describes the components that clients received.

FIGURE 3 Percent of clients who received all eight ANC components



In addition to the eight essential components of ANC, questions and tests should be conducted to assess a woman's risk of developing PE/E, to detect PE/E, and inform clients of the signs of impending eclampsia.

During 14% of the observed ANC consultations, providers advised the clients on the symptoms of impending eclampsia (severe headache, blurred vision, and pre-eclampsia with generalized body swelling). In addition, 9% of providers observed in Ondo measured women's BP and checked urine for protein.

None of the providers, however, performed the necessary checks to detect women at risk of developing PE. These included history of high blood pressure (BP) and diabetes, date of last delivery, client's parity, age and weight, edema of face, hands, legs, and ankles.

COMMUNITY KNOWLEDGE AND PERCEPTIONS

The study also included in-depth interviews (IDIs) and focus group discussions (FGDs) with PE/E survivors, community stakeholders, and families affected by PE/E.

Married men reported too much stress, worrying about finances, and hard work as causes of high blood pressure, swelling, and bleeding in pregnancy. The men also said that to control these complications, they

should make their wives happy by giving her "a sense of belonging" and having sex with her, giving her fruit and making sure that she gets the correct drugs.

Women stated that high blood pressure during pregnancy is caused by witchcraft and over thinking, spiritual attacks, worrying about the pregnancy and delivery, and sleeplessness. Women also discussed seeking traditional or spiritual help for high blood pressure from herbalists and Imams, though they said that majority will go to hospital.

"Being afraid of the date of delivery [can cause high blood pressure in pregnancy]; maybe at the scanning they tell her [she is having] twins.."

—FEMALE FGD PARTICIPANT, ONDO

Overall, the qualitative findings show that the signs and symptoms associated with PE/E are often attributed to other causes and community members often seek traditional or spiritual healing before medical care. Misconceptions, myths, and mistrust between communities and health providers negatively influence care-seeking behaviors.

SURVIVORS' EXPERIENCES

Interviews with survivors documented their care-seeking pathways, including their PE/E experience, availability and accessibility of essential services and commodities, and the outcomes of the pregnancy for mother and child. Survivors' experiences provide insight informing strategies to work more closely with communities and health facilities improve access to, and use of, quality care.

The women interviewed were similar in age, ages at marriage and first pregnancy, and education. The following quotation demonstrates lack of awareness and poor health seeking behavior in a young woman during her first pregnancy.

"A few weeks after the ANC nurse told me I had high BP and advised me not to stress myself,

I went into labour and I went to the hospital so they tested me and they said ‘wow!’ My BP was too high.

They started giving me drugs and placed me on the bed, they told me to check the time and there would be drugs every hour and they would be monitoring my BP.

I thank God it was a successful labour, it was a successful labour.”

—PE/E SURVIVOR, ONDO

DISCUSSION & CONCLUSION

This landscape analysis identified the gaps in facilities’ and providers’ capacities for preventing, detecting, and managing PE/E; it assessed community awareness, beliefs, and experiences of PE/E; and it determined the gaps and priority areas for research and programs to improve access to prevention and treatment.

It is clear, at the state policy level, that there is limited knowledge of what has been developed nationally; there is confusion about how policies, guidelines, and protocols reach not only the states but also the facilities themselves, where they don’t seem to exist at all.

For effective PE/E management, health facilities need to stock necessary drugs and ANC equipment, and institutionalize guidelines for PE/E treatment. Researchers noted irregular supply of basic drugs, equipment, and supplies, particularly MgSO₄, patella hammers and the MgSO₄ antidote, calcium gluconate, which no facilities stocked.

Providers’ knowledge is generally poor in Ondo; health care providers need to be trained and re-trained on PE prevention—including when to administer prophylactic drugs such as calcium supplements and aspirin—and its early detection, and how and when to administer anti-hypertensives and MgSO₄ for early treatment of the condition.

In addition to ensuring providers are adequately trained to administer MgSO₄ at the right time, and with the

proper doses, they also need to know the warning signs for MgSO₄ toxicity and its antidote, calcium gluconate. There is also limited capacity for newborn resuscitation.

The final, essential component to reduce mortality from PE/E is community awareness. Community members need to know the signs of PE/E and understand the danger it poses for mothers and babies so they can seek medical care promptly.

A multi-pronged approach is required to address the systems issues that create barriers to women’s access to health care during pregnancy. Detecting and managing PE/E early can improve the survival rate in women and babies in Nigeria.

RECOMMENDATIONS

- Advocacy for streamlining state procurement and link to a national or central distribution system;
- Connecting with United Nations Commission on Life-Saving Commodities (UNCoLSC) for Women and Children, especially for maternal drugs which include MgSO₄;
- Training on quality ANC: what, why, how, when and where;
- Introduce task-shifting policy focusing on MNH “policy implementation plan” to include anti-hypertensives and MgSO₄;
- Train PHC workers to detect and provide loading dose of MgSO₄;
- Community awareness campaigns on the importance of ANC and seeking care early; and
- Engage men to encourage their support of their wives.

RESOURCES

1. National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria and Rockville, Maryland, USA: NPC and ICF International.
2. Oladapo OT, Adetoro OO, Ekele BA, Chama C, Etuk SJ, Aboyeji AP, Onah HE, Abasiattai AM, Adamu AN, Adegbola O, Adeniran AS, Aimakhu CO, Akinsanya O, Aliyu LD, Ande AB, Ashimi A, Bwala M, Fabamwo A, Geidam AD, Ikechebelun JI, Imaralu JO, Kuti O, Nwachukwu D, Omo-Aghoja L, Tunau K, Tukur J, Umeora OIJ, Umezulike AC, Dada OA, Tunçalp O, Vogel JP, Gülmezoglu AM, Nigeria Near-miss and Maternal Death Surveillance Network. When getting there is not enough: a nationwide cross-sectional study of 998 maternal deaths and 1451 near-misses in public tertiary hospitals in a low-income country. BJOG 2015; DOI: 10.1111/1471-0528.13450.