Research brief

ENDING Eclampsia

FINDINGS FROM LANDSCAPE ANALYSIS IN CROSS RIVER ON PRE-ECLAMPSIA/ECLAMPSIA

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 births [1].

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 ($MgSO_4$).
- $MgSO_4$ 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.

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FACILITY CAPACITY & PREPAREDNESS

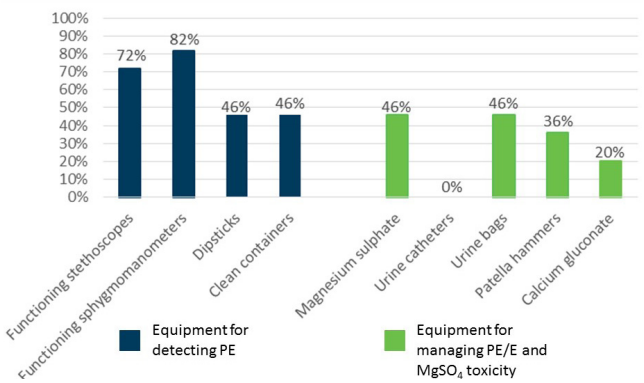
To assess institutional preparedness, researchers visited 11 facilities in Cross River State and recorded that four (36%) of the facilities had guidelines available for management of pre-eclampsia, two (18%) had all ANC equipment for the detection of PE/E and five (46%) use $MgSO_4$ for the treatment of eclampsia.

"For affordability, accessibility and availability, we have problems with each of them. For accessibility, the drugs are not always in stock. There are usually periodic stock outs so patients and their relatives are usually asked to go and get them from outside pharmacies. Affordability, I don't think it's all that difficult, though some patients find it difficult to afford it. It is not available the way it is supposed to, we have not attained the ideal situation yet.."

—POLICYMAKER, CROSS RIVER

During these facility assessments, researchers determined whether the facilities had the key ANC equipment required to detect pre-eclampsia, manage severe pre-eclampsia and eclampsia, and monitor for $MgSO_4$ toxicity (figure 1).

FIGURE 1 Proportion of facilities with key equipment to detect PE and manage severe PE/E (n=11)



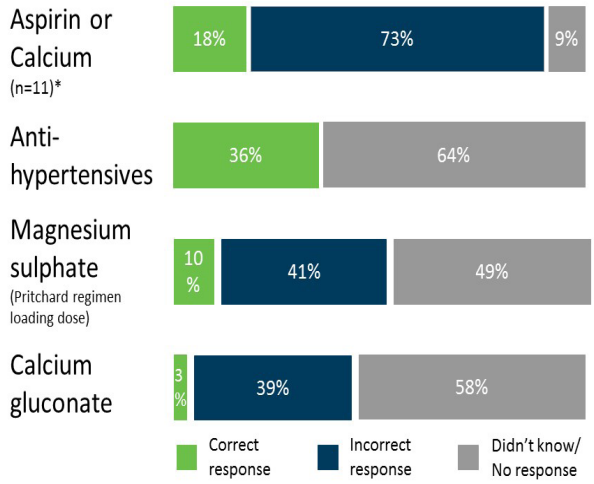
Four (36%) facility managers reported always using $MgSO_4$ to treat pre-eclampsia and eclampsia, one (9%) said it is sometimes used, and six (55%) reported that it is never used. When asked about how they obtain $MgSO_4$ supplies at the facility, the Council found that 80% receive the drug as part of the regular central supply and 20% require their clients to purchase it from the market.

PROVIDER KNOWLEDGE & SKILLS

Fifty-nine healthcare providers from Cross River participated in the study and answered questions about different aspects of PE/E prevention, detection, and treatment. Of the providers interviewed, 51% could correctly identify chronic hypertension in pregnancy, while 64% correctly identified signs and symptoms of pre-eclampsia, yet only 5% could identify severe pre-eclampsia, and 71% could correctly identify the signs and symptoms of eclampsia.

Researchers also assessed health care providers' knowledge of drugs used for preventing and managing PE/E as well as calcium gluconate to treat $MgSO_4$ 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

It is clear from the above results, that providers are unaware of the prophylactic use of calcium and aspirin for women at risk of pre-eclampsia. Only two (18%) knew that anti-hypertensives (aldomet or nifepdipine) can be used to manage high blood pressure in pregnant women. Factors affecting a woman's risk of PE/E include: high BP, diabetes, weight, client's parity, age, and edema; if high risk women are identified during ANC, aspririn or calcium can help reduce the risk of developing PE/E.

The Pritchard regimen for $MgSO_4$ administration is considered the 'gold standard' for preventing and treating convulsions in severe PE/E, but only a small percentage of providers (10%) could accurately describe the appropriate loading and maintenance doses of $MgSO_4$.

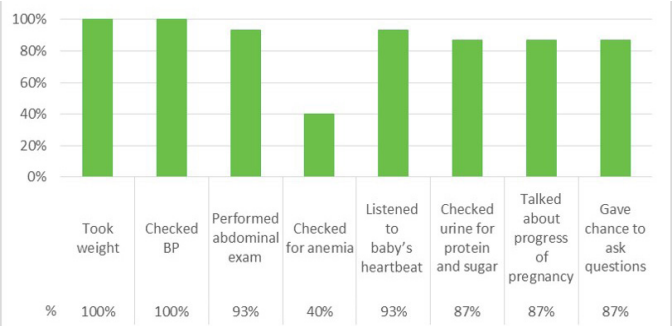
Meanwhile, only three percent of providers could name the appropriate antidote for $MgSO_4$ toxicity: calcium gluconate.

QUALITY OF CARE

Quality of care was assessed through client provider observations along with client exit interviews. In Cross River, the Council observed 15 client-provider interactions during ANC visits and interviewed the same women after their consultations.

Clients should receive eight components of quality ANC care at each visit, and researchers asked the 15 clients whether their health provider completed each component during the consultation (figure 3).

FIGURE 3 Percent of clients who received all eight ANC components (n=15)



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 75% of the observed ANC consultations, providers measured women's blood pressure (BP) and checked urine for protein. None of the providers observed, however, performed the necessary checks to detect women at risk of developing PE. These included history of high BP and diabetes, date of last delivery, client's parity, age and weight, edema of face, hands, legs, and ankles or advised the clients on the symptoms of impending eclampsia (severe headache, blurred vision, and pre-eclampsia with generalized body swelling).

COMMUNITY KNOWLEDGE & PERCEPTIONS

The study also included in-depth interviews (IDIs) and focus group discussions (FGDs) for qualitative information from PE/E survivors, community stakeholders, and families affected by PE/E. Misconceptions, myths, and mistrust between communities and health providers negatively influence care-seeking behaviors.

Each community has their own beliefs; some say that PE/E is a spiritual attack, some say that the woman has been bewitched. When they take an eclamptic woman to the church, the pastor will say that it is a spiritual attack and that they should pray for her.

"Some will say if they go to the traditional home they have their prayer warriors there but in the hospital, it is just a general checkup for everybody, if you go to traditional attendant, as they are treating you somebody is there praying for you and these herbs they give to you will drive off the evil spirit that is disturbing you."

—FEMALE FGD PARTICIPANT, CROSS RIVER

Local remedies are very present in Cross River. Sometimes women are given herbs and palm kernel oil is rubbed all over them. When a woman convulses, others will struggle to hold her down and they will put spoon in her mouth so that she will not bite her tongue (however, forcing objects into a woman's mouth during convulsions can lead to orofacial injuries). Some will also give a remedy of leaves or herbs to the woman.

"They have one belief of spiritual attack so they go to the church for prayers against spiritual attack and finally go to the hospital."

—MALE FGD PARTICIPANT, CROSS RIVER

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 in order to improve access to, and use of, quality care. The women interviewed were similar in age, ages at marriage and first pregnancy, and education.

> *"I lost the baby. It took a while before my blood pressure eventually normalized. The same headache was there, discomfort, swelling of the legs was there for quite a long time after the baby died."*
>
> —PE/E SURVIVOR, CROSS RIVER

DISCUSSION

This landscape analysis identified the gaps in facilities' and providers' capacities for preventing, detecting, and managing PE/E; assessing 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.

Facilities have shortages of equipment, drugs, and supplies to detect PE/E and although hospitals are able to conduct most of the signal fucntions, none of the PHC facilities have the capacity to provide $MgSO_4$ or perform other critical life-saving actions. Provider knowledge of signs and symptoms of PE/E and drug usage for prevention and treatment of PE/E is low.

Consistent with other states, the quality of ANC is limited; providers miss opportunities to screen for high risk women to advise women on the danger signs and provide prophyaxis.

In communities, there is some knowledge on PE/E and other problems in pregnancy, but high blood pressure is often attributed to certain foods and in Cross River, women mentioned domestic violence as a problem.

A multi-pronged approach is required to address the health system issues and community perceptions that create barriers for women to accessing quality care during pregnancy and for complications of pregnancy.

In Nigeria, anti-hypertensives for treatment of mild to moderate hypertension (aldomet and nifedipine) and severe hypertension (hydralazine) are cheap and obtainable, are often available in maternity emergency trays at most facilities and, if not, can be purchased externally. It is imperative that future interventions targeting providers, especially at primary and secondary facilities, include training on anti-hypertensives for pregnant women with PE/E.

Providing quality ANC, which includes early detection of PE, and how and when to administer appropriate drugs (prophylactics, anti-hypertensives, $MgSO_4$) to prevent and manage it. With few providers understanding these elements of PE/E detection and treatment, it is not surprising these pregnancy complications account for more maternal deaths in Nigeria than any other direct cause, including postpartum hemorrhage [2].

In addition to ensuring that health care providers are adequately trained to properly administer $MgSO_4$, they also need to know the warning signs for $MgSO_4$ toxicity and its antidote, calcium gluconate.

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.

RECOMMENDATIONS

- Advocacate for streamlining state procurement and link to a national/central distribution system;
- Build on existing procurement platform and strengthen links to rural areas to maintain consistent supply;
- Update all levels of providers on quality ANC, early detection of PE ,and management of severe PE/E (including antihypertensives and $MgSO_4$ loading dose at PHC level); and
- Work with local women's groups to improve community awareness, encourage early ANC and improve health seeking behavior for complications.

RESOURCES

1. National Population Commission, Federal Republic of Nigeria, and ICF International. (2014). Nigeria Demographic and Health Survey 2013.
2. Oladapo, O., Adetoro, O., et al. (2015). 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: An International Journal of Obstetrics & Gynaecology.