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## Findings from landscape analysis in Katsina on pre-eclampsia/ eclampsia

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**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<sup>1</sup>.**

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.

## FACILITY CAPACITY AND PREPAREDNESS

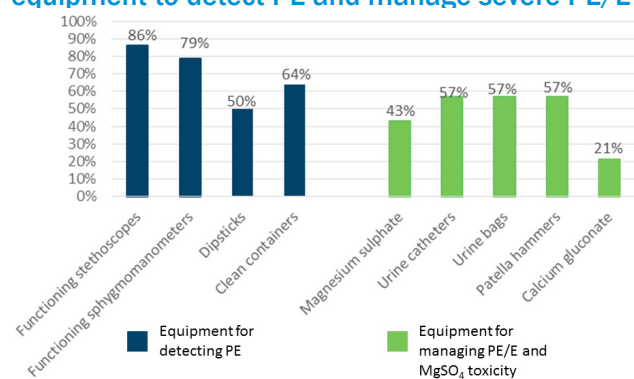
To assess institutional preparedness, researchers visited 14 facilities in Katsina State and recorded that four (29%) of the facilities had protocols and guidelines available for management of pre-eclampsia and eclampsia, six (43%) had all ANC equipment for the detection of PE/E and six (43%) use  $MgSO_4$  for the treatment of eclampsia.

*“Yes I am aware, nationally, we have the policy on the use of  $MgSO_4$ . Here it is cascaded down to the state level where we have a policy on the use of  $MgSO_4$  right from the primary health care to the hospital services...people have been trained on how to use it.”*

—POLICYMAKER, KATSINA

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  $MgSO_4$  toxicity (figure 1).

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



Six (43%) of facility managers reported always using  $MgSO_4$  to treat PE/E, four (29%) said it is sometimes used, and four (29%) reported that it is never used. When asked how they obtain  $MgSO_4$ , 30% of managers said they receive the drug routinely from central supply, 10% purchase it locally from the market, and 60% said they procure it from other sources like 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.

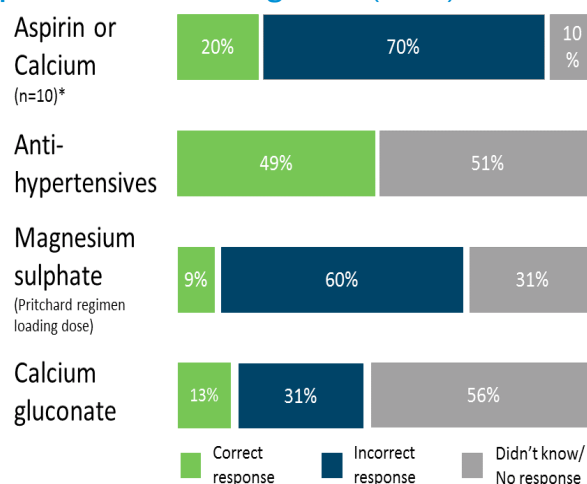
**TABLE 1 Signal functions for emergency obstetric and newborn care (EmONC)**

Katsina	Tertiary/Secondary health facilities (n=7)		Primary Health facilities (n=7)	
	Capacity	Done in the last three months	Capacity	Done in the last three months
Parenteral antibiotics	6	6	4	3
Parenteral oxytocics	5	5	5	3
Parenteral anticonvulsants ( $MgSO_4$ )	6	6	3	1
Manual removal of placenta	6	6	5	4
Removal of retained products	6	6	3	4
Assisted vaginal delivery	5	5	4	4
Blood transfusion	6	6	2	1
Caesarean section	6	6	0	0
Neonatal resuscitation	5	4	2	2

## PROVIDER KNOWLEDGE AND SKILLS

Providers had good knowledge on the signs and symptoms of E (80%) but only 40% could correctly identify chronic hypertension in pregnancy, 46% could correctly identified signs and symptoms of PE, and only 13% could identify severe PE. 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=55)**



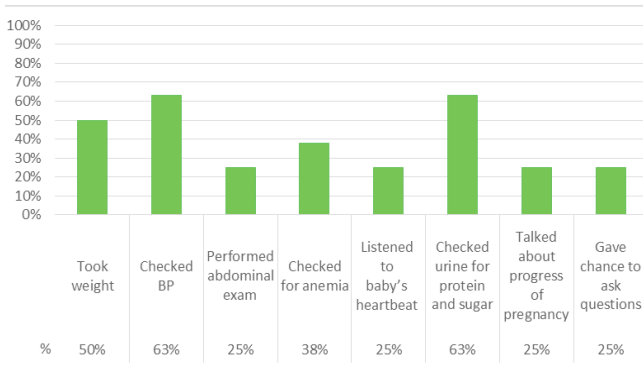
\*Number of providers who had reported awareness of prophylactic drugs for PE/E

Figure 2 shows that only ten providers were aware of the prophylactic use of drugs for women at risk of PE of whom only two mentioned aspirin or calcium. Less than half of all providers (49%) knew that anti-hypertensives (aldomet or nifedipine) can be used to manage high BP during pregnancy. The Pritchard regimen for  $MgSO_4$  administration is considered the 'gold standard' for preventing and treating convulsions in severe PE/E, but few providers (9%) could accurately describe the appropriate doses of  $MgSO_4$  or name the antidote for  $MgSO_4$  toxicity, calcium gluconate (13%).

# QUALITY OF CARE

Quality of care was assessed through observations of nine client-provider interactions and nine 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 78% of the observed ANC consultations, providers 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. In addition, all providers observed in Katsina measured women's BP and checked urine for protein.

None of the providers, however, advised the clients on the symptoms of impending E (severe headache, blurred vision, and PE with generalized body swelling).

# COMMUNITY KNOWLEDGE AND 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. The FGDs with men and women reveal that people's beliefs on pre-eclampsia and eclampsia are divergent; some blame evil spirits, rivals, or natural causes.

*"Within this community it is linked to evil beliefs or attack and if she has a rival it is linked to the rival.... Mostly it is linked to evil belief, which is due to lack of proper knowledge of the illness"*

—RURAL WOMEN FGD

*"We have no other beliefs than it being natural....We seek medical help and we don't believe in traditional healers."*

—RURAL WOMEN FGD

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.

# 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 [providers] did ask for people with high blood pressure to come out for measurement and I did. I was told there was protein in my urine [and] my blood pressure was high. Protein was frequently seen in my urine. To be honest, I preferred seeing a medical Doctor on my own without being referred so that I could explain my condition to him."*

—PE/E SURVIVOR, KATSINA

*“I had nine pregnancies; two miscarriages and consecutive stillbirths before delivery. The (ninth) was the lucky one that I was operated upon and came out successful. I was told when I came for ANC that my BP was high and I might develop convulsions or severe high fever which might lead (to) loss of life of both of us (mother and baby). I attended [ANC] more than the other pregnancies, when I came for the 3rd visit, I was told to stay for the operation.”*

—PE/E SURVIVOR, KATSINA

## DISCUSSION & CONCLUSION

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.

There are many areas of opportunity to prevent maternal death associated with PE/E throughout pregnancy, and different approaches to make the most of these opportunities.

In Nigeria, all easily available 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 locally. It is imperative that future interventions targeting providers, especially at primary and secondary facilities, include training on anti-hypertensives for pregnant women.

For effective PE/E management, health facilities need to stock the necessary drugs and ANC equipment, and institutionalize guidelines for PE/E treatment. 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  $\text{MgSO}_4$  for early treatment of the condition. .

In addition to ensuring that providers are adequately trained to administer  $\text{MgSO}_4$  at the right time and with the proper doses, they need to know the warning signs for  $\text{MgSO}_4$  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.

Maternal and newborn deaths due to PE/E are preventable: by increasing community awareness of the condition, improving antenatal care quality, and scaling up proven best practices to prevent PE’s escalation to severe PE/E. By detecting and managing PE, Ending Eclampsia can improve the survival rate of women and babies in Nigeria and other developing countries.

## 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  $\text{MgSO}_4$ ;
- 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  $\text{MgSO}_4$ ;
- Train PHC workers to detect and provide loading dose of  $\text{MgSO}_4$ ;
- Community awareness campaigns on the importance of ANC and seeking care early; and
- Engage men to encourage their support of their wives.

## RESOURCES

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