
2016

Findings from landscape analysis in Bangladesh on pre-eclampsia/eclampsia

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Recommended Citation

"Findings from landscape analysis in Bangladesh on pre-eclampsia/eclampsia." Washington, DC: Population Council, 2016.

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Despite global efforts to reduce preventable maternal and neonatal mortality, between 5,000 and 6,000 maternal deaths occur each year in Bangladesh. Pre-eclampsia and eclampsia (PE/E) cause 20% of these deaths.

Maternal and newborn deaths due to PE/E are preventable, yet in Bangladesh PE/E is the second most common direct cause of maternal mortality, after post-partum hemorrhage (PPH).

To appreciate the enormity of this problem, at national and district levels, in 2015 the Population Council conducted a landscape analysis in four districts to:

- Understand the volume of PE/E research in the last 15 years;
- Know the degree of programmatic and policy support for PE/E prevention and treatment;
- Analyze the gaps in providers' knowledge and competence for preventing, detecting, and managing PE/E;
- Determine primary health care (PHC) facilities' capacities to manage PE/E;
- Assess community awareness, beliefs, and experiences around PE/E; and
- Determine priority areas for PE/E research and programmatic interventions.

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.

For more information, visit endingeclampsia.org.



Made possible by the generous support of the American people through the United States Agency for International Development (USAID).

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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.

NATIONAL POLICY AWARENESS

The Bangladesh government’s policy on PE/E falls under the broader realm of maternal health, with Standard Operating Procedures specifying prevention and management of PE/E at secondary and tertiary facilities. The government has yet to formalize any policy on PE/E prevention and management at primary facilities. A protocol has been developed, tested, and approved for implementation in the field, but it has not been widely circulated.

There is confusion among policy makers and program managers about PE/E prevention and treatment policies. A majority of them informed Council researchers they not aware of any policy addressing PE/E, nor do they have copies of it, or written instructions.

In fact, only 27% of doctors and 3% of other providers, which include nurses/midwives, family welfare visitors (FWVs), and sub-assistant community medical officers (SACMOs), know of any such guidelines.

One respondent said:

“I don’t know about the government policy. There might be one. I cannot tell you about the policy, as I didn’t get it yet. I didn’t get the policy in my hand, so I don’t know about where the policy is being implemented. There is no implementation policy in my district or upazilas.”

Policy maker and program manager, Ministry of Health and Family Welfare

All district hospitals reported availability of guidelines or protocols, but only 50% of maternal and child welfare centers (MCWCs) and 36% of upazila health complexes (UHCs) have the same. As expected, no union health and family welfare center (UH&FWC) has any guidelines or protocols for diagnosing and managing PE/E. Researchers found a similar situation for guidelines or protocols on the administration of MgSO₄; no written guidelines or protocol exists in any center.

SERVICE PROVIDER KNOWLEDGE AND SKILLS

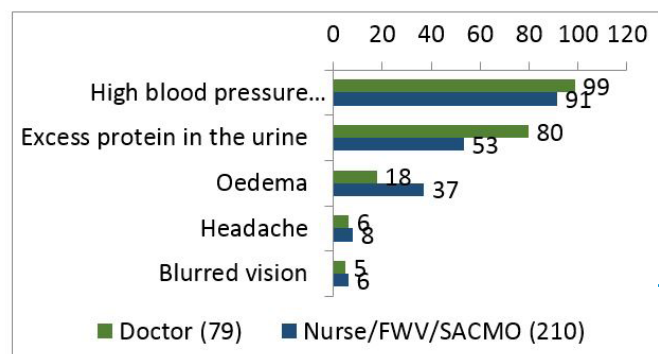
Researchers interviewed 289 service providers from 134 facilities, 79 doctors and 210 other service providers. Exploring their knowledge, attitudes, and practices regarding maternal health, but specifically PE/E, was vital for understanding the gaps that need attention.

Results showed that 84% of doctors and 79% of other service providers were able to correctly define hypertension as systolic blood pressure of ≥140 mmHg and/or diastolic blood pressure of ≥90 mmHg. Despite this, 17% of doctors and 22% of service providers are confused about the definition of hypertension.

Researchers asked service providers to identify signs and symptoms of pre-eclampsia, severe pre-eclampsia and eclampsia. Results showed that doctors know, and other service providers had reasonably good knowledge, of the signs and symptoms.

Figure 1 shows correct responses from providers.

FIGURE 1. KNOWLEDGE OF SIGNS AND SYMPTOMS OF PRE-ECLAMPSIA (%)

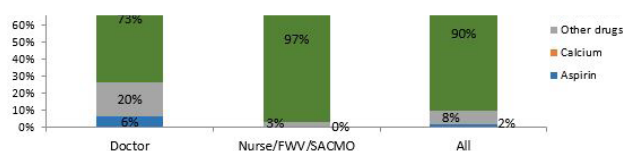


To prevent pre-eclampsia from progressing to eclampsia, service providers must know which antihypertensive drugs to use and when to initiate treatment. When a patient experiences convulsions due to eclampsia, providers should also know which anticonvulsants, such as MgSO₄, to administer and how to monitor, identify, and prescribe calcium gluconate for any MgSO₄ toxicity, if necessary.

Researchers asked providers about commonly used antihypertensive drugs for managing mild to moderate hypertension and severe hypertension in pregnancy, as well as when to initiate treatment for these conditions. The drug of choice is labetalol, but it is expensive and not widely available. Methyldopa or nifedipine

are the next best drugs for this use, and hydralazine is best for severe hypertension in pregnancy. Only 77% of doctors and 19% of other service providers mentioned methyldopa or nifedipine as their drugs of choice for managing mild to moderate hypertension in pregnancy. For severe hypertension, 9% of doctors, and no other service providers, mentioned hydralazine. Only 19% percent of doctors and 9% of other service providers correctly knew when to initiate hydralazine.

FIGURE 2. SERVICE PROVIDER KNOWLEDGE OF PROPHYLACTIC DRUG USE FOR PE/E INTERVENTION (%)



During antenatal care (ANC) consultations, only 1.87% of providers looked for PE risk factors. About 4% advised women of symptoms for impending eclampsia, and 8% of secondary facility providers and 1% from primary facilities described pre-eclampsia detection, which explains the low detection of PE/E patients by primary and secondary facility providers during ANC and postnatal care (PNC) consultations. This supports evidence that shows service providers' lack of knowledge, skills, low confidence, poor logistical support, and reluctance among lower cadre providers.

FACILITY CAPACITY AND PREPAREDNESS

For effective and timely treatment, it is essential that certain equipment and commodities are available at facilities. MgSO₄ was found in four secondary facilities, but in no UH&FWCs. Four secondary facilities reported its regular use, while seven reported occasional use. Calcium gluconate for managing MgSO₄ toxicity was found in only one secondary facility, but not in any primary facilities.

It is important to note that 75% of MCWCs and 45% of secondary facilities never used MgSO₄. Those who do administer MgSO₄ use it in varying concentrations, from 20% solution, to 4% water/volume, to 50% solution, while some did not know which concentration they use. Of the facilities that use MgSO₄, 55% get it from the

central level regularly or purchase it from local markets. The remaining 45% said patients purchase it from markets when needed.

Researchers asked informants from facilities if service providers had the necessary skills for providing Emergency Obstetric and Neonatal Care, which include the capacity to administer prenatal antibiotics, oxytocin, and anticonvulsants, as well as blood transfusions, caesarian sections, and neonatal resuscitation. Researchers also asked if these procedures occurred within the last three months. Findings suggest not all elements are available in all secondary facilities, and many did not occur in the last three months.

All facility informants were asked if they have certain regular and emergency response materials in their facility, particularly those for PE/E services. Almost all secondary facilities reported regular and emergency response materials.

Primary facilities, however, are not designed to provide emergency care, and some facilities have the materials in variable quantities. Thirteen centers have 20 milliliter syringes, none had 6mg betamethasone/dexamethasone for premature respiratory distress syndrome (PRDS), and 15 primary facilities had none of the regular and emergency response materials. Interestingly, 61% and 86% of primary facilities had misoprostol for PPH prevention and neonatal resuscitation kits, respectively.

See Figure 3 for details on the availability of emergency response at facilities.

FIGURE 3. AVAILABILITY OF EMERGENCY RESPONSE SUPPLIES AT FACILITIES

Materials and commodity	DH	MCWC	UHC	FWC	Total
Oxygen + adult masks	4	4	11	0	19
6 mg Betamethasone/dexamethasone tablet	0	0	0	0	0
Misoprostol	3	4	10	70	87
Neonatal resuscitation kit	4	4	11	99	118
Ambulance	4	4	11	0	19
Total	4	4	11	115	134

COMMUNITY KNOWLEDGE AND PERCEPTIONS

To assess community PE/E awareness, beliefs, and experiences, and strategies for seeking care, researchers investigated community perspectives in male and female focus group discussions and in-depth interviews with PE/E survivors and their families.

Despite some similarities, there were major disparities between female and male informants about the serious problems women suffer during and after delivery. Female participants said the most serious problems during pregnancy and immediately following childbirth are excessive bleeding, convulsion, anemia, abdominal pain, physical weakness, malnutrition, retained placenta, ruptured uterus, and fetal presentation other than head first.

Male informants reported anemia, physical weakness, leucorrhea (discharge), loss of appetite, headache, edema, retained placenta, and bleeding from the vagina as the most serious problems. Both men and women report that mothers-in-law are best equipped to make decisions when a women experiences complications.

“These are women’s problems during pregnancy and after delivery. My mother also passed through these. So, I don’t want to interfere with women’s problems and step in. My mother and grandmother might be the right persons to decide.” Male, FGD

While one female respondent said:

“The mothers of our community think these are general problems during pregnancy and delivery and they also passed through these. So, they don’t give much importance on the problems, rather suggest some spiritual and common sense remedies.” Female, FGD

RECOMMENDATIONS

- Develop policy for primary and secondary facilities to implement uniform clinical practice of PE/E prevention and management;
- Trainings for all health providers according to new policy;
- Distribute official policy guidelines throughout the health system;
- Review and revise curricula for nurses, midwives, FWVs, SACMOs, and paramedics;
- All levels of service providers should be properly trained on broader maternal and newborn health issues, particularly PE/E, to build their confidence and skills for its prevention, detection, and management. Training should also include emergency management of premature births and referrals to higher level facilities;
- ANC, delivery, and PNC service providers should screen every patient for increased blood pressure and assess PE/E risk;
- PE/E training for field workers, supervisors, and program managers should create more awareness within communities about the importance of ANC and PNC care, and signs and symptoms of PE/E;
- Essential emergency materials need to be available in all facilities, with regular monitoring from district program managers; and
- Referral system strengthening.

RESOURCES

1. Obstetrical and Gynecological Society of Bangladesh (OGSB), Population Council and EngenderHealth Bangladesh. 2014. Operationalizing the Proposed National Protocol for the Prevention and Management of Severe Pre-Eclampsia and Eclampsia Patients Using Loading Dose of Magnesium Sulphate at Community Level in Bangladesh. Dhaka: Population Council.
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3. Landscape Analysis on Pre-eclampsia and eclampsia in Bangladesh 2015. Dhaka: Population Council.