

Prevention and Treatment of Pre-eclampsia/Eclampsia (PE/E) in Nepal

WHAT ARE PRE-ECLAMPSIA AND ECLAMPSIA (PE/E)?

- Pre-eclampsia is a condition that occurs only in pregnancy and that generally develops toward the end of pregnancy (third trimester) although it can occur earlier.
- Pre-eclampsia is marked by high blood pressure and protein in the urine (proteinuria).
- Pre-eclampsia can progress to become severe pre-eclampsia, with complications of the lungs, kidney and liver, or can progress to the more serious and life-threatening condition of eclampsia. Eclampsia can occur before, during or after childbirth.
- Women with eclampsia have seizures. Without prompt treatment, it can cause coma and even death of the mother and baby.
- The exact cause of pre-eclampsia and eclampsia (PE/E) is unknown, however pre-eclampsia is more commonly found in first pregnancies, teen pregnancies and women over 40.

PE/E IS A MAJOR KILLER OF MOTHERS AND BABIES

- PE/E is one of the leading causes of maternal deaths in the world—contributing between 8–25% of maternal mortality worldwide¹.
- It also causes an increased risk of perinatal mortality.
- Among pregnant women worldwide, 7–15% develops pre-eclampsia (high blood pressure with proteinuria). Approximately 1–2% will develop eclampsia.²
- In Nepal, PE/E is the second leading direct cause of maternal mortality, accounting for about 21% of the deaths. It is the number one direct cause of maternal death in health facilities (30%).³

PE/E is one of the leading causes of maternal deaths in the world—contributing between 8–25% of maternal mortality worldwide.

In Nepal, PE/E is the second leading direct cause of maternal mortality, accounting for about 21% of the deaths. Global evidence indicates PE/E is a leading but preventable cause of still births.

WHY FOCUS ON PREVENTING AND TREATING PE/E?

- Mortality and morbidity associated with PE/E has shown very little decline in most developing countries. But in Nepal, while maternal mortality declined, PE/E proportionately increased among maternal deaths from 14% in 1998 to 21% in 2008.
- Disease-targeted efforts within broad maternal and newborn care efforts globally are bearing fruit such as postabortion care, prevention of postpartum hemorrhage (PPH), treatment of malaria in pregnancy (MIP) and infection prevention.
- PE/E is preventable and treatable. Interventions to prevent and treat PE/E are possible from household level and through all levels of healthcare system. High levels of prevention coverage are feasible even outside formal healthcare systems.
- Levels of morbidity and mortality due to PE/E can be reduced by preventing it from occurring, detecting it early if it does, and treating it properly to prevent progression and complications.

THREE WAYS TO REDUCE PE/E AND SAVE LIVES

1. Preventing PE/E in Pregnant Women—Primary Prevention

- Primary prevention means preventing pre-eclampsia in pregnant women.
- Research has shown that calcium supplementation is an effective and low-cost intervention for prevention of pre-eclampsia in a calcium-deficient setting such as Nepal.

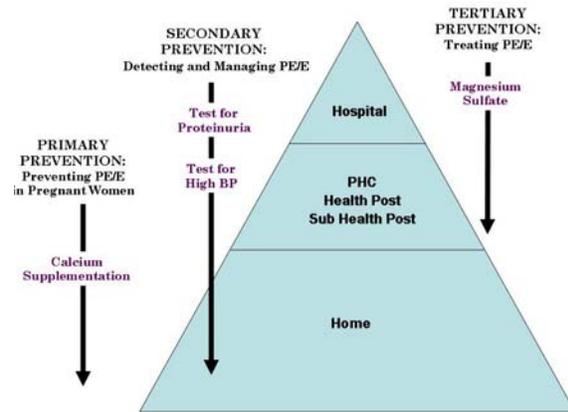
¹ Khan K, et al. WHO analysis of causes of maternal death: a systematic review. Lancet 2006; 367: 1066–74

² Maradik K and Sina S. 2003. Study of serum levels of superoxide dismutase in preeclampsia and eclampsia: role of the test as a predictive tool. Science link Japan. Japan.

³ Family Health Division, Options UK, New Era and CREHPA. 2009. Nepal Maternal Mortality and Morbidity Study 2008/2009. Nepal

- Use of calcium has been found to reduce the incidence of pre-eclampsia by almost 67%.⁴
- Calcium can be easily distributed to women in their homes and communities, much like iron by trained health workers—rather than doctors or nurses. In Nepal, female community health volunteers (FCHVs) can be trained to educate women and distribute calcium.

2. Early Detection of PE/E—Secondary Prevention



- Secondary prevention includes the detection of pre-eclampsia in its early stages, often before there are any symptoms.
- Pre-eclampsia can be detected by screening women for high blood pressure and measuring protein in urine. Pre-eclampsia is likely when the diastolic blood pressure is above 90 and there is protein in the urine. Severe pre-eclampsia is defined as diastolic blood pressure over 110 and proteinuria 3+ or more.
- Currently regular screening of blood pressure and urine is not performed and appropriate screening tools are not readily available for use in low-resource settings. New simple and inexpensive technologies are in development to improve screening.
- While recent trends in Nepal show an increased use of antenatal care, still over 25% of pregnant women receive no antenatal care (ANC), and among those who do, routine screening is often not carried out.⁵
- Detection and referral for pre-eclampsia can be offered during ANC but secondary prevention also will need to reach women regularly in their communities to have public health impact.
- Early detection can be performed at the household or community level by a trained healthcare provider or community worker—including trained FCHVs, auxiliary nurse midwives, nurses and health assistants.

3. Managing and Treating PE/E—Tertiary Prevention

- Tertiary prevention includes the treatment of severe PE/E to prevent progression of the disease and worsening of the condition. It can be provided by trained healthcare providers.
- Tertiary prevention also includes management of the hypertension and induction of labor. Delivery is the only real cure for PE/E.
- When pre-eclampsia is diagnosed, eclampsia can be prevented by administration of magnesium sulfate (one form of which is known as Epsom salts) and promptly initiating labor.
- WHO has identified magnesium sulfate as the most effective and low-cost medication for prevention of eclamptic seizures. In women with severe pre-eclampsia, magnesium sulfate was found to reduce the occurrence of eclampsia by more than 50% and maternal deaths by 46%.⁶
- Studies have shown that magnesium sulfate is more effective in reducing the recurrence of convulsions and seizures than diazepam, phenytoin or other drugs.⁷
- If given immediately without delay, a single dose of magnesium sulfate will suffice for a majority of patients—making treatment of PE/E possible at the community level.⁸
- Magnesium sulfate is the drug of choice for treatment of severe PE/E in National Medical Standards for Reproductive Health Volume III since 2007 and on the Essential Drugs List since 2008.

WHO has identified magnesium sulfate as the most effective and low-cost medication for treatment of eclampsia.

In women with severe pre-eclampsia, magnesium sulfate was found to reduce the occurrence of eclampsia by more than 50% and maternal deaths by 46%.

⁴ Hofmeyr G, Atallah Á, Duley L. *Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems*. Cochrane Database of Systematic Reviews 2006, Issue 3. Art. No.: CD001059. DOI: 10.1002/14651858.CD001059.pub2

⁵ Population Division Ministry of Health and Population Government of Nepal, New ERA Nepal and Macro International Inc. USA. 2007. Nepal Demographic and Health Survey 2006. Nepal

⁶ Duley L, Gulmezoglu A, Henderson-Smart D. 2006. *The Cochrane Library*. Magpie Trial Collaborative Group: Lancet 2002.

⁷ Duley L, Henderson-Smart D. 2003. Magnesium Sulphate Versus Phenytoin For Eclampsia *The Cochrane Library* Issue 3, Oxford

⁸ Beguma R, Begum A, Johanson R, Ali M and Akhter S. 2001. *A low dose (Dhaka) Magnesium Sulphate regime for eclampsia*. Acta Obstetrica et Gynaecologica Scandinavica. Pages 998–1002.