HEMORRHAGE IS THE LEADING CAUSE OF MATERNAL MORTALITY

- Each year, 132,000 women bleed to death while giving birth. Postpartum hemorrhage (PPH) is commonly defined as blood loss >500mL in the first 24 hours after delivery and severe PPH is loss of 1000mL or more. A leading cause of maternal mortality in the world, hemorrhage contributes to one of every three maternal deaths (1997–2007). And women in the developing world are particularly vulnerable—14 million women (or 26 every minute) experience PPH there annually.

- Although PPH is preventable and treatable, it requires rapid care to prevent life-threatening consequences. Nearly half of all postpartum deaths are due to immediate PPH; a woman may die from hemorrhage in as little as two hours of onset if she does not receive proper treatment.

- PPH is unpredictable: Some conditions may predispose a woman to hemorrhage, but 90% of women have no risk factors. Therefore, all women need access to a skilled birth attendant (SBA), who can manage labor and childbirth to minimize risk. This includes use of active management of the third stage of labor (AMTSL), which is associated with a nearly 60% reduction in PPH occurrence. Based on modeling, it is projected that universal use of AMTSL will prevent 27% of deaths from PPH.

- Unfortunately, in 51 developing countries, almost 50% of deliveries occur without an SBA. In these situations, when complications arise, delays in seeking and receiving care are often too slow. Therefore, women who give birth without skilled care need access to an effective and acceptable uterotonic to prevent and/or treat PPH. Universal coverage of all deliveries with a uterotonic alone can significantly reduce deaths due to PPH.

EVIDENCE-BASED PRACTICES FOR PPH PREVENTION AND MANAGEMENT

PPH prevention efforts focus on expanding access to uterotonic and other evidence-based practices:

- **With a skilled provider through application of AMTSL to prevent PPH during deliveries.** The procedure consists of three steps: 1) administration of a uterotonic agent within one minute of birth; 2) controlled cord traction; and 3) uterine massage after delivery of the placenta. SBAs in a well-equipped facility can provide basic and comprehensive emergency obstetric and newborn care, which includes: active triage of emergency cases; uterotonic drugs and uterine massage for uterine atony; manual removal of placenta or placental fragments; suture genital lacerations; offer blood transfusions and intravenous therapy; and perform surgery when required.

- **Without a skilled provider through administration of misoprostol to prevent PPH during home births.** While oxytocin is more effective than misoprostol when given in a hospital, studies in countries with high levels of unattended home births have demonstrated community-based counseling and distribution of misoprostol (600mcg) is safe and effective when given with appropriate counseling to women prior to delivery. A number of low-tech innovations to improve PPH management before and during referrals are also emerging: at home, the use of misoprostol and oxytocin in the Unject device; at the facility, a condom tamponade and a non-pneumatic anti-shock garment.

Other emerging PPH prevention innovations that may soon be available include:

- Oxytocin Uniject® for simpler dosing, improved infection prevention during AMTSL, and assurance of potency with the time-temperature-indicator (TTI);

- Reduction in the dose of misoprostol to 400mcg (vs. 600 mcg) to reduce side effects; and

- Simplification of the AMTSL protocol to include fewer elements.

COMPREHENSIVE PROGRAMMING TO REDUCE PPH-RELATED DEATHS AND IMPROVE CARE

Within national maternal and newborn health strategies, focus on PPH prevention and management can be developed, implemented and monitored with strong government commitment and consensus among stakeholders. Using available resources and introducing innovations, country programs can:

- Build consensus among the safe motherhood community to focus on PPH. Where women frequently deliver without an SBA, misoprostol or oxytocin in the Unject device for PPH prevention can be effective (once policy, procurement and registration issues are addressed). In some countries, concern
over the safety and effectiveness of misoprostol and oxytocin for home births has led to successful pilot studies.

- Develop a comprehensive PPH strategy that addresses prevention and management in situations both with and without a skilled provider.
- Develop a monitoring and evaluation (M&E) plan that utilizes existing data collection systems and adds additional monitoring support to collect community and facility-level data to capture essential indicators. Strengthen M&E systems to track progress in PPH prevention and management. Document activities, lessons learned and case studies from the field to complement M&E reporting.
- Implement the strategy by developing and implementing activities that use and help strengthen existing systems, including logistics, training, behavior change communication, service delivery, community mobilization, referrals and M&E.

**EXPECTED RESULTS FROM PPH-FOCUSED PROGRAMMING**

- **Increased uterotonic coverage, especially in difficult areas with low levels of skilled birth attendance:** In Afghanistan, with an SBA rate of less than 25%, the implementation of a comprehensive PPH reduction program resulted in coverage with a uterotonic for 96% of women in the intervention area (compared with only 26% of women in the control area).\(^5\) In districts of Tanzania where misoprostol was available at home, 35% more births were protected, resulting in a total of 90% of births being protected by a uterotonic.\(^9\) In Mali, a national policy supported task-shifting of AMTSL to auxiliary midwives to expand coverage.

- **Increased skilled attendance at birth:** Community-based distribution of misoprostol by community health workers increased antenatal care, skilled attendance during childbirth and postnatal care. In Nepal, during the intervention, deliveries with a skilled provider increased from 10% to 17%, and deliveries in facilities from 5% to 12%.\(^10\)

- **Decreased PPH cases:** Promotion of AMTSL reduced facility-based PPH cases, as seen in 33 government facilities in Niger that increased AMTSL coverage from 5% to 98% of births, resulting in a reduction of the PPH rate from 2.5% to 0.2%. PPH prevention studies at home births in Indonesia, Nepal and Afghanistan found women who used misoprostol reported less PPH. In Afghanistan, fewer PPH cases (11%) were reported in the intervention area compared to 49% of women in the comparison area. On PPH treatment with misoprostol, a cost-effectiveness analysis in Afghanistan demonstrated that training traditional birth attendants to administer misoprostol to treat PPH could prevent 1,647 cases of severe PPH and save $115,355 in costs of referral, IV therapy and transfusions per 10,000 births.\(^11\)

- **Reduced maternal and neonatal mortality:** In Nepal, among women who received misoprostol, about 50% fewer died. District-wide, fewer maternal deaths were observed (29 vs. 45 expected). Neonatal mortality fell from 28/1,000 live births to just 10/1,000 live births post-intervention.

- **Increased awareness of danger signs:** In Tanzania, as a result misoprostol distribution through ANC clinics, more than 80% of women knew what PPH was and that it could be life-threatening.

**REFERENCES**

5. Oxytocin is the preferred uterotonic because it is fast-acting, inexpensive, and, in most cases, has no side effects or contraindications for use during the third stage of labor. Additionally, oxytocin is marginally more effective, and is more heat stable than ergometrine.