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## Saving Women's Lives: Clinical and Community Action to Address Postpartum Hemorrhage

**Above:** The non-pneumatic anti-shock garment is used to resuscitate and stabilize a woman in shock from postpartum hemorrhage.

PHOTO: Ifeanyi Nsofor/Pathfinder Nigeria

### PATHFINDER INTERNATIONAL

Pathfinder International places reproductive health services at the center of our work around the world, providing women, men, and adolescents access to quality health services—from contraception, to maternal and newborn care, safe abortion services, and prevention and care of sexually transmitted infections and HIV/AIDS. We advocate internationally for sound reproductive health policies, seeking to improve the rights and lives of the people we serve.

Nearly 536,000 women die annually from complications of pregnancy and childbirth. More than 99 percent of these deaths occur in developing countries, where skilled healthcare providers, quality facilities, and adequate transportation and communication systems are scarce.<sup>1</sup> At least 25 percent of maternal deaths are the result of postpartum hemorrhage (PPH),<sup>2</sup> and uterine atony (failure of the uterus to contract) causes 90 percent of these cases.<sup>3</sup>

In 2007, the John D. and Catherine T. MacArthur Foundation provided funding to Pathfinder International to implement the *Continuum of Care: Addressing Postpartum Hemorrhage in India and Nigeria Project* in collaboration with Dr. Suellen Miller of the University of California, San Francisco, and Dr. Stacie Geller of the University of Illinois at Chicago. India accounts for fully 25 percent of worldwide maternal deaths, and Nigeria has the second highest rate.<sup>4</sup> These mortality numbers are symptoms, not

only of inadequate healthcare delivery systems, but also of widespread public misunderstanding and lack of knowledge about personal health care decisions and opportunities.

The great majority of maternal deaths are preventable, if providers are well-trained and facilities adequately equipped. Perhaps the greater challenge is to transform popular misconceptions and to promote widespread knowledge and adoption of healthy behaviors.

<sup>1</sup> Maternal Mortality in 2005: Estimates Developed by WHO, UNICEF, UNFPA, and The World Bank. WHO, 2007, p.15.

<sup>2</sup> WHO, MPS Technical Update, "Prevention of Postpartum Hemorrhage by Active Management of the Third Stage of Labor," October 2006.

<sup>3</sup> World Health Organization, *Research on Reproductive Health at WHO, Biennial Report 2000-2001*. Geneva, 2002.

<sup>4</sup> WHO, 2007, *Ibid*.

## A Life-Saving Intervention: The NASG

Like many Nigerian women in small villages, Jamila delivered her first baby at home, with the help of a traditional birth attendant. But following the birth, the uterus failed to contract and she began to bleed heavily. The birth attendant failed to recognize the severity of blood loss for some time, and by the time Jamila reached the nearest primary health center, she was in shock and her life was in jeopardy.

Luckily, the health worker at the primary health center had been trained in the use of the non-pneumatic anti-shock garment (NASG) to halt postpartum hemorrhage and stabilize a woman in shock. Starting at the ankles, neoprene fabric was snugly tightened with Velcro straps around the legs, gradually moving up to the thighs and finally across the abdomen, shunting blood to the heart, lungs, and brain, and restoring Jamila's consciousness, pulse, and blood pressure. Once stabilized, she was moved to the nearest district hospital, where she waited five hours for available blood replacement and surgical care.

## The Integrated Model

Pathfinder International has developed a *Clinical and Community Action Model*, which is effective precisely because it addresses the full spectrum of clinical and social causes of PPH morbidity and mortality in low-resource settings. Before the model can be implemented, providers from primary, secondary, and tertiary level facilities must be trained and facilities upgraded and equipped to provide quality care. Primary health centers (PHCs) and secondary level facilities must be networked for referrals with hospitals capable of providing comprehensive emergency obstetric care. At the same time, health officials, public and private providers, and community leaders must be sensitized and actively engaged in promoting supportive policies and developing community trust and participation.

The six integrated elements of the Pathfinder model acknowledge the reality that medical interventions succeed only in an environment where clients have access to care and will participate in promoting their own health. Pathfinder implements these six elements as an integral whole, recognizing all steps as essential to the reduction of maternal mortality from postpartum hemorrhage.

## THE CLINICAL AND COMMUNITY ACTION MODEL ELEMENTS INCLUDE:

### 1. Advocacy to promote enabling policies

Prior to initiating the PPH project in any country, Pathfinder staff meet extensively with public and private providers and government officials, outlining the elements of the model and their rationale. Important laws and policies that require official sanction to allow the use of drugs and procedures are therefore in place when trainings are launched.

### 2. Prevention of hemorrhage through the routine application of the active management of the third stage of labor (AMTSL)

Immediately following every delivery, the application of AMTSL must include introduction of a uterotonic drug to promote contraction of the uterus, followed by delivery of the placenta by controlled cord traction and gentle uterine massage. AMTSL significantly reduces the incidence of uterine atony. While oxytocin is the drug of choice, recent studies have found misoprostal to be a clinically effective uterotonic. This is a major breakthrough, as misoprostal can be administered orally, sublingually, or rectally with positive results and can serve as a potential replacement for drugs requiring injection and cold storage.

### 3. Identification of hemorrhage through accurate estimation of blood loss

Early detection of hemorrhage requires effective estimation of blood loss. Few PHC providers can recognize when a woman's life is threatened by blood loss, and visual estimations are wildly inaccurate. Trained PHC providers are learning better methods for visual estimation and how to use pre-measured absorbent cloths that, when fully saturated, signal that blood loss is excessive. In Nigeria, healthcare providers are learning to use a plastic blood collection drape that is placed under the woman's body to capture and accurately measure blood in a calibrated pocket. It is easy to use and effective, though in India, stringent regulations limit use and disposal of plastics.

### 4. Management of PPH

If possible, caregivers should identify the cause of the bleeding, which will dictate subsequent interventions.

Where hemorrhage occurs, administration of fluids and blood replacement are essential, as is the use of uterotonic drugs where appropriate.

A woman in shock is in grave danger. Providers are trained to identify shock and, when it occurs, can apply the non-pneumatic anti-shock garment (NASG), a neoprene fabric tightly wrapped from ankles to abdomen (see description on p. 2) that will resuscitate and stabilize the woman until she can be moved to emergency care. The garment may be worn successfully for more than 50 hours while awaiting access to a facility, a doctor's care, or blood. Someone needs to remain with the woman at all times as she might remove the garment in her confusion, which would reactivate the hemorrhaging.

If necessary, surgery is provided while the garment is in place, and it should not be removed for at least two hours after bleeding ceases. Staff must be trained to remove the garment gradually, from feet to abdomen, waiting 15 minutes between segments to avoid reactivating bleeding. Trained staff must then disinfect and store the garment safely, following procedures to ensure its timely return or replacement to the original facility. The NASG has now been made available in varied sizes to fit women of different size and build.

## 5. Community Engagement

Limited access and knowledge, as well as a distrust of health care services, keep many poor people from receiving skilled care. As part of the project, community health workers, health officials, and community leaders are being sensitized and trained to teach families why



This woman was brought in hemorrhaging and in shock after giving birth to her ninth child. Within minutes after applying the NASG, her blood pressure stabilized. "When we didn't have this anti-shock garment," said the head nurse, "a woman would just go, just die, because there was nothing we could do to help her. Immediately when we apply the garment, the veins are visible and we can apply the drip."

PHOTO: Dawn Shapiro

skilled care is important. Facilities have been upgraded and schedules changed to keep them open 24 hours a day. Families are taught the dangers of PPH, to recognize excessive blood loss, and how to take action to protect and benefit their own health.

## 6. Community Organization

Leaders and community members are organized to make emergency transportation available for crises and to promote the donation of blood.

## Status Review

In Nigeria, 31 project facilities in the states of Oyo, Lagos, Kano, and Katsina currently use NASGs, and of the more than 840 PPH cases seen between August 2008 and January 2009, half of the women received the NASG.

In India, project activities have started in Tamil Nadu, Maharashtra, and Rajasthan with additional work being negotiated in Bihar. In one district of Maharashtra alone, 90 facilities have been evaluated for upgrading and staff training. Students in four medical college hospitals in Tamil Nadu are being trained in the model, and its success is being brought to widespread attention at national medical conferences. Because

### Blood Transfusion Center

Inadequate blood supply is a serious challenge in Nigeria. Blood banks are rare, and people are reluctant to voluntarily donate. A new Maternity Blood Transfusion Center at the Murtala Muhammad Specialist Hospital in Kano, Nigeria, was named in honor of Dr. Habib Sadauki, project director of Pathfinder's PPH Continuum of Care Project in Nigeria, for his committed advocacy for the blood bank and his efforts to support maternal health care.



While in labor, this woman, her mother, and first child were driven for more than two hours by bicycle cart to reach the nearest clinic in Jamui, Bihar, India.

PHOTO: Rajni Patni/Pathfinder India

providers in most Indian PHCs have limited capacity, Pathfinder concentrates on training and equipping secondary and tertiary facilities where most crisis cases first appear.

### SCALING UP

Efforts are underway to scale up the clinical and community action model in additional sites in Nigeria and India, and to replicate it in other countries. In the next year, activities will begin in two additional states in Nigeria, and several states in India have committed funds to implement the model with technical assistance from Pathfinder. Interest is expanding among private sector doctors, who attend 30 percent of Indian deliveries. At the same time, Pathfinder's Board of Directors is supporting the replication of the model in Bangladesh and Peru, where the project will be modified to accommodate local customs and challenges, with new communications materials that address traditional behaviors. While each of these settings offers its own challenges, these projects are being implemented in regions where Pathfinder has experience and

resources already in place. Pathfinder is developing and filming a training video in all four program countries that will stimulate project replication in those and future implementation countries.

The continuum of care model holds immense promise for women in developing countries, and has garnered significant interest among community members, health care providers, and government representatives. The NASG, in particular, has caught people's imagination and raised hopes; many call it a "miracle." However, program staff must repeatedly remind providers and planners that the NASG is only part of the solution; millions of cases of PPH can be prevented through appropriate use of AMTSL, and quality emergency obstetric care at well-equipped facilities is what saves women in shock. The garment is only a miracle as long as it keeps women alive until they can receive treatment; once the NASG is removed, it is up to the trained committed doctors, nurses, and staff to provide the care that will save the woman's life.

Pathfinder has developed a comprehensive training curriculum and tool kit for providers who wish to follow the model and learn to use the NASG. For more information, contact Mayra Nicola at [mnicola@pathfind.org](mailto:mnicola@pathfind.org).

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