

## Reducing Maternal Morbidity and Mortality through Noninvasive Hemoglobin Monitoring

### > The Problem

Every 90 seconds around the world, a woman dies from complications related to pregnancy or childbirth.<sup>1</sup> For every woman who dies, 30 more suffer injuries or disabilities.<sup>2</sup> Significant blood loss after childbirth is called post-partum hemorrhage. According to the World Health Organization, post-partum hemorrhage is the leading cause of maternal mortality worldwide. The incidence of post-partum hemorrhage is almost 3% and has been rising.<sup>3</sup>

A large number of maternal deaths due to post-partum hemorrhage are preventable. Prevention of maternal death and injury due to post-partum hemorrhage requires identifying that a woman has experienced significant bleeding during or after childbirth and intervening to stop the bleeding and improve the woman's condition. Identifying bleeding is challenging because clinical estimation of blood loss is inaccurate, with post-partum hemorrhage underestimated by up to 90%.<sup>4</sup>

When a woman bleeds, the level of hemoglobin circulating in her bloodstream drops significantly even while her vital signs including blood pressure and pulse rate can stay within normal limits.<sup>5</sup> This can lead to late detection of bleeding with devastating consequences. In developing countries without invasive hemoglobin testing, this situation occurs even more frequently.

### > The Masimo Difference

During and after labor, noninvasive and continuous hemoglobin (SpHb®) can identify low or falling hemoglobin levels to help clinicians detect post-partum hemorrhage. Low or falling hemoglobin levels alert clinicians to act and may enable interventions that may prevent maternal death and disability.

After introducing Masimo's SpHb monitoring, the Ministry of Health in Sri Lanka reported their maternal death rate has "decreased tremendously due to the early detection of hemorrhaging where blood transfusions could be administered."<sup>6</sup>

***"In cases of severe hemorrhaging during and after childbirth, SpHb has enabled us to immediately identify and continuously assess blood loss severity to better manage internal bleeding, prevent overloading of fluid, and decrease maternal death."***

***— Madhava Karunaratna, MD  
OB/GYN, Balangoda Hospital, Sri Lanka***



*Nursing staff at Balangoda Hospital with noninvasive Radical-7™ with noninvasive hemoglobin (SpHb®) monitoring.*

1 Maternal Mortality in 2005: Estimates developed by WHO, UNICEF, UNFPA and the World Bank.  
2 UNICEF Statistic, 2003.  
3 Bateman BT et al. *Anesth Analg*. 2010.  
4 Prasertcharoensuk W et al. *Int J Gynaecol Obstet*. 2000 Oct;71(1):69-70.  
5 Hofmeyr GJ et al. *Best Practice Res Clin Obstet Gynaecol*. 2001;15:645-62.  
6 Communication to Masimo.