



## University of California San Francisco Safe Motherhood Program

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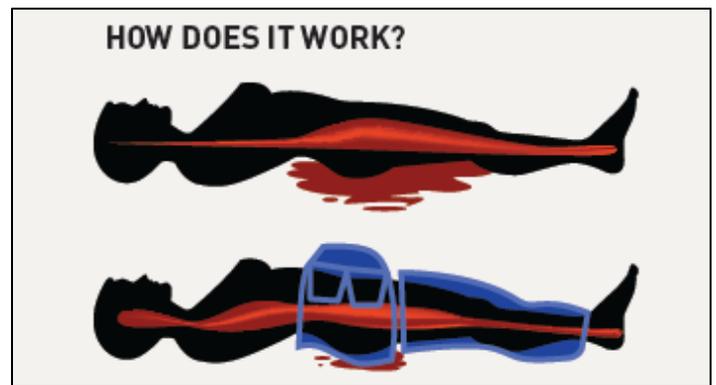
[www.safemotherhood.ucsf.edu](http://www.safemotherhood.ucsf.edu)



Obstetric hemorrhage is the leading cause of maternal death. One tool to aid in preventing these deaths is the Non-pneumatic Anti-Shock Garment (NASG). The NASG is a low technology compression device, which, when placed around the lower body of a woman with obstetric hemorrhage, will decrease bleeding, reverse shock, and buy the woman time until she can reach definitive care. The NASG is relatively low-cost, around \$70.00, and can be reused at least 40 times.

Results from studies conducted at tertiary level facilities in Nigeria, Egypt, Zambia, Zimbabwe, and India<sup>i, ii, iii, iv</sup> show a decrease in mortality of approximately 50%, markedly reduced blood loss, and much faster recovery from shock. Data from 3,651 women were examined in a pooled analysis and showed a **59% significantly reduced odds of mortality** among the women with the most severe shock<sup>v</sup>. A recent randomized cluster trial of NASG application at primary health care centers

before women in shock were transported to tertiary level facilities, showed similar decreases in mortality and faster shock recovery.



A **cost-effectiveness analysis** of results from the Nigeria and Egypt studies<sup>vi</sup> demonstrated markedly improved health outcomes with NET SAVINGS or extremely low cost per disability-adjusted life years (DALYs). Cost per use is approximately \$1.50.

The NASG was first introduced in limited-resource settings in 2002, and research was conducted between 2004-2012. Pathfinder International introduced the NASG as a first-aid device to buy time in their Continuum of Care for PPH implementation projects in Nigeria and India. In 2012 the World Health Organization added the NASG to their “Recommendations for the Prevention and Treatment of PPH,”<sup>vii</sup> which they further updated in a policy brief in early 2013.<sup>viii</sup> WHO, USAID, and MCHIP suggested that policy makers, decision-makers, planners, and providers should: 1) examine national PPH guidelines to include NASGs, 2) examine curricula to include NASGs, and 3) procure NASGs.



By early May 2013, there were **over 16 countries using NASGs**. Countries like the US and UK use the NASG for remote rural populations and for specific needs, such as Jehovah’s Witnesses. Other countries, like Zambia and Zimbabwe, are using NASGs in peri-urban clinics referring to major teaching hospitals. Still other places, like Tamil Nadu, India, are using NASGs at all levels of the health care system, including on ambulances.

Lower-cost NASGs were produced with guidance from PATH, and are available from Blue Fuzion Group, [NASG@bfgroup.asia](mailto:NASG@bfgroup.asia), Maternova, [orders@maternova.net](http://orders@maternova.net), and, soon, in India, from Vissco. The US-based distributor is Stork Medical, [www.storkmedical.com](http://www.storkmedical.com)

**Training materials, implementation toolkits, and policy and planning tools are available at [www.safemotherhood.ucsf.edu](http://www.safemotherhood.ucsf.edu) or by contacting Elizabeth Butrick: [ebutrick@globalhealth.ucsf.edu](mailto:ebutrick@globalhealth.ucsf.edu).**

<sup>i</sup> Miller, Hamza, Bray, et. al. First Aid for Obstetric Hemorrhage. BJOG, 113(4), p. 424-9

<sup>ii</sup> Miller, Fathalla, Ojengbede, et. al. Obstetric Hemorrhage and Shock Management, 2010, BMC Pregnancy Childbirth, 10:64.

<sup>iii</sup> Magwali, Butrick, Mambo, et. al. NASG for OH, Harare Zimbabwe, Presentation, XX, FIGO World Congress, Rome, Italy, 2012, IJGO (119)S3:S410

<sup>iv</sup> Maknikar, Nanda, Miller. NASG Reduces Mortality in Indian Women with PPH, Presentation, XX FIGO World Congress, Rome, Italy, 2012, IJGO (119)S3:S413.

<sup>v</sup> El Ayadi, Miller. Meta-analysis of 3,561 Women with Severe OH. XX FIGO World Congress, Rome, Italy, 2012, IJGO (119)S3:S223.

<sup>vi</sup> Sutherland, Downing, et. al. Use of NASG for Life-threatening OH: A Cost Effectiveness Analysis, PLOS ONE, 8(4):e62282.doi:10.1371/journal.pone.0062282

<sup>vii</sup> WHO. WHO Recommendations for the Prevention and Treatment of PPH. Italy, WHO, 2012.

<sup>viii</sup> WHO, USAID, MCHIP. WHO Recommendations on Prevention and Treatment of PPH: Highlights and Key Messages from New 2012 Global Recommendations.

<http://www.k4health.org/sites/default/files/PPH%20Briefer%20%28General%29%20may2013.pdf>



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