# Background

- Advanced shock from uncontrolled postpartum hemorrhage (PPH) is the leading cause of maternal deaths in low- and middle-income countries.
- In highly resourced settings advanced surgical and interventional vascular techniques may be employed when first-line treatments for PPH fail.
- In low-resource settings, access to emergency surgical and interventional vascular services is limited.
- Over the past 8 years our MGH/Harvard team designed, implemented and refined an ultra-low-cost uterine balloon package for uncontrolled postpartum hemorrhage (Every Second Matters for Mothers-Uterine Balloon Tamponade).

# Objective

To examine the impact of the ESM-UBT package in women with advanced shock from uncontrolled PPH across four African countries.

# Methods

- Data on all women who received an ESM-UBT device between Sept 2012 and Sept 2016 among enrolled healthcare facilities in Kenya, Senegal, Sierra Leone, and Tanzania were collected prospectively.
- Shock class was assigned based on recorded blood pressures and mental status at the time of UBT placement.
- Women with systolic blood pressures < 90 mmHg but greater than 70 mmHg and a confused mental status (Class III shock), and women with systolic blood pressures < 70mmHg and who were unconscious (Class IV shock) were specifically analyzed.

# Results

- 339 women had ESM-UBT devices placed across 117 study facilities
  - All cadres of healthcare providers successfully placed ESM-UBT devices
  - ESM-UBT devices were placed at all levels of the health system
  - **97.4% of the women survived overall**
- 333 (98.2%) had mental status and BP recorded within 30 minutes prior to UBT placement
- 306 (90.2%) had uncontrolled PPH originating from an atonic uterus, of which 166 (54.2%) had normal vital signs or were in Class I or Class II shock. One death occurred attributed to PPH, otherwise, uncontrolled hemorrhage was immediately arrested and there were no cases of shock progression.
- **99.4% of the women in the no shock or mild shock group survived.**
- 140 of the 306 (45.7%) women met criteria for advanced hemorrhagic shock: 111 in Class III and 29 in Class IV shock
  - **95.0% of the women in advanced shock survived overall**
    - **97.3 % of the women in Class III shock survived**
    - **86% of the women in Class IV shock survived**

# Conclusion

The ESM-UBT device arrests hemorrhage, prevents shock progression, and is associated with high survival rates among women with uncontrolled PPH from atonic uterus.