UTERINE BALLOON TAMponade PACKAGE (ESM–UBT) EVERY SECOND MATTERS FOR MOTHERS

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INTRODUCTION

- Postpartum haemorrhage (PPH) is the most common cause of maternal morbidity and mortality, most of which occurs in resource limited settings.
- More than 30 percent of all maternal deaths worldwide are attributable to PPH, accounting for approximately 130,000 deaths and 2.6 million disabled women annually.
- The Every Second Matters for Mothers-Uterine Balloon Tamponade (ESM-UBT) device is an ultra-low-cost uterine balloon designed for global access. The purpose of this study was to evaluate the mechanical properties of the ESM-UBT device.
Causes

- **Causes of postpartum hemorrhage** are uterine atony,
- trauma,
- retained placenta or placental abnormalities, and coagulopathy,
- commonly referred to as the "four Ts":
  - **Tone** (uterine atony)
  - **Tissue** (retained placenta and/or placental pieces, clots, retained products of delivery)
  - **Trauma** (vaginal or cervical lacerations, hematomas, uterine rupture or inversion)
  - **Thrombin** (missing clotting factors, bleeding disorders)
To date, over 670 devices have been placed and nineteen manuscripts from multiple operational research studies have demonstrated that the ESM-UBT package is highly effective in saving women’s lives.

- In 2010 and 2011, our team trained over 870 frontline health workers in South Sudan; most of the providers were illiterate and had little formal health training.

- Since then Mass General has supported implementation and research activities on the ESM-UBT package in India, South Sudan, Kenya, Sierra Leone, Ghana, Senegal, Tanzania, Zambia, Peru, Honduras, Uganda and Nepal.
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To date, our partners in this work include the Center for Maternal Health Innovations,
- Kisumu Medical and Education Trust (KMET),
- the African Institute for Health Transformation (AIHT) at Sagam Community Hospital,
- PATH, One Heart Worldwide,
- CEFOREP, World Vision, Pathfinder,
- UNICEF, the Kenya Obstetrics and Gynecology Society, several Country and County Ministries of Health,
- Inter-American Development Bank,
- Mahatma Gandhi Institute of Medical Sciences,
- Peruvian Association of Midwifery and Nursing, Jhpiego,
- Harvard School of Public Health,
- Boston Consulting Group, Villgro,
- Muhimbili National Hospital,
- Saving Lives at Birth partners, ELMA, CICF,
- Every Mother Counts, HDIF, IZUMI,
- Elrha Humanitarian Innovation Fund, and
- the Ujenzi Charitable Trust.
**Balloon tamponade**: A procedure in which a balloon is inflated within the esophagus or stomach, to apply pressure on bleeding blood vessels, compress the vessels, and stop the bleeding. It is used in the treatment of bleeding veins in the esophagus (esophageal varices) and stomach.

- **Uterine tamponade** for the control of acute uterine bleeding. … The procedure involves filling the uterine cavity and the cervical canal with enough pressure to cause immediate tamponade between the Foley catheter balloon and the semirigid uterine wall.

- **Uterine balloon tamponade** (UBT) is an effective method of addressing uncontrolled postpartum hemorrhage (PPH) from uterine atony; however, UBT devices are often not affordable. … The ESM-UBT device may be useful for control of obstetric hemorrhage caused by complex vaginal tears as well as cervical and molar pregnancies.
ESM-UBT devices

- ESM-UBT devices are being used in over 20 countries worldwide
- ESM-UBT devices have been placed in women with uncontrolled PPH (survival rates of 95% overall)
- If placed prior to advanced shock, survival rates approach 100%.
ESM-UBT devices PACK CONSISTS OF

- Foley catheter (Silicon/Retention catheters/24 French 5cc balloon/Sterile)
- Condoms (Latex/Lubricated surface)
- Luer lock valve for injection site (One-way valve: Luer lock inlet fits the syringe/Sterile)
- O-rings (Elastic/5/8” ID)
- Povidone-iodine prep pads
- Catheter holder
- Syringe (60 mL/Sterile)
UBT implementation and training

- The ESM-UBT kit consists of the following: a size 24 urinary catheter, condoms, cotton strings, Luer-lock one-way valve, illustrated checklist, and data collection card.

- The condom is rolled out and tied to the end of the catheter using the strings.
- Care must be taken to ensure that the balloon is placed inside the uterus.
- The balloon is filled with clean water until the bleeding stops.
- This usually requires 300–500 ml of water, although this may vary.
- To help ensure the safe, effective, and standardised implementation of the condom UBT package, a 3-hour PPH training curriculum that included best-evidence PPH management along with detailed instruction.
- Adjust vaginal balloon to desired location.
National protocol for PPH,

- First it included active management of the third stage of labour:
  - Uterine Massage,
  - Emptying The Bladder,
  - Breastfeeding (if feasible),
  - Identifying and treating perineal or cervical tears,
  - Administering prophylactic oxytocin and/or miso-prostol (or other uterotonics if available),
  - Manual removal of the placenta and blood clots
  - Repair lacerations
  - Bimanual massage
All these interventions, along with repeat doses of utero tonics and other resuscitation measures, should occur prior to placement of the uterine balloon.

Placement of the uterine balloon should occur if these interventions fail and haemorrhage continues uncontrolled (i.e. the UBT as a rescue device).
Procedure

- A dose of a broad-spectrum prophylactic antibiotic was recommended. After the mother was stable,
- The balloon removal protocol was instituted—a slow deflation of the balloon with simultaneous monitoring for resumption of bleeding.
- ESM-UBT was implemented in facilities at all levels of the health care system where deliveries regularly take place;
- however, there was a greater focus was on community level facilities. (PHC, CHC AND SC)
- Steps before UBT placement—
- Empty bladder
  - Administer uterotonics
  - Massage fundus
- Empty uterus
  - Repair lacerations
- Bimanual massage
- Breastfeed
Thank You