

Outcomes & Evaluation: The results confirm that the problem of cold chain breaches is a global issue, occurring extensively in developed and developing countries. The severity of the problem relates, in part, to the type of medical product. Research indicates that temperature-damaged medicines can cause disease outbreaks, adverse events and inaccurate diagnoses. Regardless of the type of medical product, improper temperature control contributes to costly waste. Some of the most effective cold chain solutions have been implemented by countries with the most challenging delivery systems. These solutions should be considered for broader adoption globally.

Going Forward: One meta-analysis cannot transform the issue of cold chain integrity into a burning priority for public health stakeholders. It is hoped, however, that this study's findings will increase public health leaders' awareness and prioritization of cold chain problems and solutions. One fundamental next step would be a global forum in which cold chain innovations and best practices are shared.

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Abstract #: 01ITIS020

Uterine balloon tamponade as a second line treatment for uncontrolled postpartum hemorrhage: A qualitative study exploring lower level provider perceptions of effectiveness, feasibility, and acceptability in lower level health facilities in Kenya

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Background: Postpartum hemorrhage (PPH) remains the leading cause of maternal mortality in developing countries. Lower level facilities often lack resources for managing PPH including blood, surgical interventions, and timely transportation to higher levels facilities. Condom-catheter uterine balloon tamponade (UBT) represents a very low-cost, readily available second line treatment for uncontrolled PPH. Several case series have documented the effectiveness of UBT inserted by experienced providers in hospital settings. However, little is known about the use of UBT by lower-level health providers in the community setting, where the majority of deliveries in low-income countries occur. The aim of this study is to use qualitative methods to assess provider perceptions regarding the effectiveness, feasibility, and safety of the condom catheter UBT for uncontrolled PPH.

Methods: This is a qualitative study in which data were gathered from in depth interviews conducted between February-April 2014. Approximately 6–12 months after a PPH-UBT training, health facilities in Kenya were purposefully sampled to represent a range of size, geographic region, and experience with UBT use. All trained providers at each facility who had managed PPH were interviewed. Interview transcripts were analyzed using standard qualitative methods. Facilities were sampled until theoretical saturation had been achieved. Verbal informed consent was obtained from all participants. Ethical approval obtained from the IRBs of Partners Healthcare and Maseno University School of Medicine.

Findings: Sixty-eight providers were interviewed at 29 facilities in 6 different counties in Kenya. The majority of providers (85.3%) were midwives. Qualitative analysis revealed several major themes. UBT was most commonly used when bleeding was unresponsive to uterotonics, hysterectomy was unavailable, and referral times distant. In all but two

patients that appeared to have DIC, UBT rapidly arrested bleeding. Providers inserted the UBT appropriately within the PPH algorithm, although the timing and clinical severity of the patient varied. The vast majority of providers described UBT as technically easy to use, though a small minority experienced displacement of the balloon. Patient follow-up was inconsistent, but no known complications were reported. The vast majority of patients reportedly expressed no concerns about the social acceptability of the condom component of the balloon.

Interpretation: In lower level facilities that lack life saving treatment modalities for uncontrolled PPH, UBT represents an effective and feasible option to arrest bleeding either as a primary endpoint or en route to obtaining further care. Non-physician providers can easily place the balloon following focused training on UBT. Well designed studies are needed to assess the direct impact of UBT on PPH related morbidity and mortality. The major limitation includes social desirability bias.

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Abstract #: 01ITIS021

Operative trauma in a tertiary care center in Kenya: Detailed causality, demographics, and mortality

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Background: Over 90% of global deaths from injuries occur in low and middle income countries (LMIC). The World Health Organization (WHO) reports that lack of reliable statistics has largely hidden the health and development impacts of injuries. Healthcare systems in LMIC cannot accurately assess the trauma burden on the operative case volume because they lack a secure tool that is functional in the low-resource surgical environment with limited information technology infrastructure. We report preliminary results from a perioperative data collection tool using point-of-care, off-line input by anesthesia care providers followed by asynchronous transmission to a central server. This tool is being utilized in a tertiary referral hospital in East Africa with a large surgical trauma volume due to its location along a major highway and semi-rural population density.

Methods: After IRB approval and education on data collection logistics, anesthesia care providers began collecting case-specific data on June 2014. Data fields include patient demographics, surgery and anesthesia specifics, safe surgery checklist verification, perioperative complications and 7 day perioperative mortality. The tool focuses on trauma impact while highlighting mechanism of injury, trauma to surgery time, mode of transportation of trauma patients to hospital, blood transfusion, and perioperative mortality rate (POMR).

Findings: From June – October 2014, data was collected on 3,140 surgical patients, including 227 (7.3%) cases classified as trauma patients. Of these patients, 94.7% were previously healthy and ASA 1 or 2, 77.8% male, and 88.5% were older than 18 years of age. Mode of trauma included motor vehicle accident (35%), motorcycle (21.3%), fall-related (21.2%), blunt trauma (10.1%), penetrating injury (gunshot or knife, 7.4%), and auto-pedestrian (5.1%). The mode of transportation after the traumatic event demonstrates poor emergency service infrastructure with only 4.6% arriving by ambulance, 87.2% arriving by public or private transportation, and 2.6% by motorcycle. The median time from trauma to surgery was 48 hours. POMR was 1.5%, and 11.4% of patients received 1 or more units of blood.

Interpretation: Surgical trauma patients in a large trauma referral hospital in Kenya are young, male, previously healthy and primarily