

An Anecdotal Study of Hemafuse™, a Device for Intraoperative Autotransfusion, to Augment the Donor Blood Supply in Kenya

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Introduction: PEPFAR, a long-standing US Government program to combat the spread of HIV/AIDS, drastically cut its funding of the Kenyan National Blood Transfusion Service (KNBTS) in October 2019. The program was responsible for the funding of donor blood collection, testing and distribution, according to Kenya's Health CS. Even with PEPFAR funding, hospitals in Kenya already faced critical blood shortages. Since October 2019, the donor blood situation has worsened drastically. In 2018 the KNBTS collected a total of 164,00 units of blood, 34.9% of the WHO minimum recommended amount of 470,000 units. Patients requiring emergency surgery are most impacted by the lack of donor blood. A potential solution to this current problem is autologous blood transfusion or autotransfusion. Autotransfusion is effective during laparotomy cases¹ and patient's own blood maintains better red blood cell health². Sisu Global created The Hemafuse™ as an alternative to donor blood for cases of internal hemorrhage. The Hemafuse™, a handheld device that salvages, filters, and recycles blood from hemoperitoneum, provides the same patient with blood for immediate transfusion during surgery.

Case Presentation: Hemafuse™ is currently in use across Kenya, in large public referral hospitals along with private and mission hospitals. In the cases presented, using Hemafuse™ stabilized patients suffering hemoperitoneum from ruptured ectopic pregnancy. Clinicians used Hemafuse™ to salvage the patients own blood and then transfuse the same patient their own blood back either during or after surgery. Pre-operative hemoglobin levels between 6.5-9 g/dL and 0.7-2.5L estimated blood loss were indicated by anecdotal evidence. The estimated blood transfused back to patients by Hemafuse™ ranged from 250-800mL.

Discussion: In these surgeries Hemafuse™ provided an alternative to donor blood that was either delayed or unavailable, allowing the operations to begin sooner. This resulted in better transfusion outcomes for the patients³. Surgeries using Hemafuse™ were completed before donor blood arrived in multiple cases, allowing the donor blood to be sent back to the lab and made available for another patient. Using Hemafuse™ resulted in hemodynamic stability without donor blood, lower total amounts of blood needed for transfusion and no postoperative complications.

Conclusion: These cases suggest the effectiveness of Hemafuse™, a manual autologous blood device, to provide blood for transfusion in hemoperitoneum surgeries.

References: 1. 2001 Selo-Ojeme, 2. 2017 Sikorski, Rizkalla, Yang, Frank, 3. 2018 Holcomb and Jenkins