

Title: Administration of Anesthesia with a Universal Anesthetic Machine to a Remote Population in Haiti

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Objectives: Recent studies have expressed a need for more surgeons and anesthesiologists in Haiti, particularly in rural areas. The Universal Anesthetic Machine (UAM) was designed to provide safe anesthesia administration in areas with limited access to resources such as reliable electricity and anesthetic equipment. This preliminary study describes 37 surgery patients at a rural outpatient facility in Port-Salut, Haiti, where general anesthesia was delivered using the UAM. This remote Port-Salut facility is 6–12 hours away from reliable medical care with intermittent civil strife complicating access to Port-au-Prince.

Methods: In a rural hospital in Port-Salut, two anesthesiologists and two emergency physicians utilized the UAM to provide general anesthesia to 9 of 37 patients without an external oxygen supply, a reliable power source, or opioids. The study stratified analysis of patients by age, gender, procedure type, and American Society of Anesthesiologists (ASA) classification.

Results: The 37 surgical cases were 40% herniorrhaphy; 40% excision of cyst, cutaneous mass, or incision and drainage of abscess; and 20% other (e.g., hydrocelectomy, circumcision, breast biopsy). The average age was 47 years with 73% being male. The mean ASA score was 1.5; 45% of patients had an ASA score of 1, and no patients had an ASA score >3. In 8 of the 9 cases, general anesthesia was delivered by a laryngeal mask, and the last was by masked airway. An overnight stay occurred due to transportation issues and/or delayed return of lower extremity strength following spinal anesthesia. Notably, no complications occurred in the perioperative or 1-month follow-up period.

Conclusion: The use of the UAM is effective due to its straightforward design, which incorporates a built-in oxygen concentrator and the ability to provide continuous flow of anesthesia regardless of power failure. In situations with limited oxygen supplies and unreliable electricity, the UAM is an excellent tool to provide safe, reliable anesthesia.

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