

Developing Operating System Process Maps for Surgical Infection Prevention: A Tool to Improve Perioperative Standards in Low and Middle Income Countries (LMICs)

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INTRODUCTION: Surgical infections cause morbidity and mortality in low and middle income countries (LMICs). Delivering safe surgical care that adheres to critical antiseptic standards is paramount. We developed Clean Cut, a checklist-based intervention to improve compliance with perioperative infection prevention standards, to decrease surgical infectious complications. We hypothesize that process mapping pre- and perioperative infection prevention activities can aid LMIC clinicians in identifying strategies for improving operating system quality.

METHODS: Clean Cut was piloted at a tertiary hospital in Ethiopia. Infection prevention standards included: (i) hand & surgical site decontamination, (ii) integrity of gowns, drapes, and gloves, (iii) instrument sterility, (iv) prophylactic antibiotic administration, (v) surgical gauze tracking, and (vi) checklist compliance. Processes were mapped by a visiting surgical fellow and pilot-site surgical staff to facilitate the development of contextually relevant solutions. Institution-specific process maps were then consolidated and streamlined through site visits to multiple tertiary hospitals in Ethiopia.

RESULTS: At the pilot-site, process mapping aided the surgical staff in identifying and improving surgeon scrub practices, appropriate prophylactic antibiotic administration, assurance of sterile surgical equipment, and routine gauze counting (Table). Process maps were revised at four other facilities with successful identification of systems issues that could be targets for an improvement program.

CONCLUSIONS: Process mapping the steps involved in surgical infection prevention helped identify strategies for improving adherence, plotting contextually relevant solutions, and resulted in higher compliance with antiseptic standards. Simplifying these process maps into an adaptable tool could be a powerful means for improving safe surgery delivery in LMICs.