

# Surgical checklist can help prevent life-threatening infections in low resource settings

October 23 2017

---

Preventing infections after a surgical procedure is important in any setting, but these complications can be particularly dangerous to surgical patients in low- and middle-income countries (LMICs). To address the situation, the global organization, Lifebox, brought together researchers from Stanford University, Stanford, Calif., and Jimma University, Jimma, Ethiopia, in a collaboration to address the morbidity and mortality caused by surgical site infections in LMICs. The resulting checklist-based intervention helps surgical teams comply with infection prevention standards. Highlights from their research initiative were presented today at the American College of Surgeons Clinical Congress 2017.

The Surgical Safety Checklist, created by Atul Gawande, MD, FACS, for the World Health Organization, provides the framework for Lifebox's evidence-based approach to improving [surgical safety](#) in LMICs, and for this checklist-based program called Clean Cut. Developed by general surgery resident, Jared Forrester, MD (Stanford Health Care), and colleagues, Clean Cut is an intervention based around the use of process maps to improve compliance with perioperative [infection](#) prevention standards. The research team initially implemented Clean Cut at a pilot site in Jimma, where they saw a 180 percent improvement in the use of appropriate hand hygiene prior to surgery, a 92 percent improvement in proper timing of prophylactic antibiotics, and an increase in the use of sterile indicators to confirm use of sterility

of surgical instruments from 7 percent to 87 percent, among other noted improvements.

After effectively piloting Clean Cut, the research team is now at two hospitals in Addis Ababa, Ethiopia, with plans to adapt the process map for use in 10 other hospitals within the next year, at least one in each region of the country.

"Surgical site infections are an incredible cause of morbidity and mortality, especially in low resource settings, where you can have up to five times the amount of surgical infections after an operation," Dr. Forrester said. "We already know basic infection prevention practices that can reduce risk, wherever you are in the world, if you use them effectively. So for Lifebox, this research wasn't aiming to reinvent infection prevention, it was about understanding how to implement existing best practices. The goal of Clean Cut was to develop a scalable program where we could improve basic infection prevention strategies." The Clean Cut checklist-based intervention includes the following infection prevention standards:

1. Hand and surgical site decontamination
2. Integrity of gowns, drapes, and gloves
3. Instrument sterility
4. Prophylactic antibiotic administration
5. Surgical gauze tracking
6. Checklist compliance

Three of the standards are embedded in the checklist, Dr. Forrester explains, with focus on appropriate timing and selection of prophylactic antibiotics before surgery; ensuring surgical instruments are sterile; and decreasing retained surgical items through standardized counts. Two of the other standards are inherent to safe surgery, with focus on proper skin decontamination and maintenance of a sterile field through using

intact and sterile gowns, drapes, and gloves. The last standard is compliance with the full checklist, which has been shown to improve communication and surgical safety.

The research team believes the program provides a model that can be successfully adapted for other low-resource settings. However, Dr. Forrester acknowledged there are certain challenges in changing a hospital's environment to successfully implement a checklist program. He estimates that about a third of hospitals will readily try to pick up new changes, another third will need coaching and ongoing mentorship, and the final third will be more difficult to change current practices.

"Behavior change is really hard," Dr. Forrester said. "There are plenty of guidelines, but there is a gap in terms of how to actually implement them. The Clean Cut process maps can serve as a method and strategy for management and clinicians alike to be able to identify areas in their process where there is a problem, and be able to make changes around it."

Dr. Forrester related the importance of process maps for surgical infection prevention to the coffee production process—a major industry in Ethiopia. "There are a lot of steps between harvesting the coffee bean in rural Ethiopia to getting a cup of coffee at a coffee shop. If any of the processes along the way are not functioning well, then the end product will suffer," he said. "The big thing for global surgery is developing implementation strategies and to try to walk people through these steps on how to improve."

The research team found that process mapping the steps involved in [infection prevention](#) and plotting solutions specific to each site results 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," the researchers concluded.

Provided by American College of Surgeons

Citation: Surgical checklist can help prevent life-threatening infections in low resource settings (2017, October 23) retrieved 23 June 2024 from <https://medicalxpress.com/news/2017-10-surgical-checklist-life-threatening-infections-resource.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.