

Identifying challenges with antibiotic use in surgical services and implementing evidence-based interventions



GHANA



Project sector
Humans



Project partners
Ministry of Health

University of Health
Allied Sciences
(UHAS)

University of Ghana
Medical School/
University of Ghana
(UGMS/UG)

Ghana Health
Service

Food and Drugs
Authority (FDA)

Komfo Anokye
Teaching Hospital
(KATH)



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674,393.98 USD

Context

Antimicrobial resistance (AMR) is a global health challenge associated with increased morbidity, mortality and healthcare costs. To combat AMR, it is essential to strengthen infection prevention and control (IPC) measures and promote judicious antimicrobial use in health delivery, including in surgical prophylaxis. Surgical site infections (SSIs) are a significant burden, particularly in low/middle-income countries (LMICs), and present a considerable cost. Studies in Ghana report higher SSI incidence than the global average, underscoring the need for implementing interventions focusing on improving IPC procedures and the use of antibiotics for Surgical Antibiotic Prophylaxis (SAP). Although interventions have been suggested for reducing SSI worldwide, there are challenges with implementing such recommendations in Ghana due to cost implications and, to some extent, the behaviour of healthcare practitioners.

Problem

To prevent the development of SSI, SAP is an evidence-based practice. However, an issue associated with SAP in Ghana is the high level of non-adherence to national treatment guidelines. For example, antibiotics are prescribed for a longer duration than the recommended one day for caesarean section. Poor IPC measures, such as hand hygiene and facemask use could also contribute to the high SSI incidence in Ghana. Many facilities lack formal Antimicrobial Stewardship programs and IPC structures, which could strengthen antimicrobial use and implementation of IPC protocols. Additionally, data from field surveillance conducted by Ghana's Food and Drug Authority showed substandard antiseptics and disinfectants on the Ghanaian market which may be accessed in healthcare facilities.



Project overview

The aim of the project is to reduce the incidence of SSI and improve appropriate antimicrobial use (AMU) by addressing challenges associated with SAP and IPC practices in surgery. The objectives are multifaceted: evaluating baseline antibiotic prescribing and IPC practices, assessing the quality and appropriate use of antiseptics and disinfectants, and understanding health practitioner behavioural and institutional factors influencing antibiotic use and IPC. The project will develop and implement potentially sustainable interventions on rational use of antibiotics in SAP and IPC practices, evaluate their effectiveness and cost-effectiveness, and make recommendations for scaling up, informing policy decisions for broader implementation. The objectives are:

- a) To determine baseline antibiotic prescribing practices in line with the Ghana Standard Treatment Guidelines or other acceptable standard guidelines (e.g. WHO guidelines for surgical prophylaxis) in four study hospitals.
- b) To assess baseline IPC practices in surgical settings of the project sites in line with IPC protocols of Ghana
- c) To assess the quality of antiseptics and disinfectants used in surgical units and in particular at the project sites in Ghana
- d) To assess individual behavioural drivers of the healthcare practitioners in surgical units, challenges and institutional factors affecting appropriate antibiotic use in surgery and IPC practices.
- e) To develop and implement sustainable evidence-based interventions to address the identified challenges with the use of antibiotics in surgery and IPC practices.
- f) To evaluate the effectiveness and cost-effectiveness of the interventions addressing antibiotic use in surgery and IPC practices, and make recommendations for scale-up.
- g) To assess the likely mechanisms for sustainability and scale-up, and disseminate findings to all stakeholders including policy and decision-makers.

Study Design

This study will take the form of a Quality Improvement Study with mixed methods, using a Plan-Do-Study-Act (PDSA) approach.

The implementation research cycle will use a before-and-after approach to measure the impact of the intervention and thus link evidence generated to improve practice and also advance impactful public health policies and programmes.

Study sites

This project aims to test the implementation of surgical antibiotic prophylaxis and IPC interventions across 4 hospitals in Ghana: 1 teaching hospital (Korle Bu Teaching Hospital), 2 regional hospitals (Eastern Regional Hospital Koforidua and Yendi Municipal Hospital) and 1 district hospital (Holy Family Hospital) (n=4).

Outcomes

- 30% relative reduction from the current 10% SSI rate to 7% with multimodal interventions.
- Reduced SSI in abdominal surgeries.
- Reduced length of hospital stays and associated costs.
- Improved adherence to national standard treatment guidelines (STG)/WHO/approved institutional guidelines on appropriate SAP.
- Increased IPC level based on WHO IPC Assessment Framework.
- Change in Knowledge, Attitude and Practices (KAP) of healthcare professionals.

