

# Implementation of a Multidisciplinary Prophylactic Antibiotic Redosing Protocol in the Surgical Services Department: A Quality Improvement Project

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## Background/Problem Identification

- Surgical site infections (SSIs) are the most common complication and costliest hospital-associated type of infection.
- While research and guidelines demonstrate the efficacy of prophylactic antimicrobial therapy and the importance of redosing antibiotics during long operative cases, surgical site infections persist and cause financial havoc for health care organizations.
- Nonadherence to prophylactic antimicrobial guidelines among surgical staff remains a barrier to reducing SSIs as identified by infection prevention data at a level 1 trauma center in Nebraska.
- Due to the lack of a prophylactic antibiotic administration and re-dosing protocol within the surgical services department, patients undergoing invasive surgical procedures are potentially at higher risk for developing SSIs and may suffer negative surgical outcomes such as prolonged hospital stay, increased recovery time, and significant morbidity and mortality.

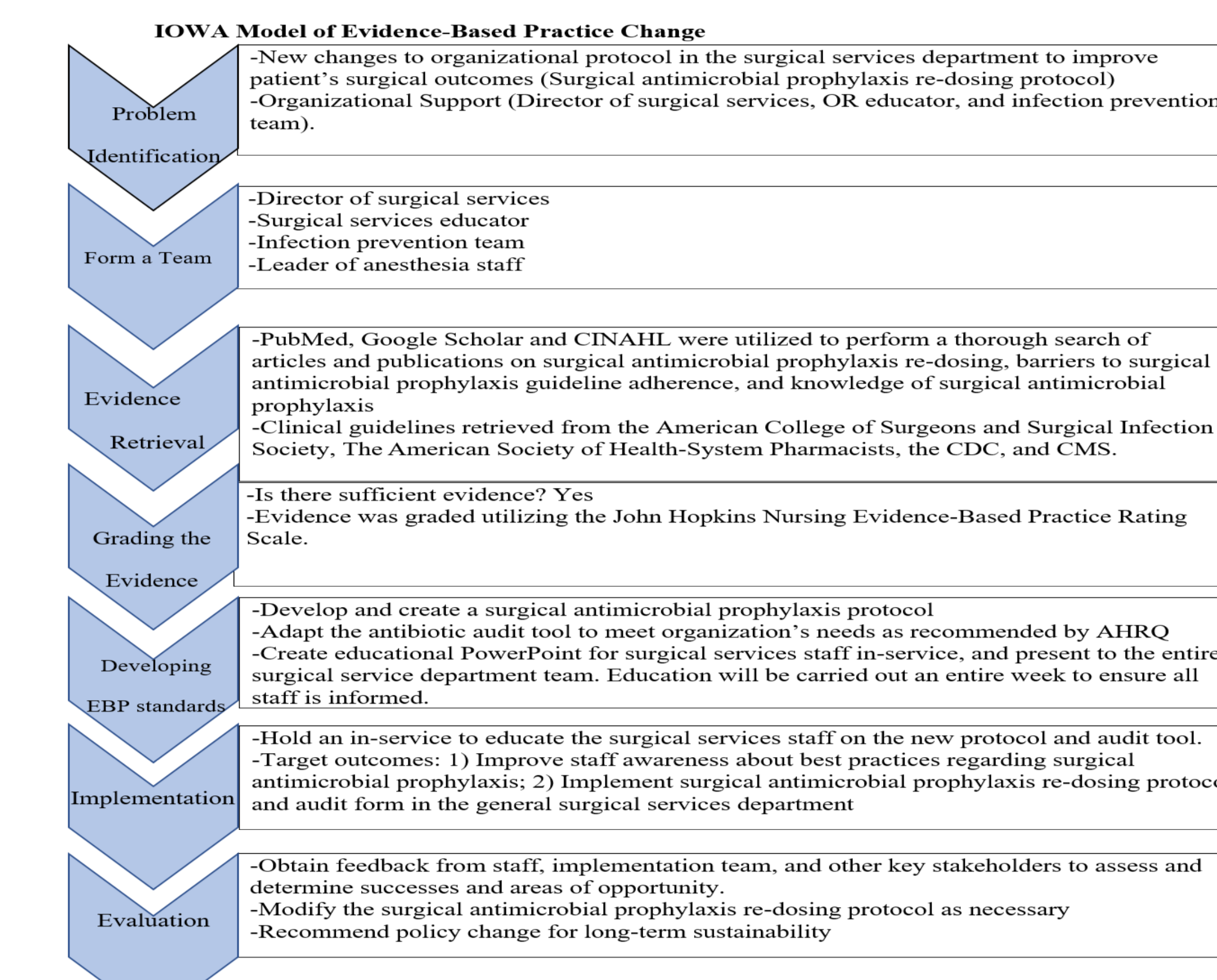
## Aims

The aims of this quality improvement project included:

- 1) Evaluation of the reach of the multidisciplinary surgical prophylactic antimicrobial re-dosing protocol among the surgical services team by tracking completed antibiotic audit forms.
- 2) Assessing the effectiveness of the multidisciplinary surgical prophylactic antimicrobial re-dosing protocol by comparing frequency of SSI incidence rates collected by the infection prevention team, before and after intervention.

## Methods/Design

- The DNP project was based on a quality improvement project theoretical framework with the implementation of a practice intervention design.
- The antibiotic audit tool tracked surgical antimicrobial prophylaxis administration and re-dosing information and facilitated the evaluation of adherence among the perioperative staff.
- This project included a convenience sample of 326 adult patients, age 19 years or older, who have had a pre-operative physical and had a planned surgical intervention performed.

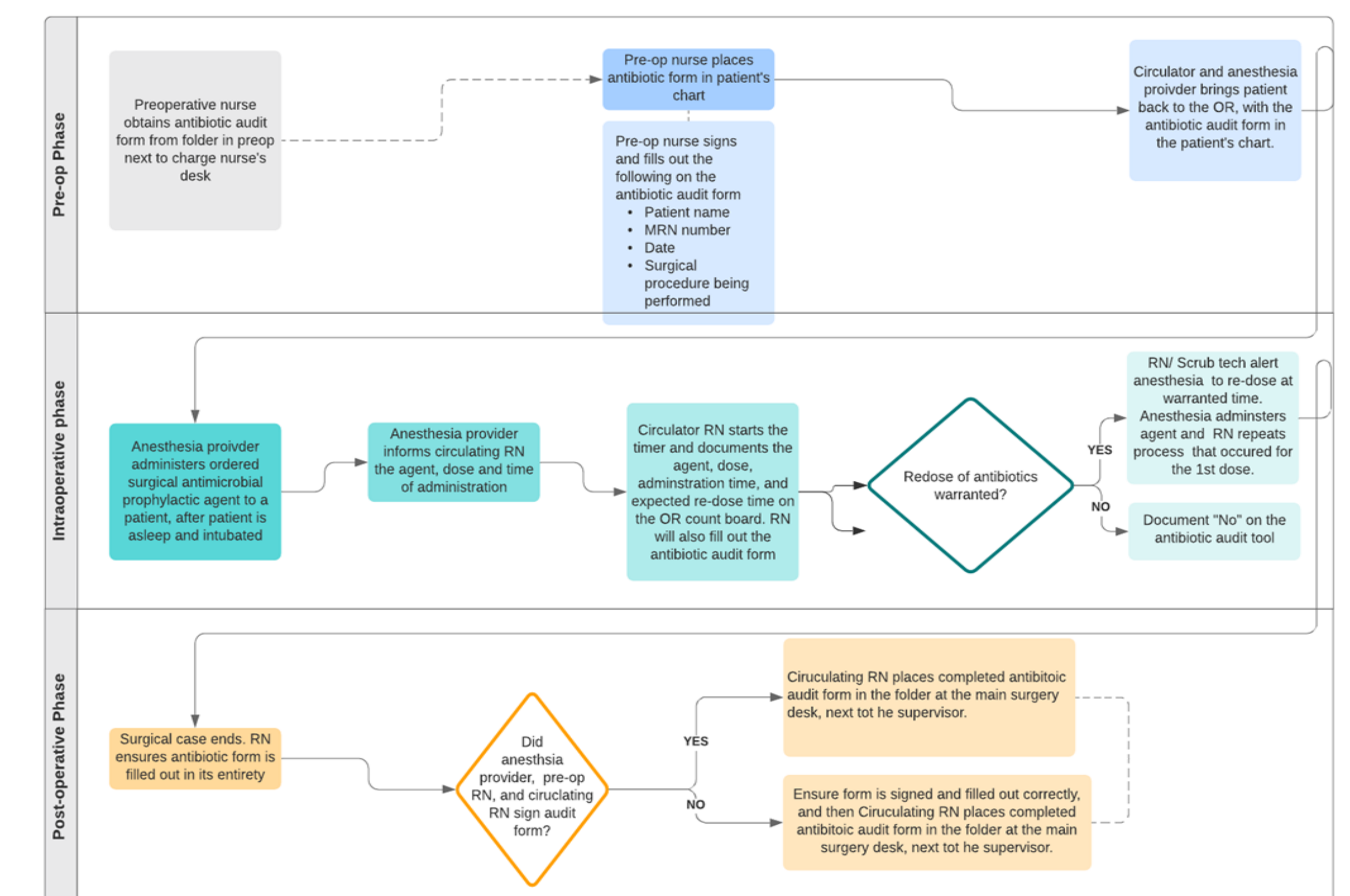


## Intervention

- The surgical antimicrobial prophylaxis protocol that was implemented in the general surgery department required a collaborative effort from the multidisciplinary surgical team.
- The protocol started in the preoperative setting and extended through the intraoperative phase until the case is finished and the patient left the operating room suite. See Surgical Antimicrobial Prophylaxis Re-Dosing Protocol Flow Chart

## Results

- Out of the 326 cases analyzed, in 260 (79.8%) cases, surgical staff completed the antibiotic audit form appropriately. When examining proper administration of prophylactic antibiotics within the appropriate time before incision, all patients who required antimicrobial prophylaxis, (286 patients) received proper administration.
- Furthermore, 58 cases out of the 326 cases required redosing of antibiotics, which were redosed appropriately 100% of the time.
- During the eight weeks before the implementation period, in the month of May of 2021, there was a reported infection rate of 9.09% in abdominal hysterectomies and colorectal surgeries had an SSI infection rate of 18.18%.
- Drill down data noted that prophylactic antimicrobials were not administered appropriately. The post implementation data from the infection prevention team revealed zero infections for the months of Aug 2021, and September 2021.



Surgical Antimicrobial Prophylaxis Re-Dosing Protocol Flow Chart