

Evaluation of Antibiotics Timeout Tool as a Safety Program for Improving Antibiotic Utilization in a Secondary Care Hospital in Ras Al Khaimah, UAE



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Introduction & Objectives

- Inappropriate prescription and the overuse of broad-spectrum antibiotics, in addition to the continuation of therapy beyond the recommended time period could increase the risk of adverse effects and promote the emergence of resistant organisms.
- Antimicrobial stewardship program (ASP) is an increasingly common intervention for optimizing antimicrobial therapy in healthcare settings.
- Antibiotics timeout tool is one of the interventions among the different methods available for reduction of inappropriate antimicrobial prescriptions in hospitals because it requires all clinicians to review antimicrobial use 48-72 hours after initiation of medication.
- The objectives of this study was to assess the percentage and indications of antibiotics used in the treatment of patients admitted to the hospital, effect of the newly implemented stewardship tool timeout on prescribing practice of antibiotic, cost and clinical outcome and adherence of physicians to antibiotic prescription guidelines designed by hospital antibiotic stewardship committee.

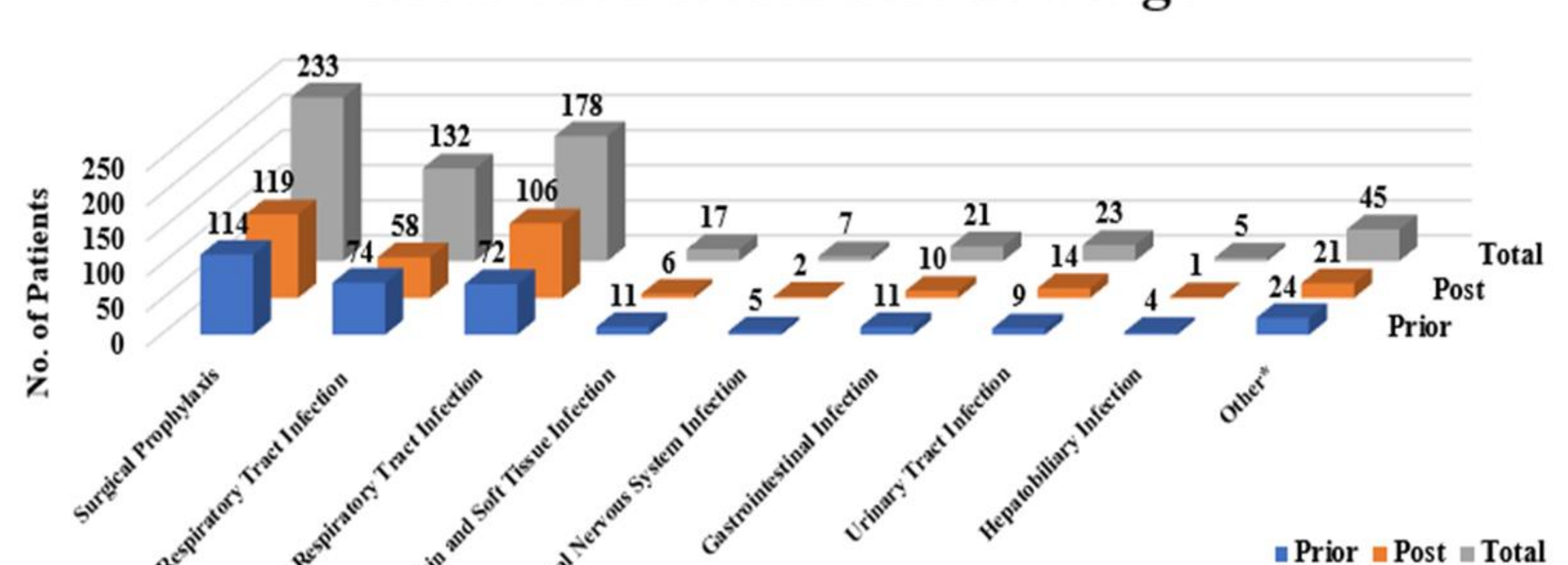
Methods & Materials

- Study Setting:** Saqr hospital, Ras Al Khaimah, UAE.
- Study Design:** retrospective and prospective, Quasi-experimental study, pre and post implementation of timeout intervention.
- The study was conducted over a period of 6 months.
- Prior (From December 2019 and January to February 2020).
- Post (From November 2021 to January 2022).
- Electronic Time-Out Alert Pathway was developed by:** Central Antimicrobial Stewardship Team in Emirates Health Service (EHS) with Cerner Corporation Middle East FZ-LLC
- Sampling Method:** Convenience sampling technique using Raosoft® software sample size calculator. After applying the exclusion criteria, approximately 661 patients were enrolled in the present study. 324 patients' data were included in prior to implementation of timeout intervention and 337 patients' data were included in post to implementation of timeout intervention period.

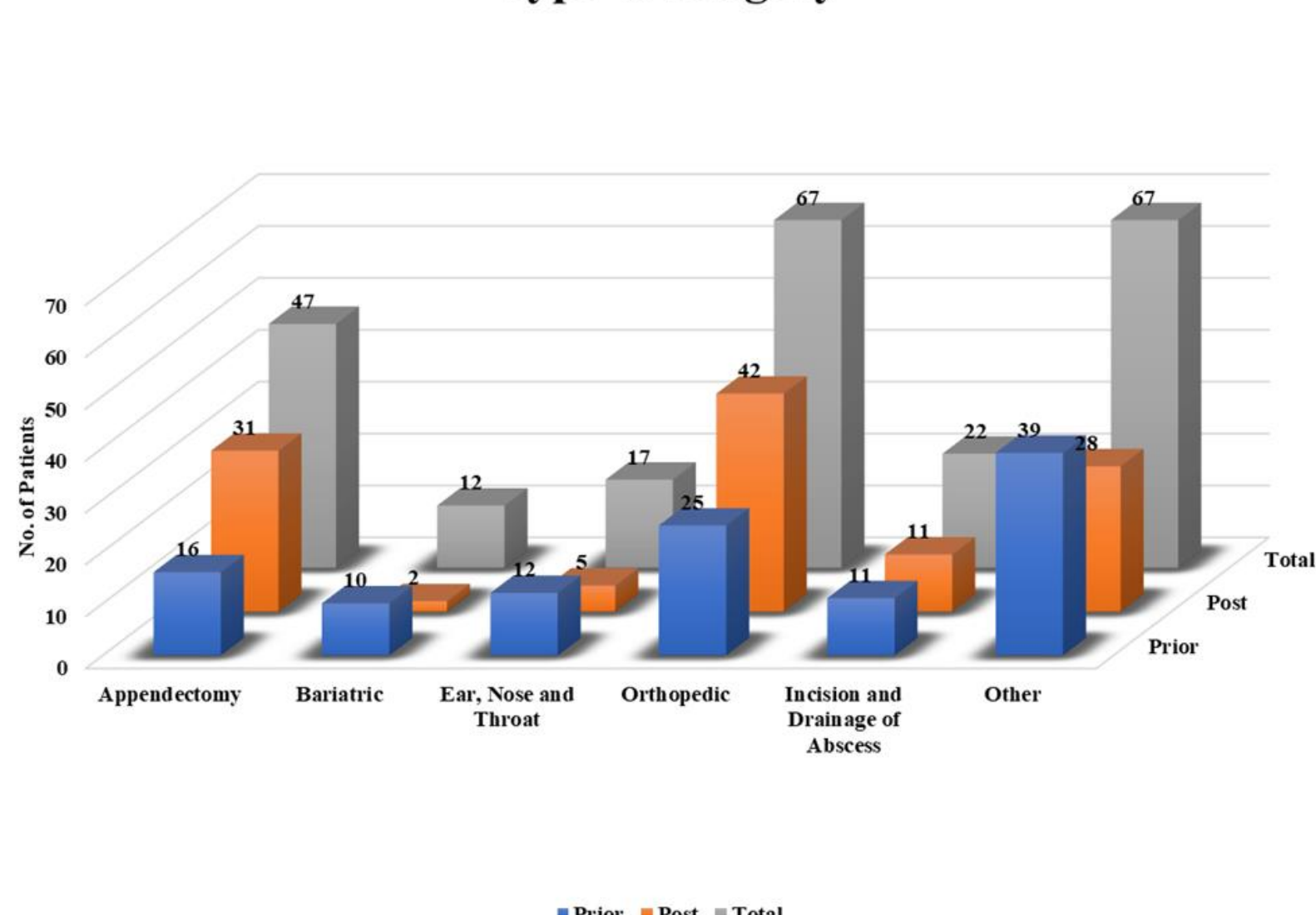
Results

- Among the **661** patients enrolled, **324** patient's data were collected for prior and **337** for post intervention period. 422 (63.8%) patients were males and 239 (36.2%) were females. Majority (212;65.4 %) were UAE nationals, followed by non- Arab nationalities . All of the medications were prescribed by their generic names.
- The most commonly used class of antibiotics was beta lactam antibiotics (cephalosporines and penicillins) which accounted for a total of 582 (88 %) out of 661 prescriptions. Cephalosporines were the most commonly used class of beta lactam antibiotics (308; (53%).
- No adverse drug reaction was reported and or documented .
- The cost of many medications have increased post intervention, which lead to increase in the total cost.
- Overall, the mean total adherence to surgical prophylaxis was 83.3 (57.8%) with point estimate 95% CI 0.5791. In post intervention period the mean total adherence was 34 (52.3%) with point estimate 95% CI 0.5306 which was lower than that of pre intervention period (49.3; 62%) with point estimate 95% CI 0.6243.

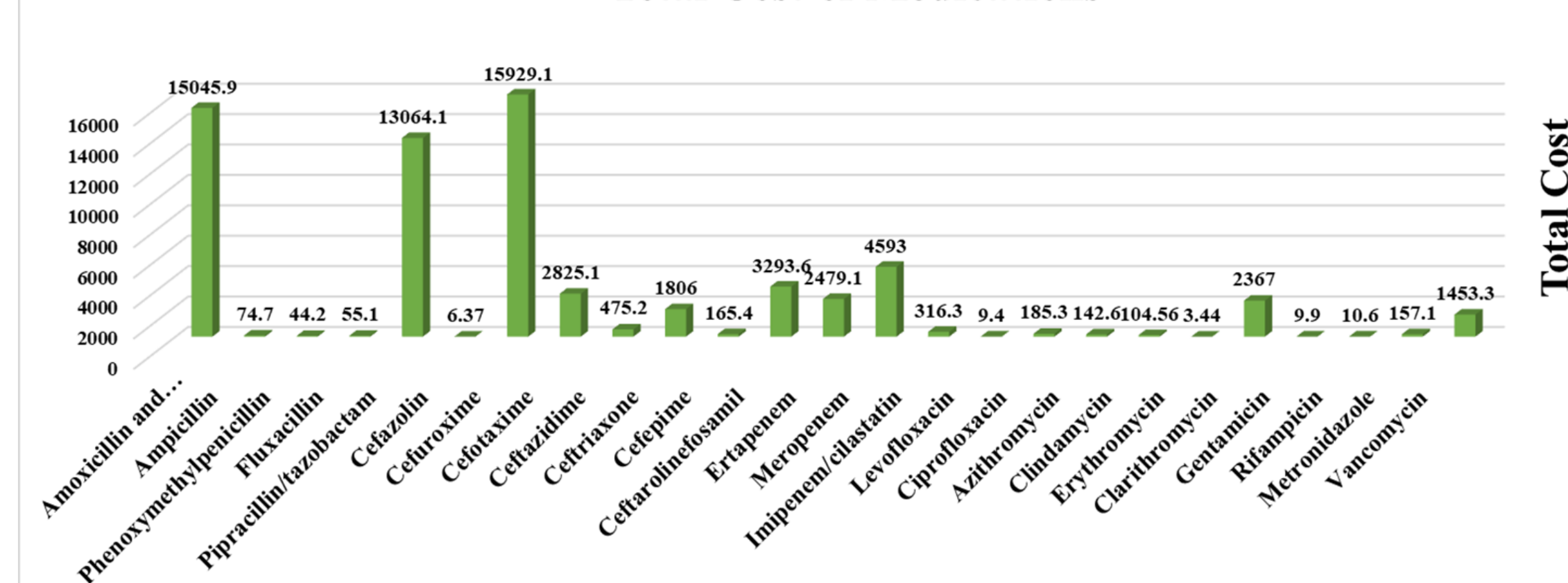
Indication for Antibiotic Usage



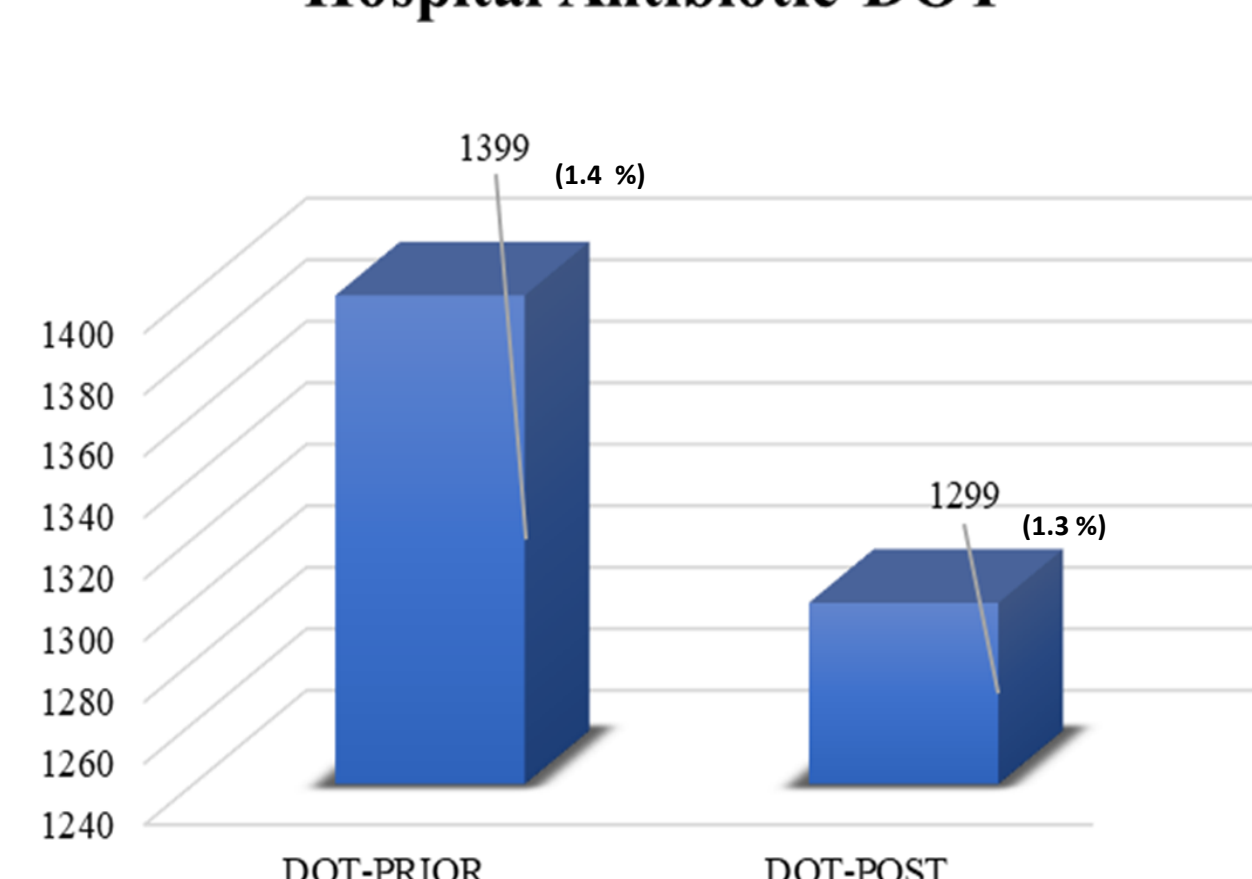
Type of Surgery



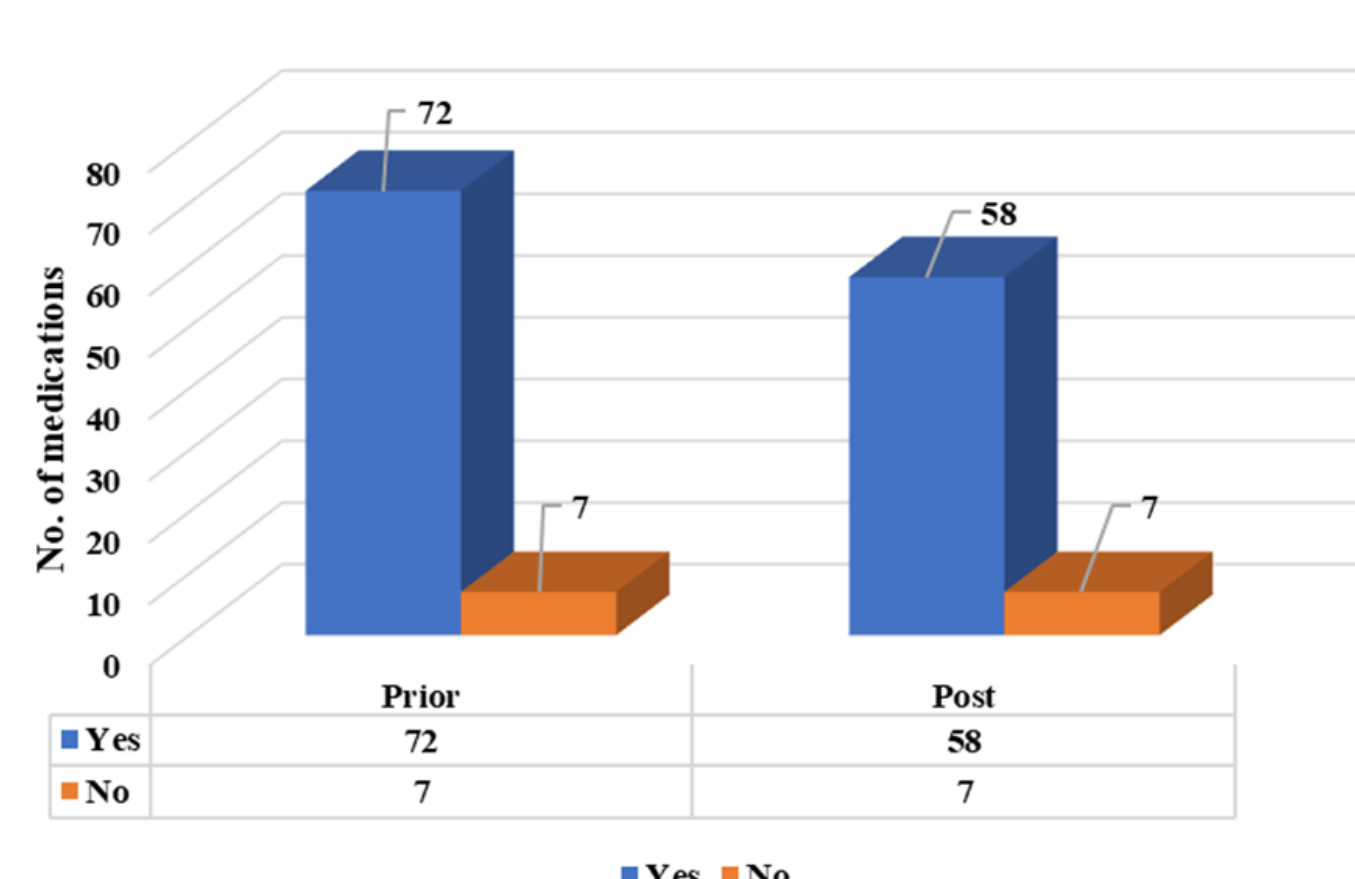
Total Cost of Medications



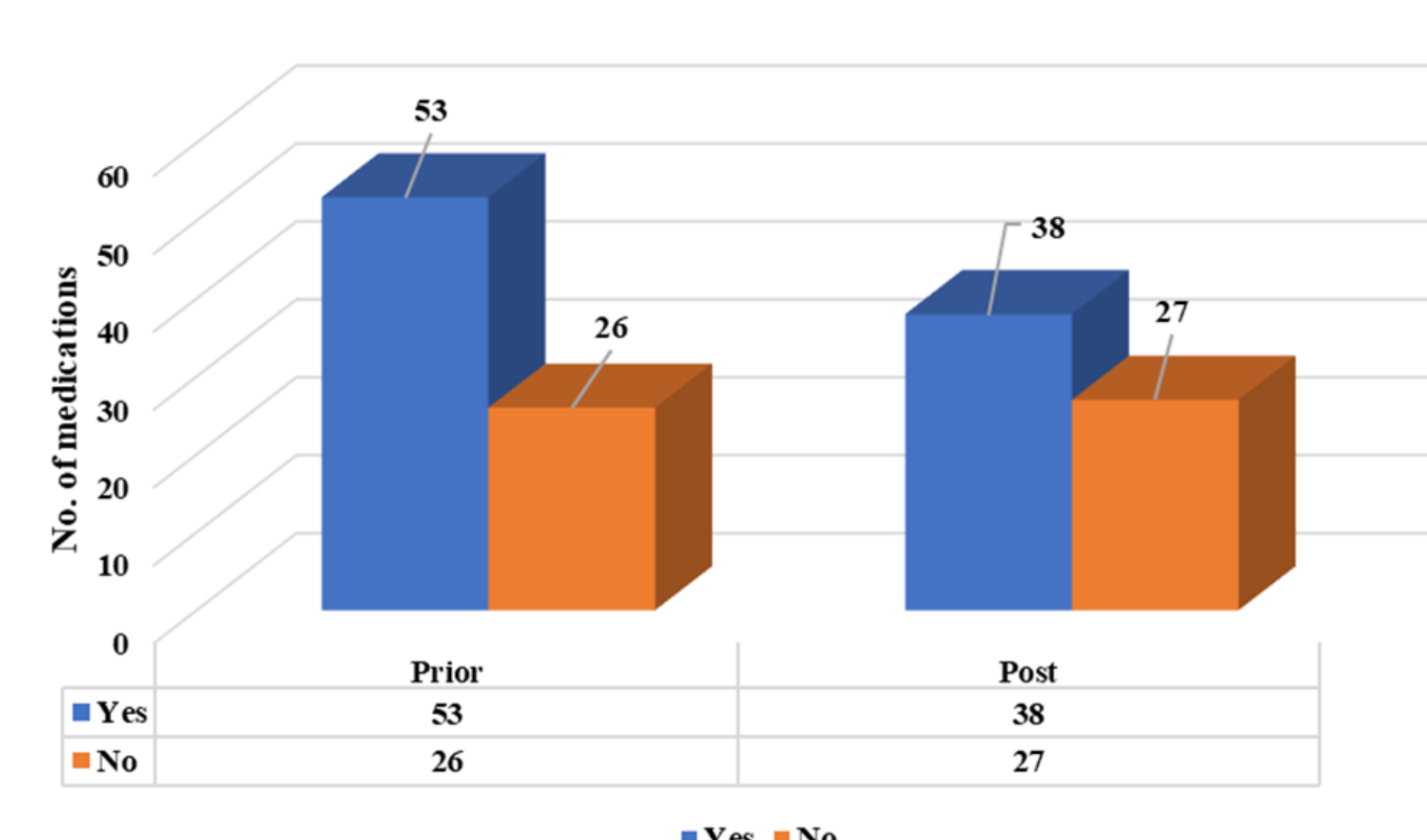
Hospital Antibiotic DOT



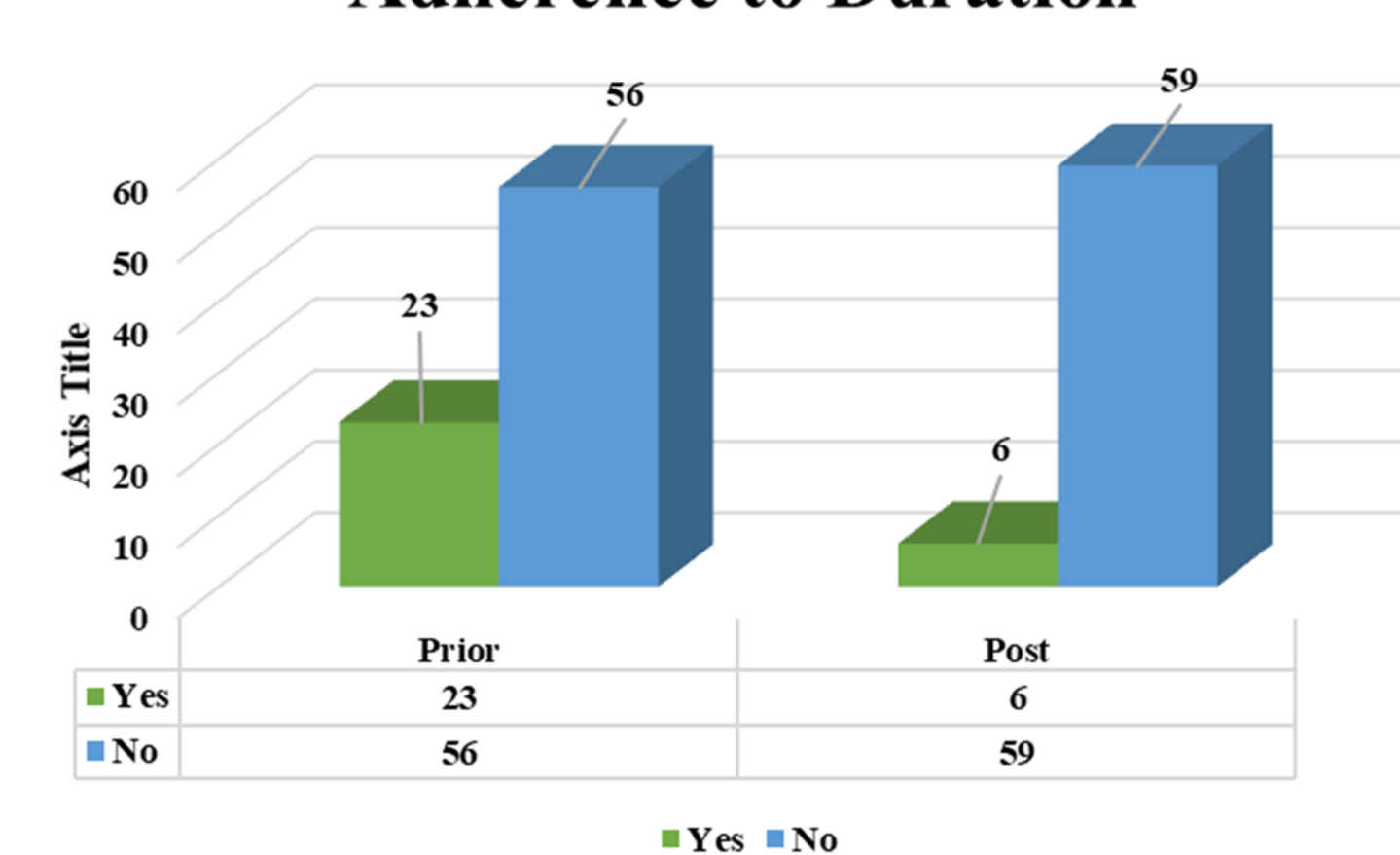
Adherence to Selection



Adherence to Administration Time



Adherence to Duration



Discussion

- The current study is one of the few studies reporting the implementation of an antibiotic stewardship program intervention in the UAE and the Gulf region. It describes the implementation of timeout tool to facilitate the reduction of inappropriate antibiotics prescription in the hospital, since it requires physicians to review use of antibiotics on regular basis (48-72 hours) after initiation of medication.
- The physicians prescribed the antibiotics based on the guidelines. The local guidelines for surgical prophylaxis was implemented in Saqr hospital on April 2018, which was based on IDSA international guidelines, and it is as per the requirement of the Ministry of Health and Prevention formulary drug list.
- The adherence to surgical prophylaxis evaluation in our study included all cases but were not applicable to appendectomy and skin and soft tissue infection cases because of the existing infection.
- Electronic time-out have no role on Surgical prophylaxis since pop-up doesn't appear for them it only appear for patient on empiric (Watch/Reserve) antibiotic.

Conclusion

- In this study we are implementing the antibiotic time out tools.
- After following the implementation of electronic ATO process, a wide range of patients experienced considerable drops in total hospital costs and overall DOT for frequently prescribed antibiotics.
- This procedure offers a practical plan for implementing a sizable ATO as an add-on to an ASP.
- It also highlights the role of clinical pharmacist in implementing the stewardship interventions and in improving the adherence rate to the national guidelines in UAE in general.

References

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