

Background

Carbapenems are broad-spectrum antibiotics used to treat multidrug-resistant organisms, intra-abdominal infections, and severe, life-threatening conditions. Inappropriate carbapenem utilization has been associated with a rising incidence of carbapenem-resistant enterobacteriaceae (CRE), *Clostridioides difficile*, and other drug-resistant organisms. To minimize inappropriate carbapenem utilization and resistance, a restriction policy was implemented for this community hospital's inpatient practice in April 2020.

Objective

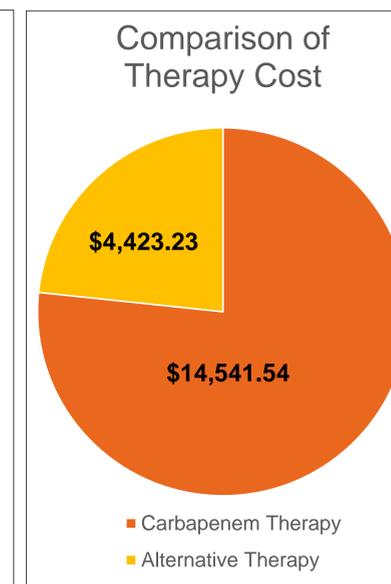
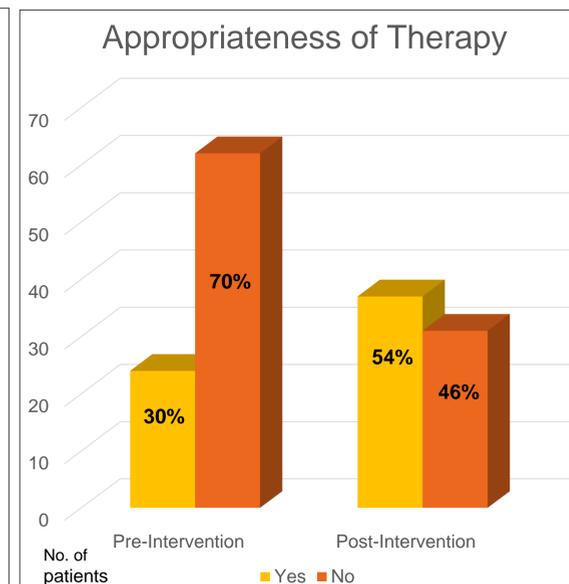
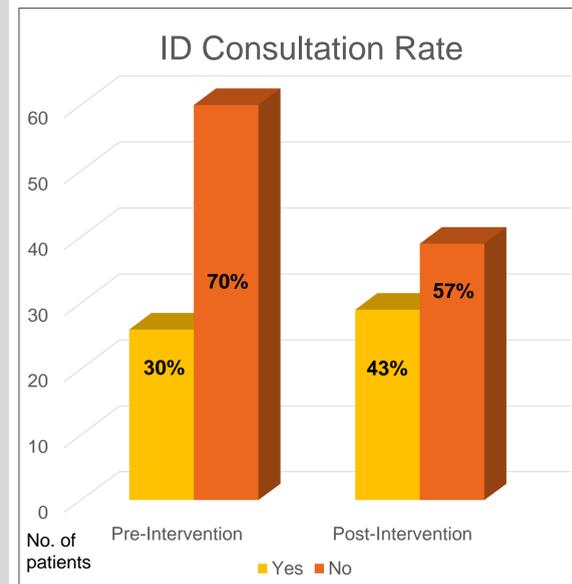
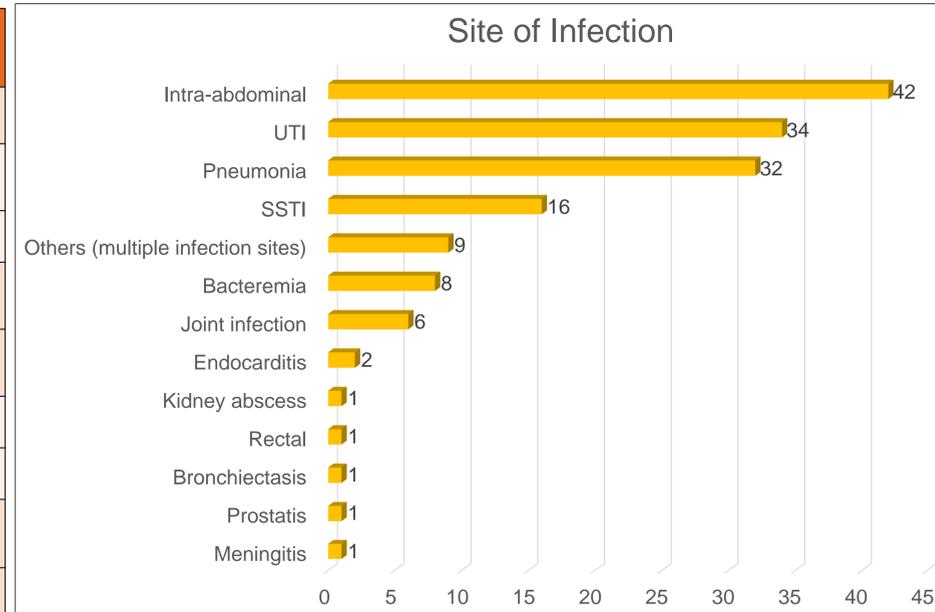
The objective of this study is to evaluate the impact of the antibiotic therapy restriction policy on the carbapenem utilization and cost-savings at a community hospital.

Methods

- A retrospective pre and post-intervention analysis on all adult patients who received greater than 24 hours of carbapenem therapy (ertapenem or meropenem) from January 1, 2019 to November 30, 2020
- The policy restricted the carbapenem use to infectious disease (ID) providers and surgeons prescribing for abdominal surgeries
- Data collected includes age, sex, race, indication, antibiotic allergies, adverse reactions to carbapenems, culture results, ID consult, number of days and doses of carbapenem therapy, history of multi-drug resistant organism (MDRO), and alternative antibiotic therapy options and their projected cost differences

Results

Patient Demographics	N=154
Average age (years)	63.4
Race (No. of patients)	Caucasian: 144
	African American: 10
Sex (No. of patients)	Male: 71
	Female: 83
Penicillin allergy (No. of patients)	Yes: 54
	No: 100
History of MDRO (No. of patients)	Yes: 37 (ESBL: 21, CRE: 1)
	No: 117



Conclusions

- Based on the restriction policy that has been implemented at this community hospital, 30% (pre-intervention) and 54% (post-intervention) of carbapenem therapy was prescribed appropriately
- The appropriateness of the carbapenem therapy has increased during the post-intervention phase compared to pre-intervention treatments
- ID providers were consulted about 30% (pre-intervention) vs. 43% (post-intervention) of time during the carbapenem therapies. The percentage of consults to ID is similar to the post-intervention phase
- Projected cost saving for utilizing alternative therapies was 70% when compared to carbapenem treatment

Limitations

- Retrospective data collection
- Single-centered
- Concurrent ID pharmacist intervention during the pre-implementation phase
- Charting accuracy

Next Steps

- Educate surgeons to decrease the use of empiric carbapenem therapy for abdominal surgeries
- Present data findings to local physicians

References

1. Janssen, Jesse et al. CARBapenem utilizatiON evaluation in a large community hospital (CARBON): A Quality Improvement Study. *The Canadian journal of hospital pharmacy* vol. 68,4 (2015): 327-31.
2. Wilson, A Peter R. Sparing carbapenem usage. *The Journal of antimicrobial chemotherapy* vol. 72,9 (2017): 2410-2417.

Disclosure

Authors have nothing to disclose concerning possible financial or personal relationships with commercial entities.