

BACKGROUND

- Antimicrobial stewardship programs are an integral part of improving patient care
- Alton Memorial Hospital's antimicrobial stewardship program discovered that their vancomycin and piperacillin/tazobactam use was higher than surrounding hospitals.
- Antimicrobial stewardship education was provided to prescribers which resulted in a decrease in use of these antibiotics.

OBJECTIVE

- To determine if the decrease in use of vancomycin and piperacillin/tazobactam at Alton Memorial Hospital was associated with an increase in use of other antibiotics.

METHODS

Study Design:

- Observational, pre-post, quality improvement study

Data Collection:

- Antibiotic reports for February – July were analyzed for both 2018 and 2019
- Days of therapy per 1,000 patient days for vancomycin, piperacillin/tazobactam and fourteen additional antibiotics recorded
- Additional antibiotics included:

daptomycin	cephalexin	levofloxacin
linezolid	cefazolin	ciprofloxacin
clindamycin	ceftriaxone	azithromycin
meropenem	cefepime	metronidazole
ertapenem	ceftaroline	

Primary Outcome:

- Change in days of therapy per 1,000 patient days pre-education to post-education for each antibiotic

Secondary Outcome:

- Change in days of therapy per 1,000 patient days between all antibiotics pre-education to post-education

Data Analysis:

- Data was reported as change in days of therapy per 1,000 patient days rounded to the nearest whole day and percent change for each antibiotic.
- Student's t-test with alpha = 0.05 was done for the secondary outcome.

RESULTS

Figure 1: Bar graph comparing DOT per 1,000 patient days for February – July 2018 vs. February – July 2019 for each antibiotic

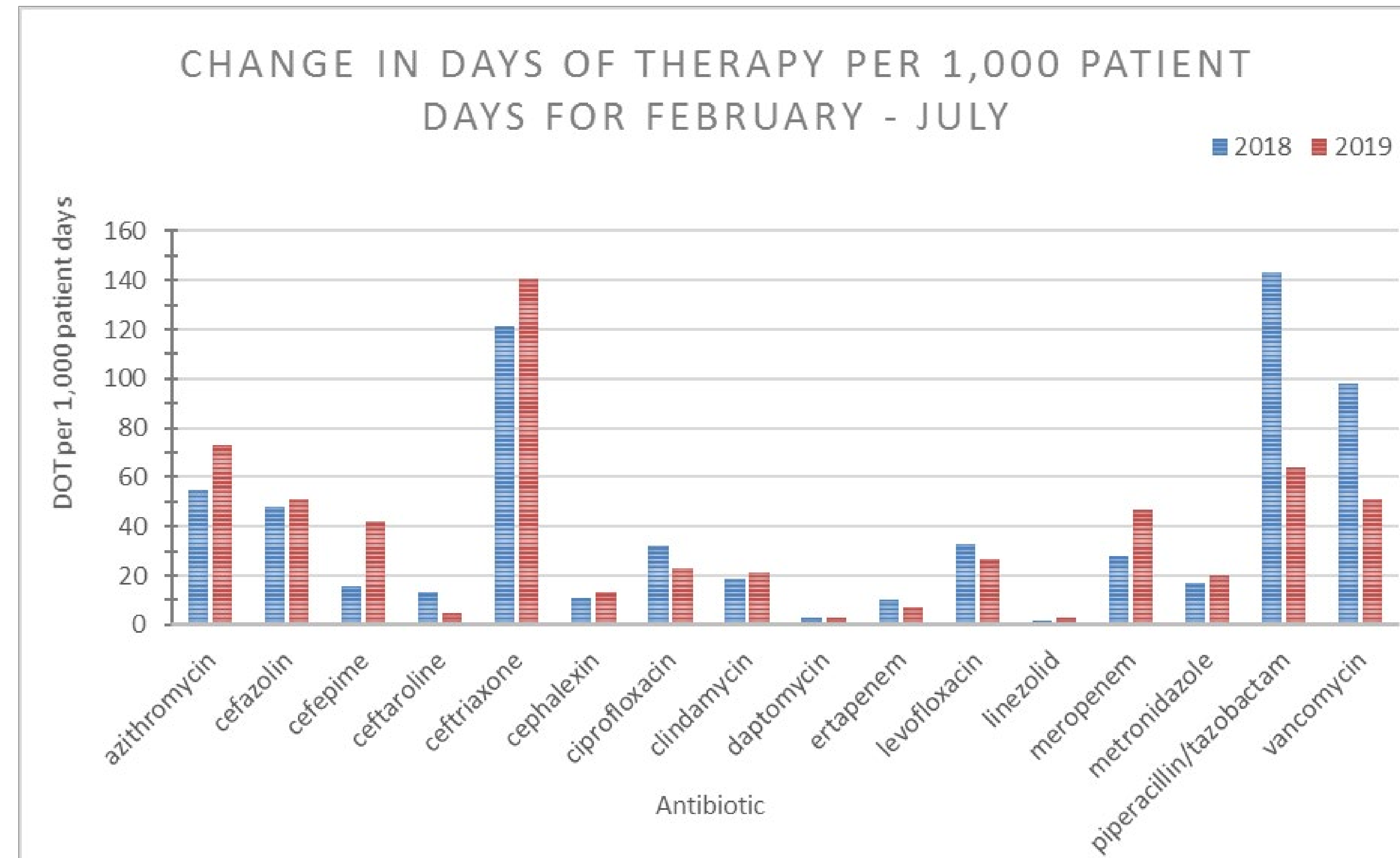


Figure 2: Bar graph comparing % change in DOT per 1,000 patient days for February – July 2018 vs. February – July 2019 for each antibiotic

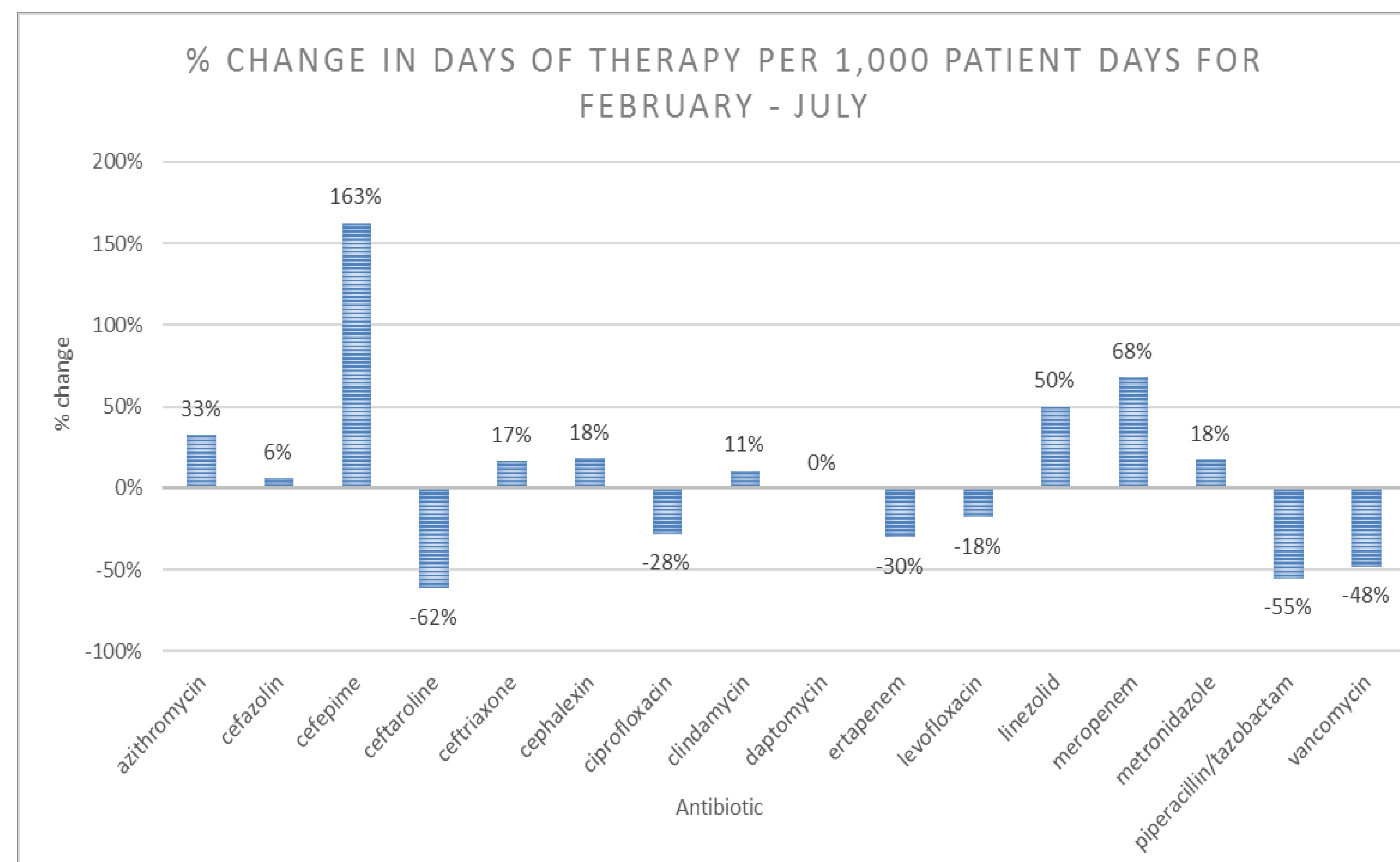
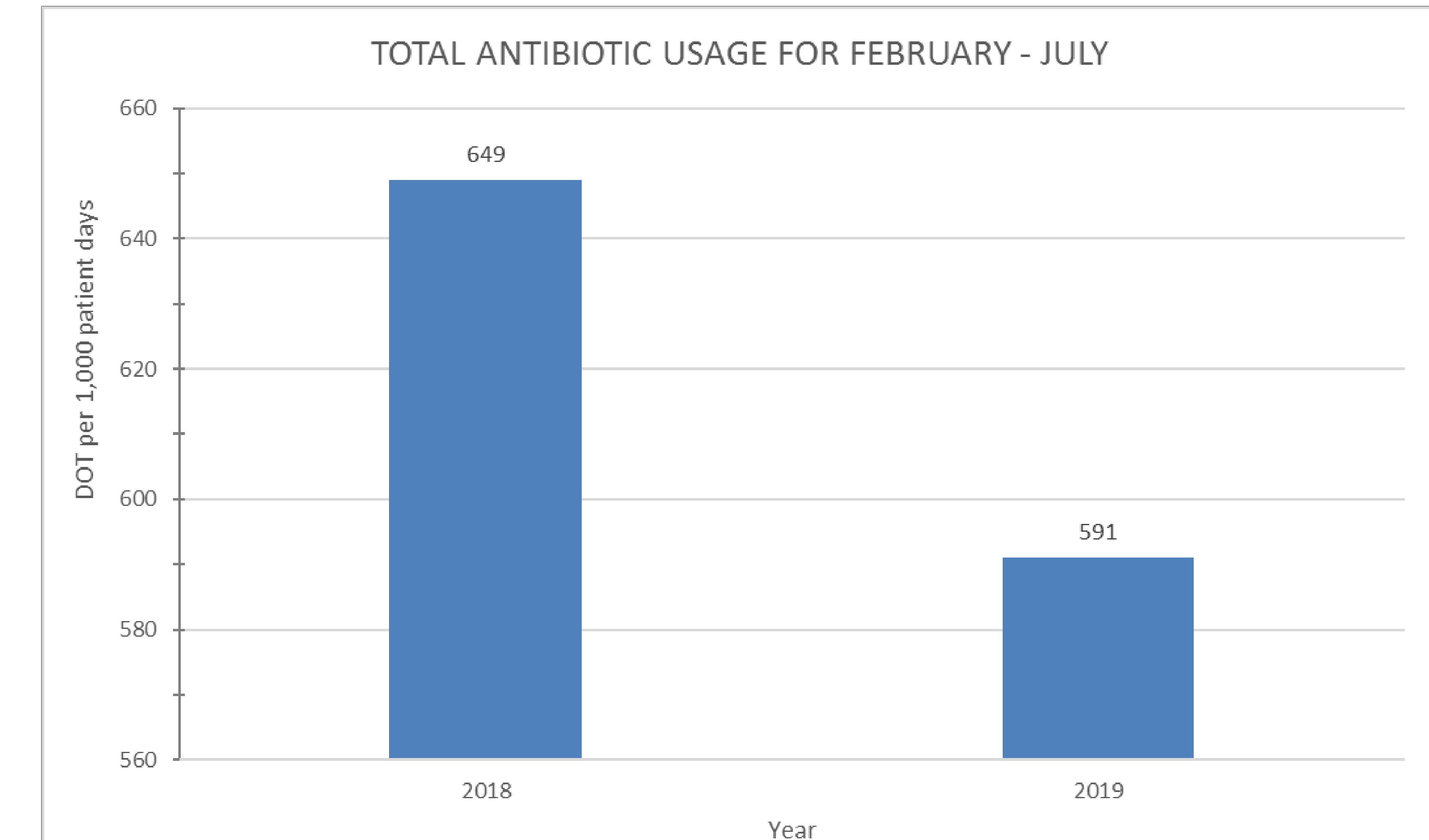


Figure 3: Bar graph comparing total antibiotic DOT per 1,000 patient days for February – July 2018 vs. February – July 2019



- During the study period vancomycin and piperacillin/tazobactam days of therapy per 1,000 patient days decreased by 47 (98 vs 51; 48%) and 79 (143 vs 64; 55%), respectively.
- Additional antibiotic days of therapy per 1,000 patient days during the same time period:
 - Increases: cefepime by 26 (16 vs 42; 163%), meropenem by 19 (28 vs 47; 68%) and linezolid by 1 (2 vs 3; 50%).
 - Decreases: ceftaroline by 8 (13 vs 5; 62%), ertapenem by 3 (10 vs 7; 30%), ciprofloxacin by 9 (32 vs 23; 28%) and levofloxacin by 6 (33 vs 27; 18%).
- Total antibiotic days of therapy per 1,000 patient days was 649 for 2018 and 591 for 2019.
- P-value for the total change in days of therapy per 1,000 patient days between all antibiotics pre-education to post-education was 0.80.

CONCLUSION

- There was an increase in use of some antibiotics with similar spectrums of activity when use of vancomycin and piperacillin/tazobactam decreased.
- The change in total days of therapy per 1,000 patient days between all antibiotics pre-education to post-education was not statistically significant.
- To determine the clinical significance further data analysis on additional outcomes must be completed.

CONTACT/DISCLOSURE

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