

# Leveraging the Electronic Medical Record as a Method of Antibiotic Stewardship

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## Background

- Overutilization of antibiotics is a challenging problem.
- Many protocols geared toward curbing improper antibiotic use rely heavily on resource- and personnel-intensive methods.
- The EMR may be a powerful tool to facilitate antibiotic stewardship.

## Methods

- EMR intervention implemented August 2019 across the Hofstra/Northwell system at inpatient and outpatient sites.
- Antimicrobials included: ceftriaxone, daptomycin, ertapenem, imipenem, meropenem, piperacillin-tazobactam.
- EMR prompted users to indicate use duration per the Antibiotic Stewardship Committee guidelines
- Use rates were calculated as monthly means of usage per 1000-patient days for each unit type for each clinical site from January 2018 to February 2020.
- Paired sample t-tests to compare pre- and post-intervention rates.
- Excluded units with 0 days usage.

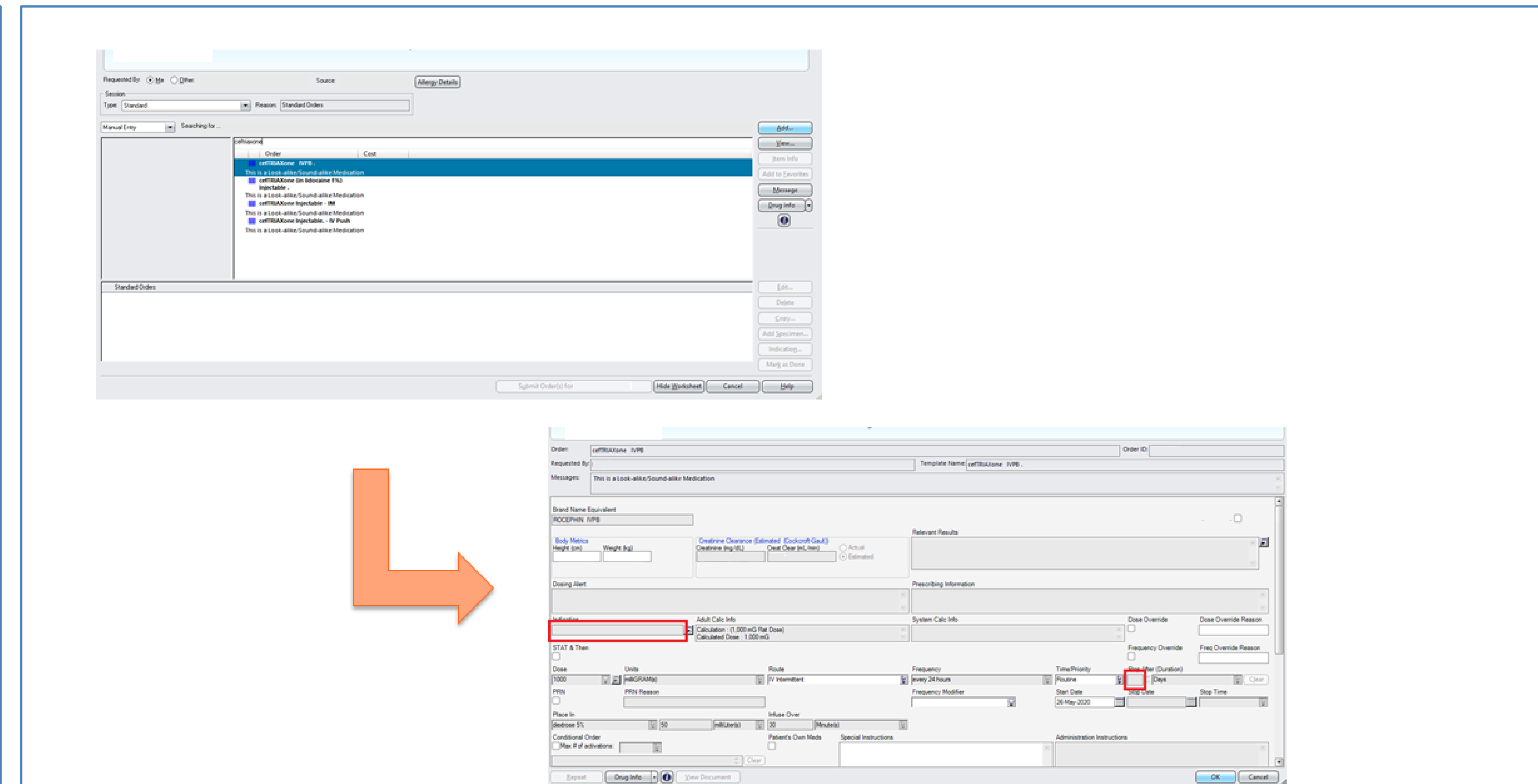


Figure 1: Steps of Ordering Ceftriaxone Prior to Intervention

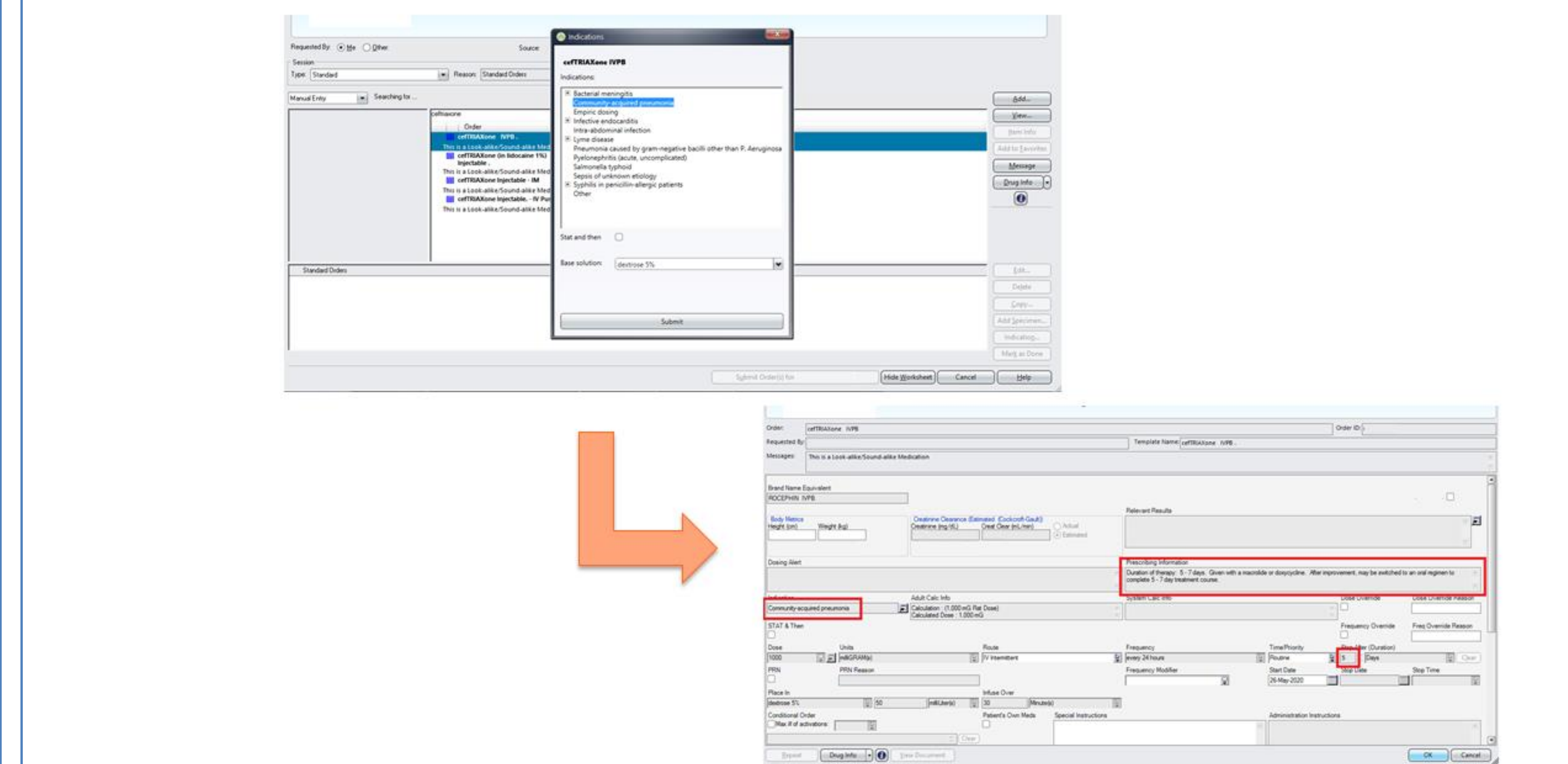


Figure 2: Steps of Ordering Ceftriaxone After Intervention

Figure 3: Example of Decreased Utilization of Piperacillin-Tazobactam on a Medical/Surgical Ward

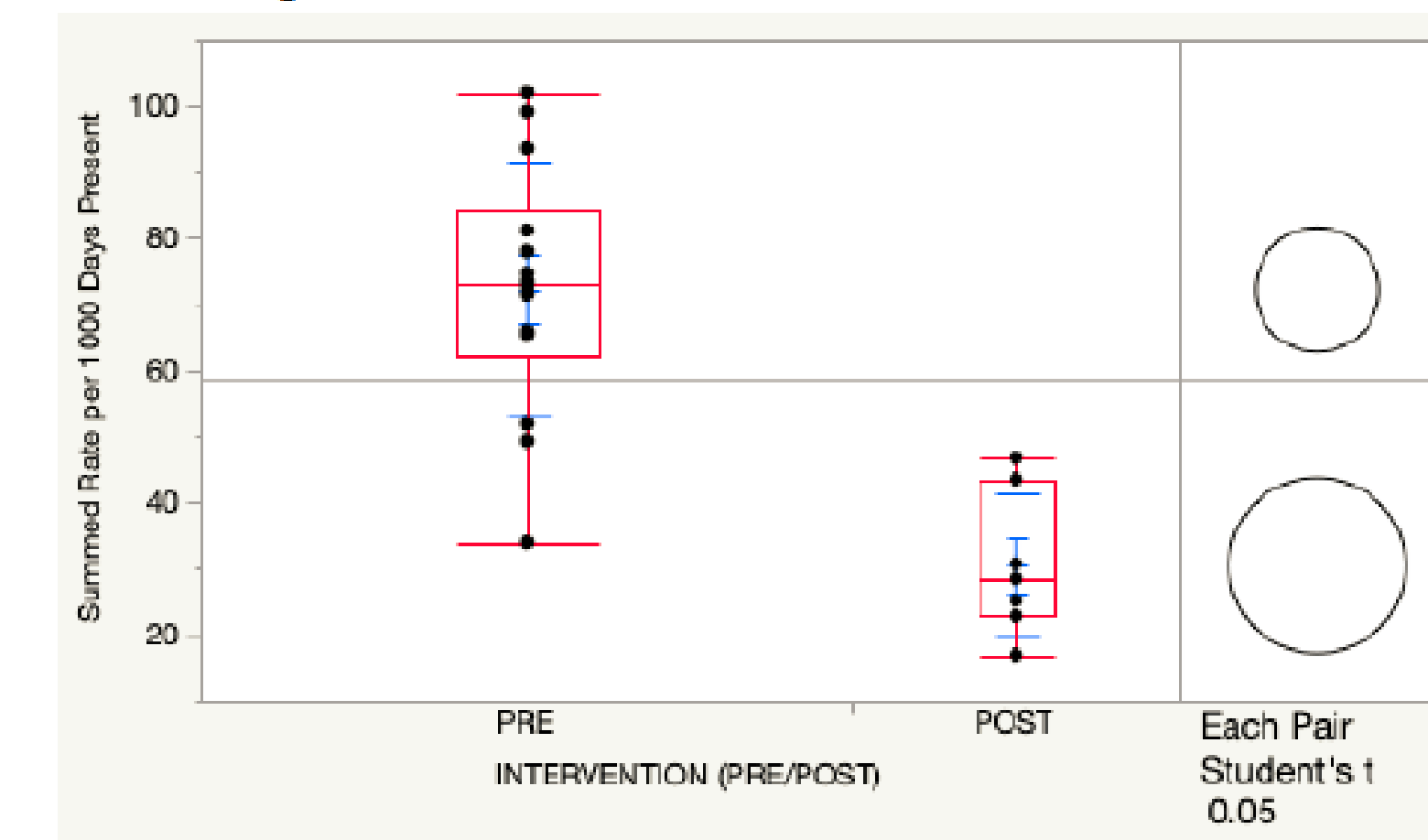
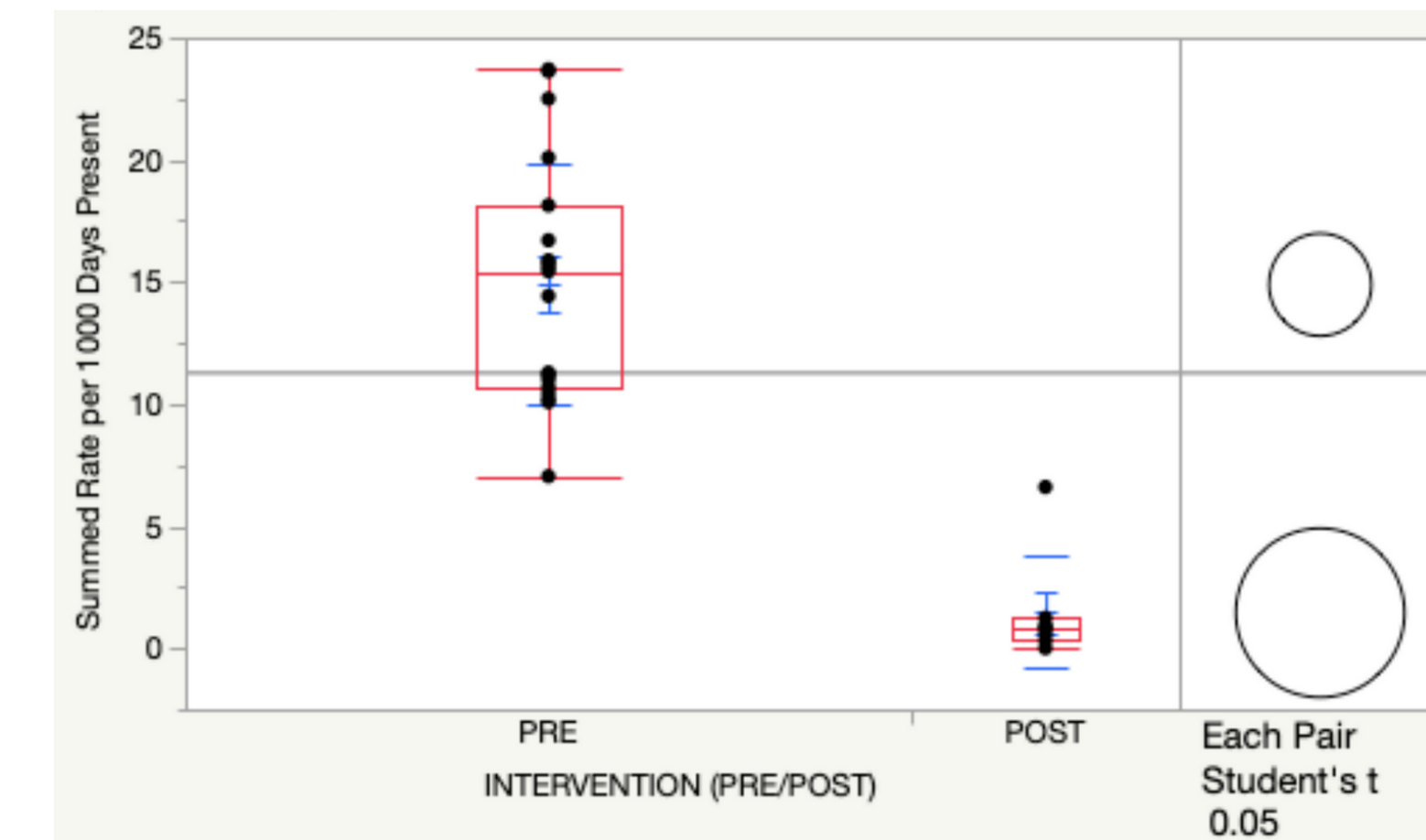


Figure 4: Example of Decreased Utilization of Ertapenem on a Medical Ward



## Results

### Antibiotic Use Rate Reduction

Antimicrobial	# Hospitals	# Units
Ertapenem	3	7
Piperacillin-tazobactam	8	19
Daptomycin	1	1

- Out of # hospitals, # had a decrease in usage (#%).
- # total units out of # units studied saw a reduction in use (#%).
- The majority (20 of 24) of units seeing use reduction where medical/surgical units.
- Decreased ertapenem usage in 7 medical / surgical units.
- Decreased piperacillin usage in 13 medical / surgical units, 2 EDs, 1 med/surg ICU, 1 Heme/Onc unit, 2 RCUs.
- Decreased daptomycin usage in 1 Heme/Onc unit.

## Conclusion

Usage of the EMR without personnel-intensive protocols is a viable method for augmenting antibiotic stewardship in health systems.

### About Northwell Health

The nation's third-largest non-profit secular healthcare system, Northwell Health delivers world-class clinical care throughout the New York metropolitan area, pioneering research at the Feinstein Institute for Medical Research and a visionary approach to medical education, highlighted by the Hofstra Northwell School of Medicine. The winner of the National Quality Forum's 2010 National Quality Healthcare Award, Northwell Health cares for people at every stage of life at 23 hospitals, long-term care facilities and over 700 ambulatory care centers throughout the region. Northwell Health's owned hospitals and long-term care facilities house about 6,400 beds, employ more than 10,000 nurses and have affiliations with more than 12,000 physicians. Its workforce of over 75,000 is the largest on Long Island and the third-largest in New York City. For more information, go to northwell.edu.