

Michigan Department of Health and Human Services
Surveillance for Healthcare-Associated and Resistant Pathogens Unit

National Healthcare Safety Network Antibiotic Use Module Report

Q3: August – October 2024
Statewide Trends

Table of Contents

1. Introduction | 3
2. Definitions | 4
3. Total Days of Therapy for All Antimicrobials | 5-6
4. Days of Therapy for Antibiotic Classes of Interest | 7-11
5. Top Antimicrobial Categories by Usage | 12
6. Standardized Antimicrobial Administration Ratios (SAARs) | 13

Introduction

The Michigan Department of Health and Human Services (MDHHS) Surveillance for Healthcare-Associated and Resistant Pathogens (SHARP) Unit receives voluntarily reported data into the National Healthcare Safety Network's (NHSN) Antimicrobial Use (AU) Module. This report summarizes the data submitted into the module and is intended to be used for antimicrobial stewardship and quality improvement efforts. Each hospital is classified according to its facility type as specified in NHSN's Annual Report. Each category is inclusive of all hospitals with the facility type. For example, the Statewide category includes all facilities that report AU data, including the facility in this report; the Major Teaching category includes all facilities recorded as major teaching hospitals in NHSN, including the facility in this report.

Unless otherwise specified, each graph below contains information for [all antimicrobials reported into the AU Module](#), including antibiotics, antivirals, and antifungals.

Some of the graphs below contain other individual facility information which is blinded by assigning a random letter. These graphs allow each facility to view their comparison to statewide averages and other hospitals by locating their facility-assigned letter. Each participating facility will receive an individual communication containing their letter.

Please contact Anne Haddad (HaddadA3@michigan.gov) with questions, comments, or suggestions.

Definitions

Days of therapy are defined by antimicrobial days. One antimicrobial per calendar day counts as one antimicrobial day. Therefore, one patient may contribute multiple antimicrobial days in one calendar day.

The **days present** denominator is different than the usual NHSN patient days denominator. Days present are the number of patients present at any time on a given day in each patient care location, not on a once daily census count. Days present are typically 10-30% higher than patient days, depending on the location.

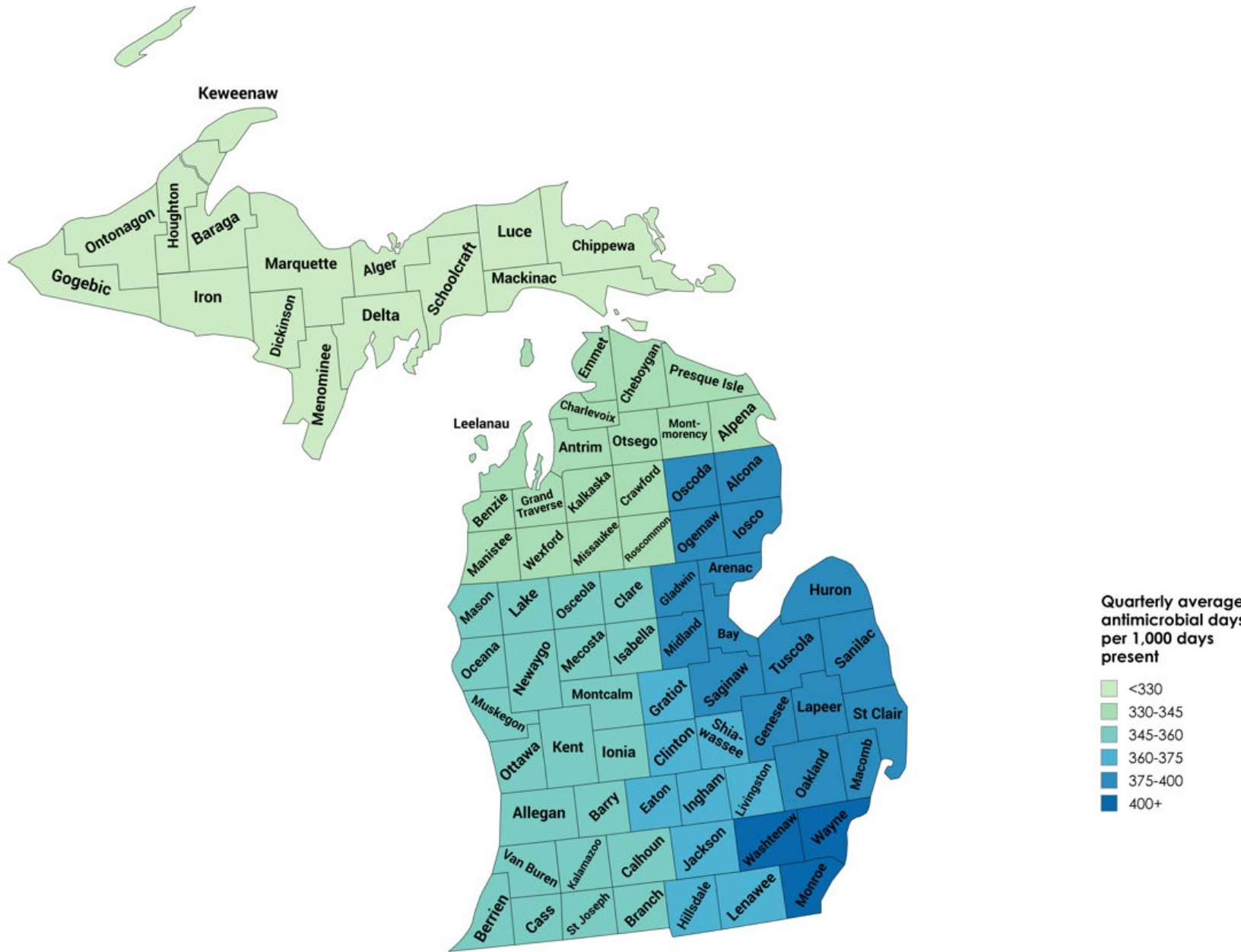
The **Standardized Antimicrobial Administration Ratio (SAAR)** is a metric developed by CDC to analyze and report summary antimicrobial use data. NHSN calculates the SAAR by dividing observed antimicrobial use by predicted antimicrobial use. A SAAR equal to 1 indicates antimicrobial use that aligns with predictions based on risk calculations. A SAAR less than one may indicate less antimicrobial usage than necessary; a SAAR greater than one may indicate more antimicrobial usage than necessary.

Location types are represented according to CDC location codes correlating to the type of care provided in the location. The most common location codes are as follows:

Location Type	CDC Location Code
Medical Critical Care	IN:ACUTE:CC:M
Surgical Critical Care	IN:ACUTE:CC:S
Medical-Surgical Critical Care	IN:ACUTE:CC:MS
Medical Ward	IN:ACUTE:WARD:M
Surgical Ward	IN:ACUTE:WARD:S
Medical-Surgical Ward	IN:ACUTE:WARD:MS
ONC General Hematology-Oncology Ward	IN:ACUTE:WARD:ONC_HONC
Adult Step Down Unit	IN:ACUTE:STEP

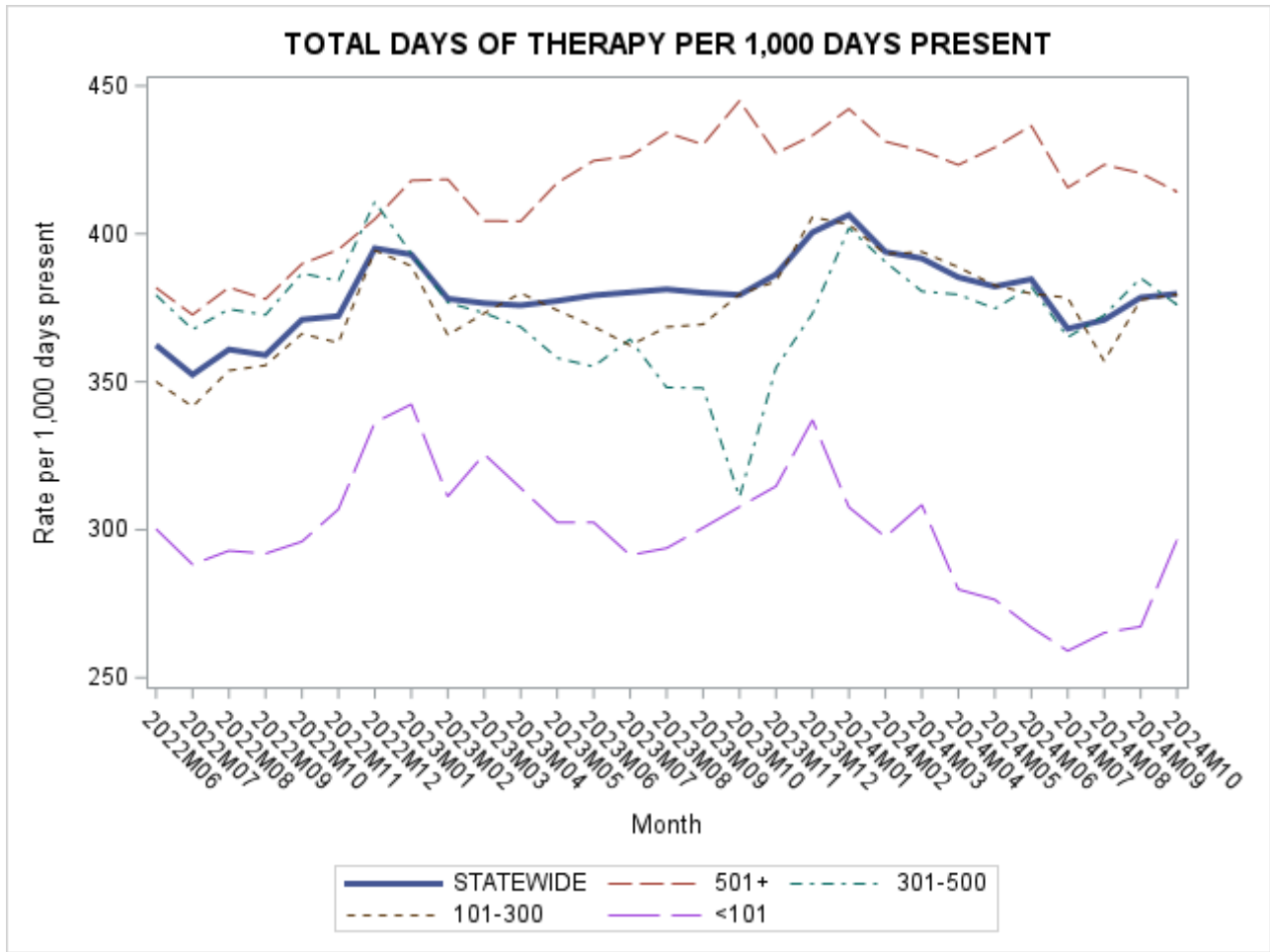
Total Days of Therapy for All Antimicrobials

The total days of therapy represents a facility-wide average of antibiotic, antiviral, and antifungal usage. For the statewide category and risk categories, the trend is calculated as all antimicrobial days for the facilities divided by all days present in the facilities for the month. The map below represents the average rates of antimicrobial prescribing per 1,000 days present for the emergency preparedness regions of Michigan.



Created with mapchart.net

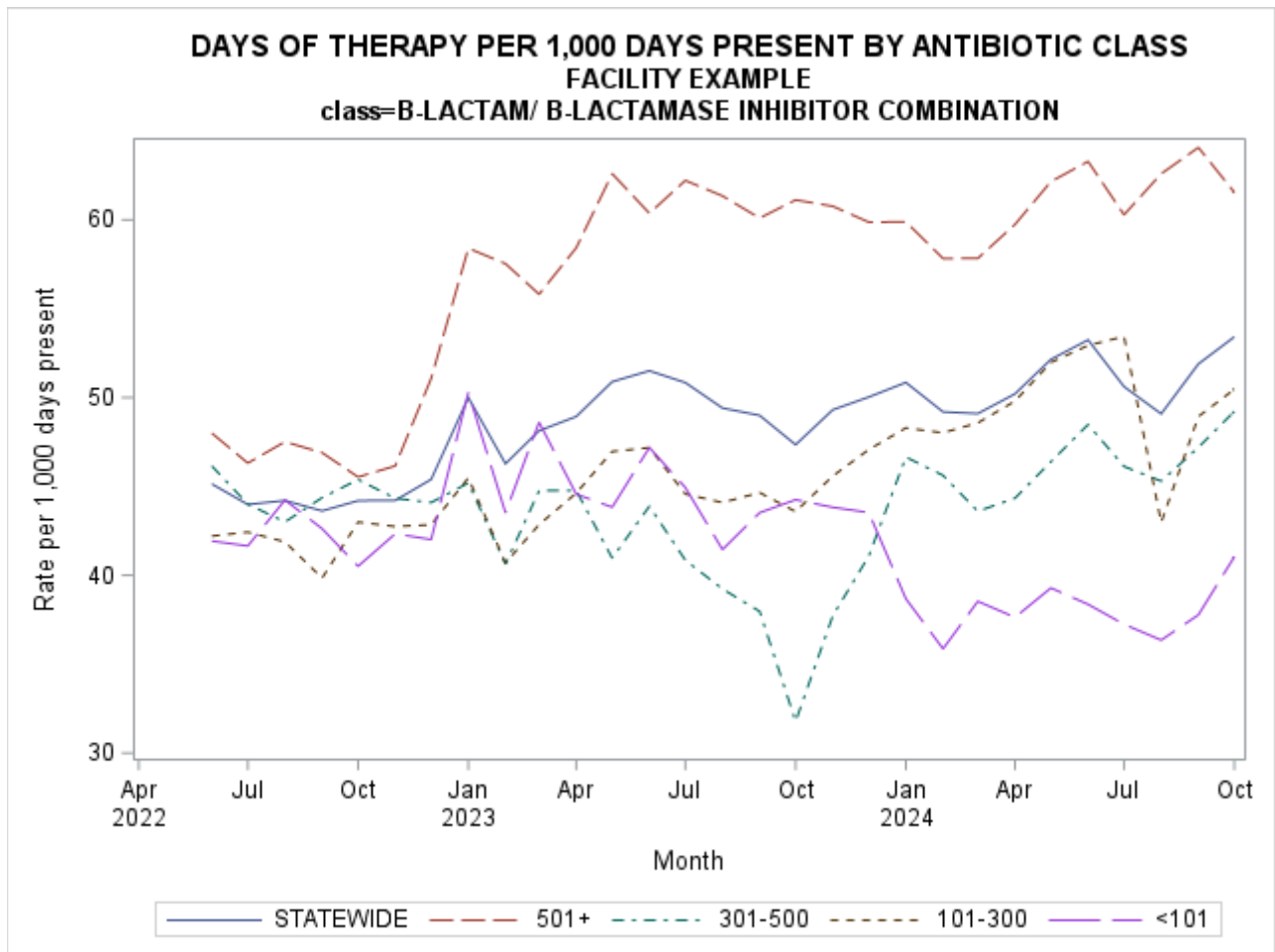
The graph provides a monthly trend to view seasonal changes that may occur as well as a comparison of recent usage to previous months.



Statewide N=89

Days of Therapy for Antibiotic Classes of Interest

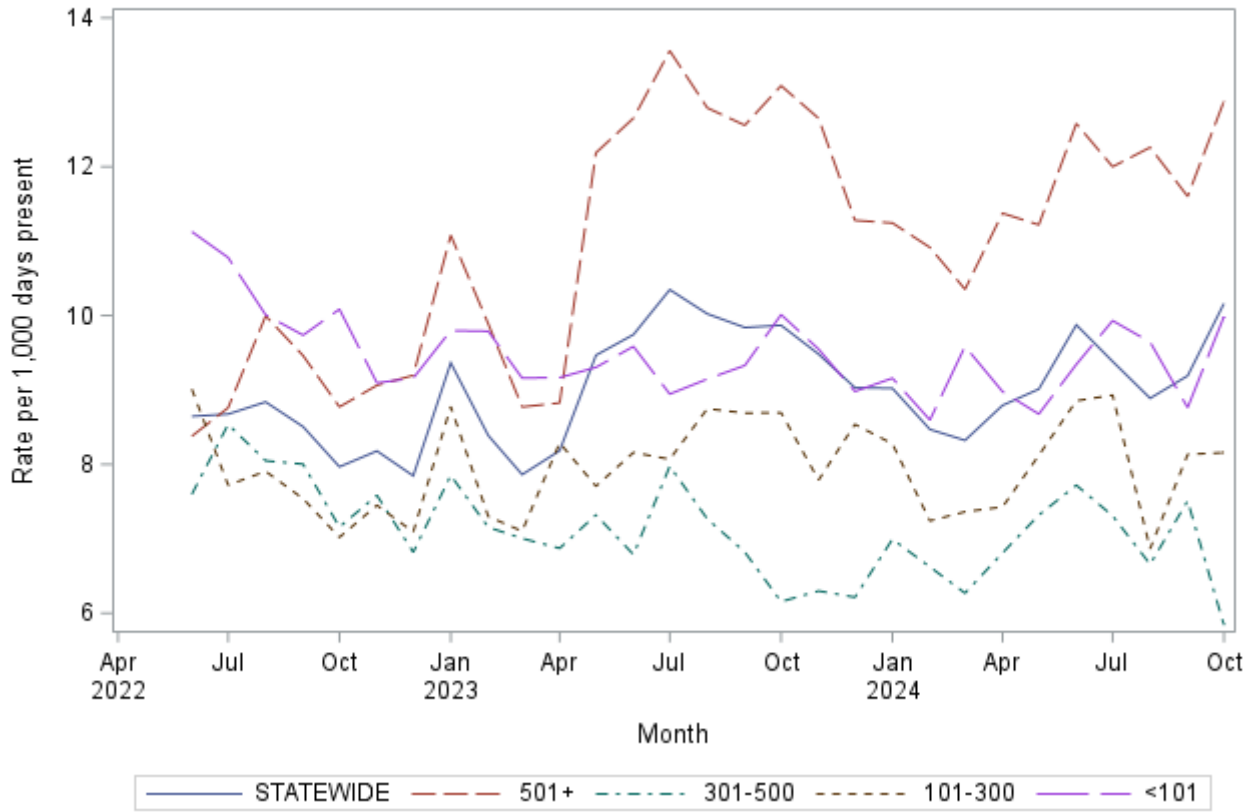
The graphs below show the total rate of usage monthly for antibiotic classes of interest. Each of the antimicrobial classes below was chosen due to the high rate of usage and/or the high prioritization in antimicrobial stewardship efforts. Note the variable Y Axis ranges on the graphs below due to the large differences in rates of usage.



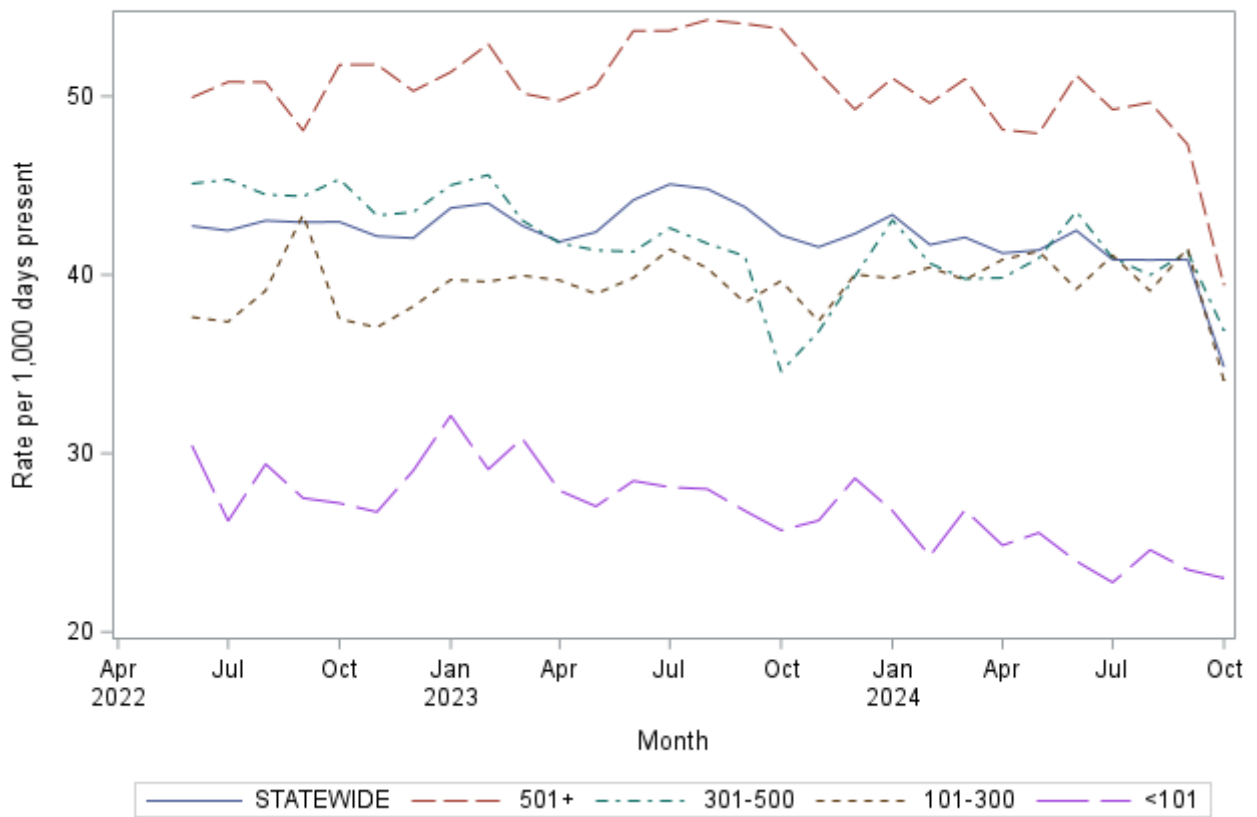
DAYS OF THERAPY PER 1,000 DAYS PRESENT BY ANTIBIOTIC CLASS
FACILITY EXAMPLE
class=CEPHALOSPORINS



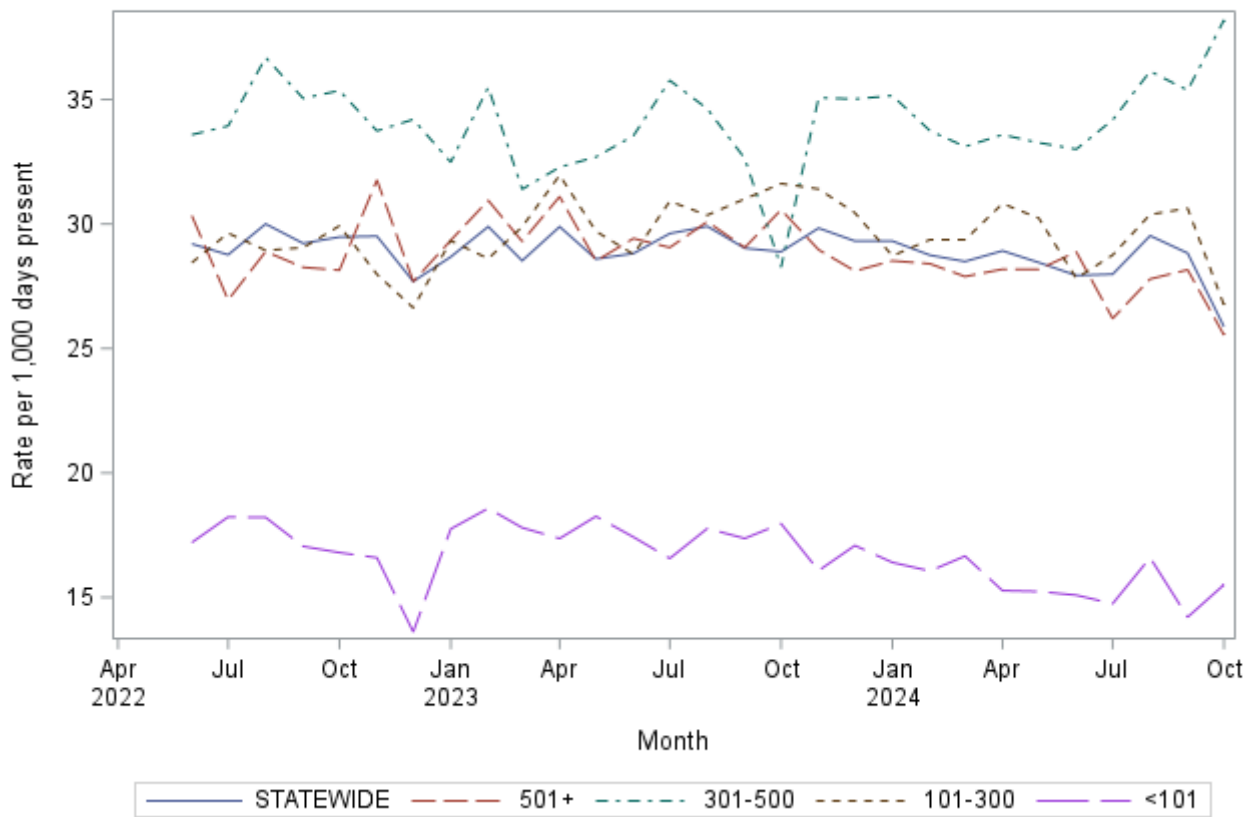
DAYS OF THERAPY PER 1,000 DAYS PRESENT BY ANTIBIOTIC CLASS
FACILITY EXAMPLE
class=FLUOROQUINOLONES



DAYS OF THERAPY PER 1,000 DAYS PRESENT BY ANTIBIOTIC CLASS
FACILITY EXAMPLE
class=GLYCOPEPTIDES

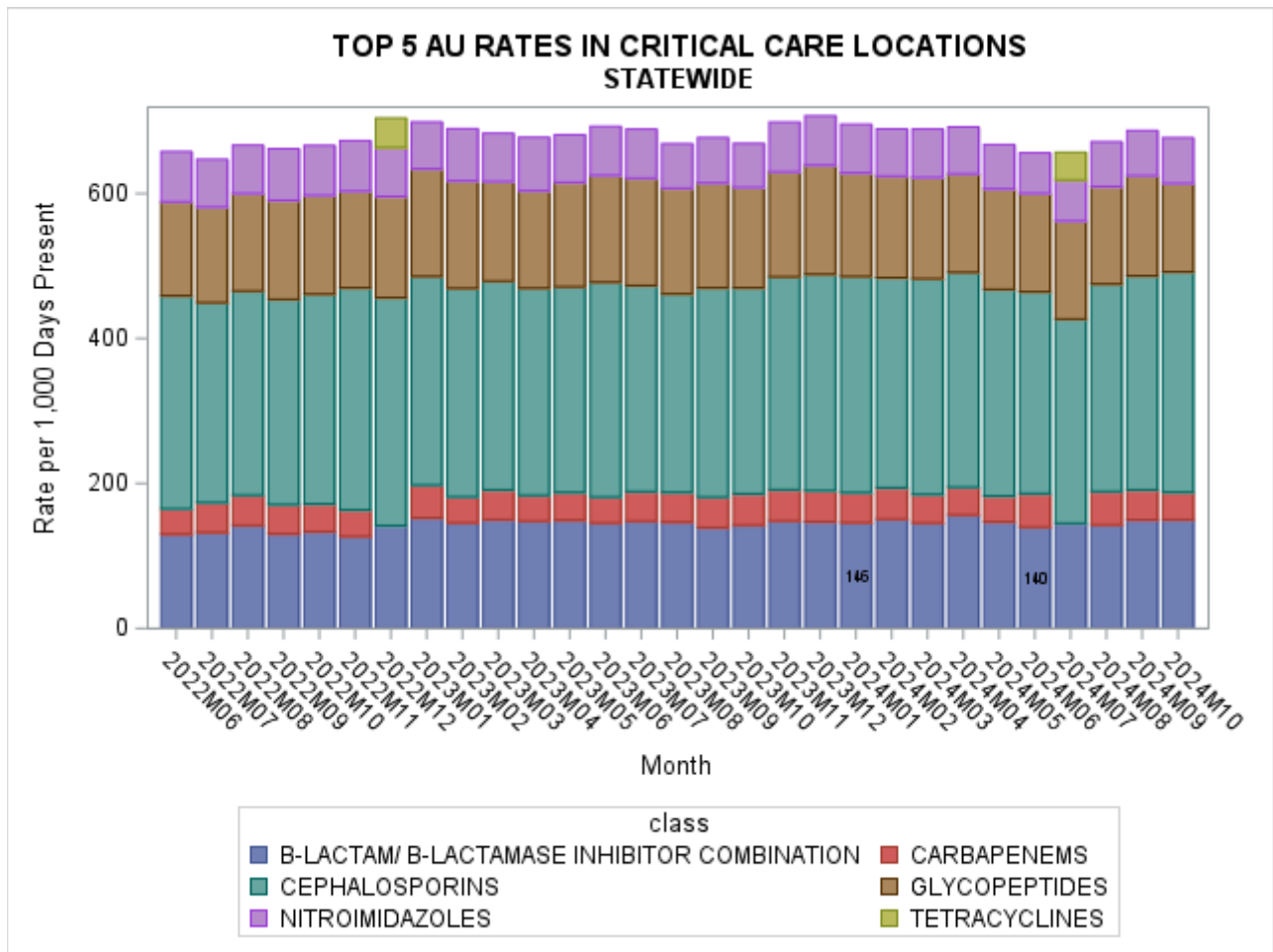


DAYS OF THERAPY PER 1,000 DAYS PRESENT BY ANTIBIOTIC CLASS
FACILITY EXAMPLE
class=NITROIMIDAZOLES



Top Antimicrobial Categories by Usage

The following graphs are aggregated antimicrobial classes for critical care locations. Critical care locations include Medical Critical Care, Surgical Critical Care, and Medical-Surgical Critical Care. The top 5 classes by usage rate are included for each month.



Standardized Antimicrobial Administration Ratio (SAAR)

The SAARs below are calculated facility-wide for hospitals in the risk category of the individual facility. The benchmark value of 1 indicates that antimicrobials are being used in the facility equivalent to the usage predicted according to the facility risk characteristics. A SAAR equal to 1 indicates antimicrobial use that aligns with predictions based on risk calculations. A SAAR less than one may indicate less antimicrobial usage than necessary; a SAAR greater than one may indicate more antimicrobial usage than necessary.

