

Nebraska Antimicrobial Stewardship Updates

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2025 Nebraska Antimicrobial
Stewardship Summit

Disclosures

I have no relevant financial conflicts of interest to report related to this presentation.

Objectives

- Summarize current antimicrobial stewardship data across healthcare settings in Nebraska
- Identify resources for ongoing education and training for healthcare professionals to enhance their antimicrobial stewardship knowledge and skills

Meet our ASAP Team

Infectious Disease Physicians



Dr. Ashraf



Dr. Van Schooneveld



Dr. Teran

Infectious Disease Pharmacists



Dr. Preusker



Dr. Schroeder



Dr. Bergman

[Our Team - ASAP \(nebraskamed.com\)](http://nebraskamed.com)

[Our Team - ICAP \(nebraskamed.com\)](http://nebraskamed.com)

Nebraska ASAP

Program Structure & Activities

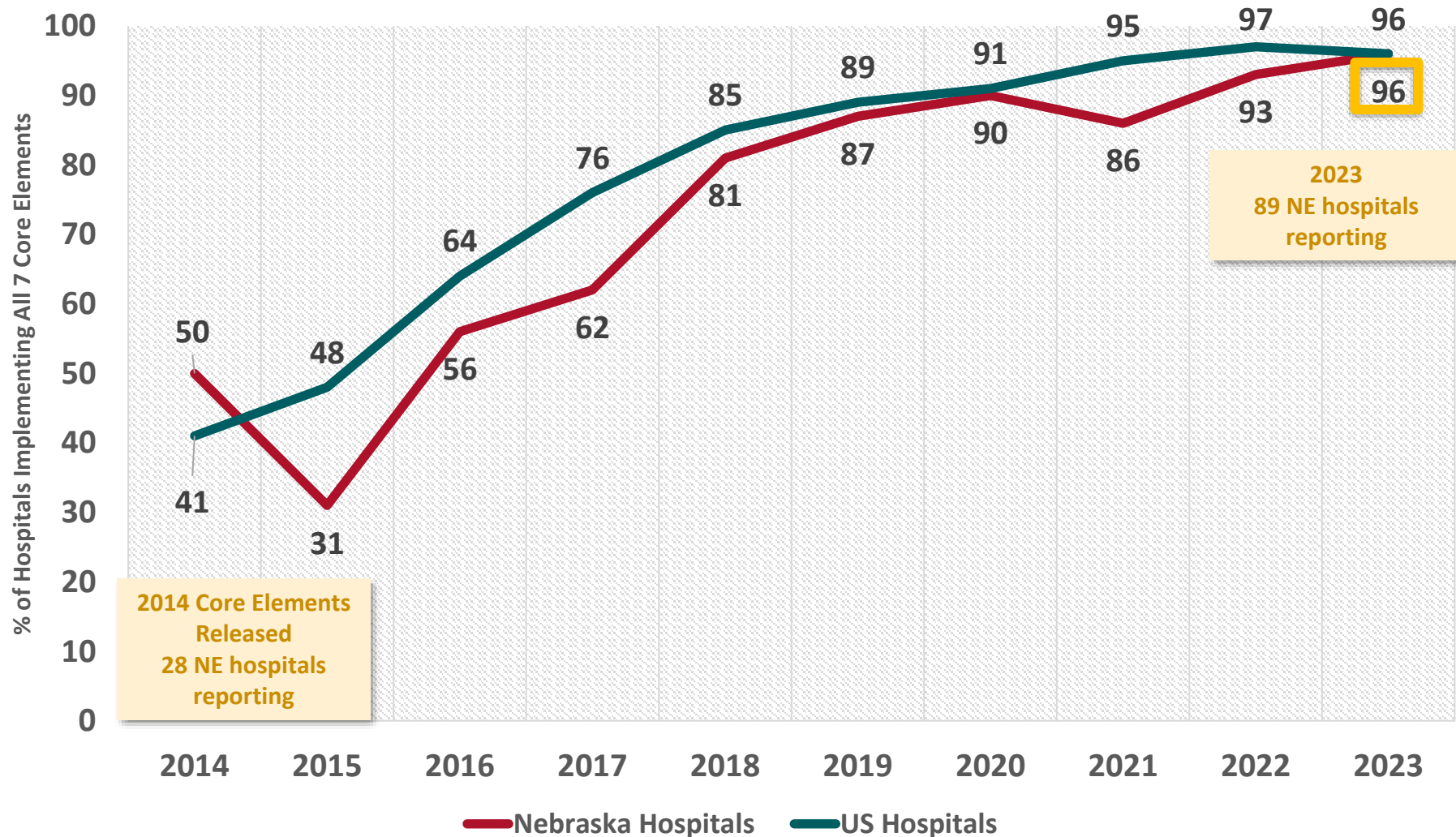
Nebraska ASAP is a public health partnership with Nebraska Medicine that is funded by the Nebraska DHHS HAI/AR Program through CDC grants

- Assessment of a facility's AS program guided by the CDC Core Elements
- Provision of leadership support and resources such as justification material, policy support, and business plans
- Assistance with tracking and benchmarking of antimicrobial use and AS interventions
- Assistance with NHSN data submission
- Education of AS personnel and clinicians
- Provision of consultative expertise (ID physician, Pharmacist, IP) to implement best practices for AS

Hospitals



CDC Core Element Implementation *Hospitals*



NHSN Antibiotic Use and Resistance Module

Rapid increase in number of Nebraska hospitals reporting **antibiotic use**



NHSN Antibiotic Use and Resistance Module

Rapid increase in number of Nebraska hospitals reporting **antibiotic resistance**



2021
13%

2025
(to date)
54%

Inpatient Antibiotic Use

Print as PDF 

ADULT: NUMBER OF FACILITIES WITH
THE ALL ANTIBACTERIAL SAAR
STATISTICALLY SIGNIFICANTLY > 1.0 ⓘ

985 / 2302 (42.8%)

Facilities in 2023

PEDIATRIC: NUMBER OF FACILITIES WITH
THE ALL ANTIBACTERIAL SAAR
STATISTICALLY SIGNIFICANTLY > 1.0 ⓘ

106 / 404 (26.2%)

Facilities in 2023

NEONATAL: NUMBER OF FACILITIES
WITH THE ALL ANTIBACTERIAL SAAR
STATISTICALLY SIGNIFICANTLY > 1.0 ⓘ

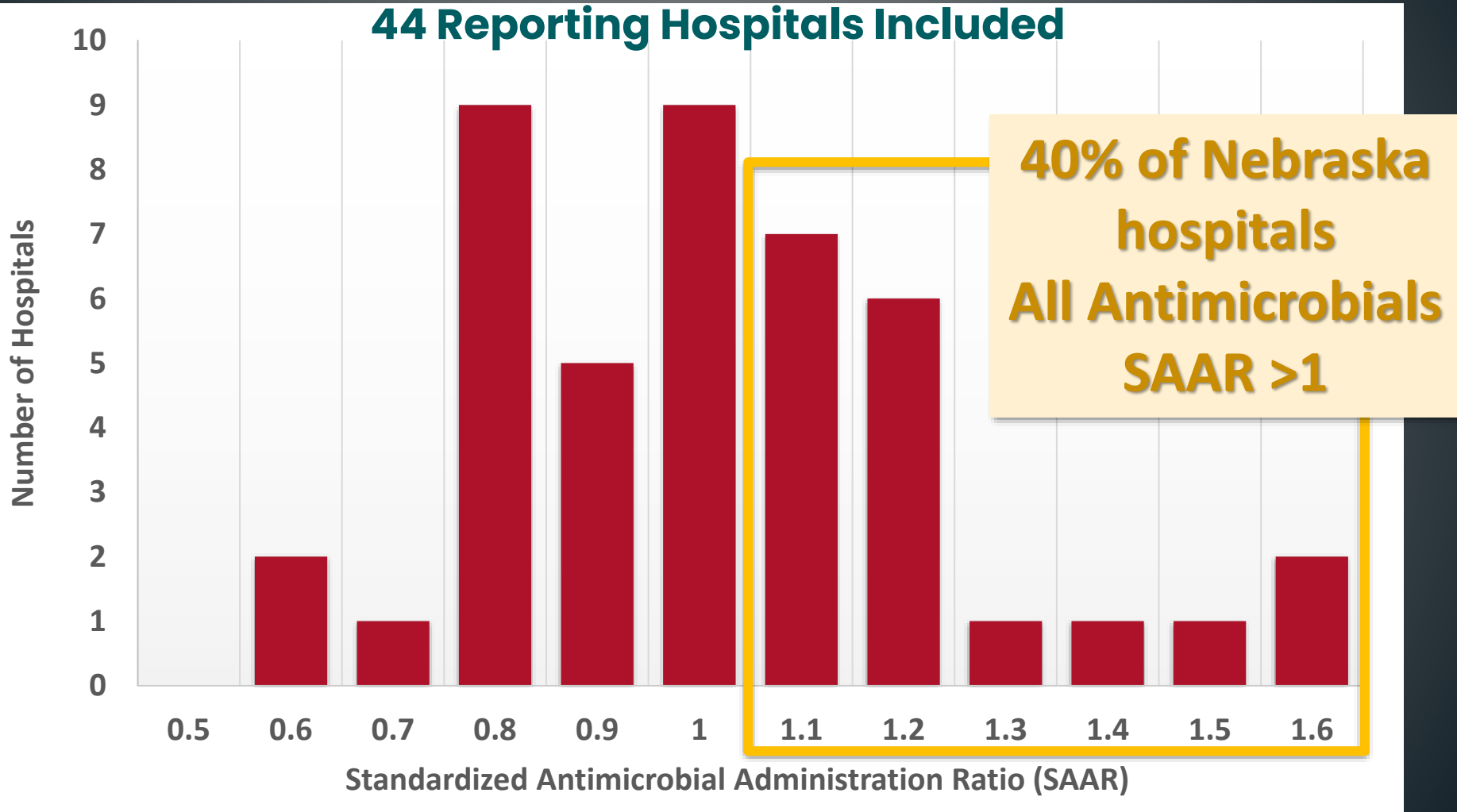
216 / 800 (27.0%)

Facilities in 2023

[Inpatient Antibiotic Use | A.R. & Patient Safety Portal \(cdc.gov\)](#)

Nebraska Statewide SAAR Distribution – All Antimicrobials, Adult Patients, 2024

44 Reporting Hospitals Included

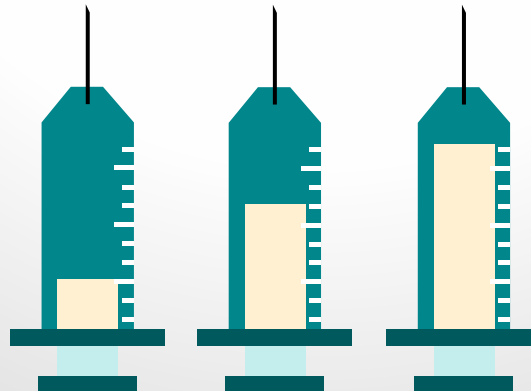


Data Source: NHSN AUR Module

2024 Nebraska Hospital Antibiotic Use: Rates/1,000 Days Present*

64 Hospitals, Adult Inpatient Data Only

Hospital Size	Ceftriaxone	Cefepime	Meropenem	Vancomycin	Piperacillin/ Tazobactam	Levofloxacin
<25 Beds (39 Hospitals)	106	24	11	45	43	22
26-150 Beds (14 Hospitals)	70	36	14	62	59	14
>150 Beds (11 Hospitals)	53	35	11	49	56	14
All Hospitals	62	36	12	54	58	15



*Note: the NHSN denominator of days present should not be directly compared to patient days as there is a difference of 25-30%

Society for Healthcare Epidemiology of America

2025 Conference Presentation

We analyzed 2023-2024 NHSN data to characterize antibiotic usage rates for Nebraska hospitals stratified by hospital size and rurality.



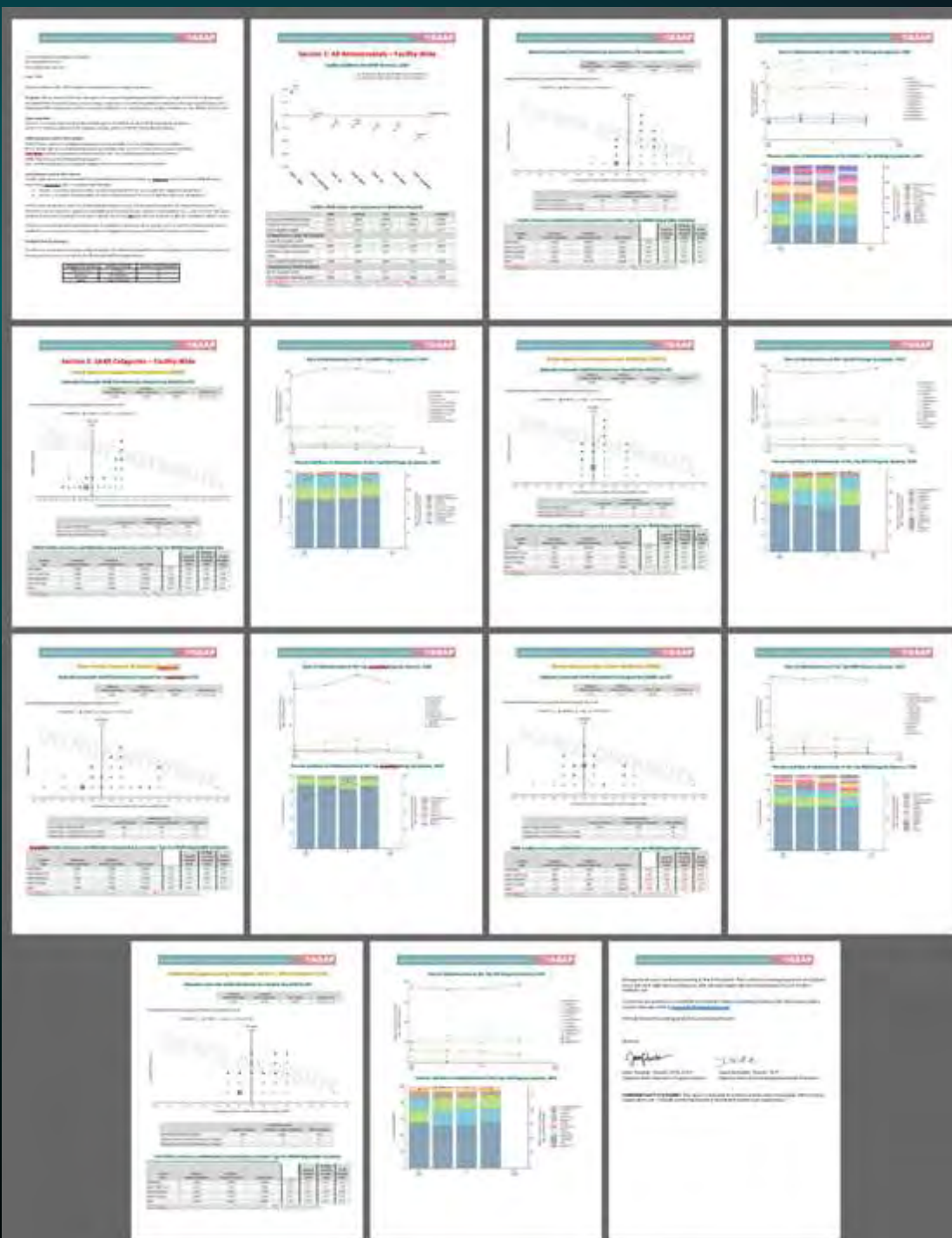
*No significant difference in total prescribing rates
by hospital size or rurality.*

- **Critical Access vs. Large Hospitals:**
Higher use of ceftriaxone (1.8x), fluoroquinolones (2.2x), and azithromycin (2.3x)
- **Rural vs. Urban Hospitals:**
Higher use of ceftriaxone (1.9x), fluoroquinolones (2.3x), and azithromycin (2.2x)
- **No significant differences** between medium vs. large hospitals or semi-urban vs. urban hospitals

View all of the results here: [SHEA-2025-ASAP poster](#)

Annual Hospital NHSN Antibiotic Use Reports

- State of Nebraska benchmarking data
 - Antibiotic categories
 - Specific antibiotic drugs
 - Hospital size
 - Location (ward, ICU, etc.)
- Facility-level data
 - Antibiotic usage rates by drug
 - Top 10 antibiotics used in each category



Nebraska ASAP NHSN AUR How To Guide

[Link: Nebraska
ASAP NHSN AUR
How To Guide](#)

2025

NHSN AUR ANALYSIS REPORTS

A "How-to" guide for generating reports from the CDC's NHSN AUR module from Nebraska ASAP

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Facility-wide antibiotic use reports are generated on a daily basis and are used to monitor antibiotic use and stewardship efforts.
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PART ONE

GENERATING DATA SETS

- Newly updated data do not appear until you generate new data sets. We recommend generating data sets each time you login to NHSN to run reports in case changes were made since the last time you were logged in.
- Each NHSN user has their own data sets — you may not see the same data as your coworkers.
- Your data set is a snapshot of data.
- Supervising users can evaluate certain time periods.
- Click "Generate" and "Generate Data Set".
- Enter the time period you are interested in running reports for and click "Generate Reporting Data Set".

PART ONE

MODIFYING REPORTS

- When you click on any report, you have the option to modify the report prior to running or exporting the report.
- This allows users to make changes to the default report settings.
- Once you become familiar with NHSN AUR reports, you are encouraged to explore filters to make your reports more customized.
- Some filters that are helpful are:
 - Drug/Class: Select the drug or class of antibiotic you want to report on.
 - Location: Select the location you want to report on.
 - Time Period: Select the time period you want to report on.

PART TWO

SAAR REPORTS

SAAR (STANDARDIZED ANTIBIOTIC ADMINISTRATION RATIO) REPORTS
ANTHROPOMETRIC USE WITHIN AND ACROSS FACILITIES TO GUIDE ANTIBIOTIC STEWARDSHIP EFFORTS

SAAR is a standardized antibiotic use metric used to compare antibiotic use across facilities. It is calculated as the ratio of antibiotic use to patient days.

SAAR is calculated as follows:

$$SAAR = \frac{\text{Antibiotic Dose (mg/kg/day)}}{\text{Patient Days}}$$

SAAR is reported for each antibiotic class and for each facility.

SAAR is used to compare antibiotic use across facilities and to identify areas for improvement.

Example Report: SAAR by Location

Report interpretation >

Taking Stewardship Action >

Review the example above, the table shows in May and September for each location.

The hospital could investigate reasons for increase in antibiotic usage during these months such as: patient population changes, new or existing providers, increased antibiotic usage with increased discharges, etc.

SAAR Categories

Antibiotic classes are grouped into categories based on their mechanism of action and spectrum of activity. The categories are used to compare antibiotic use across facilities and to identify areas for improvement.

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Taking Stewardship Action >

What to do when your hospital has a high SAAR

SAAR is an indicator of antibiotic use. When your hospital has a high SAAR, it indicates that antibiotic use is higher than expected. This can be due to a variety of factors, including overuse of antibiotics, inappropriate prescribing, and lack of stewardship efforts.

To take stewardship action, you should first identify the areas where antibiotic use is highest. Then, you should investigate the reasons for the high SAAR. Finally, you should implement stewardship interventions to reduce antibiotic use.

PART THREE

LINE LISTING REPORTS

RATES OF ANTIBIOTIC USAGE BY DRUG

Line listing reports provide a detailed view of antibiotic use at a specific location. They show the number of doses of each antibiotic administered to patients, along with patient demographics and clinical information.

Line listing reports are used to identify areas of high antibiotic use and to investigate the reasons for high use. They are also used to monitor the effectiveness of stewardship interventions.

PART THREE

LINE LISTING REPORTS EXAMPLE

CALCULATING AND TRENDED YOUR HOSPITAL'S ANTIBIOTIC USAGE RATES

Line listing reports can be used to calculate and trend your hospital's antibiotic usage rates. This allows you to compare your hospital's rates to national benchmarks and to track changes in antibiotic use over time.

To calculate your hospital's antibiotic usage rates, you need to know the total number of doses of each antibiotic administered and the total number of patient days. You can then calculate the usage rate as follows:

$$\text{Usage Rate} = \frac{\text{Total Doses}}{\text{Total Patient Days}}$$

PART FOUR

TARGET, ASSESS, STEWARD (TAS) REPORTS

USE THIS REPORT FOR AU GOAL SETTING

TAS reports are used to set and monitor antibiotic usage goals. They provide a summary of antibiotic use across facilities and allow users to set targets for future performance.

To use TAS reports for goal setting, you should first review the current antibiotic usage across facilities. Then, you should set a target for future performance based on national benchmarks and your hospital's goals.

Example Report >

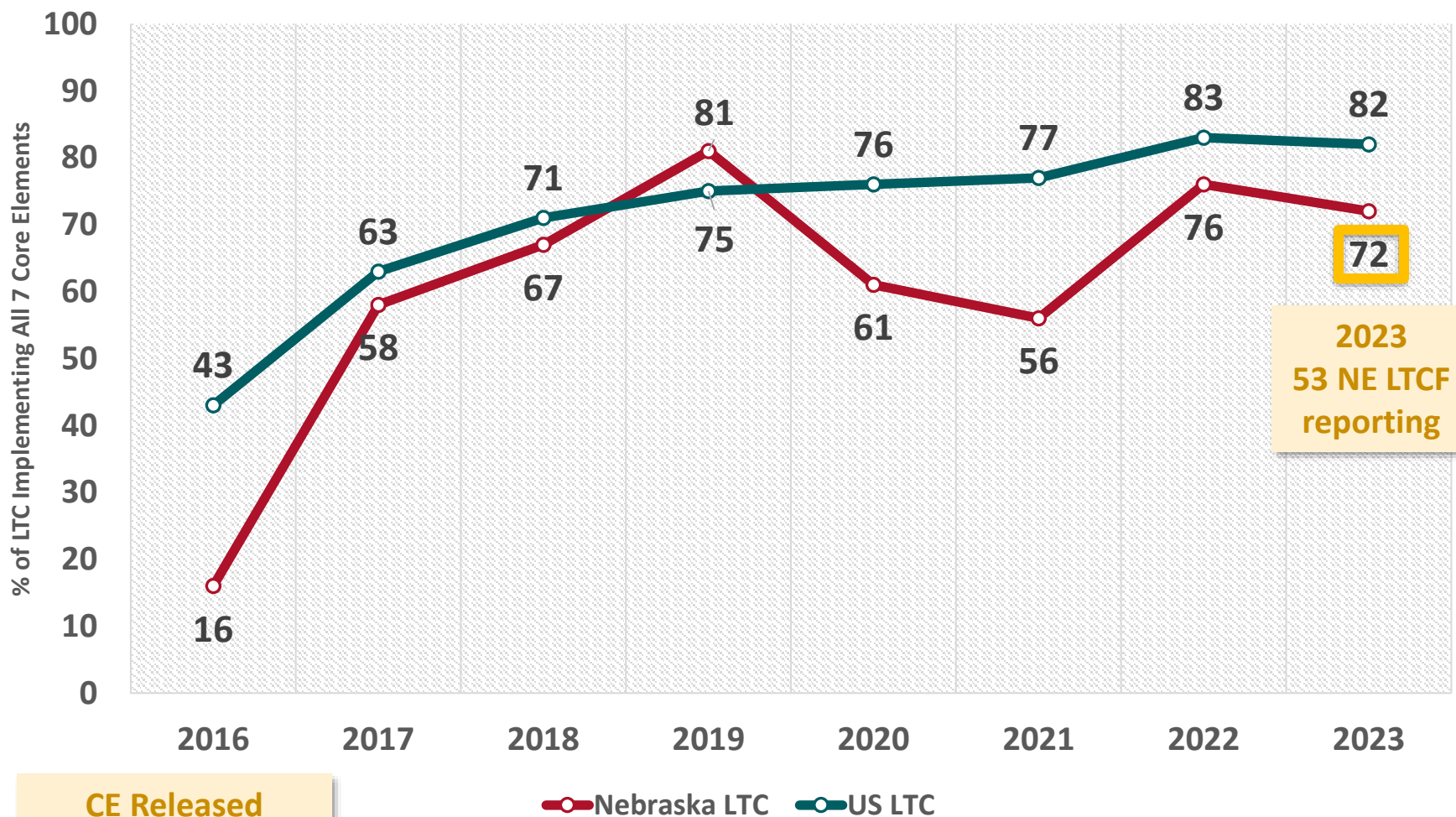
The example report shows the current antibiotic usage across facilities and the target for future performance. It also provides a summary of the reasons for high antibiotic use and the stewardship interventions that have been implemented.

Long-Term Care



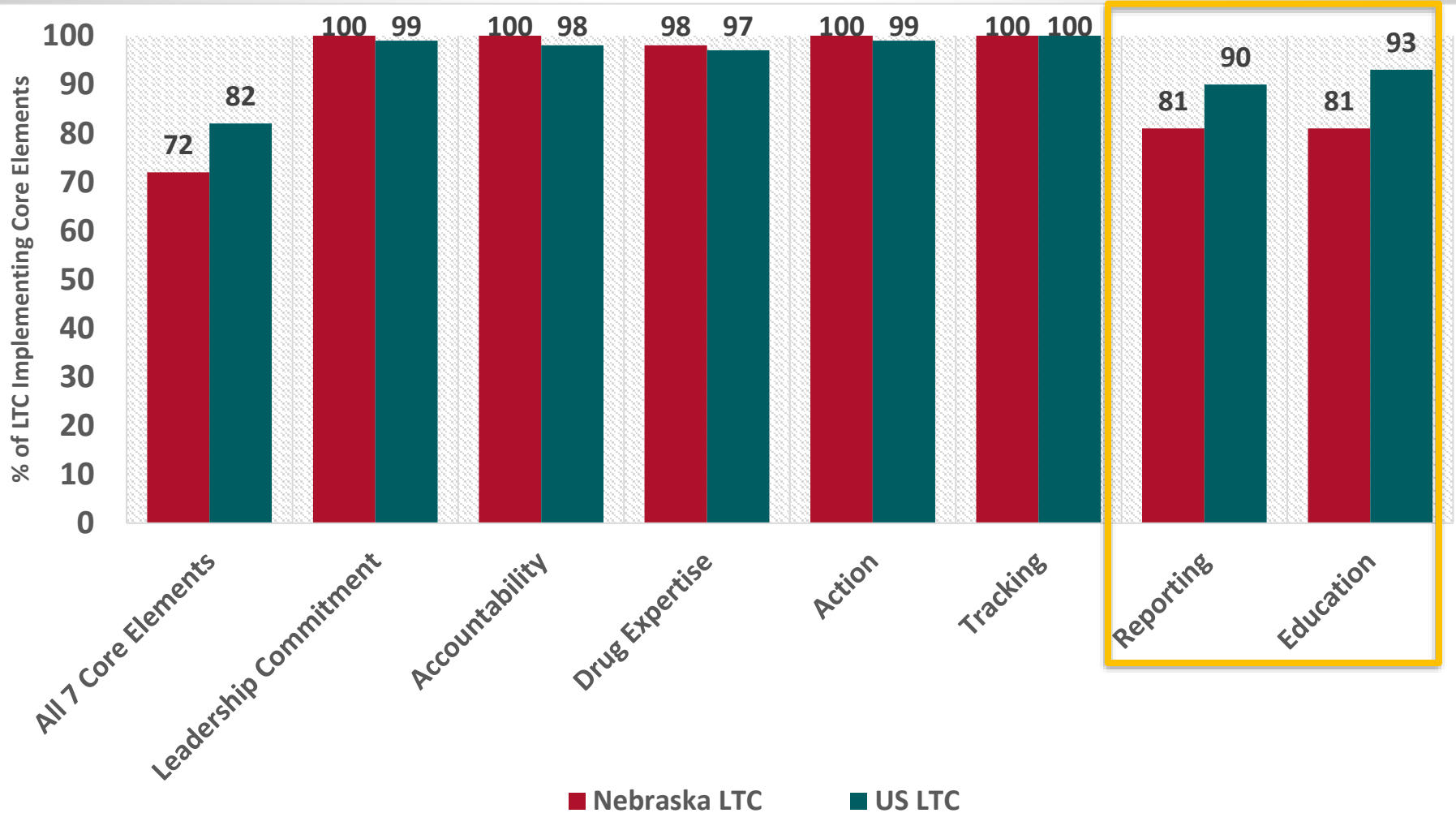
CDC Core Element Implementation

Long-Term Care



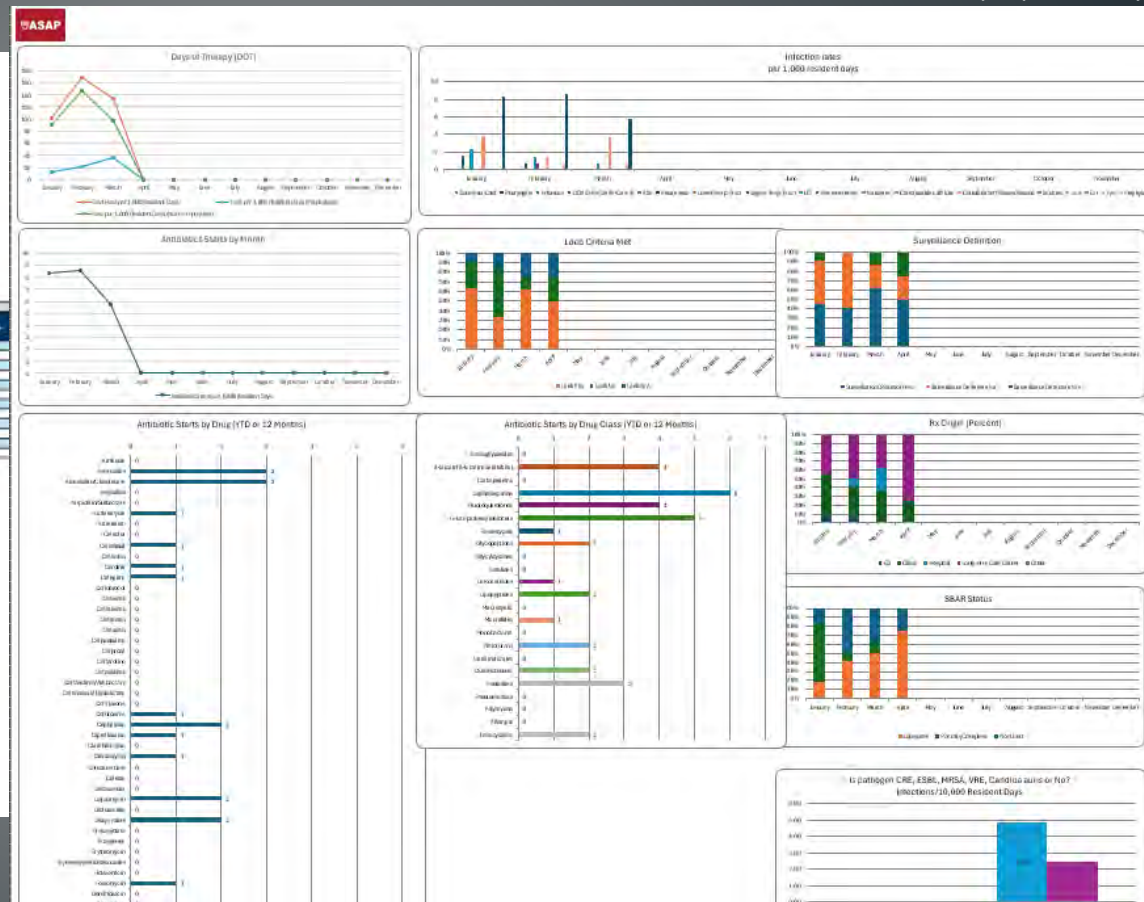
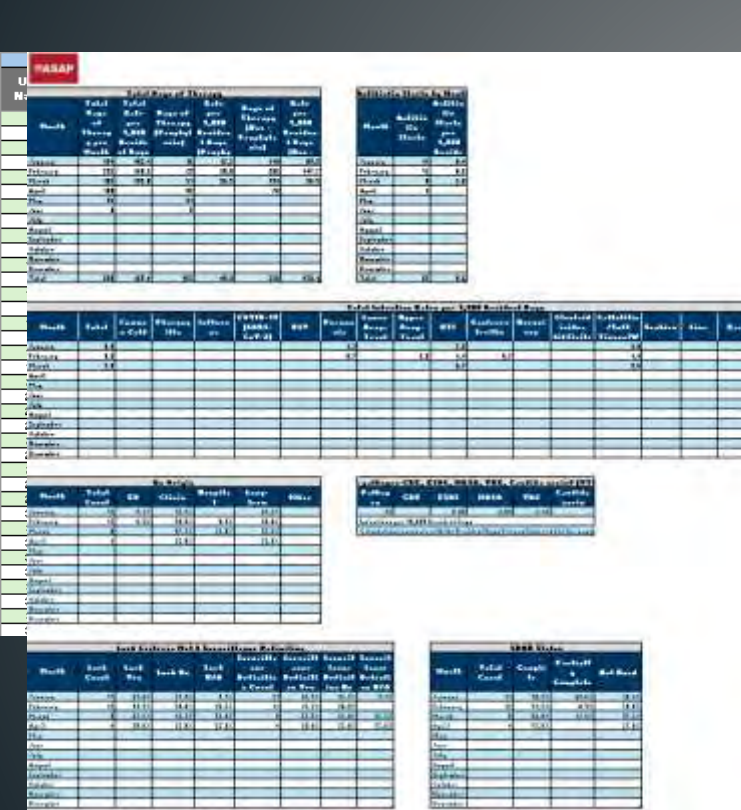
CDC Core Element Implementation

Long-Term Care 2023



New Update!

Note: Fictitious data for illustration purposes only



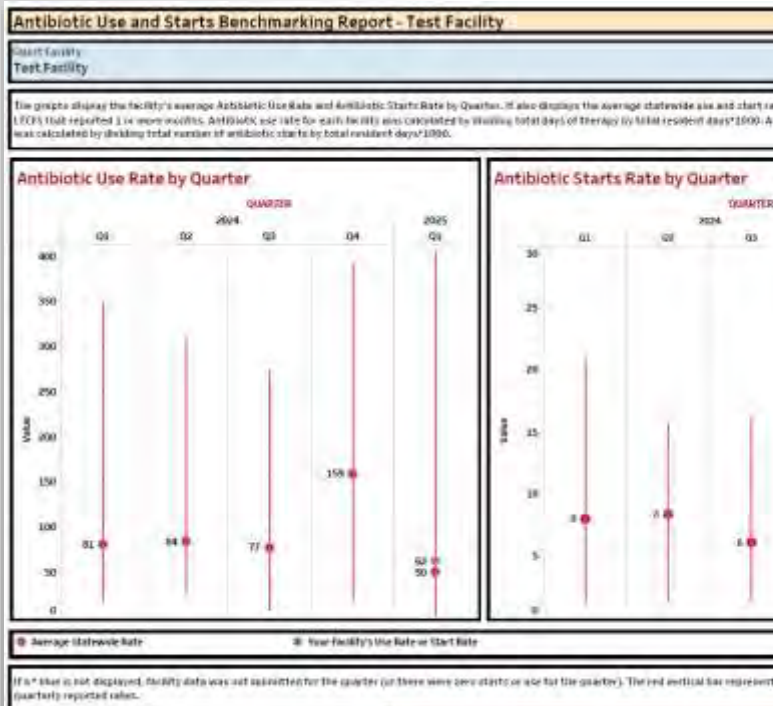
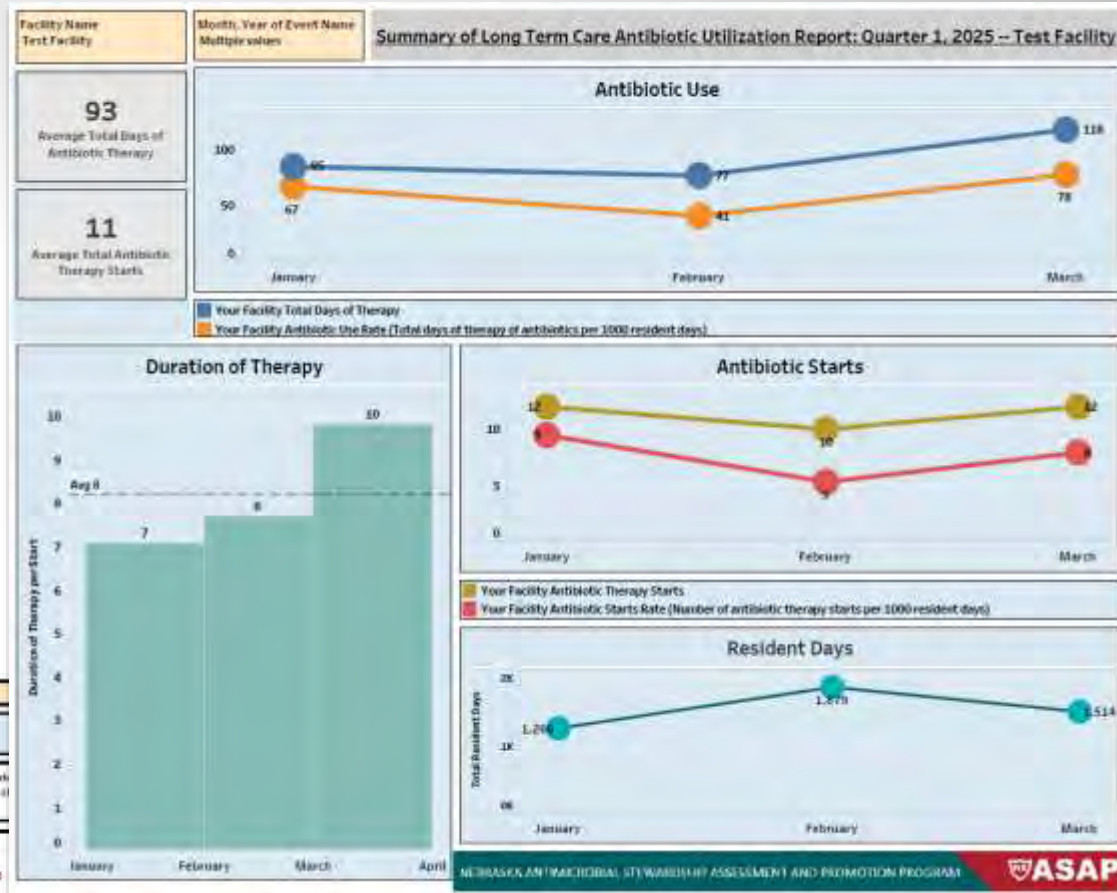
Tools and Templates for Long Term Care - ASAP

Antibiotic Use Collaborative Database for Nebraska LTCF

- An opportunity is available for Nebraska LTCF to collaborate with antimicrobial stewardship experts through the Nebraska ASAP program
- The aim of the Nebraska ASAP LTCF Antibiotic Use Tracking Collaborative is to provide participating LTCFs with both **facility-specific** and **benchmarked** antibiotic use information to guide their initiatives
- There are currently 39 LTCF enrolled in the database

Sample LTC Antibiotic Use report:

Facility Level Data – Page 1

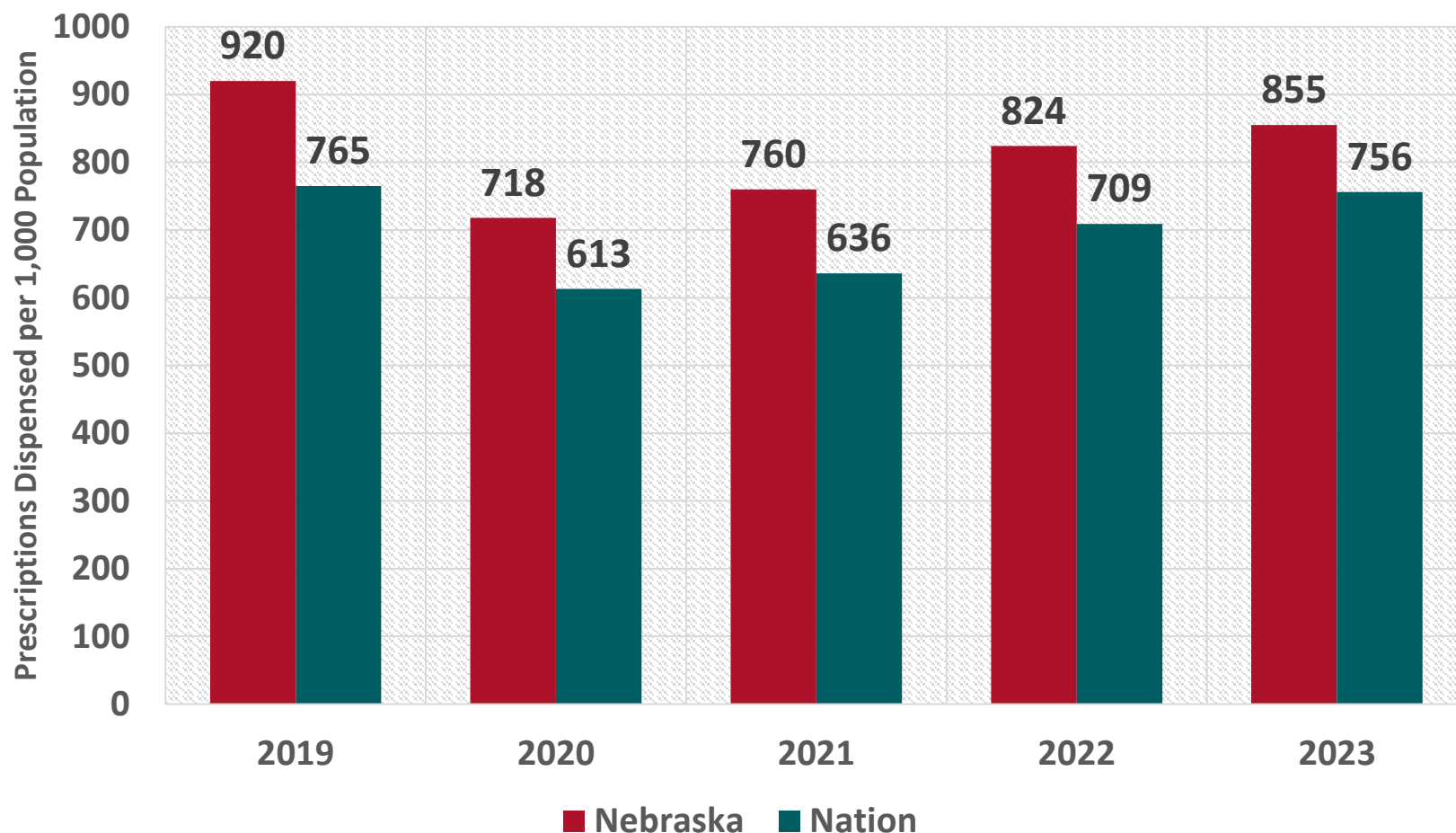


Collaborative Comparative Data – Page 2

Outpatient



Outpatient Antibiotic Use



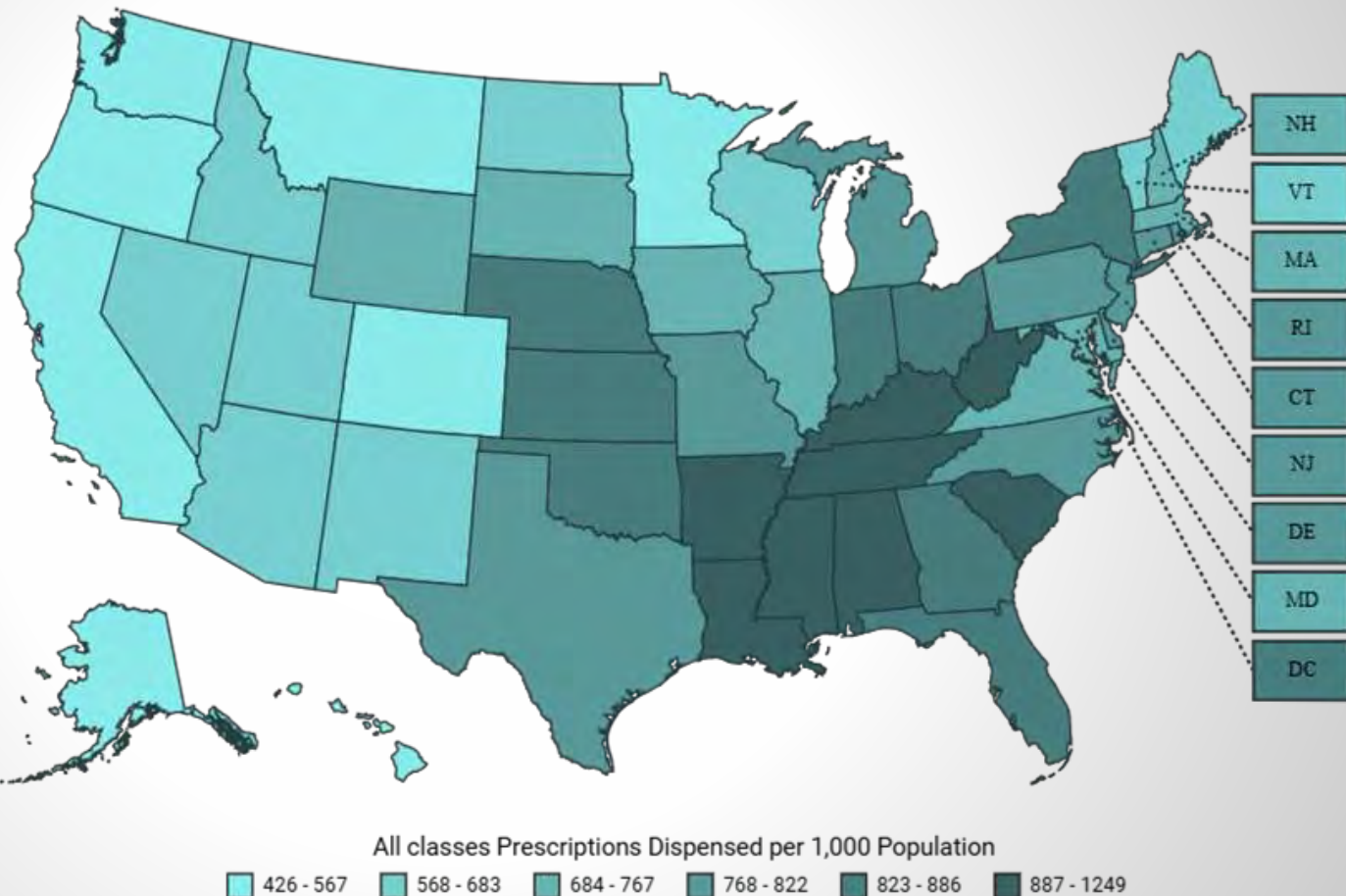
Nebraska consistently prescribes antibiotics in the outpatient setting at a higher rate than the national average.

All Antibiotic Classes | A.R. & Patient Safety Portal ([cdc.gov](https://www.cdc.gov))

Outpatient Antibiotic Prescribing in Nebraska

All Antibiotic Classes

In 2023,
Nebraska
was the **10th**
highest
antibiotic
prescribing
state
(855 prescriptions per
1,000 population)



All Antibiotic Classes | A.R. & Patient Safety Portal ([cdc.gov](https://www.cdc.gov))

Antibiotic Stewardship Resources



Nebraska ASAP 2024 Outreach Summary

16

WEBINARS AND
PRESENTATIONS
WITH >400 LIVE
ATTENDEES

191

SUBSCRIBERS TO
THE
ANTIMICROBIAL
ADVOCATE

10

FULL ASAP
ASSESSMENTS
WITH
FEEDBACK
REPORTS

200

2024 NEBRASKA
ANTIMICROBIAL
STEWARDSHIP
SUMMIT ATTENDEES

44

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HOSPITALS RECEIVED
TECHNICAL SUPPORT
FOR THE NHSN AUR
MODULE

22

LTC CONSULTANT
PHARMACISTS RECEIVED
ANTIBIOTIC STEWARDSHIP
TRAINING CERTIFICATES

NEBRASKA ANTIMICROBIAL STEWARDSHIP ASSESSMENT AND PROMOTION PROGRAM



Antibiotic Stewardship Program Assessments



Baseline ASP
Assessment
for Hospitals



Baseline ASP
Assessment
for Long-Term Care
Facilities



Baseline ASP
Assessment
for Outpatient
Facilities

Assessments are **non-regulatory** and **no-cost** to the facility.

[illegible][illegible]**NEASAP**



New! **Free** eLearning course from the Society of Healthcare Epidemiology of America

In this short, 3 module interactive course, learners will gain experience in penicillin allergy history taking, risk assessment using validated instruments, penicillin allergy testing, and delabeling.

The target audience includes physicians (ID, PCP, hospitalists), pharmacists, and advanced practice providers.

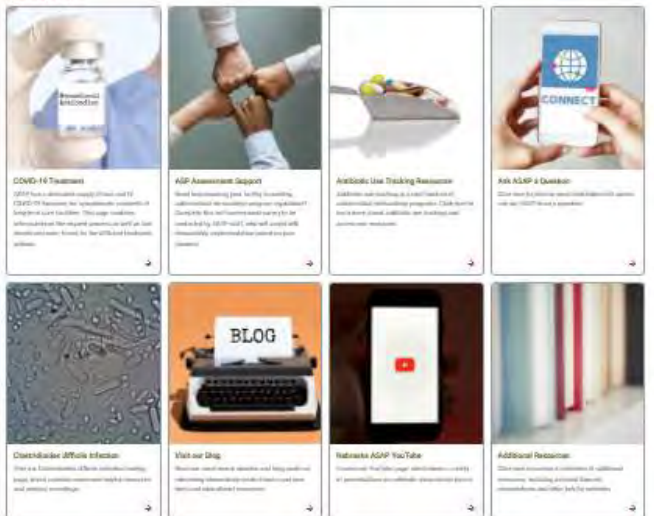
[Link: Penicillin Allergy Management - Removing Barriers to Optimal Antibiotic Prescribing | LearningCE @ SHEA](#)



Latest News



Our Services



ASAP Website and YouTube channel



[Nebraska ICAP & ASAP - YouTube](https://www.youtube.com/channel/UC...)



<https://asap.nebraskamed.com/>



Nebraska ASAP Newsletter: The Antimicrobial Advocate

THE ANTIMICROBIAL ADVOCATE
Volume 2 Issue 4
April 2025

In this Issue

- SIS - Intra-abdominal Infection guidance from IDP - Page 1
- Invasive Group A Streptococcus - Page 3
- Involving Diagnostics - ESR and CRP - Page 3
- Upcoming educational opportunities - Pages 4-5

Surgical Infection Society - Intra-abdominal Infection Guideline Review from SIDP

Auditing antibiotic management of intra-abdominal infections in your facility may provide insights related to antibiotic selection (for example, MSSA, outgrowth, or enterococcus coverage), durations of therapy, and IV to PO conversion opportunities.

This month, we're highlighting a practical, evidence-based treatment guide developed by the Society of Infectious Diseases Pharmacists to support appropriate antibiotic use in intra-abdominal infections. Check out this resource to strengthen your stewardship decisions and ensure optimal patient care.

[Click Here to Access the Infographic!](#)

NEBRASKA ANTIMICROBIAL STEWARDSHIP ASSESSMENT AND PROMOTION PROGRAM **ASAP**

DIAGNOSTIC STEWARDSHIP
ESR AND CRP: ZOMBIE TESTS?

ESR (erythrocyte sedimentation rate) and CRP (C-reactive protein) are sometimes called "zombie tests" in infectious disease management because, despite their limited utility in guiding diagnosis or treatment decisions, they continue to be ordered frequently - refusing to "die."

Limitations of ESR and CRP

- Non-Specificity:** ESR and CRP levels can be elevated in a wide range of conditions, not specifically due to bacterial infections. Conditions such as viral infections, autoimmune diseases, and even trauma can cause elevated levels, leading to erroneous over-prescription of antibiotics if used as the sole diagnostic criterion.
- Delayed Response:** In some infections, particularly those caused by fastidious organisms or in immunocompromised patients, ESR and CRP may not rise promptly or significantly, potentially delaying appropriate antibiotic treatment and impacting patient outcomes. Additionally, when elevated, these markers often remain high long after an infection has resolved, leading to confusion, unnecessary follow-up testing, and/or prolonged antibiotic use.
- Individual Variability:** Patient factors such as age, underlying health conditions, and medications can affect ESR and CRP levels, complicating their interpretation in clinical settings.
- The Utility of ESR and CRP Testing:** The simple fact that these tests are generally inexpensive, easy to order, and results fairly quickly, combined with the psychological fear of diagnostic uncertainty.
- Widespread Confusion:** By conflating therapeutic decisions, a single test result that is discordant with our clinical impression is reassuring and helps us feel as though the world makes sense. Thus, the simplicity of the ESR and CRP may create a false perception among clinicians that ordering these tests does little harm.
- Reinforcing Clinician Underestimation:** The collective harm in terms of excess costs, diagnostic errors, laboratory personnel time, and inappropriate antibiotic use that result from reliance of unnecessary and unhelpful tests.
- With bias paver that accuracy, lack of a unified definition of a cut-off, redundancy with other clinical information, lack of a reference standard, and failure to demonstrate clinical impact, these tests are possibly of no benefit when diagnosing or managing infections in most situations.**

Spallholz et al., Rethinking diagnostics: erythrocyte sedimentation rate and C-reactive protein: Is it time to stop the zombie tests, Clinical Infectious Diseases and Infection, <https://doi.org/10.1093/cid/cia004>

NEBRASKA ANTIMICROBIAL STEWARDSHIP ASSESSMENT AND PROMOTION PROGRAM **ASAP**

Invasive Group A Streptococcus (GAS)

A full outbreak occurred of invasive GAS infections between 2011 and 2013.

Take Home Points

- First line treatments (penicillin, amoxicillin, cefotaxime) continue to be very effective, but alternative antibiotics (macrolides and clindamycin) are increasingly non-susceptible (nearly 65% of isolates are resistant). If using an alternative antibiotic due to patient allergy, susceptibility testing is important.
- Residents of long-term care facilities are particularly vulnerable due to older age; underlying medical conditions, including skin breakdown; and the occurrence of outbreaks.
- Early detection and response to outbreaks in LTCF have the potential to reduce the high incidence of GAS infections.

[Click here for a CDC Decision Tool for GAS source](#)

[Decision Tool for Invasive Group A Streptococcal Infections](#)

[Click here for a CDC Decision Tool for GAS source](#)

Gregory CL, Oliver JQ, Bergseld A, et al. Invasive Group A Streptococcal Infections in 10 US States. JAMA. Published online April 07, 2025. doi:10.1001/jama.2025.0910

EDUCATIONAL OPPORTUNITIES

Nebraska Antimicrobial Stewardship Summit

Registration is open!

Friday, May 30, 2025
7:30 a.m. - 4:00 p.m.
UNL East Campus Union
Lincoln, Nebraska

[Click Here to Register!](#)

this year!

Featuring a separate track for Long-Term Care Antimicrobial Stewardship fundamentals. Perfect for newer infection preventionists, consultants, pharmacists, and those looking to strengthen their program!

Breakpoints
The SIDP Podcast

RECENT EPISODES

- #114 - Dealing with Outbreaks
- #113 - Ask Chabert: The Role of AI in Infection
- #112 - Don't Ask Me: Immunizations and Antibiotic Resistance

[Click here to listen!](#)

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Thank you for attending the Nebraska Antimicrobial Stewardship Summit!

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