Acute Care & Outpatient Settings Webinar Series

October 8th, 2025

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

NE ICAP

NEBRASKA INFECTION CONTROL ASSESSMENT AND PROMOTION PROGRAM

Presenters & Panelists & Moderator

Presenters today: *(in order)*

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Questions & Answer Session

- Please use the Q&A box in the webinar platform to type a question to be read aloud.
  - If your question is not answered during the webinar, please call (402) 552-2881 Monday – Friday 8:00 am – 4:00 pm CST to speak with one of our Infection Preventionists or e-mail your question to nebraskaicap@nebraskamed.com

Slides & Webinar Recordings Available

- During this webinar, slides are available on the NE ICAP Acute Care webpage
  - After the webinar, slides and a recording will be posted on the NE ICAP Past Webinars and Slides webpage

Continuing Education Disclosures

- 1.0 Nursing Contact Hour is awarded for the LIVE viewing of this webinar.
- Nebraska Infection Control Assessment and Promotion Program is approved as a provider of nursing continuing professional development by the VTL Center for Professional Development, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.
- To obtain nursing contact hours, you must attend the entire live activity and complete the post-course survey form.
- No relevant financial relationships were identified for any member of the planning committee or any presenter/author of the program content.

Nebraska Pathogen Watch

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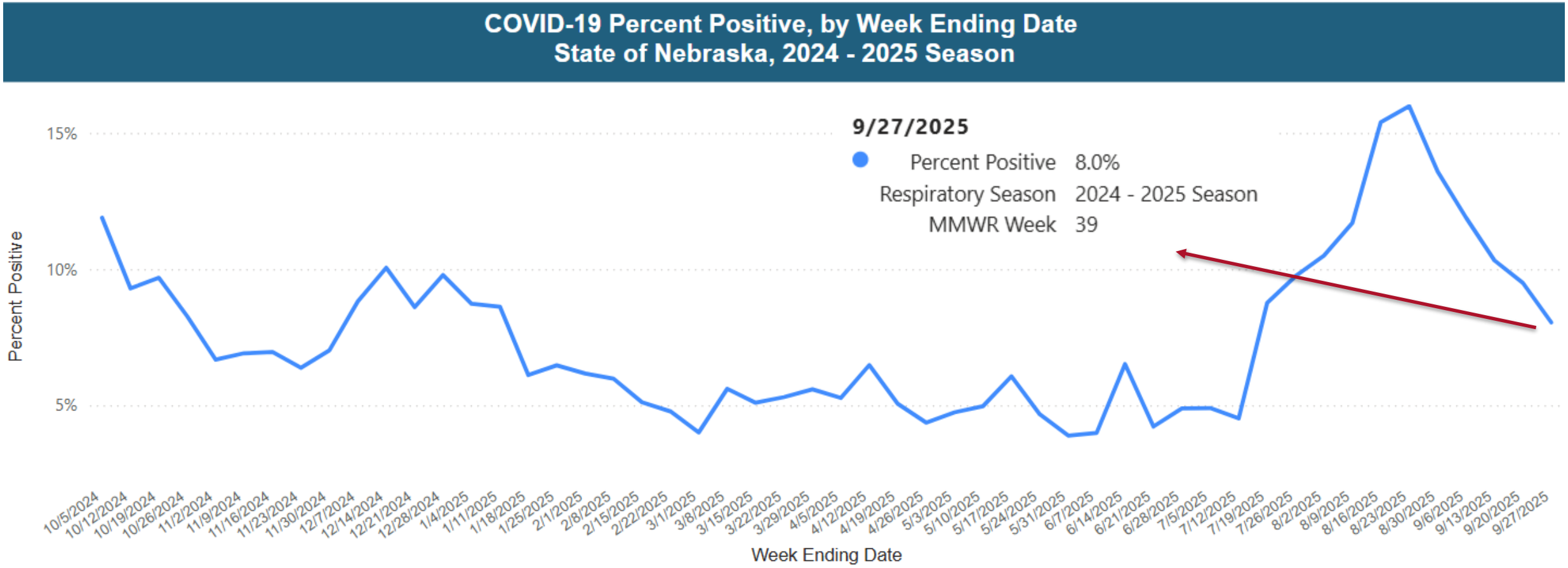
NEBRASKA INFECTION CONTROL ASSESSMENT AND PROMOTION PROGRAM

Key Points

- COVID: late summer surge now trending down
- Flu activity is minimal
- Vaccine recommendations

Covid-19 NE DHHS Report



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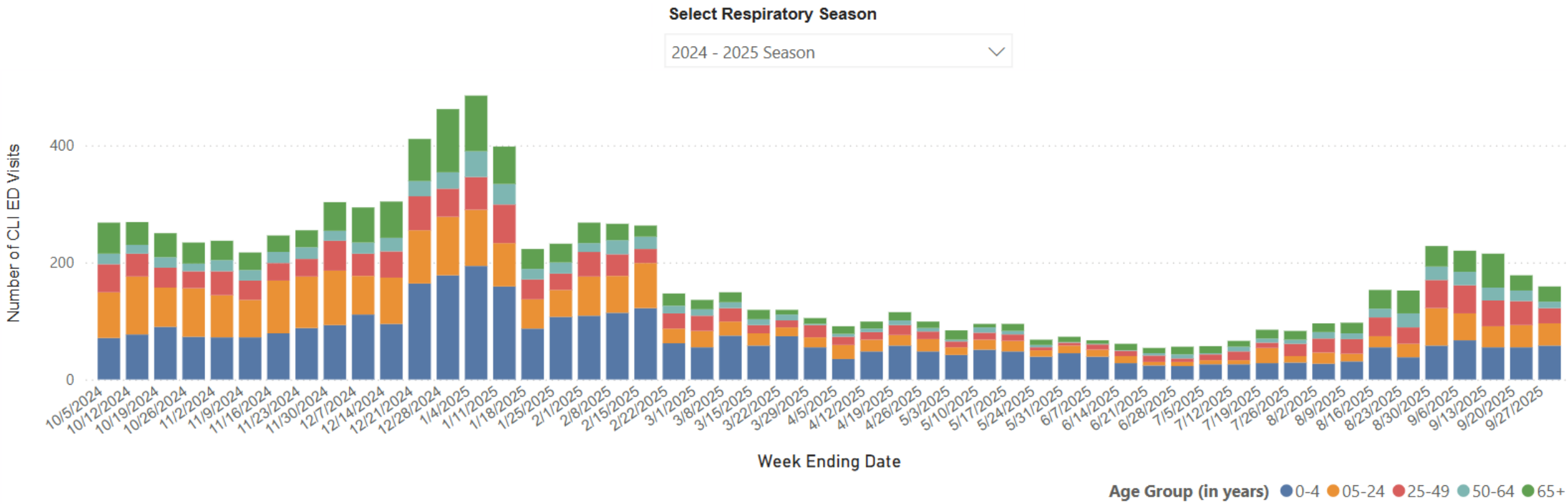
Covid-19 NE DHHS Report

Number of Influenza-like Illness (ILI) Emergency Department (ED) Visits by Age Group, by Week Ending Date, State of Nebrasksa, 2024 - 2025 Season



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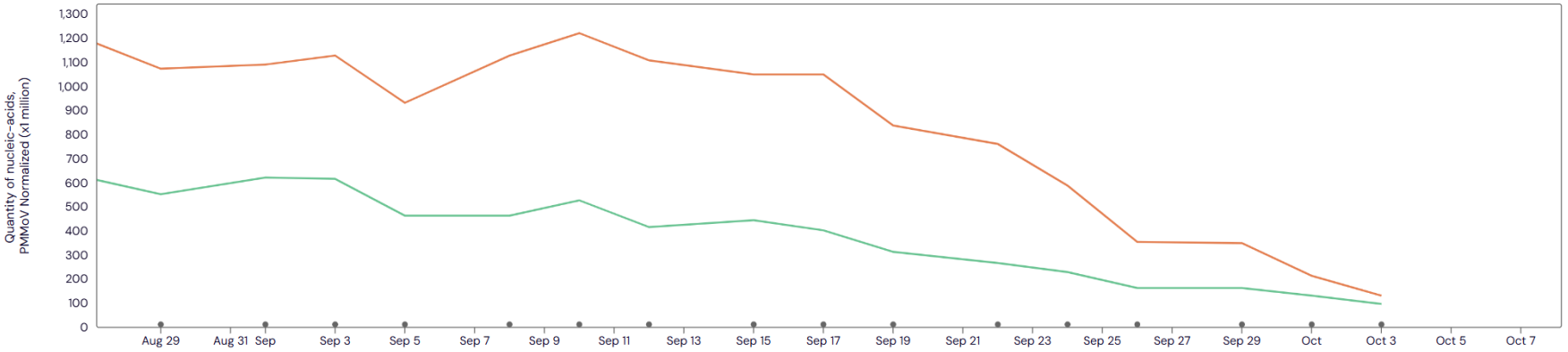
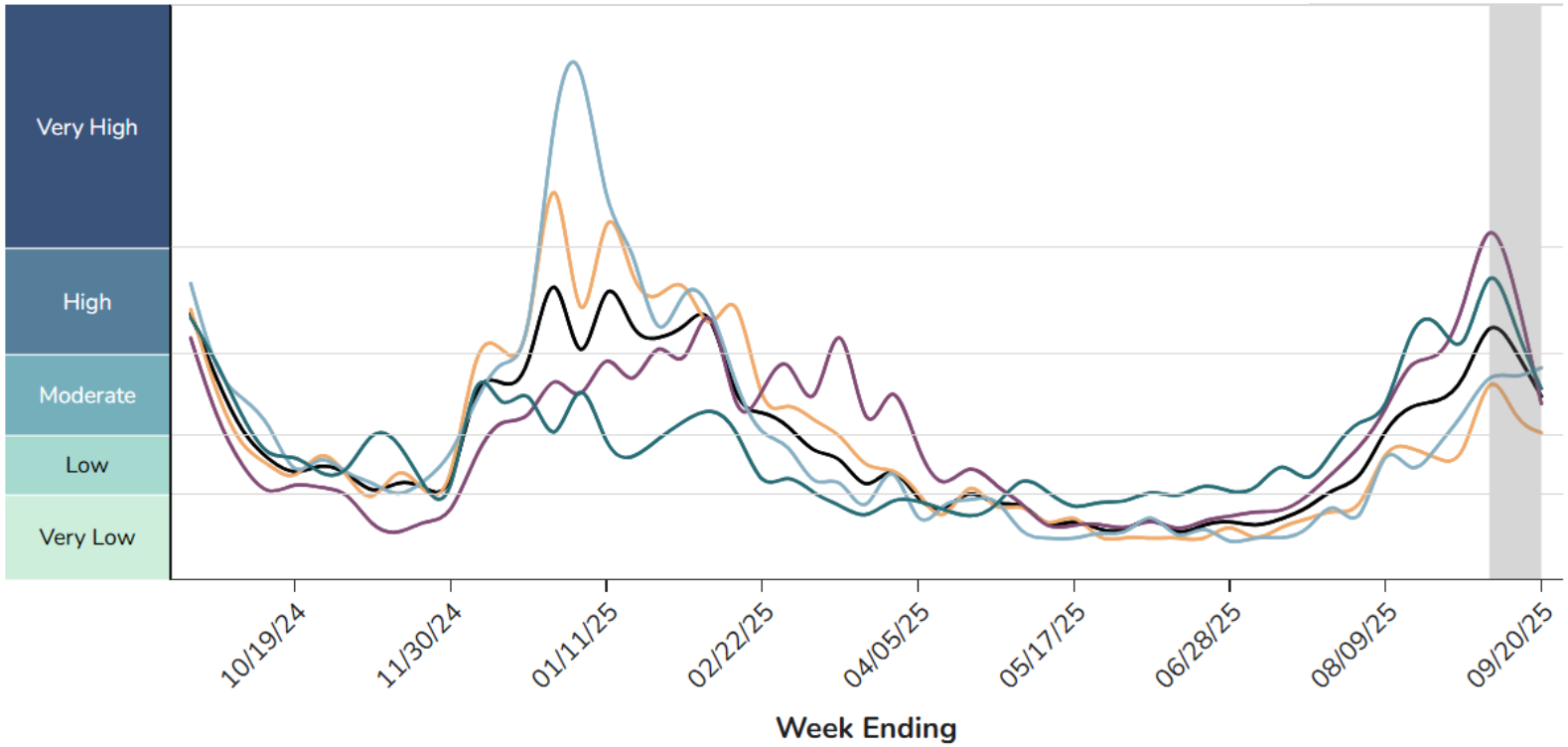
Covid Wastewater Data



WASTEWATER SCAN

- Northeast, Lincoln, NE (Northeast Water Resource Recovery Facility)
- Theresa Street, Lincoln, NE (Theresa Street Water Resource Recovery Facility)



COVID Data Tracker

CDC

- National
- Midwest
- South
- Northeast
- West

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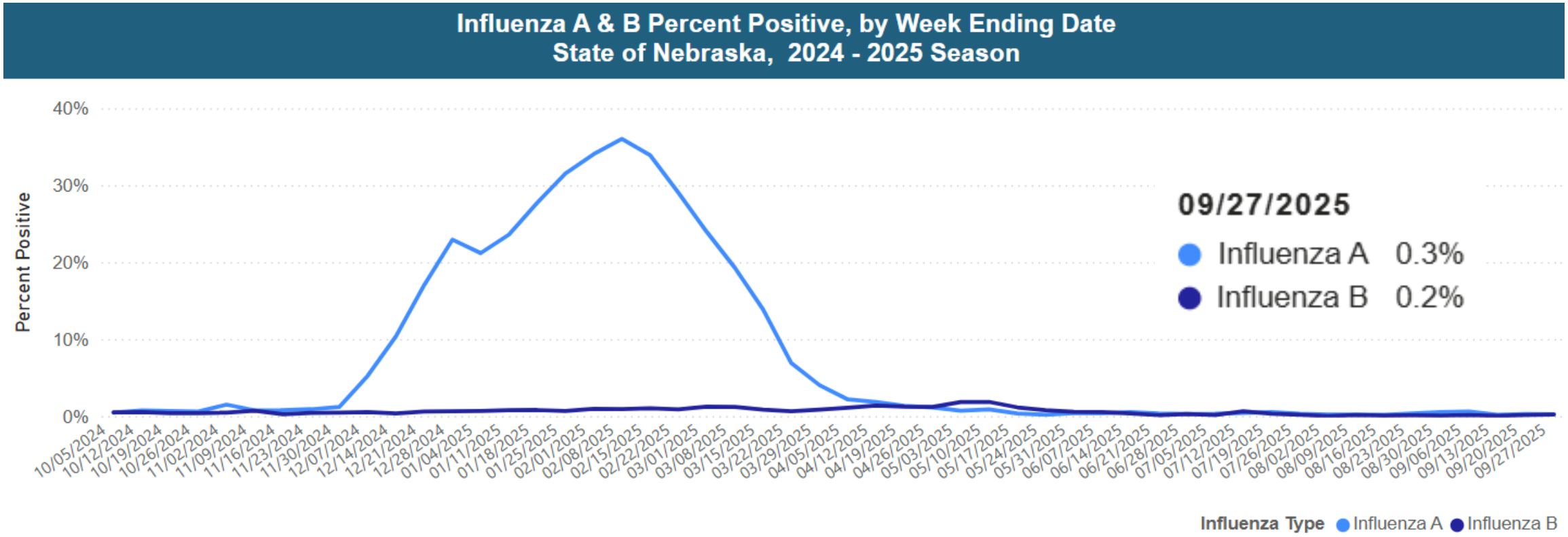
Influenza Percent Positive



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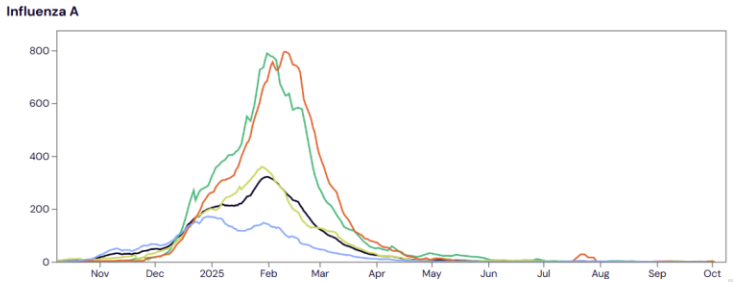
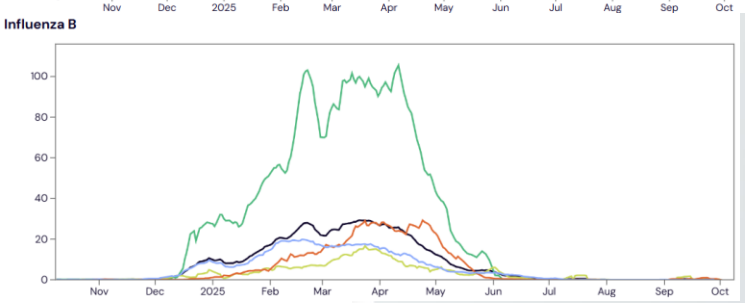
Flu Wastewater Data





WASTEWATER SCAN

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10/6/25 CDC NEWS RELEASE RELATED TO COVID-19 VACCINE: CDC ADOPTS INDIVIDUAL-BASED DECISION MAKING FOR INDIVIDUALS 6 MONTHS & OLDER(excerpt)

ACIP's recommendation emphasized that the risk-benefit of vaccination in individuals under age 65 is most favorable for those who are at an increased risk for severe COVID-19 and lowest for individuals who are not at an increased risk, according to the CDC list of COVID-19 risk factors. The U.S. Food and Drug Administration has approved marketing authorization for COVID-19 vaccines for individuals who have one or more of these risk factors, as well as for individuals age 65 and older.

Individual-based decision-making is referred to on the CDC's immunization schedules as vaccination based on shared clinical decision-making, which references providers including physicians, nurses, and pharmacists. It means that the clinical decision to vaccinate should be based on patient characteristics that unlike age are difficult to incorporate in recommendations, including risk factors for the underlying disease as well as the characteristics of the vaccine itself and the best available evidence of who may benefit from vaccination.

https://www.cdc.gov/media/releases/2025/cdc-immunization-schedule-adopts-individual-based-decision.html
https://www.cdc.gov/covid/hcp/clinical-care/underlying-conditions.html

2025-2026 COVID-19 Vaccines

Manufacturer	Vaccine	FDA Approved Indication
Moderna	**SPIKEVAX** (mRNA)	65 years of age or older, or **6 mos.** through 64 yrs with at least 1 high-risk conditions
	MNEXSPIKE (mRNA)	Previously vaccinated with any COVID-19 vaccine **and**: 65 years of age or older, or **12 years** through 64 yrs with at least one high-risk condition
Pfizer-BioNTech	**COMIRNATY** (mRNA)	65 years of age or older, or **5 years** through 64 years with at least one high-risk condition
Novavax	**NUVAXOVID** (Protein-based vaccine)	65 years of age or older, or **12 years** through 64 yrs with at least one high-risk condition

- Courtesy NE ICAP September 2025 Webinar
- Refer to current approvals and instructions for use

2025-2026 INFLUENZA VACCINES & GUIDANCE

Image Courtesy of CDC

DEPARTMENT OF HEALTH

2025-26 Seasonal Influenza Vaccine Dosage Chart

Inactivated Influenza Vaccine, Adjuvanted, Trivalent (aIIV3)

Manufacturer[1]	Trade name	Age	Dose – Presentation[2]	Route
Seqirus	Fluad	65 years and older	0.5 mL – prefilled syringe	IM (intramuscular)[3]

Recombinant Influenza Vaccine, Trivalent (RIV3)

Manufacturer	Trade name	Age	Dose – Presentation	Route
Sanofi Pasteur	Flublok	9 years and older	0.5 mL – prefilled syringe	IM (intramuscular)

Cell Culture-Based Inactivated Influenza Vaccine, Trivalent (ccIIV3)

Manufacturer	Trade name	Age	Dose – Presentation	Route
Seqirus	Flucelvax	6 months and older	0.5 mL – prefilled syringe 0.5 mL – multi-dose vial	IM (intramuscular)

Inactivated Influenza Vaccine, High Dose, Trivalent (HD-IIV3)

Manufacturer	Trade name	Age	Dose – Presentation	Route
Sanofi Pasteur	FluZone High-Dose	65 years and older	0.5 mL – prefilled syringe	IM (intramuscular)

Inactivated Influenza Vaccine, Trivalent (IIV3)

Manufacturer	Trade name	Age	Dose – Presentation	Route
GlaxoSmithKline	Fluarix	6 months and older	0.5 mL – prefilled syringe	IM (intramuscular)
GlaxoSmithKline	FluLaval	6 months and older	0.5 mL – prefilled syringe	IM (intramuscular)
Seqirus	Afluria	6 through 35 months	0.25 mL – no option available[4]	IM (intramuscular)
Seqirus	Afluria	3 years and older	0.5 mL – prefilled syringe 0.5 mL – multi-dose vial[5]	IM (intramuscular)
Sanofi Pasteur	FluZone	6 months and older	0.5 mL – prefilled syringe 0.5 mL – single-dose vial 0.5 mL – multi-dose vial	IM (intramuscular)

Live Attenuated Influenza Vaccine, Quadrivalent (LAIV3)

Manufacturer	Trade name	Age	Dose – Presentation	Route
AstraZeneca	FluMist	2 through 49 years	0.2 mL – prefilled intranasal sprayer; 0.1 mL in each nostril	Intranasal

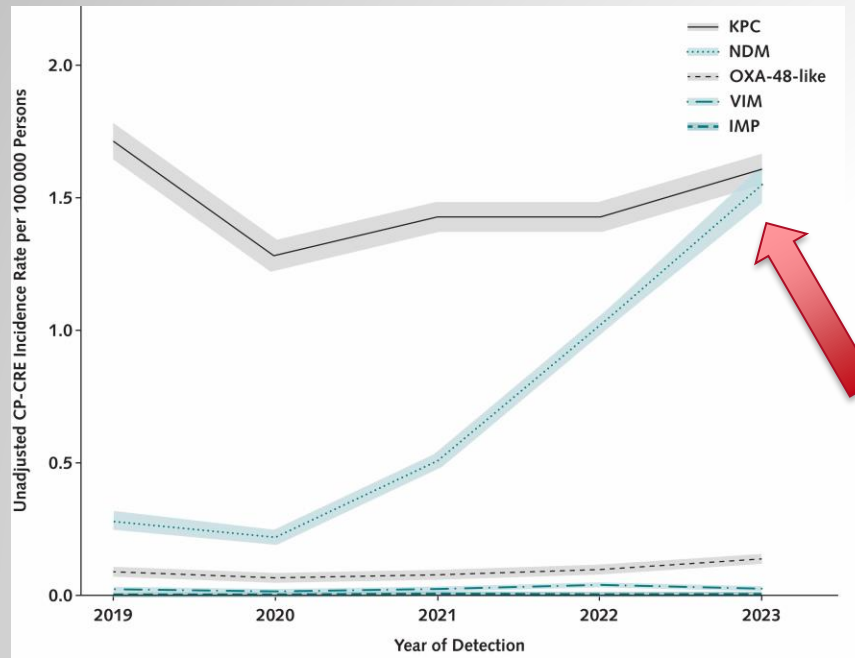
2025-26 Seasonal Influenza Vaccine Dosage Chart

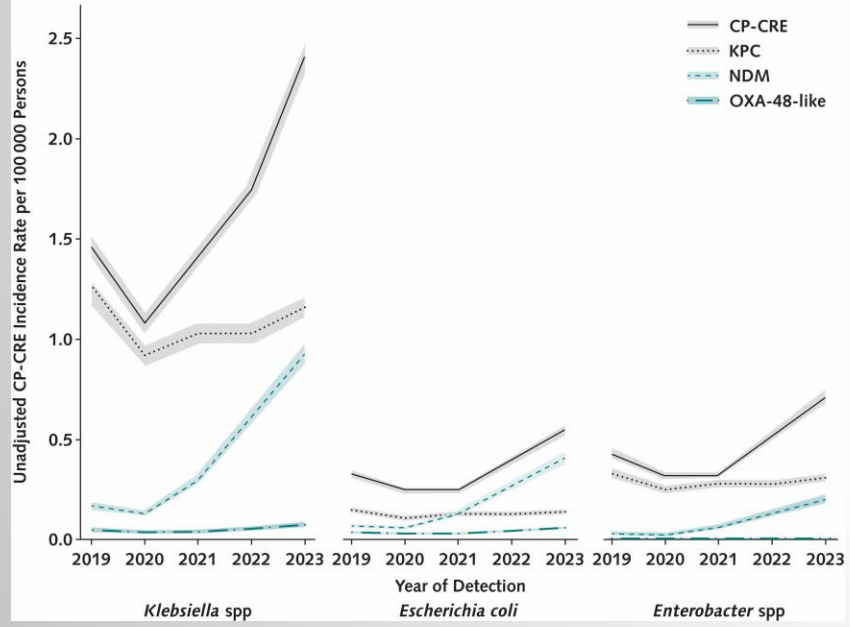
Increases in NDM-CRE

- **New CDC Report Warns of Increases in NDM-CRE, Urges Healthcare Provider Awareness and Testing** — Through CDC's Antimicrobial Resistance Laboratory Network, CDC experts have detected a substantial rise in carbapenem-resistant Enterobacterales (CRE) producing the New Delhi metallo-β-lactamase (NDM) carbapenemase.
- These increases in carbapenemase-producing-CRE (CP-CRE) and NDM-CRE threaten to reverse years of stable or declining CRE rates and are particularly concerning due to the limited treatment options for CRE infections involving these resistance mechanisms.

ARLabNetwork

Photo credit: https://www.cdc.gov/cre/about/index.html





Increases in NDM-CRE

- A CDC paper recently published in the *Annals of Internal Medicine* describes the changes in carbapenemase genes in CRE isolates from 2019 to 2023. Findings include:
  - In a cohort of 29 U.S. states with mandated submission of CRE isolates, the incidence of CP-CRE isolates from clinical cultures increased dramatically overall between 2019 and 2023.
  - The increased incidence was primarily driven by a **five-fold increase** in the incidence of NDM-CRE and a smaller increase in OXA-48-like-CRE.
  - Preliminary data from 2024 indicate NDM-CRE remained at or above 2023 levels.

Increases in NDM-CRE

- To increase timely detection, guide treatment, and prevent the spread of CRE, healthcare providers should:

Recommendation	Nebraska Resources and References
Understand if their clinical laboratories have the testing capabilities to identify different carbapenemase genes or access testing through their public health laboratory.	Nebraska Public Health Lab (NPHL) NPHL CRE/CRPA/CRAB Supplemental Form
Consult with their Healthcare-associated Infections and Antimicrobial Resistance (HAI/AR) Program to understand local CRE resistance mechanisms in their area.	Nebraska Healthcare-Associated Infections and Antimicrobial Resistance Program Nebraska ICAP Nebraska ASAP
Implement infection prevention and control measures effective in preventing CRE.	Carbapenem-resistant Enterobacterales (CRE) Infection Control CP-CRE Fact Sheet for Patients and Families Screening FAQs for Verbal Consent Infection Prevention CPCRE Multi-Drug-Resistant Organism (MDRO) Cheat Sheet for Infection Preventionists
Reporting CP-CRE to Nebraska DHHS.	Reportable Disease per **Title 173 Communicable Diseases** • Should be reported via electronic lab reporting (if available) • If ELR is not set up, can report via phone call, email, fax, or through **Report HAI/AR-related event/clusters or organism(s)**

Multidrug-Resistant Organisms (MDRO) Tiers for Nebraska

Tier	Definition of Included Organisms and Mechanisms	Examples (not all inclusive) of organisms/mechanisms for Nebraska	Transmission-Based Precautions Recommendations
Tier 1	Never (or very rarely) been identified in the United States and for which experience is extremely limited	Novel Carbapenemases	Contact precautions until otherwise recommended by HAI/AR team
Tier 2	Primarily associated with healthcare settings and are not commonly identified in the region (i.e., not been previously identified in the region or have been limited to sporadic cases or small outbreaks), corresponding to "not detected" or "limited to moderate spread" epidemiologic stages. No current treatment options exist (pan not-susceptible) and potential to spread more widely.	Pan-resistant organisms* *Candida auris* Carbapenemase (e.g., KPC, NDM, OXA-48, VIM, IMP) producing organisms (CPO) • Enterobacterales • *Pseudomonas aeruginosa* • *Acinetobacter Baumannii*	Contact Precautions *Long-term Care Facilities (LTCF):* Enhanced barrier precautions (EBP) recommended for colonized resident(s)**
Tier 3	Include MDROs targeted by the facility or region for epidemiologic importance that have been identified frequently across a region, indicating advanced spread, but are not considered endemic	• Extended spectrum beta-lactamase (ESBL) producing organisms • Carbapenem-resistant *Enterobacterales* (CRE) • Carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) • Carbapenem-resistant *Acinetobacter Baumannii* (CRAB)	Contact Precautions *Long-term Care Facilities (LTCF):* Enhanced barrier precautions (EBP) considered for colonized resident(s)**
Tier 4	Endemic in a region and have been targeted by public health for their clinical significance and potential to spread rapidly	• Methicillin-resistant Staphylococcus aureus (MRSA) • Vancomycin-resistant Enterococci (VRE)	Contact precautions per facility risk assessment *Long-term Care Facilities (LTCF):* Enhanced barrier precautions (EBP) considered for colonized resident(s)**

* Contact tracing and colonization screening may not be indicated for these organisms
**Contact precautions for acute/active infections or uncontained drainage/secretions

Available at:
https://dhhs.ne.gov/HAI%20Documents/Nebraska%20MDRO%20Tiers.pdf

Reviewed and Updated 8.21.2025 by HAI/AR Advisory Council MDRO Subcommittee

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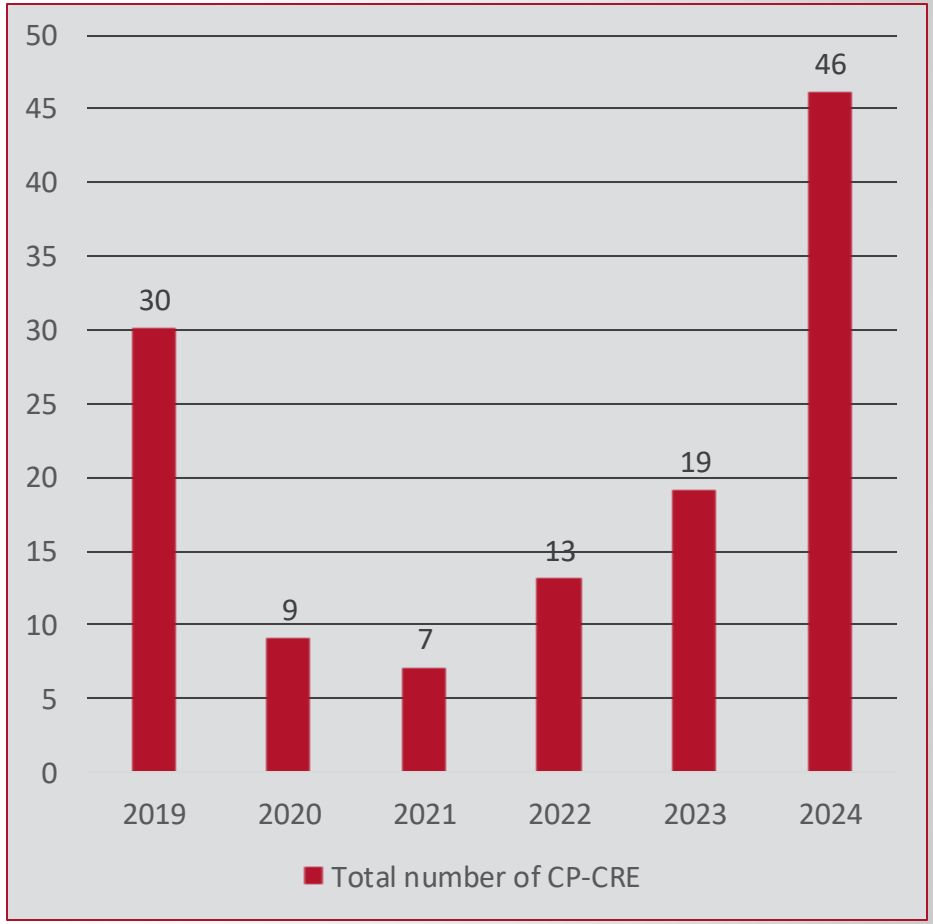
Carbapenemase Genes Identified in Enterobacterales Isolates, Nebraska: 2019-2024

Year	KPC	NDM	OXA-48	OXA-181	VIM	IMP
2019	18	9	0	3	0	0
2020	8	0	1	0	0	0
2021	6	0	1	0	0	0
2022	8	3	1	0	1	0
2023	7	6	4	2	0	0
2024	26	14	5	0	0	1
2025 to date	21	3	2	1	0	0

Notes:

- KPC in 2024 included twelve KPC-2, two KPC-3, four KPC-4, and one KPC-6
  - KPC variants not identified for the rest
- CP-CRPA and CP-CRAB are rarely identified
  - In 2024- 1 CP CRPA (NDM) has been reported in addition to 4 CP-CRAB (1 NDM and 3 OXA-24)



US Antibiotic Awareness Week

Jenna Preusker, PharmD, BCPS, BCIDP
ASAP Pharmacy Coordinator

NE ASAP

U.S. Antibiotic Awareness Week (USAAW) is November 18–24, 2025

USAAW raises awareness of the importance of appropriate antibiotic and antifungal use and the threat antimicrobial resistance poses to people, animal, plants, and their shared environment.

U.S. Antibiotic Awareness Week (USAAW) | Antimicrobial Resistance | CDC

How can our facility participate?

- Provide staff education during in-services or monthly staff meetings
- Bug question trivia with prizes
- Hospital computer screensavers
- Posting flyers throughout the hospital and clinics
- Promote on internal websites/intranet
- Set up a table with posters/flyers in cafeterias or other highly visited locations to target both staff and patients
- Distribute USAWW stickers for staff to wear
- Create short videos for social media/local news outlets
- Digital street signage
- Newsletter articles
- Highlight recent accomplishments of the antibiotic stewardship team
- Promote current stewardship initiatives (shorter durations)

More ideas and resources:
U.S. Antibiotic Awareness Week (USAAW) Toolkit

WHAT IS THE RISK?

Antibiotic resistance accounts for more than 2.8 million infections and 35,000 deaths annually in the U.S.

Being a good antibiotic steward means protecting your patients and the public from antibiotic resistance by prescribing antibiotics **only when needed**, and prescribing the **right drug** at the **right dosage** for the **right duration.**

How Do We Properly Talk to Patients about Antibiotic Use?

To ensure clear, effective communication, clinicians can utilize the following communication strategies and examples to engage with their patients*:

1. **Deliver a clear diagnosis that explains why antibiotics are not needed.**

Ex) "This is a nasty cold, and colds are caused by viruses, so antibiotics won't make you feel better faster."

2. **Utilize positive treatment recommendations.**

Ex) "Putting a warm compress over your nose and taking ibuprofen will help with your sinus pain and pressure."

3. **Develop contingency plans.**

Ex) "If your child is still sick in a week or develops a fever, come back and see me."

4. **Delay antibiotic prescriptions.**

Ex) "Your child has an ear infection that will likely clear up on its own. If the ear still hurts in two days or gets worse, call me or schedule an appointment so we can recheck the ear."

*These steps were adapted from a CDC editorial published in 8/1/16, issue of American Family Physician. How to Prescribe Fewer Unnecessary Antibiotics: Talking Points That Work with Patients and Their Families (https://www.aafp.org/afp/2016/0801/p200.html).

CDC's Project Firstline: Partner Resource Highlight

Talking with patients about antibiotic use

1. Deliver a clear diagnosis that explains why antibiotics are not needed.
2. Utilize positive treatment recommendations.
3. Develop contingency plans.
4. Delay antibiotic prescriptions.

Poster/Handout Link

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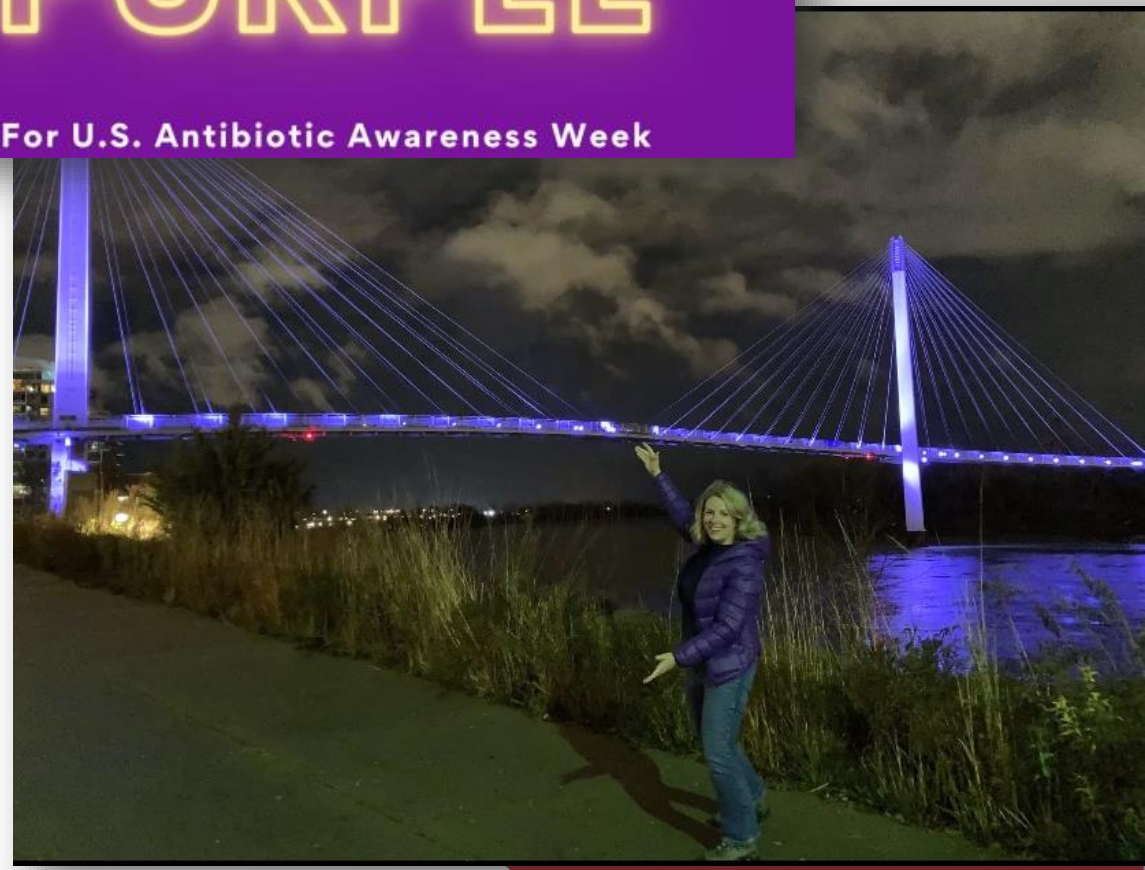

Nebraska ASAP and CDC invite families, friends, organizations, and communities to shine a spotlight on antimicrobial resistance by participating in Go Purple for USAAW.

This nationwide effort encourages individuals to wear purple and bring purple to their social media and invites organizations, healthcare facilities, and municipalities to light up buildings and landmarks purple to bring awareness to the role everyone has in combating antimicrobial resistance.

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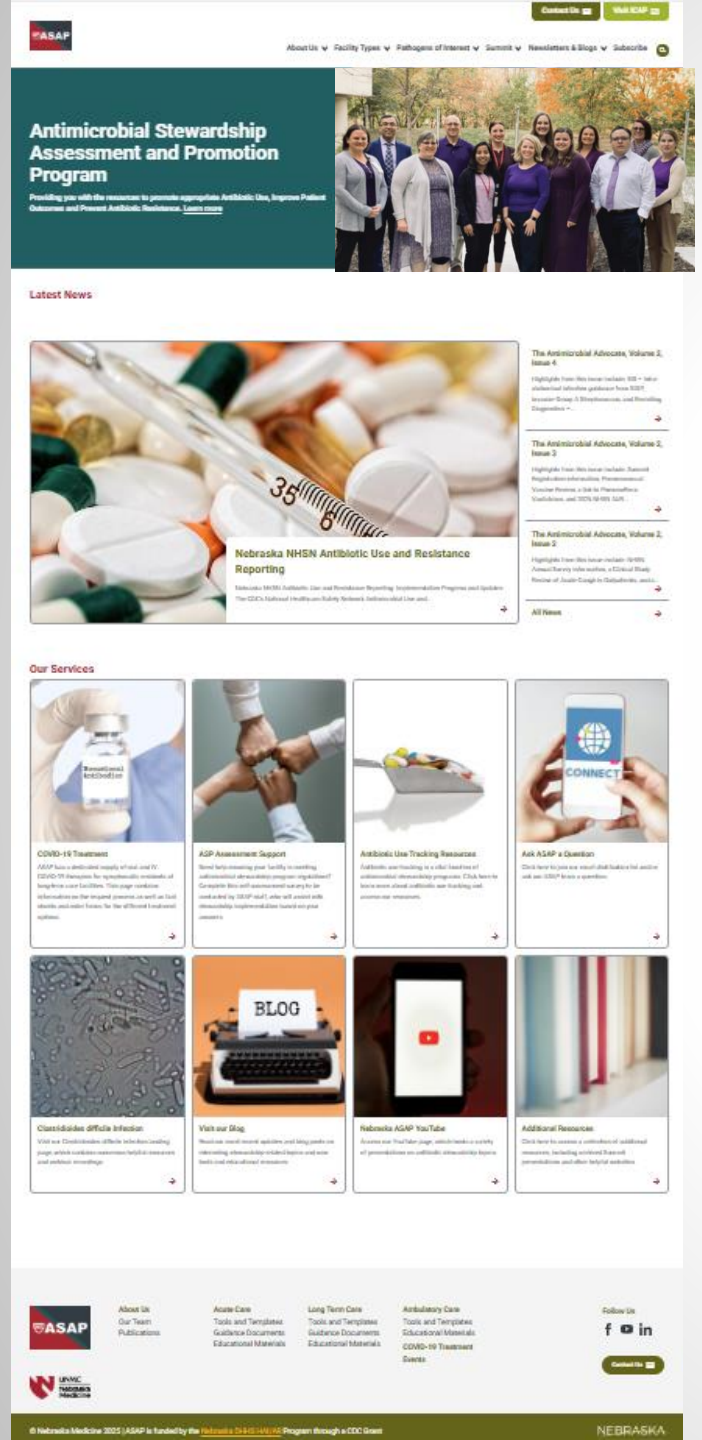
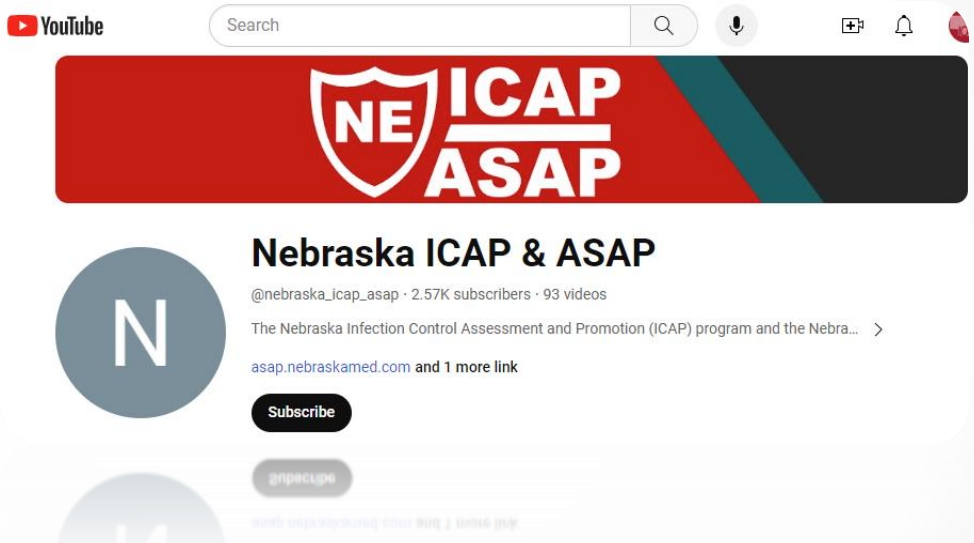
ASAP Website and YouTube channel





[Nebraska ICAP & ASAP - YouTube]

2025 Nebraska Antimicrobial Stewardship Summit General Sessions Now Available!!

[https://asap.nebraskamed.com/]

Nebraska ASAP Newsletter: *The Antimicrobial Advocate*

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Fighting Antimicrobial Resistance Takes All of Us

U.S. Antibiotic Awareness Week | November 18-24, 2025

Be Antibiotics Aware: Utilization of Antibiograms

NE ASAP

What are antibiograms?

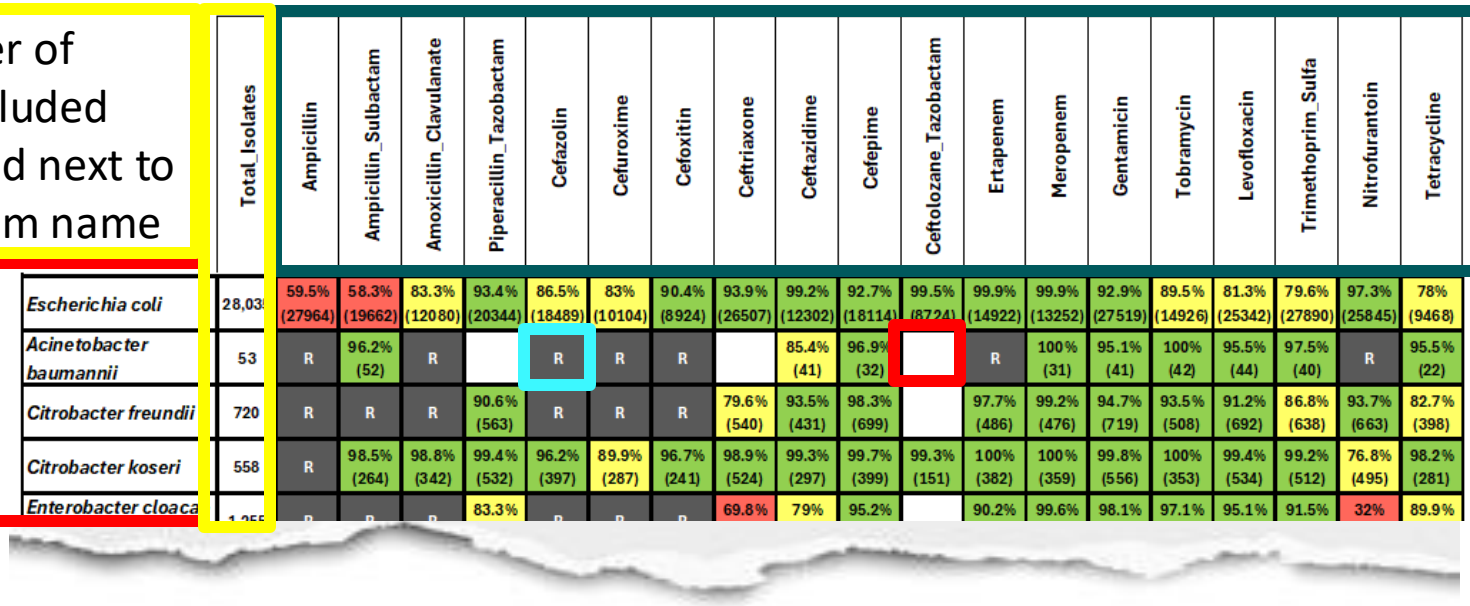
- Antibiograms provide a **summary of antibiotic susceptibility** for a population of patients
- Antibiograms reflect **aggregate results** from many individual microorganism-drug susceptibility tests.
- Aggregate susceptibility profiles are reported on an antibiogram as the percent of tests in which a specific microorganism (e.g., *E. coli*) was **susceptible** to a specific antimicrobial drug.
- They can be compiled at the level of a clinic, hospital, health system, long-term care facility, region, or state.

What do antibiograms look like?

The number of isolates included will be listed next to the organism name

Antibiotics are listed and sorted by drug class

Organisms included are listed



	Total_Isolates	Ampicillin	Ampicillin_Sulbactam	Amoxicillin_Clavulanate	Piperacillin_Tazobactam	Cefazolin	Cefuroxime	Cefoxitin	Ceftriaxone	Ceftazidime	Cefepime	Ceftolozane_Tazobactam	Ertapenem	Meropenem	Gentamicin	Tobramycin	Levofloxacin	Trimethoprim_Sulfa	Nitrofurantoin	Tetracycline
Escherichia coli	28,03	59.5% (27964)	58.3% (19662)	83.3% (12080)	93.4% (20344)	86.5% (18489)	83% (10104)	90.4% (8924)	93.9% (26507)	99.2% (12302)	92.7% (18114)	99.5% (8724)	99.9% (14922)	99.9% (13252)	92.9% (27519)	89.5% (14926)	81.3% (25342)	79.6% (27890)	97.3% (25845)	78% (9468)
Acinetobacter baumannii	53	R	96.2% (52)	R		R	R	R		85.4% (41)	96.9% (32)		R	100% (31)	95.1% (41)	100% (42)	95.5% (44)	97.5% (40)	R	95.5% (22)
Citrobacter freundii	720	R	R	R	90.6% (563)	R	R	R	79.6% (540)	93.5% (431)	98.3% (699)		97.7% (486)	99.2% (476)	94.7% (719)	93.5% (508)	91.2% (692)	86.8% (638)	93.7% (663)	82.7% (398)
Citrobacter koseri	558	R	98.5% (264)	98.8% (342)	99.4% (532)	96.2% (397)	89.9% (287)	96.7% (241)	98.9% (524)	99.3% (297)	99.7% (399)	99.3% (151)	100% (382)	100% (359)	99.8% (556)	100% (353)	99.4% (534)	99.2% (512)	76.8% (495)	98.2% (281)
Enterobacter cloaca	1,25	R	R	R	83.3%	R	R	R	69.8%	79%	95.2%		90.2%	99.6%	98.1%	97.1%	95.1%	91.5%	32%	89.9%

Blank spaces indicate the drug is not tested for that bug

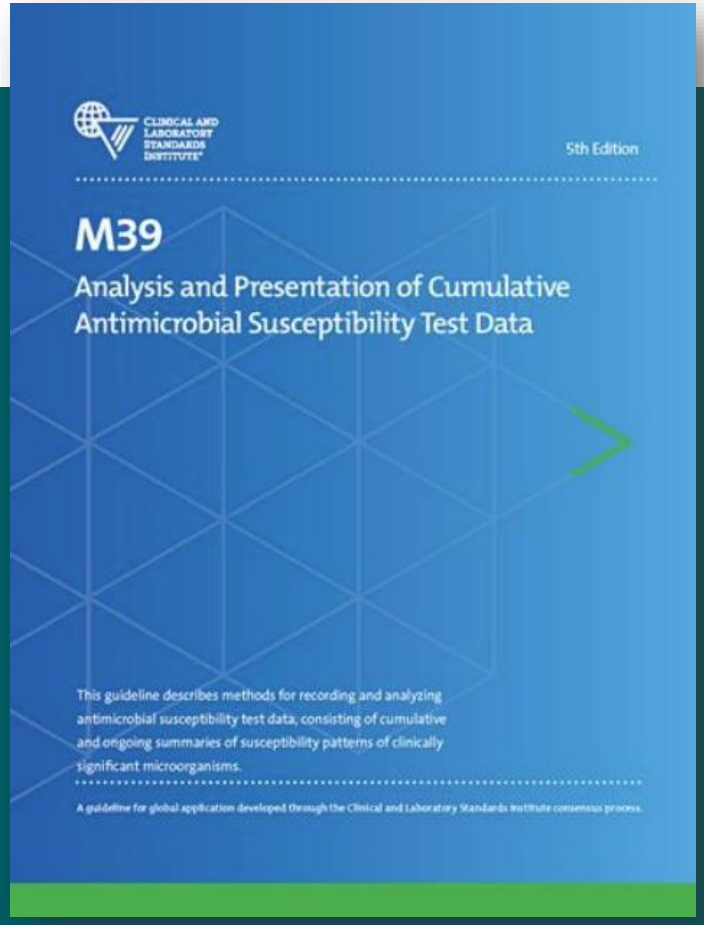
"R" indicates the bug is intrinsically (naturally) resistant to that drug

Additional footnotes are usually included and can be very important!

How are antibiograms made?

The Clinical and Laboratory Standards Institute (CLSI) publishes the guidelines, “Analysis and Presentation of Cumulative Antimicrobial Susceptibility Test Data.”

Typically, the microbiology laboratory, pharmacy, physicians, and infection preventionists work together in a facility to compile and review the data



- **Compile the antibiogram at least annually**
- **Include only organisms for which >30 isolates were tested in the period analyzed**
- **Include only the first isolate of a given bacterial species per patient in each antibiogram period**
- **Include only finalized clinical cultures (not surveillance cultures)**

How are antibiograms used?

CLINICAL

- ✓ Choosing therapy for a patient before culture results are available
- ✓ Updating empiric antibiotic treatment protocols
- ✓ Reviewing prescribing practices

EPIDEMIOLOGIC

- ✓ Identify trends in antimicrobial resistance
- ✓ Detect emerging resistance threats
- ✓ Compare susceptibility rates across regions

Clinical Use of Antibiograms

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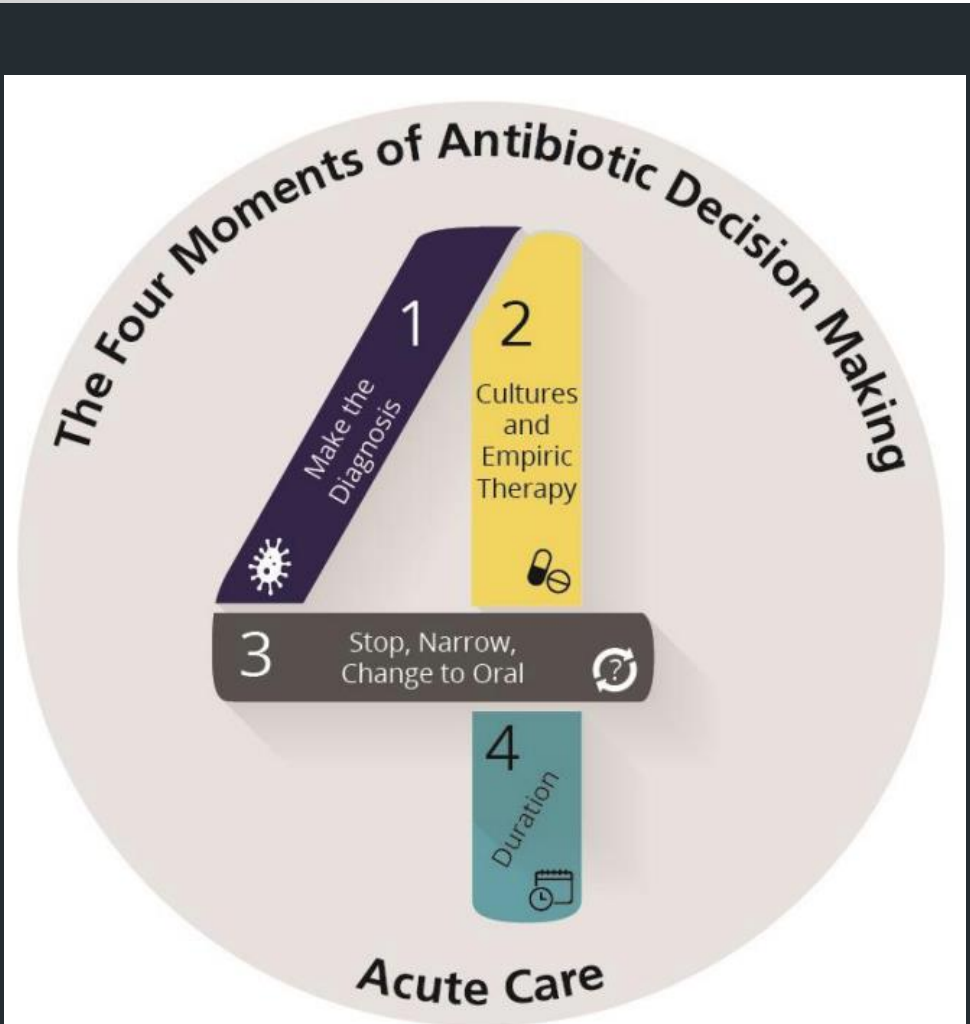
Choosing therapy for a patient before culture results are available

Four Moments of Antibiotic Decision Making | AHRQ



- **Moment 1** "Does my patient have an infection that requires antibiotics?"
- **Moment 2** "Have I ordered appropriate cultures before starting antibiotics? **What empiric therapy should I initiate?**"
- **Moment 3** "Can I stop antibiotics? Can I narrow therapy? Can I change from IV to oral therapy?"
- **Moment 4** "What duration of antibiotic therapy is needed for my patient's diagnosis?"

Make Antibiogram Data Available to Clinicians

- **Embedded in EHR/CPOE system**
  - Display local susceptibility data on antibiotic order screens
  - Integrate with clinical decision support to suggest preferred empiric therapy
- **Hospital Intranet**
  - Post as a PDF or interactive dashboard
  - Include links to guidance documents
- **Mobile Apps**
  - Use stewardship apps (e.g., Firstline, Sanford Guide Enterprise, Epocrates, Unbound Medicine)
- **Email Newsletter Distribution**
  - Send annual updates highlighting key resistance trends
- **Pocket Cards/Laminated Quick-Reference Sheets**
  - Distribute to clinicians, pharmacists, and nursing units
  - Include most common pathogens and recommended empiric choices
- **Posters or Wall Displays**
  - Hang in physician workrooms, EDs, ICUs, and pharmacy areas
- **Unit-Specific Summaries**
  - Provide tailored antibiograms (e.g., for ICU, NICU, or outpatient clinics)
  - Highlight differences between units to guide location-specific prescribing

Empiric antibiotic treatment protocols (Order Sets)

Most national guidelines for infectious diseases give multiple options for first-line antibiotics, knowing that resistance varies geographically.

IDSA UTI Treatment Guidance

Drug (dosage)
Nitrofurantoin monohydrate/ macrocrystals (100 mg twice daily for 5–7 days)
Trimethoprim-sulfamethoxazole (160/800 mg twice daily for 3 days)
Fosfomycin trometamol (3 g single-dose sachet)
Pivmecillinam (400 mg twice daily for 3–7 days)
Fluoroquinolones (dose varies by agent; 3–day regimen)[c]
β-lactams (dose varies by agent; 3–5 day regimen)[d]

So, how do providers know which of these options to choose?

Empiric antibiotic treatment protocols

Antibiotic stewardship programs write guidance at the facility level for prescribers based on local resistance patterns found on their antibiograms and other factors, such as patient cost, and drug adverse effect profiles.

	Total_Isolates	Ampicillin	Ampicillin_Sulbactam	Amoxicillin_Clavulanate	Piperacillin_Tazobactam	Cefazolin	Cefuroxime	Cefoxitin	Ceftriaxone	Ceftazidime	Cefepime	Ceftolozane_Tazobactam	Ertapenem	Meropenem	Gentamicin	Tobramycin	Levofloxacin	Trimethoprim_Sulfa	Nitrofurantoin	Tetracycline
Acinetobacter baumannii	17*	R	94.1% (17)	R		R	R	R		100% (10)	100% (11)		R	100% (9)	91.7% (12)	100% (15)	83.3% (12)	100% (17)	R	88.9% (9)
Citrobacter freundii	166	R	R	R	86.6% (164)	R	R	R	77.4% (124)	91.9% (123)	98.2% (165)		96.8% (126)	99.2% (124)	93.4% (166)	92.1% (126)	90.9% (165)	86.1% (166)	91.4% (152)	84.6% (123)
Citrobacter koseri	180	R	97.2% (109)	100% (119)	100% (175)	96.8% (125)	91% (122)	96.3% (108)	100% (179)	100% (109)	99.2% (122)	98.1% (54)	100% (118)	100% (118)	100% (178)	100% (119)	100% (174)	99.4% (180)	69.7% (155)	96.6% (116)
Escherichia coli	7884	56.4% (7871)	50.1% (4991)	82.8% (3380)	91.6% (5065)	88.4% (3637)	83.1% (3585)	89.8% (3105)	92.5% (7841)	99.8% (3130)	86.8% (3945)	99.4% (3103)	99.8% (3439)	99.9% (3120)	92.2% (7584)	85.4% (3754)	81.2% (7363)	77.9% (7849)	97% (7024)	77% (3110)
Haemophilus	17*	70.6%		100%					100%	100%				100%			100%	33.3%		100%

In this example, *E. coli* is the most common pathogen that causes uncomplicated UTIs.

E. coli showed susceptibility to nitrofurantoin of 97% of isolates (>7,000 tested)

Second line agents, such as Bactrim showed 78% and cephalexin 88%.

Recommendations for Management of Uncomplicated UTI

First-line agents:

- Nitrofurantoin monohydrate/microcrystal 100mg BID **x 5 days**
  - Do not use if CrCL <30

Second-line agents (in order of preference):

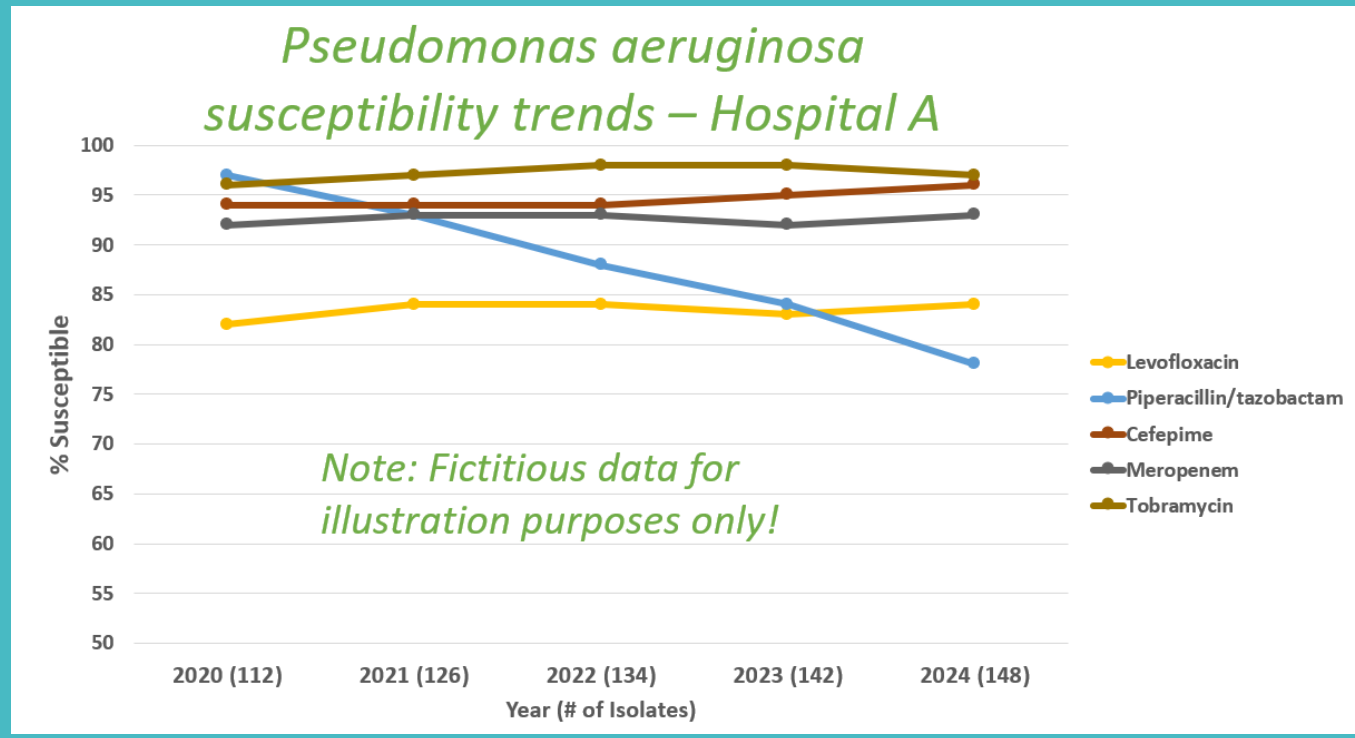
- Trimethoprim-sulfamethoxazole 160/800mg (one DS tablet) BID **x 3 days**

OR

- Cephalexin 500mg BID **x 5-7 days**

Reviewing prescribing practices after an increase in resistant infections

- In this example, Zosyn's steep drop in susceptibility signals it is becoming less reliable for empiric use against *P. aeruginosa*.
- Compare to an Alternative: Cefepime maintains high and stable efficacy over the same period.
- This antibiogram trend justifies changing empiric guidelines in Hospital A to favor cefepime for suspected *Pseudomonas* infections.
    - This adjustment improves the likelihood of appropriate initial therapy, reduces resistance pressure on Zosyn, and reflects local resistance.
- Communicate with Clinicians: Share this graph during provider meetings to visually reinforce the rationale.



Evaluate prescribing practices and antibiotic use rates!!

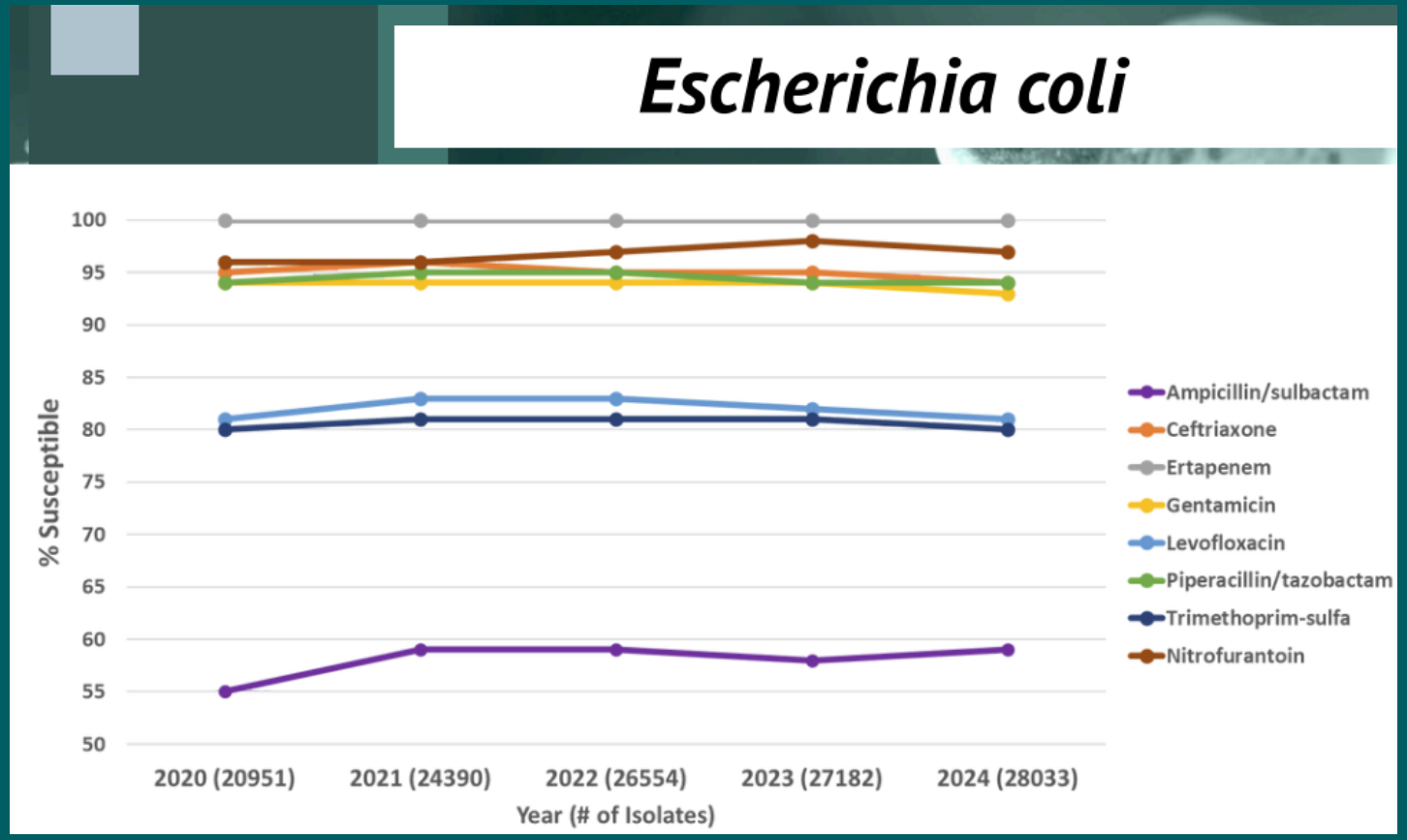
Limitations of Antibiograms

- Data do not take into account patient-specific factors, such as history of infection or past antimicrobial use
- Data are the result of single microorganism-antimicrobial combinations and, therefore, do not show trends in cross-resistance of microorganisms to other drugs (multi-drug resistance)
- Data might not be generalizable to specific patient populations
- Timeliness—antibiograms typically reflect last year's data

Epidemiologic Use of Antibiograms

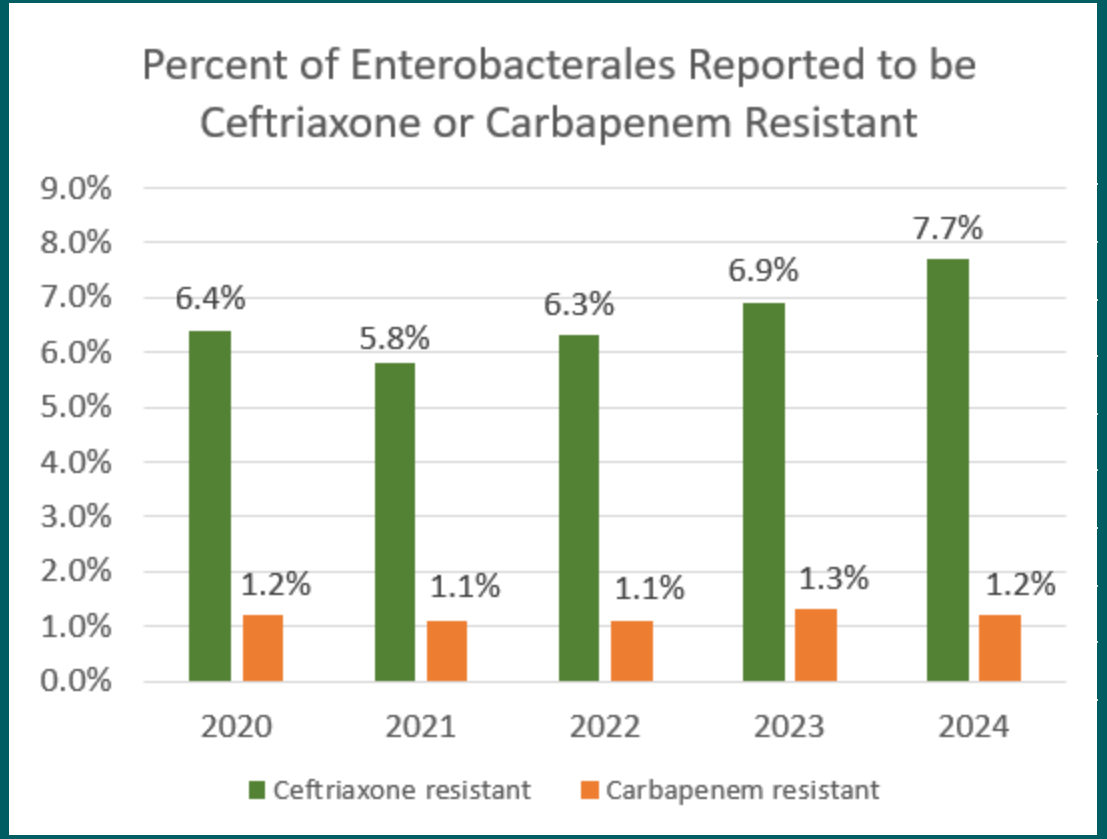
Identify trends in antimicrobial susceptibility

- Statewide antibiograms aggregate data across facilities, giving a broader view of resistance trends than individual facility reports.
- Allow detection of high-level patterns:
  - Shifts in susceptibility over time
  - Useful for trend analysis over years and across jurisdictions.



Detect emerging resistance threats

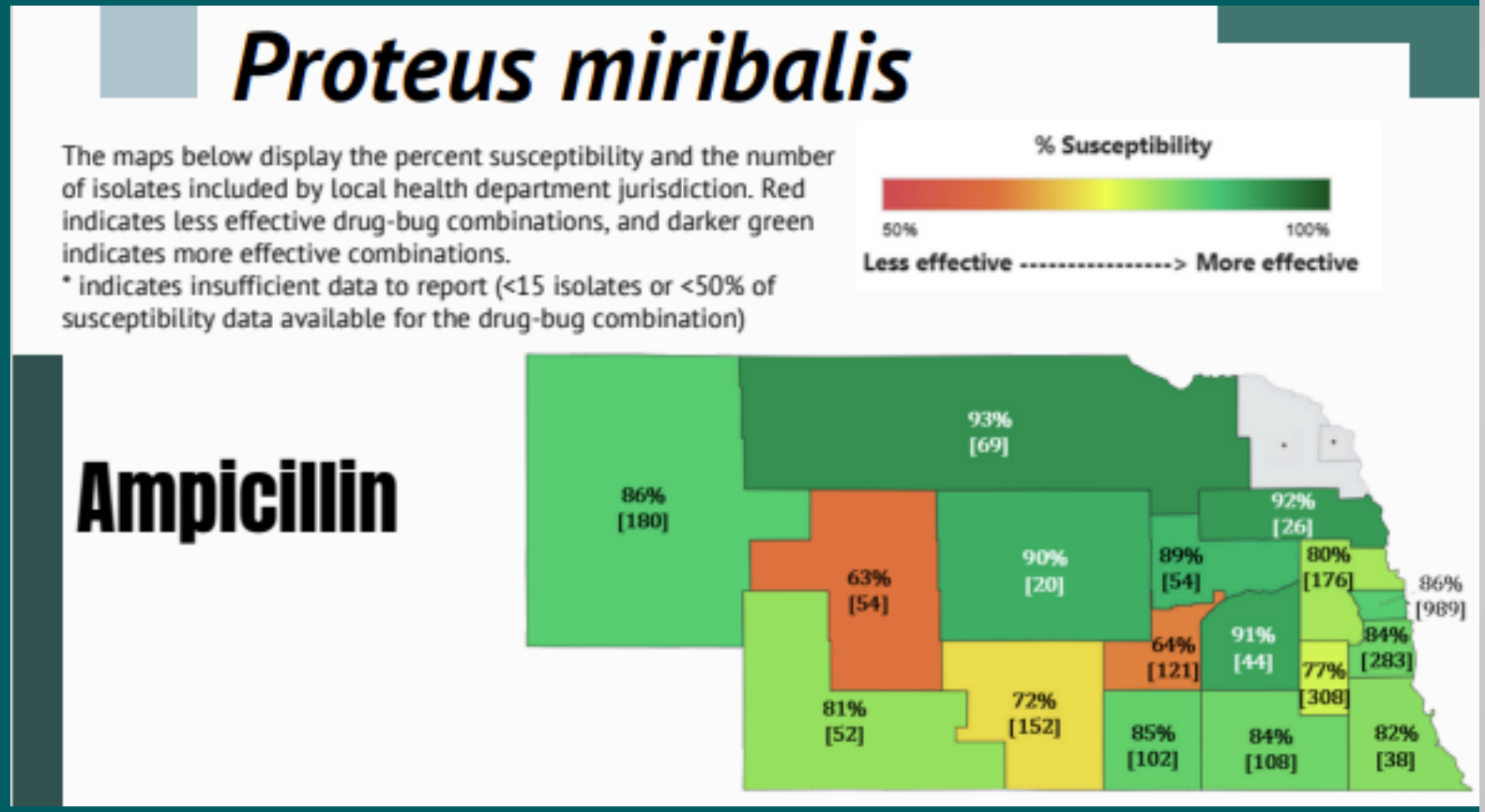
- Aggregated antibiogram data can serve as a sentinel for rising threats.
- Examples of emerging concerns that may be first spotted in antibiograms:
  - Increased prevalence of ESBL-producing *Enterobacterales*.
- Supports public health alerts, educational outreach, or facility assessments.

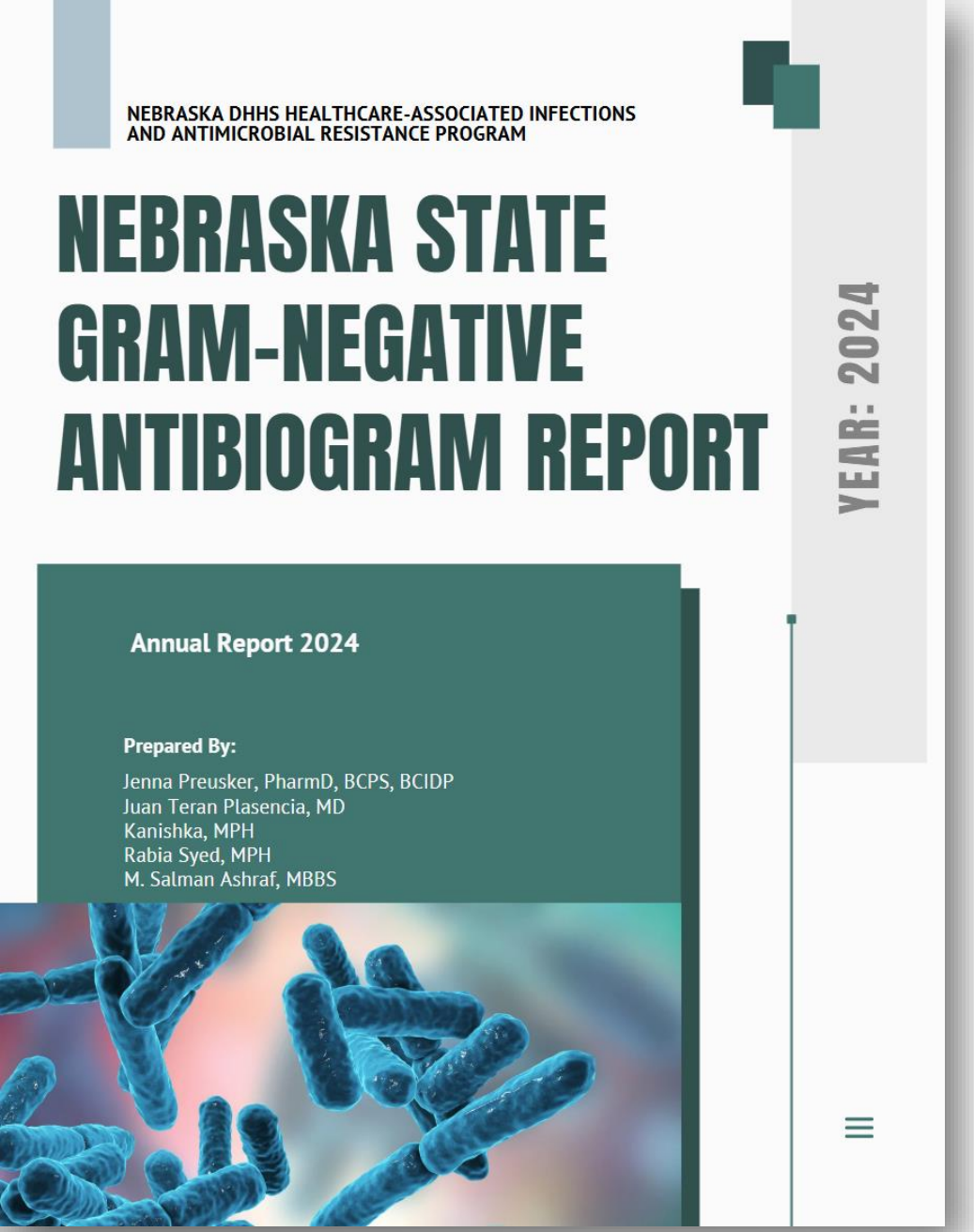


Data Source: Electronic Lab Reports Submitted to NEDSS

Compare susceptibility rates across regions

- Local health departments can benchmark their area's susceptibility rates against neighboring regions or the state average.
- Helps identify:
  - Geographic pockets of higher resistance
  - Regional differences in prescribing practices or infection control.
  - Supports targeted education, policy, or intervention strategies.



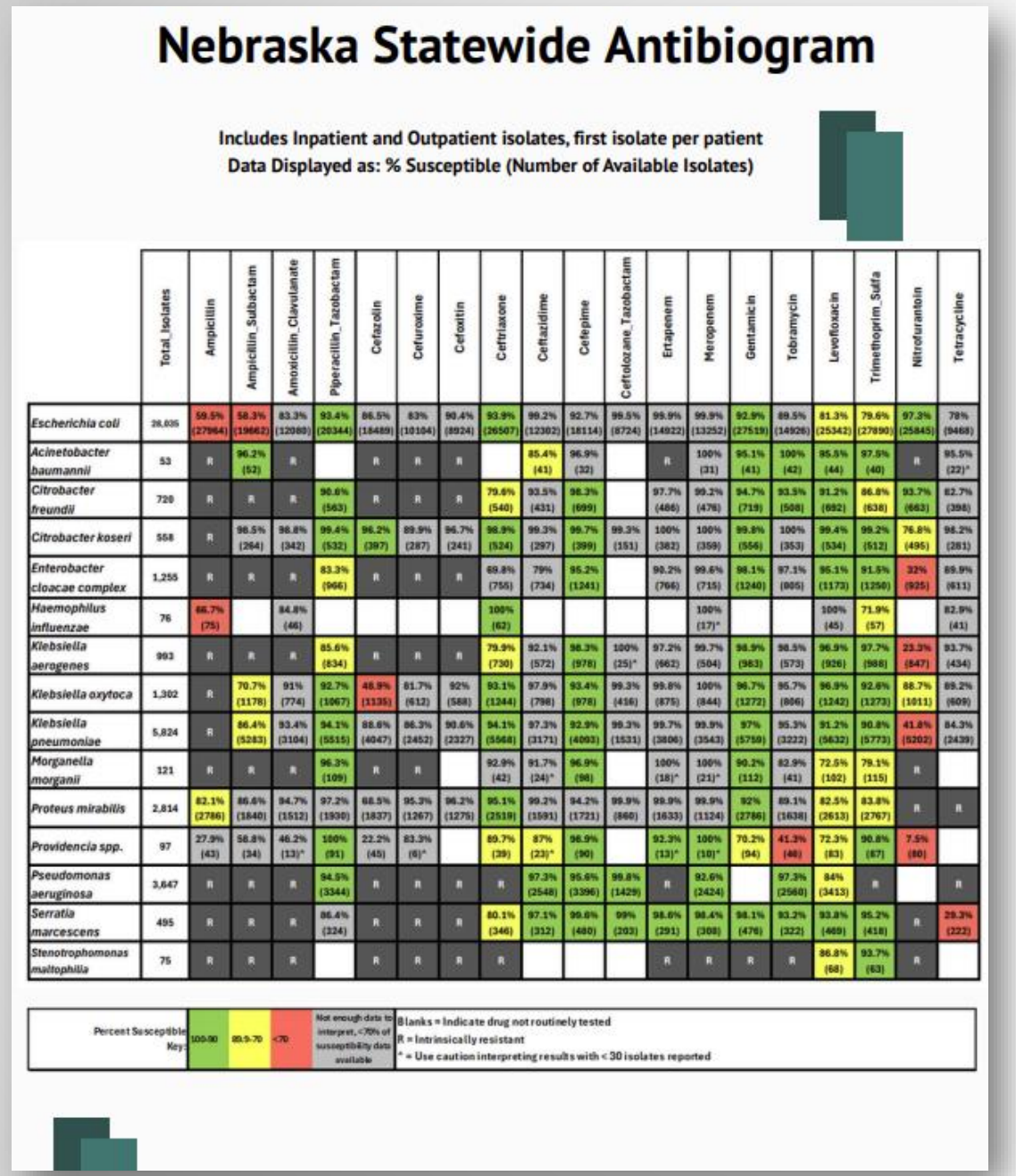


2024 Nebraska Gram-Negative Antibiogram Report

What's included in the report?

- ✓ Nebraska Statewide Gram-Negative Antibiogram
- ✓ Local Health Department Gram-Negative Antibiograms
- ✓ Antibiotic Susceptibility Heat Maps
- ✓ Trends in Gram-Negative Susceptibility in Nebraska
- ✓ **Note: this report is NOT intended to replace facility-specific antibiograms!!**

Website Link: 2024 Gram Negative Antibiograms Annual Report



Nebraska Statewide Antibiogram

Includes Inpatient and Outpatient isolates, first isolate per patient
Data Displayed as: % Susceptible (Number of Available Isolates)

	Total_Isolates	Ampicillin	Ampicillin_Subactam	Amoxicillin_Clavulanate	Piperacillin_Tazobactam	Cefazolin	Cefuroxime	Cefoxitin	Ceftriaxone	Ceftazidime	Cefepime	Ceftolozane_Tazobactam	Ertapenem	Meropenem	Gentamicin	Tobramycin	Levofloxacin	Trimethoprim_Sulfa	Nitrofurantoin	Tetracycline
Escherichia coli	28,638	59.5% (27964)	58.3% (19662)	83.3% (12080)	93.4% (20344)	86.5% (18489)	83% (10104)	90.4% (8924)	93.9% (26507)	99.2% (12302)	92.7% (18114)	99.5% (8724)	99.9% (14922)	99.9% (13252)	92.9% (27519)	89.5% (14926)	81.3% (25342)	79.6% (27890)	97.3% (25845)	78% (9468)
Acinetobacter baumannii	53	R	96.2% (52)	R		R	R	R		85.4% (41)	96.9% (32)		R	100% (31)	95.1% (41)	100% (42)	85.5% (44)	97.5% (40)	R	95.5% (22)^
Citrobacter freundii	720	R	R	R	90.6% (563)	R	R	R	79.6% (540)	93.5% (431)	98.3% (699)		97.7% (486)	99.2% (476)	94.7% (719)	93.5% (508)	91.2% (692)	86.8% (638)	93.7% (663)	82.7% (398)
Citrobacter koseri	558	R	98.5% (264)	98.8% (342)	99.4% (532)	96.2% (397)	89.9% (287)	96.7% (241)	98.9% (524)	99.3% (297)	99.7% (399)	99.3% (151)	100% (382)	100% (359)	99.8% (556)	100% (353)	99.4% (534)	99.2% (512)	76.8% (495)	98.2% (281)
Enterobacter cloacae complex	1,255	R	R	R	83.3% (966)	R	R	R	69.8% (755)	79% (734)	95.2% (1241)		90.2% (766)	99.6% (715)	98.1% (1240)	97.1% (805)	95.1% (1173)	91.5% (1250)	32% (925)	89.9% (611)
Haemophilus influenzae	76	66.7% (75)		84.8% (46)					100% (62)					100% (17)^			100% (45)	71.9% (57)		82.9% (41)
Klebsiella aerogenes	993	R	R	R	85.6% (834)	R	R	R	79.9% (730)	92.1% (572)	98.3% (978)	100% (25)^	97.2% (662)	99.7% (504)	98.9% (983)	98.5% (573)	96.9% (926)	97.7% (988)	23.3% (847)	93.7% (434)
Klebsiella oxytoca	1,302	R	70.7% (1178)	91% (774)	92.7% (1067)	46.9% (1135)	81.7% (612)	92% (588)	93.1% (1244)	97.9% (798)	93.4% (978)	99.3% (416)	99.8% (875)	100% (844)	96.7% (1272)	95.7% (806)	96.9% (1242)	92.6% (1273)	88.7% (1011)	89.2% (609)
Klebsiella pneumoniae	5,824	R	86.4% (5283)	93.4% (3104)	94.1% (5515)	88.6% (4047)	86.3% (2452)	90.6% (2327)	94.1% (5568)	97.3% (3171)	92.9% (4093)	99.3% (1531)	99.7% (3806)	99.9% (3543)	97% (5759)	95.3% (3222)	91.2% (5632)	90.8% (5773)	41.8% (5202)	84.3% (2439)
Morganella morganii	121	R	R	R	96.3% (109)	R	R		92.9% (42)	91.7% (24)^	96.9% (98)		100% (18)^	100% (21)^	90.2% (112)	82.9% (41)	72.5% (102)	79.1% (115)	R	
Proteus mirabilis	2,814	82.1% (2786)	86.6% (1840)	94.7% (1512)	97.2% (1930)	68.5% (1837)	95.3% (1267)	96.2% (1275)	95.1% (2519)	99.2% (1591)	94.2% (1721)	99.9% (860)	99.9% (1633)	99.9% (1124)	92% (2786)	89.1% (1638)	82.5% (2613)	83.8% (2767)	R	R
Providencia spp.	97	27.9% (43)	58.8% (34)	46.2% (13)^	100% (91)	22.2% (45)	83.3% (6)^		89.7% (39)	87% (23)^	96.9% (90)		92.3% (13)^	100% (10)^	70.2% (94)	41.3% (46)	72.3% (83)	90.8% (87)	7.5% (80)	
Pseudomonas aeruginosa	3,647	R	R	R	94.5% (3344)	R	R	R	R	97.3% (2548)	95.6% (3396)	99.8% (1429)	R	92.6% (2424)		97.3% (2560)	84% (3413)	R		R
Serratia marcescens	495	R	R	R	86.4% (324)	R	R	R	80.1% (346)	97.1% (312)	99.6% (480)	99% (203)	98.6% (291)	98.4% (308)	98.1% (476)	93.2% (322)	93.8% (469)	95.2% (418)	R	29.3% (223)
Stenotrophomonas maltophilia	75	R	R	R		R	R	R	R				R	R	R	R	86.8% (68)	93.7% (63)	R	

Percent Susceptible Key: 100-90 | 89.9-70 | <70 | Not enough data to interpret, <70% of susceptibility data available

Blanks = Indicate drug not routinely tested
R = Intrinsically resistant
^ = Use caution interpreting results with < 30 isolates reported

Nebraska Statewide Gram-Negative Antibiogram

- Blanks indicate drug-bug combination is not routinely tested
- R = Intrinsically resistant
- ^ = Use caution interpreting results, less than 30 isolates available

Percent susceptible key:

- Green = >90% susceptible
- Yellow = 70-89.9% susceptible
- Red = <70% susceptible
- Gray = Not enough data to interpret, <70% of susceptibility data available

Local Health Department Gram-Negative Antibiograms

Lincoln-Lancaster County Health Department

Includes Inpatient and Outpatient isolates, first isolate per patient
Data Displayed as: % Susceptible (Number of Available Isolates)

	Total_Isolates	Ampicillin	Ampicillin_Sulbactam	Amoxicillin_Clavulanate	Piperacillin_Tazobactam	Cefazolin	Cefuroxime	Ceftriaxone	Ceftazidime	Cefepime	Ceftolozane_Tazobactam	Ertapenem	Meropenem	Gentamicin	Tobramycin	Levofloxacin	Trimethoprim_Sulfa	Nitrofurantoin	Tetracycline
Citrobacter freundii	101	R	R	R	83.1% (59)	R	R	79.7% (64)	91.9% (37)	98.9% (88)		96.5% (57)	100% (53)	98% (100)	95.3% (43)	89% (100)	88% (100)	90.8% (98)	83.9% (31)
Citrobacter koseri	96	R	95% (20)^	95.7% (46)	97.9% (96)	92.7% (82)	92% (25)^	97.9% (96)	100% (40)	100% (84)	100% (19)^	100% (84)	100% (64)	100% (96)	100% (45)	97.9% (96)	97.9% (94)	83.9% (87)	100% (25)^
Enterobacter cloacae complex	163	R	R	R	88.5% (96)	R	R	64.4% (59)	77.2% (57)	96.3% (162)	R	95.8% (95)	100% (80)	99.4% (161)	98.6% (71)	94.3% (159)	90.7% (162)	32.8% (137)	93.6% (47)
Klebsiella aerogenes	192	R	R	R	82.5% (114)	R	R	81.2% (159)	94.2% (69)	98.4% (190)	100% (3)^	97.3% (148)	100% (46)	100% (191)	100% (69)	95.8% (192)	97.4% (192)	14.4% (173)	94.7% (38)
Morganella morganii	14	R	66.7% (3)^	100% (1)^	92.3% (13)^	30% (10)^		75% (4)^		91.7% (12)^		100% (4)^	100% (4)^	100% (12)^		85.7% (14)^	92.3% (13)^	R	R
Stenotrophomonas maltophilia	25	R	R	R		R	R	R				R	R	R	R	95.7% (23)^	100% (20)^	R	
Escherichia coli	5047	61.2% (5025)	65.2% (4231)	84.3% (1778)	95.3% (4313)	78.7% (3871)	79.6% (909)	95.7% (4993)	98.6% (1772)	95.7% (3957)	99.2% (924)	99.9% (3941)	99.9% (3000)	93.8% (5027)	90.2% (1866)	81.8% (5012)	81.3% (5003)	97.8% (4802)	78.7% (927)
Klebsiella oxytoca	172	R	73.1% (160)	91.5% (71)	90.1% (111)	38.1% (160)	76.7% (43)	92.1% (165)	97.3% (74)	92.2% (141)	100% (44)	100% (134)	100% (104)	95.3% (170)	92.1% (76)	95.8% (167)	92.1% (165)	88.7% (142)	90.9% (44)
Klebsiella pneumoniae	997	R	87.8% (948)	94.2% (313)	92.5% (976)	83.2% (754)	85.2% (149)	94.5% (985)	96.6% (320)	94.3% (784)	99.4% (166)	99.6% (780)	100% (601)	97.2% (992)	94.6% (333)	90.2% (994)	91.3% (989)	38.7% (915)	83.7% (153)
Proteus mirabilis	315	76.6% (308)	80.5% (190)	93.3% (120)	97.5% (202)	68.6% (191)	100% (87)	94.7% (300)	95.2% (126)	92.7% (191)	100% (92)	100% (192)	100% (147)	90.5% (315)	84.7% (131)	85.4% (309)	86.1% (303)	R	R
Pseudomonas aeruginosa	578	R	R	R	95.3% (529)	R	R	R	97.9% (433)	97% (537)	99.7% (378)	R	92.4% (459)		96.2% (448)	82.7% (560)	R		R
Serratia marcescens	55	R	R	R	91.9% (37)	R	R	78.9% (38)	96.6% (29)^	98% (51)	95% (20)^	100% (37)	93.8% (32)	95.9% (49)	93.5% (31)	88.7% (53)	85.7% (49)	R	47.1% (17)^

Percent Susceptible Key: 100-90 | 89.9-70 | <70 | Not enough data to interpret, <70% of susceptibility data available

Blanks = Indicate drug not routinely tested
R = Intrinsically resistant
^ = Use caution interpreting results with < 30 isolates reported

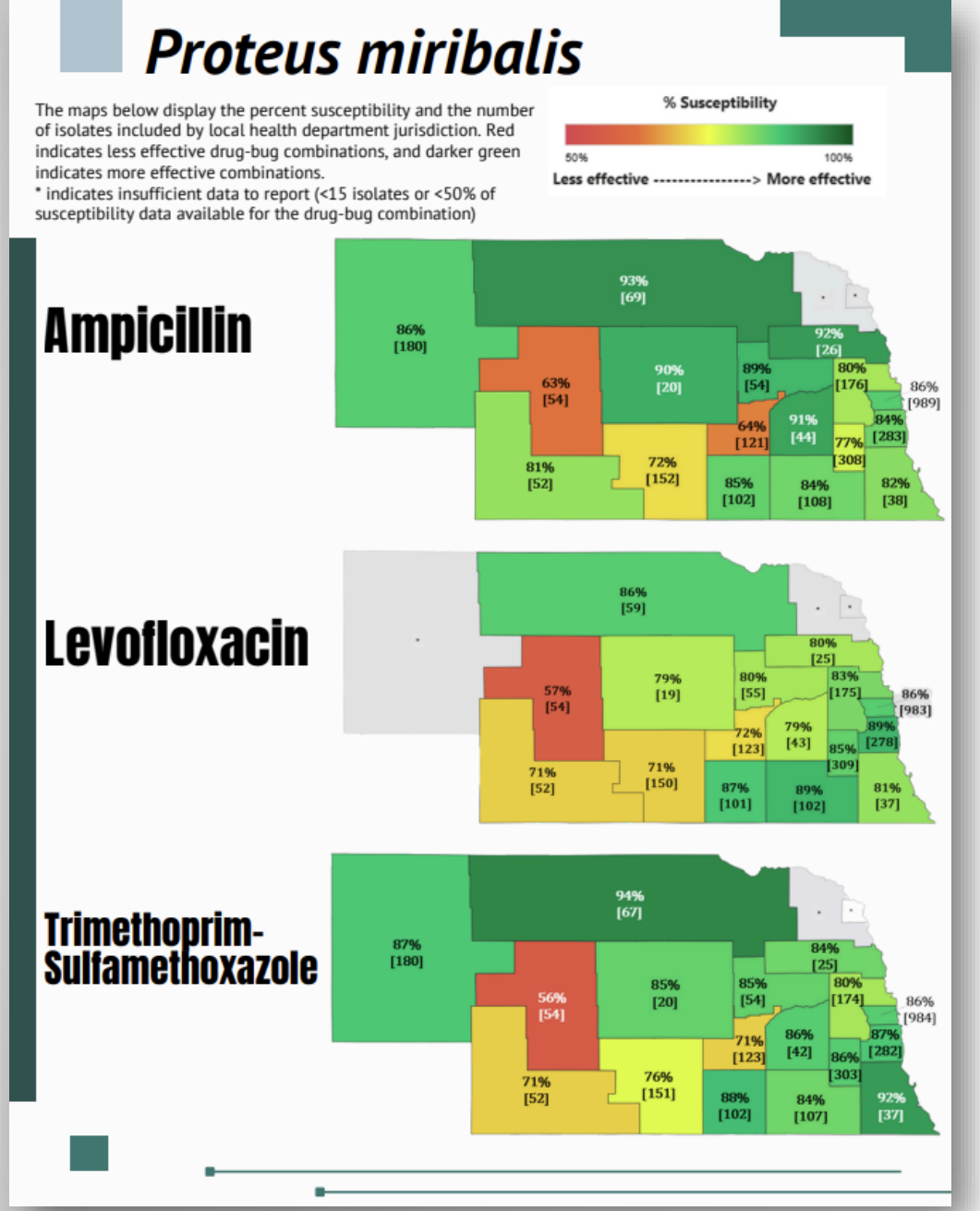
North Central District Health Department

Includes Inpatient and Outpatient isolates, first isolate per patient
Data Displayed as: % Susceptible (Number of Available Isolates)

	Total_Isolates	Ampicillin	Ampicillin_Sulbactam	Amoxicillin_Clavulanate	Piperacillin_Tazobactam	Cefazolin	Cefoxitin	Cefuroxime	Ceftriaxone	Ceftazidime	Cefepime	Ceftolozane_Tazobactam	Ertapenem	Meropenem	Gentamicin	Tobramycin	Levofloxacin	Trimethoprim_Sulfa	Nitrofurantoin	Tetracycline
Citrobacter freundii	23	R	R	R	94.1% (17)^	R	R	R	88.2% (17)^	93.8% (16)^	95.7% (23)^		94.1% (17)^	95.5% (22)^	100% (23)^	95% (20)^	90.9% (22)^	94.4% (18)^	95% (20)^	91.7% (12)^
Citrobacter koseri	10	R	100% (6)^	87.5% (8)^	100% (10)^	87.5% (8)^	100% (5)^	85.7% (7)^	88.9% (9)^	85.7% (7)^	100% (9)^	100% (5)^	100% (8)^	100% (9)^	100% (10)^	100% (8)^	100% (10)^	100% (9)^	90% (10)^	100% (7)^
Enterobacter cloacae complex	34	R	R	R	87% (23)^	R	R	R	82.4% (17)^	82.4% (17)^	90.6% (32)	R	88.2% (17)^	100% (16)^	100% (34)	100% (23)^	96.2% (26)^	94.1% (34)	94.8% (23)^	81.8% (11)^
Escherichia coli	598	64.2% (598)	70.4% (661)	85.4% (212)	96.3% (562)	85.3% (543)	91% (200)	83.6% (229)	95.9% (587)	98.7% (473)	95.8% (474)	100% (198)	100% (232)	100% (468)	91.9% (594)	91.8% (352)	85.6% (514)	84% (593)	98.6% (563)	79.6% (221)
Klebsiella aerogenes	26	R	R	R	83.3% (12)^	R	R	R	90% (10)^	100% (10)^	100% (25)^		100% (10)^	100% (10)^	100% (25)^	100% (15)^	100% (22)^	100% (26)^	31.6% (19)^	71.4% (7)^
Klebsiella oxytoca	39	R	66.7% (39)	89.5% (19)^	88.5% (26)^	32.4% (34)	91.7% (12)^	76.9% (13)^	92.3% (39)	97% (33)	94.3% (35)	91.7% (12)^	100% (20)^	100% (33)	94.9% (39)	100% (27)^	96.7% (30)	89.7% (39)	85.7% (28)^	100% (12)^
Klebsiella pneumoniae	156	R	98.7% (150)	93.4% (61)	98.7% (151)	92.1% (139)	100% (36)	97.6% (41)	96.7% (151)	97.5% (121)	96.9% (129)	100% (34)	100% (60)	100% (124)	97.4% (153)	94.5% (91)	94.8% (134)	92.1% (152)	54.3% (140)	94.9% (39)
Proteus mirabilis	69	92.8% (69)	95.4% (65)	87.5% (16)^	98.5% (65)	57.4% (61)	93.8% (16)^	87.5% (16)^	98.5% (65)	100% (52)	98.1% (52)	100% (14)^	100% (18)^	100% (49)	98.5% (68)	97.2% (36)	86.4% (59)	94% (67)	R	R
Pseudomonas aeruginosa	99	R	R	R	95.3% (86)	R	R	R	R	98.7% (77)	98.9% (73)	100% (25)^	R	95.5% (66)		93.2% (59)	77.6% (76)	R		R

Percent Susceptible Key: 100-90 | 89.9-70 | <70 | Not enough data to interpret, <70% of susceptibility data available

Blanks = Indicate drug not routinely tested
R = Intrinsically resistant
^ = Use caution interpreting results with < 30 isolates reported

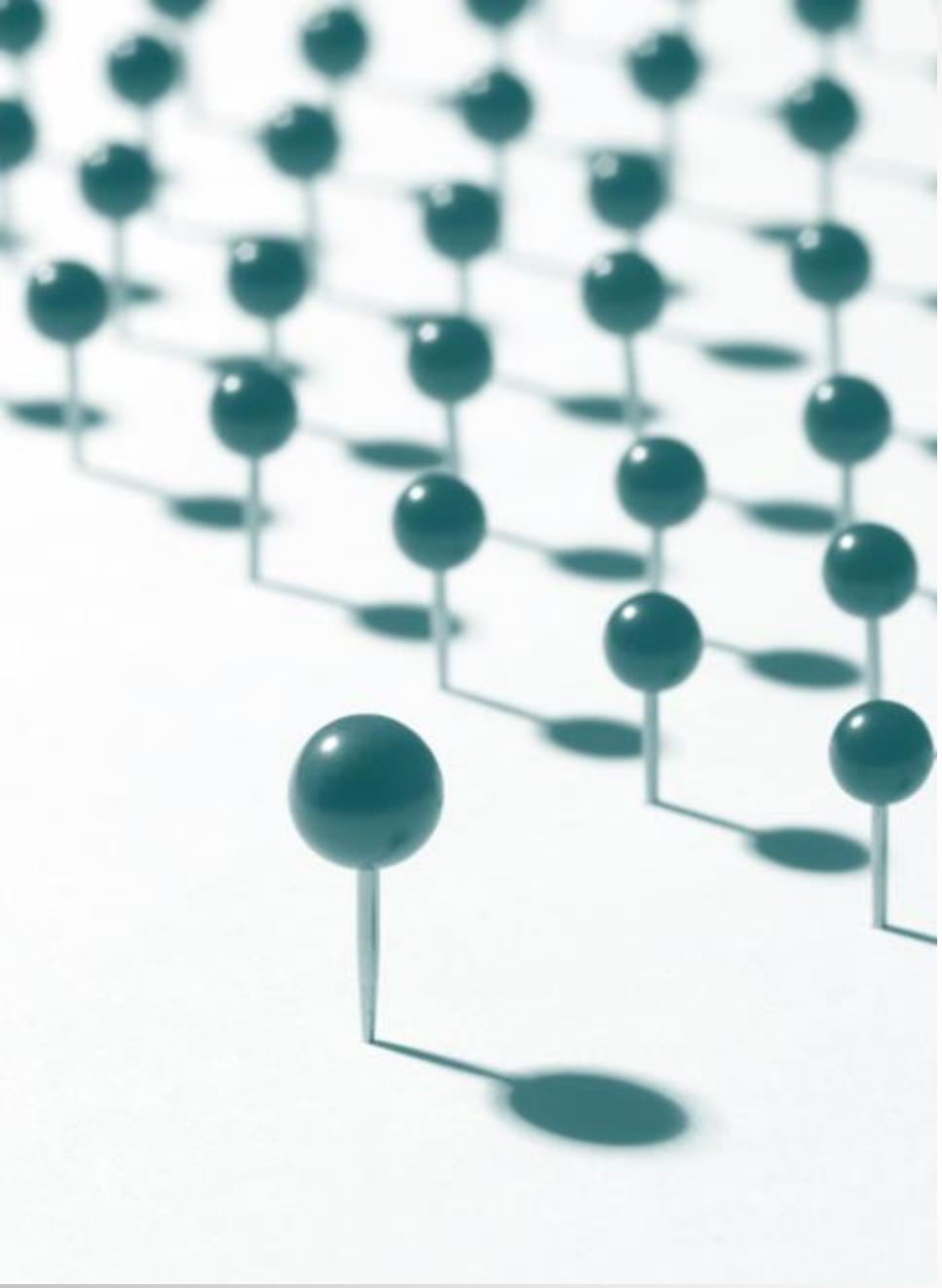


Antibiotic Susceptibility Heat Maps – Drug/Bug Combinations of Interest

Trends in Gram-Negative Susceptibility in Nebraska

Limitations of Statewide Antibiograms

- Lack of standardization across submitting facilities (different methods, organisms reported)
- Limited resolution—cannot drill down to facility-specific drivers
- Includes a combination of clinical settings (inpatient and outpatient isolates included)
- Not divided by culture type (urine vs respiratory, etc.)
- **Statewide or local health department antibiograms should NOT be a substitute for creating your own facility-specific antibiogram (if possible)**



In Conclusion:

Best Practices for Using Antibiograms

- Use antibiogram data in conjunction with other surveillance (e.g., NHSN, case reports, antibiotic use data)
- Track year-over-year trends to identify shifts in resistance and investigate significant changes
- Review facility antibiotic guidance (order sets) annually
- Collaborate with micro lab, pharmacy, and infection prevention to interpret and communicate findings

Questions & Answer Session

- Please use the Q&A box in the webinar platform to type a question to be read aloud.
  - If your question is not answered during the webinar, please call (402) 552-2881 Monday – Friday 8:00 am – 4:00 pm CST to speak with one of our Infection Preventionists or e-mail your question to nebraskaicap@nebraskamed.com

Slides & Webinar Recordings Available

- During this webinar, slides are available on the NE ICAP Acute Care webpage
  - After the webinar, slides and a recording will be posted on the NE ICAP Past Webinars and Slides webpage

Misc. Updates & Upcoming Educational Opportunities

Rebecca Martinez, BSN, BA, RN, CIC
Infection Preventionist, NE ICAP

NE ICAP

2 Newer Items Added to the NE ICAP / ASAP Learning Center

Learning Center

ICAP/ ASAP Education on Your Own Time

Designed for front-line HCP. Has quiz & certificate.

Courses

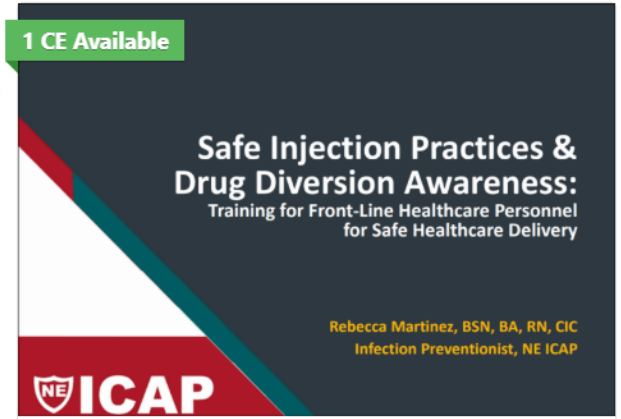
Thank you for exploring the courses Nebraska ICAP/ ASAP have to offer. All users must be registered to take a course with Nebraska ICAP/ ASAP.

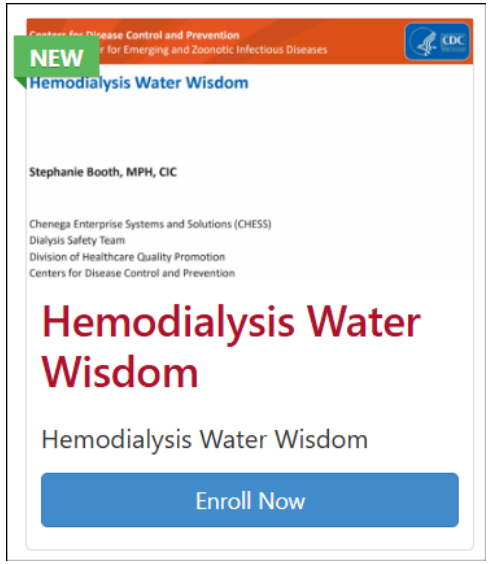
New users: Please click on the "Registration" tab at the top of the page to create an account.

Registered users: Login below or you will be asked to login when you select a course.

Login

https://icapasaplearning.nebraskamed.com/

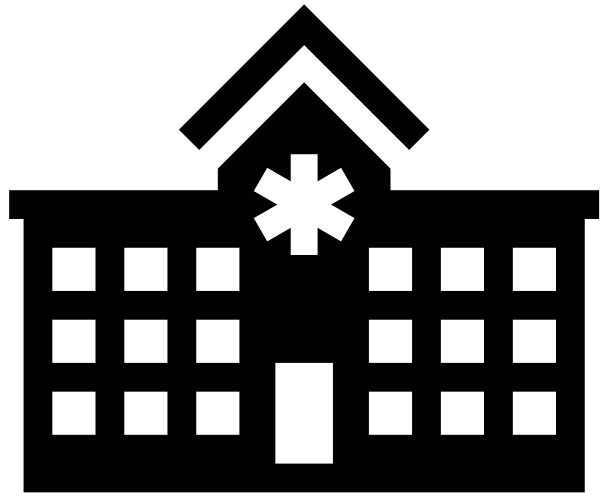




ICAP

Infection Control Assessment & Response (ICAR) Visits

- On-site infection control assessment and response visits are available. Can be general or focused including the following:
  - Surgical Site Infection (SSI) Prevention
  - Device Reprocessing
  - Water Management Program
  - **Antimicrobial Stewardship provided by NE ASAP**
  - Among other domains, it will be tailored to your facility



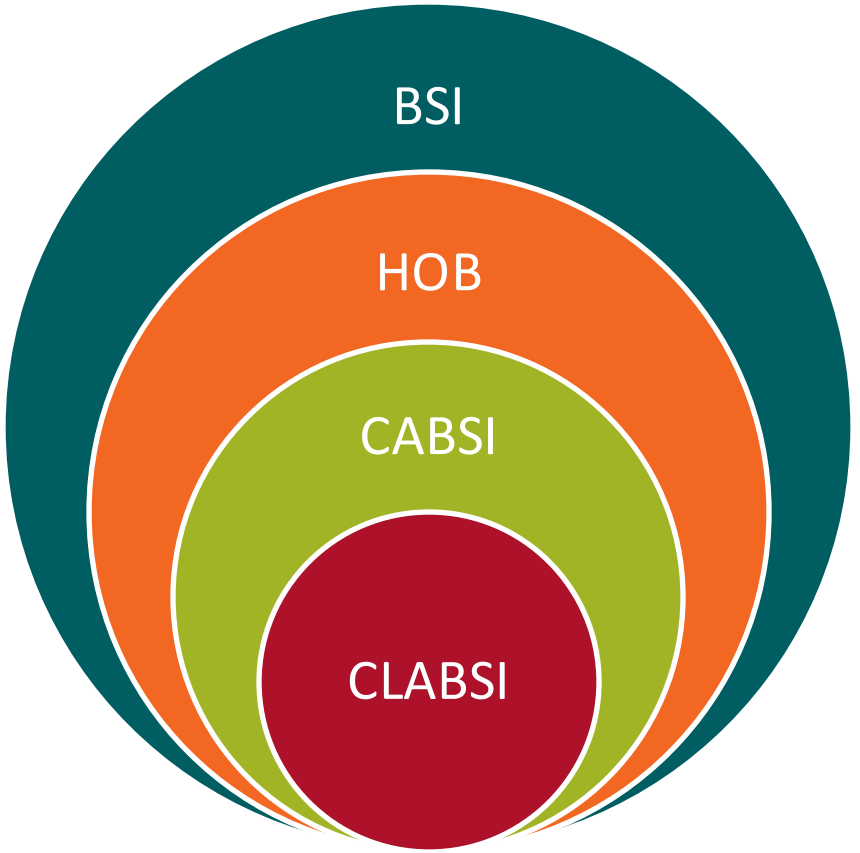
Join Us - Upcoming NE ICAP Webinars

- **November 12, 2025**
  - 12:00 – 1:00 PM (CST)
    - NHSN Hemovigilance Module
      - Presentation by Isabel Griffin, PhD, MPH; CDC Epidemiologist
    - Hospital Onset Bacteremia (HOB) Prevention: Key IPC Reminders
      - Rebecca Martinez, BSN, BA, RN, CIC

- **December 10, 2025**
  - 12:00 – 1:00 PM (CST)
    - To Be Determined (TBD)

Advancing Hemovigilance to Identify Transfusion-Transmitted Infections

Transfusion-transmitted infections (TTIs) can be severe and result in death. CDC is updating its National Healthcare Safety Network (NHSN) hemovigilance module in early 2026 to quickly and systematically identify emerging pathogens that can be transmitted through blood transfusions.



ICAP Contact Information

Call 402-552-2881

Business Hours are Monday – Friday
8:00 AM - 4:00 PM Central Time

Scan the QR Code to be taken to our NE ICAP Contact Form.
You can request to be connected to an Infection Preventionist that specializes in your area, get added to our setting specific communication list for webinar and training invites, sign up for newsletters and reminders, or request an ICAR review for your facility.

NEBRASKA
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DEPT. OF HEALTH AND HUMAN SERVICES

Webinar CE Process

- **1 Nursing Contact Hour is awarded by Nebraska ICAP**
  - Nebraska Infection Control Assessment and Promotion Program is approved as a provider of nursing continuing professional development by the VTL Center for Professional Development, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

- **CNE Nursing Contact Hours:**
  - Completion of survey is required.
  - The survey must be specific to the individual obtaining credit; (i.e., 2 people cannot be listed on the same survey).
  - Survey functionality is lost on mobile devices.
  - One certificate is issued quarterly for all webinars attended.
  - Certificate comes directly from ICAP via email.