

# Hospital & Outpatient Settings Webinar Series

NEBRASKA

Good Life. Great Mission.

DEPT. OF HEALTH AND HUMAN SERVICES

March 11, 2026



NEBRASKA INFECTION CONTROL ASSESSMENT AND PROMOTION PROGRAM

# Presenters & Panelists

## Presenters today: *(in order)*

Juan Teran Plasencia, MD

Jillian Mack, PharmD

Jenna Preusker, PharmD, BCPS, BCIDP

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## Panelists today:

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# 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.

# Questions & Answer Session

- Please use the Q&A box in the webinar platform to type your question so it can be read aloud.
- If your question is not answered during the webinar or you need one-on-one assistance, please call (402) 552-2881 Monday – Friday, 8:00 am – 4:00 pm CST, to speak with an Infection Preventionist.
- You can also email your question to [nebraskaicap@nebraskamed.com](mailto:nebraskaicap@nebraskamed.com)

## Slides & Webinar Recordings

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# Nebraska Pathogen Watch

Juan Teran, MD

Medical Director, NE ICAP

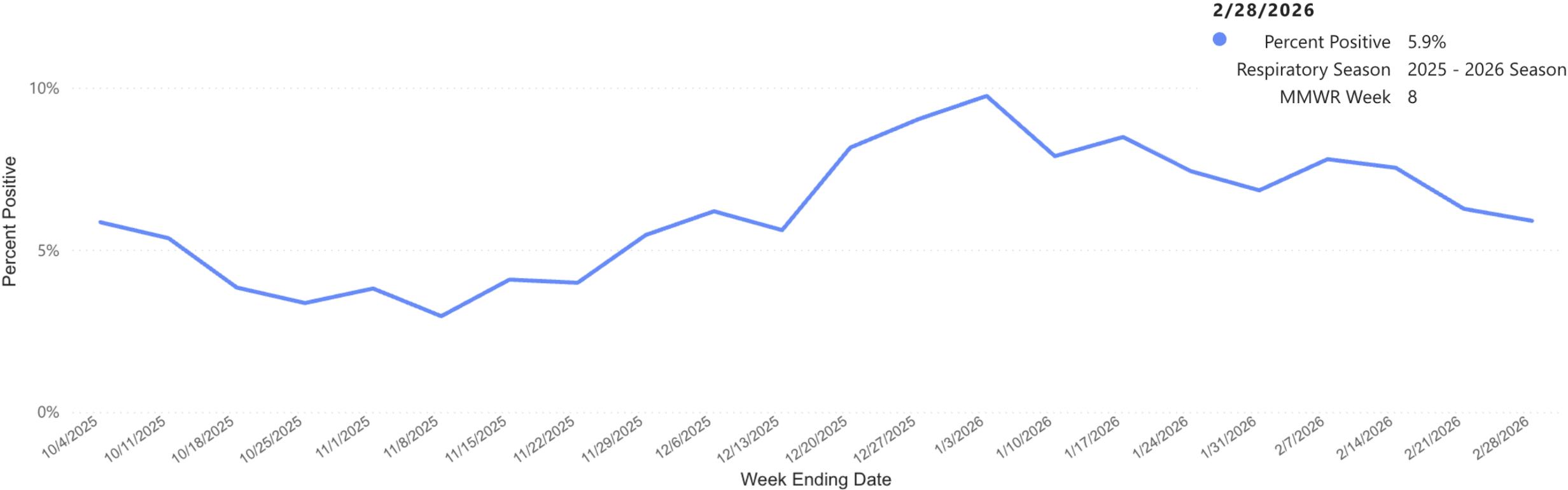


NEBRASKA INFECTION CONTROL ASSESSMENT AND PROMOTION PROGRAM

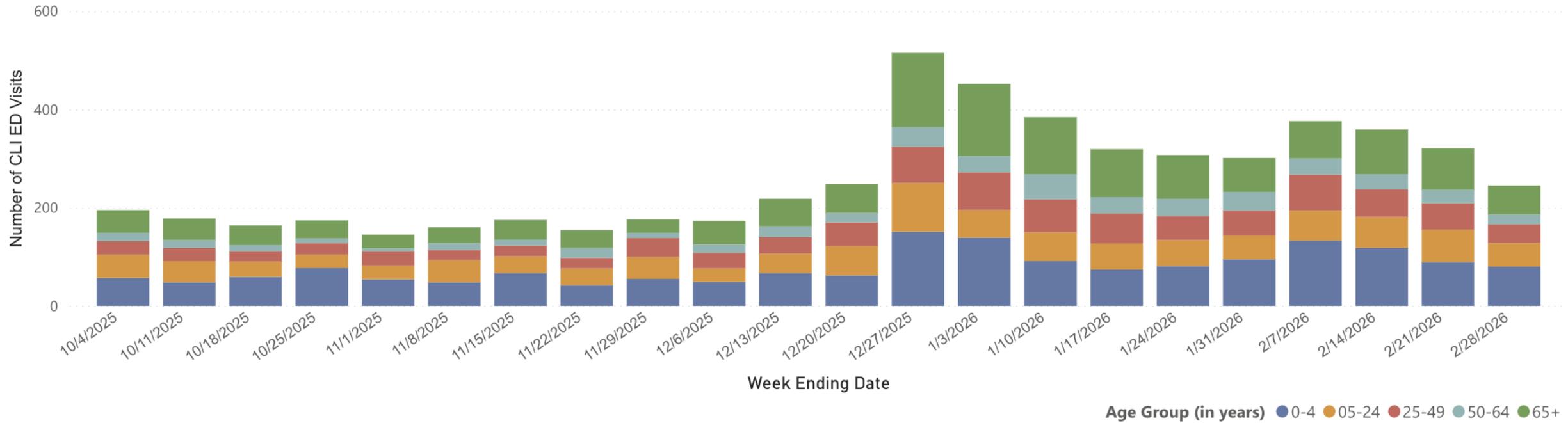
# Key Points

- COVID-19 activity continues to decline
- Flu A activity is low, while Flu B is increasing
- RSV activity is high

# COVID-19 NE DHHS Report

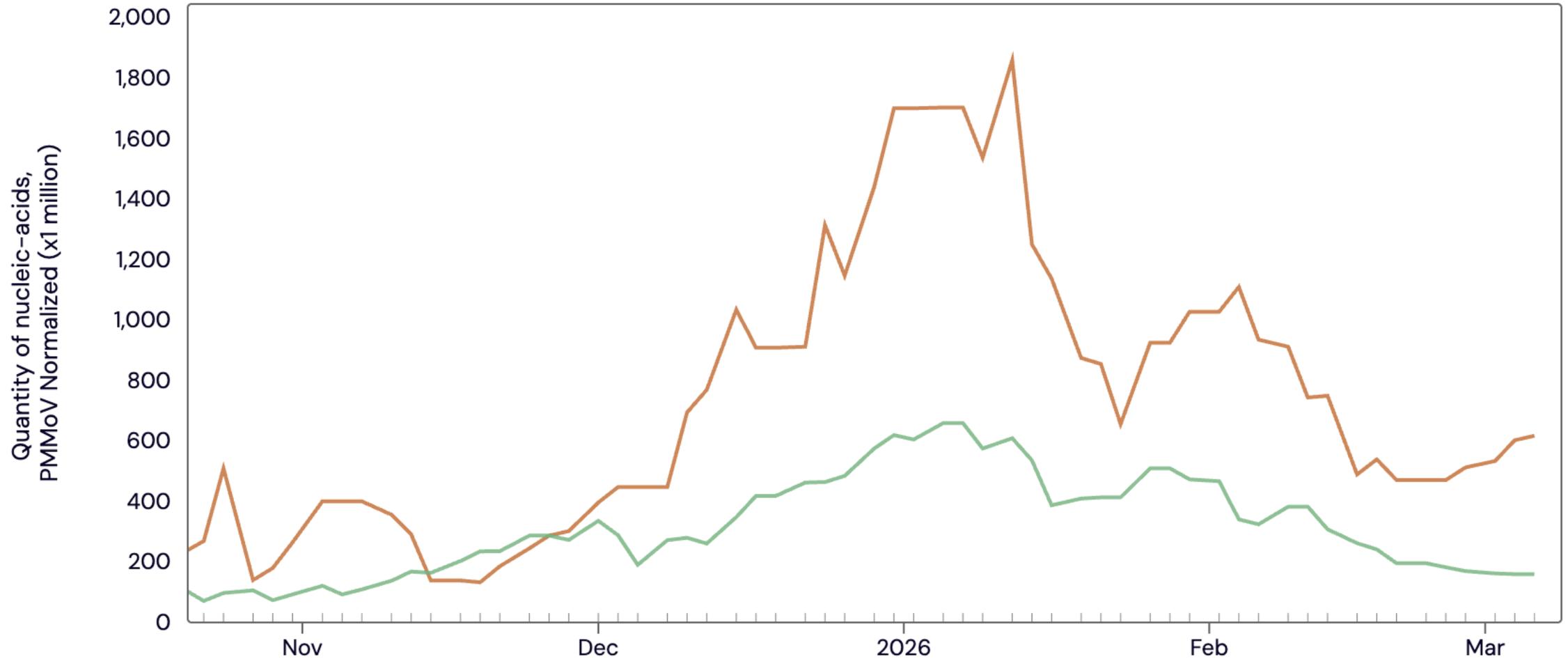


# COVID-19 NE DHHS Report





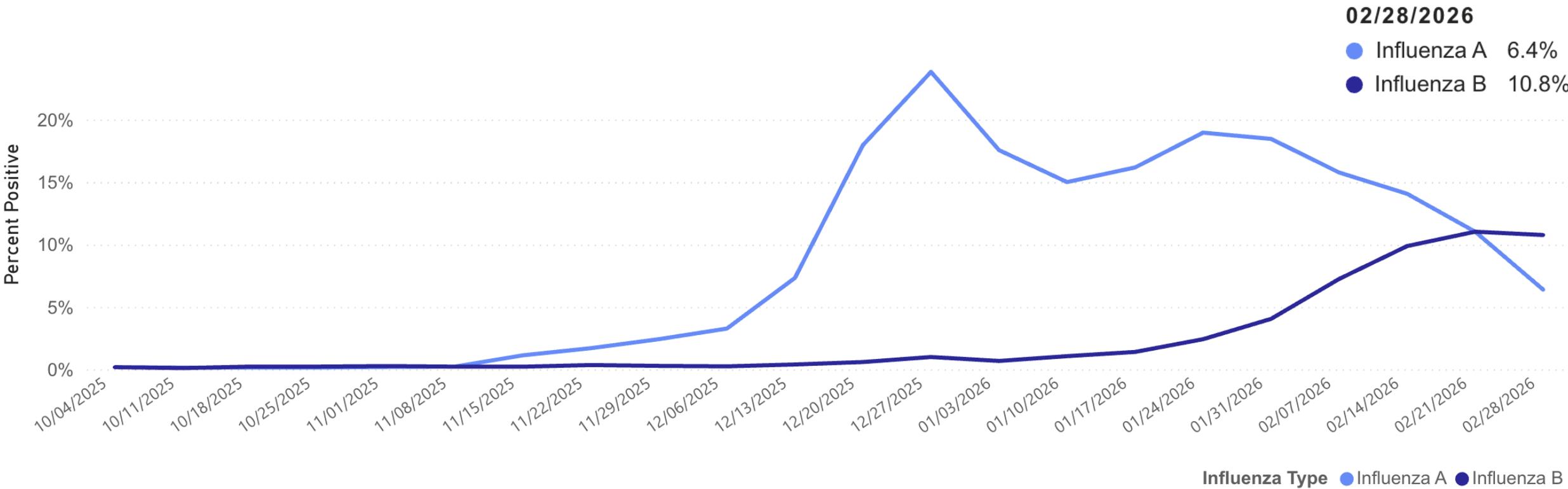
# COVID-19 Wastewater Data



## Nebraska

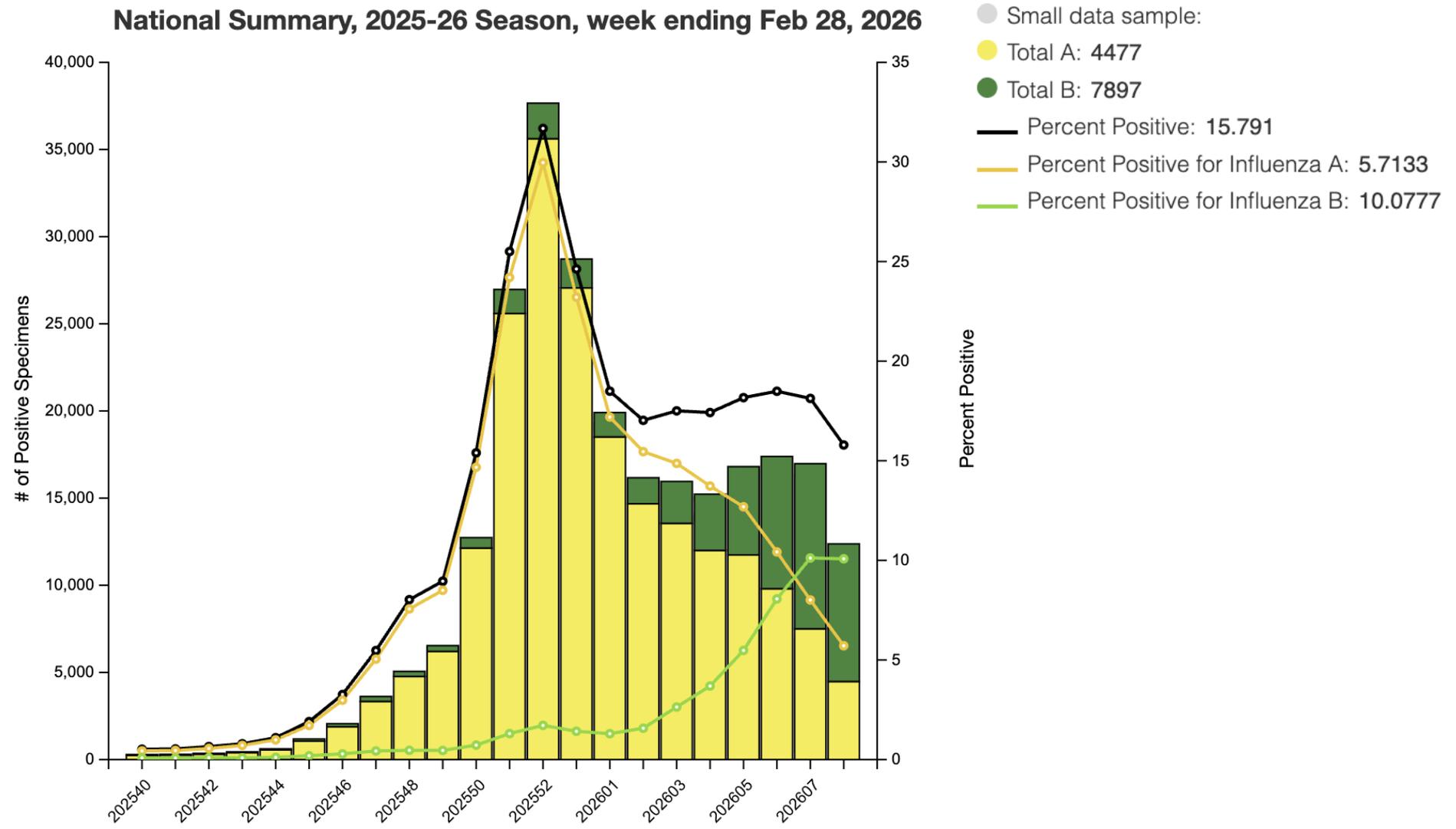
- Northeast, Lincoln, NE (Northeast Water Resource Recovery Facility)
- Theresa Street, Lincoln, NE (Theresa Street Water Resource Recovery Facility)

# Influenza Percent Positive



# Influenza Cases and Percent Positive

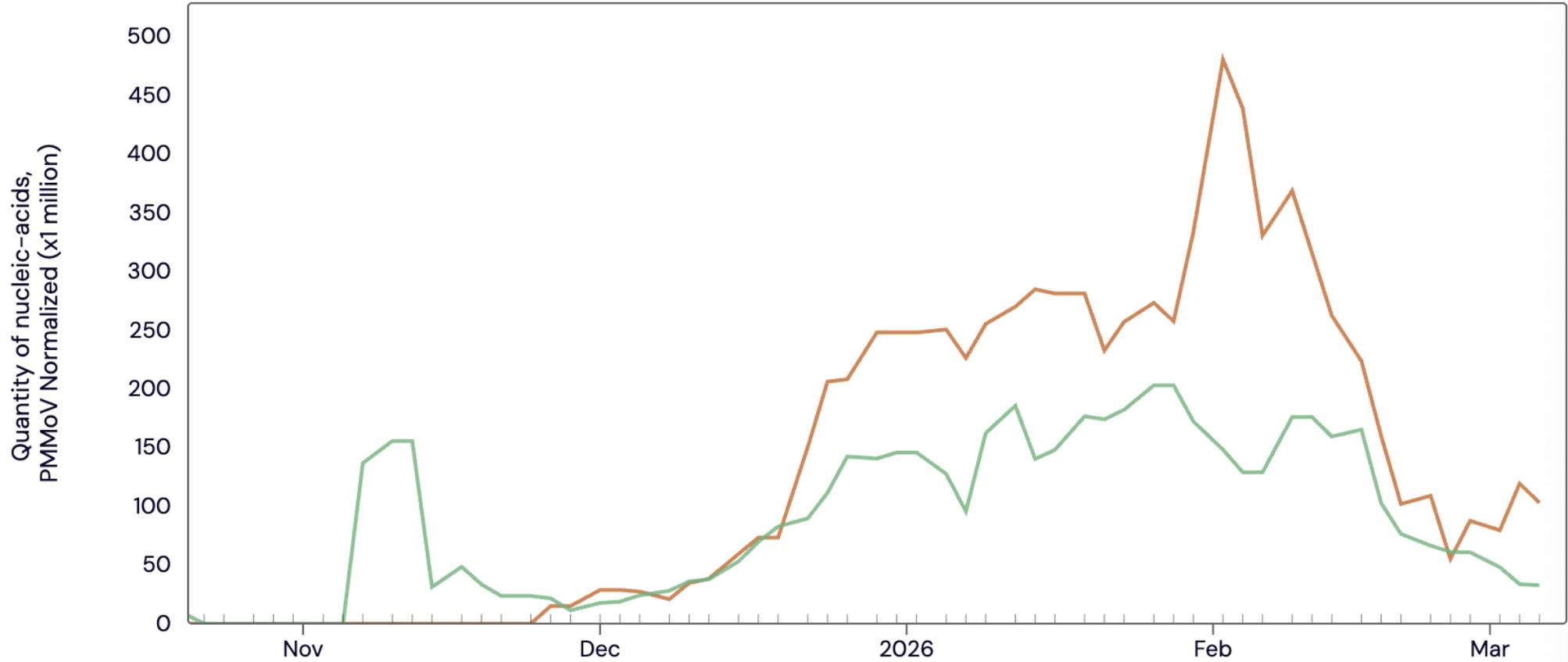
Influenza Positive Tests Reported to CDC by Clinical Laboratories,  
National Summary, 2025-26 Season, week ending Feb 28, 2026



Check All
  Percent Positive
  Percent Positive for Influenza A
  Percent Positive for Influenza B
  Total A
  Total B

# Influenza Wastewater Data

## Influenza A, Nebraska

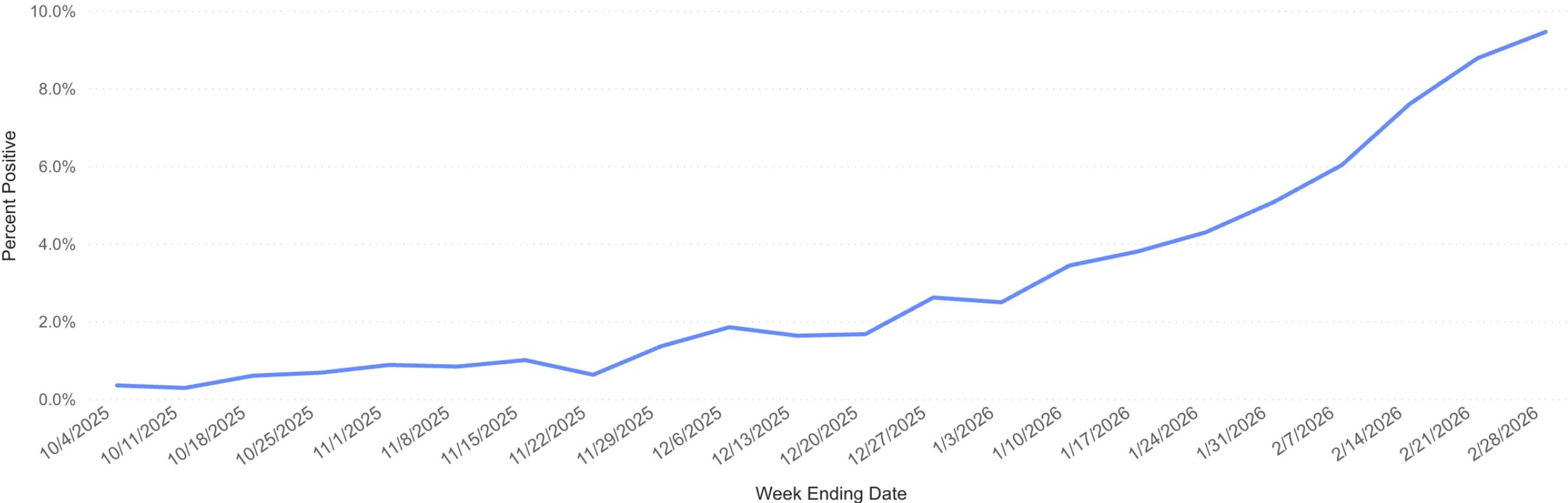


### Nebraska

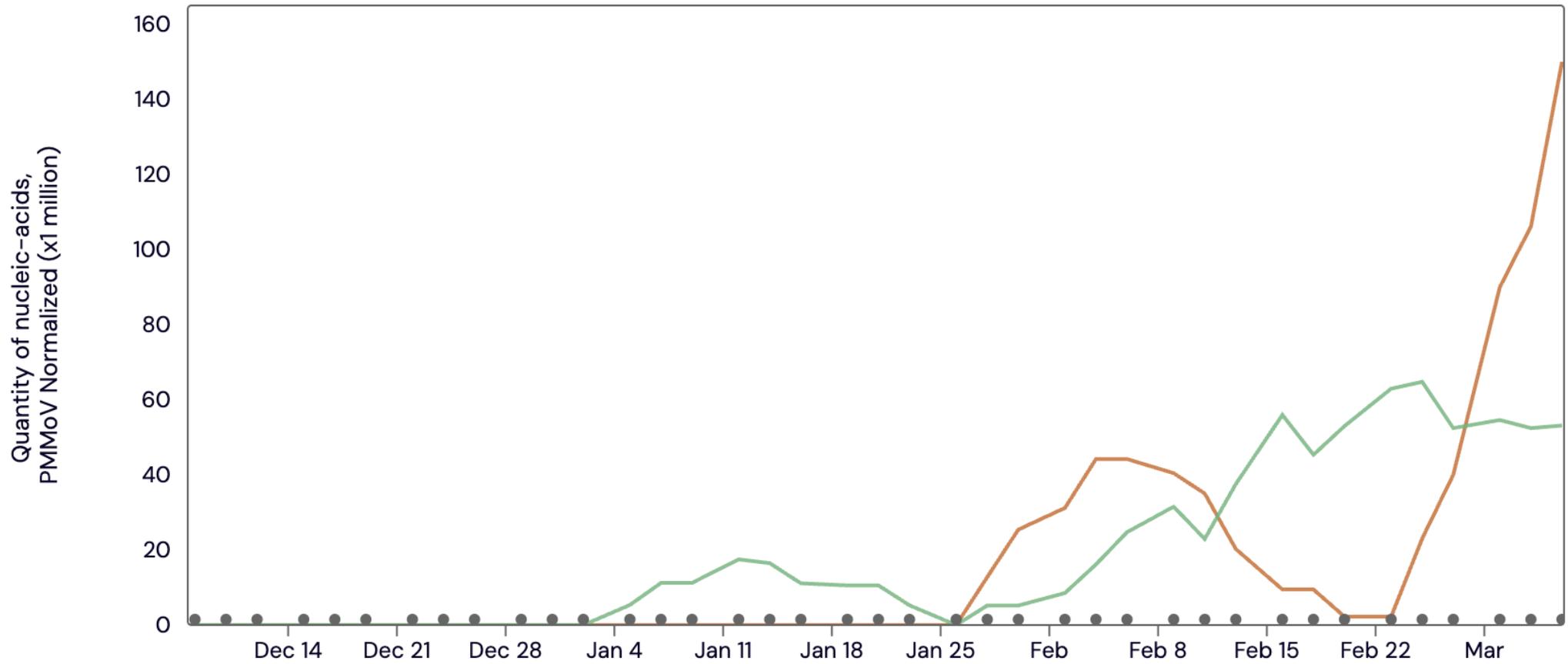
- Northeast, Lincoln, NE (Northeast Water Resource Recovery Facility)
- Theresa Street, Lincoln, NE (Theresa Street Water Resource Recovery Facility)

# RSV Percent Positive

Respiratory Season	Week Ending Date	MMWR Week	Percent Positive
2025-26	2/28/2026	8	9.5%



# RSV Wastewater Data



## Nebraska

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

# Poll Question

**How involved have you been with  
the Pharmacy clean room at your facility?**

# Inside the Cleanroom: A Guide for Infection Preventionists

**Jillian Mack, PharmD**  
**PGY2 Infectious Diseases Pharmacy Resident**  
**Nebraska Medicine**

**March 11th, 2026**



# **Inside the Cleanroom: A Guide for Infection Preventionists**

**Jillian Mack, PharmD  
PGY2 Infectious Diseases Pharmacy Resident  
Nebraska Medicine**

**March 11th, 2026**



# Disclosures

I have no financial relationship with any pharmaceutical companies, biomedical device manufacturers or distributors, or others whose products or services may be considered related to the content of my presentation.

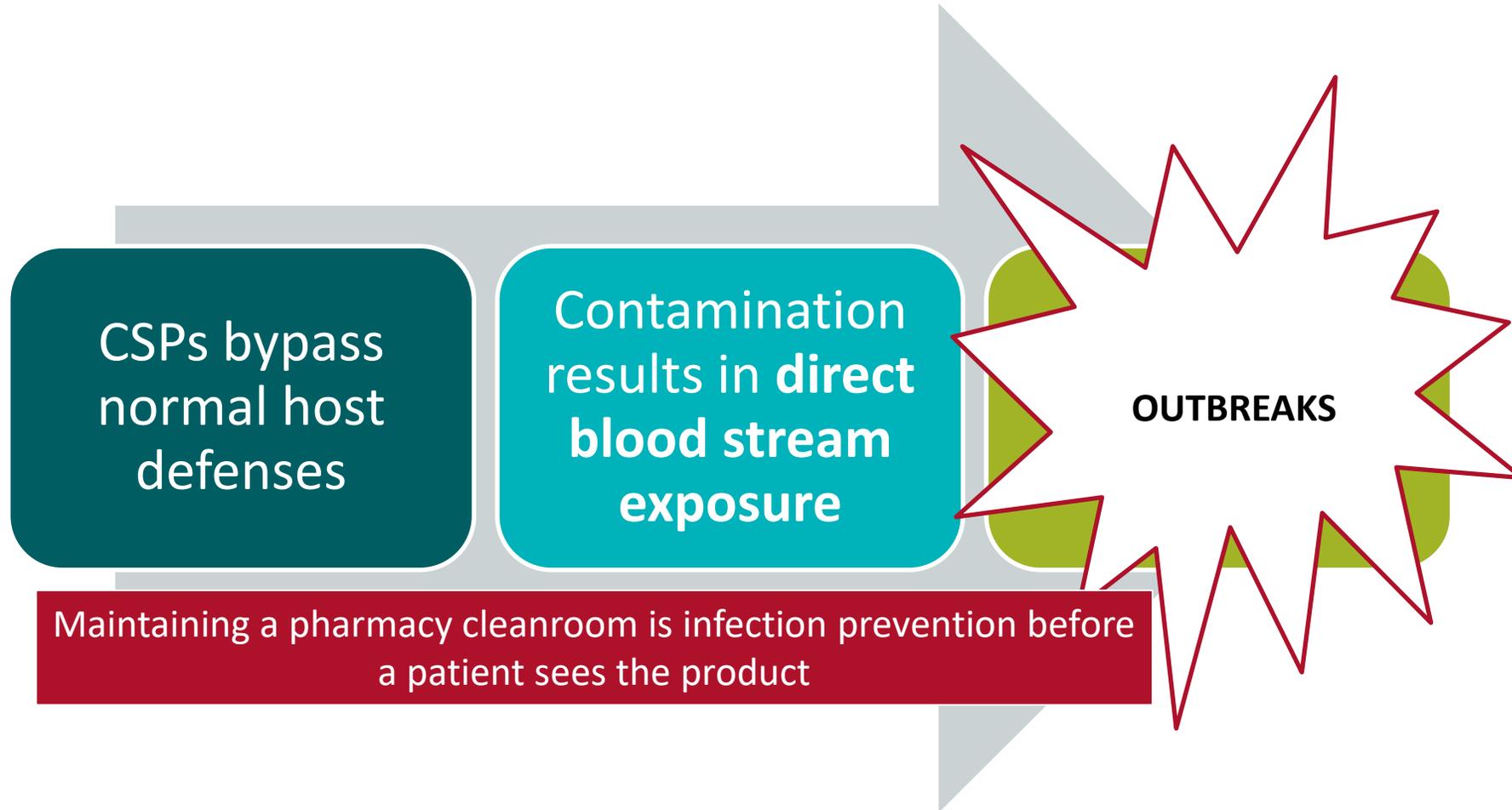


# Objectives

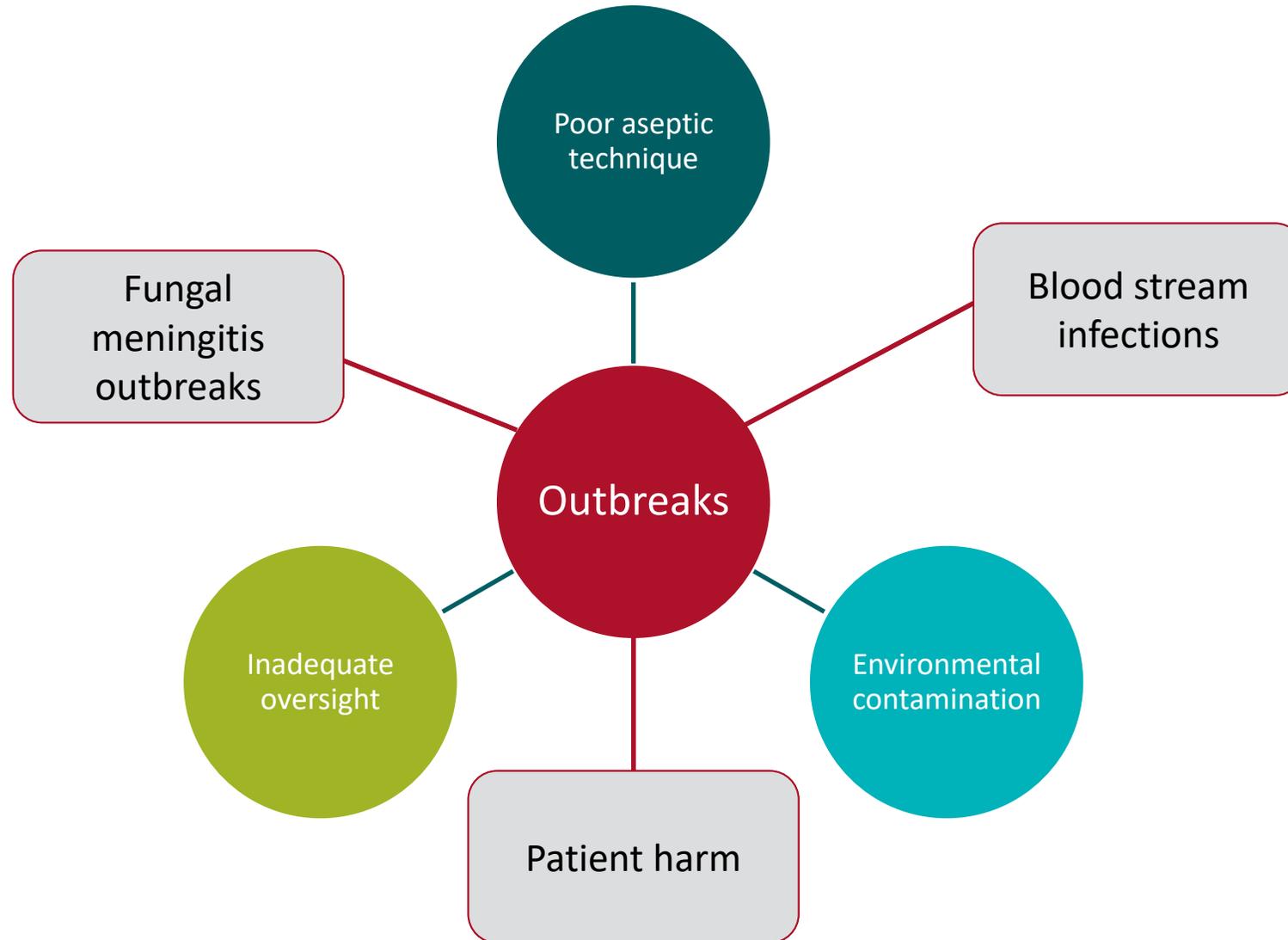
- Describe how pharmacy cleanrooms reduce infection risk
- Identify key USP <797> requirements that overlap with IP responsibilities
- Recognize red flags that increase contamination risk
- Partner effectively with pharmacy during investigations and mitigation



# Why cleanrooms matter



# Perfect Storm



# Cleanroom Basics



# Terminology

Abbreviation	Definition	Example
PEC (Primary Engineering Control)	Produces ISO class 5 environment through unidirectional airflow and HEPA filtration <b>Commonly referred to as “the hood”</b>	-Laminar airflow workbench -Biologic safety cabinet
SEC (Secondary Engineering Control)	Area where the PEC is placed, designed to minimize risk of contamination	-Buffer room
SCA (Segregated Compounding Area)	Designated space area or room where compounding is performed, and is not required to be ISO classified	-“Glove box” in pharmacy -Medication prep area outside of pharmacy



# Cleanroom Standards

## ISO classification

- Indication of how clean the air is
- Ranges from class 1 (most clean) to class 9 (least clean)

## Most common classifications for pharmacy cleanrooms

- ISO class 8: Ante-room
- ISO class 7: Buffer-room
- ISO class 5: Primary Engineering Controls (PECs)



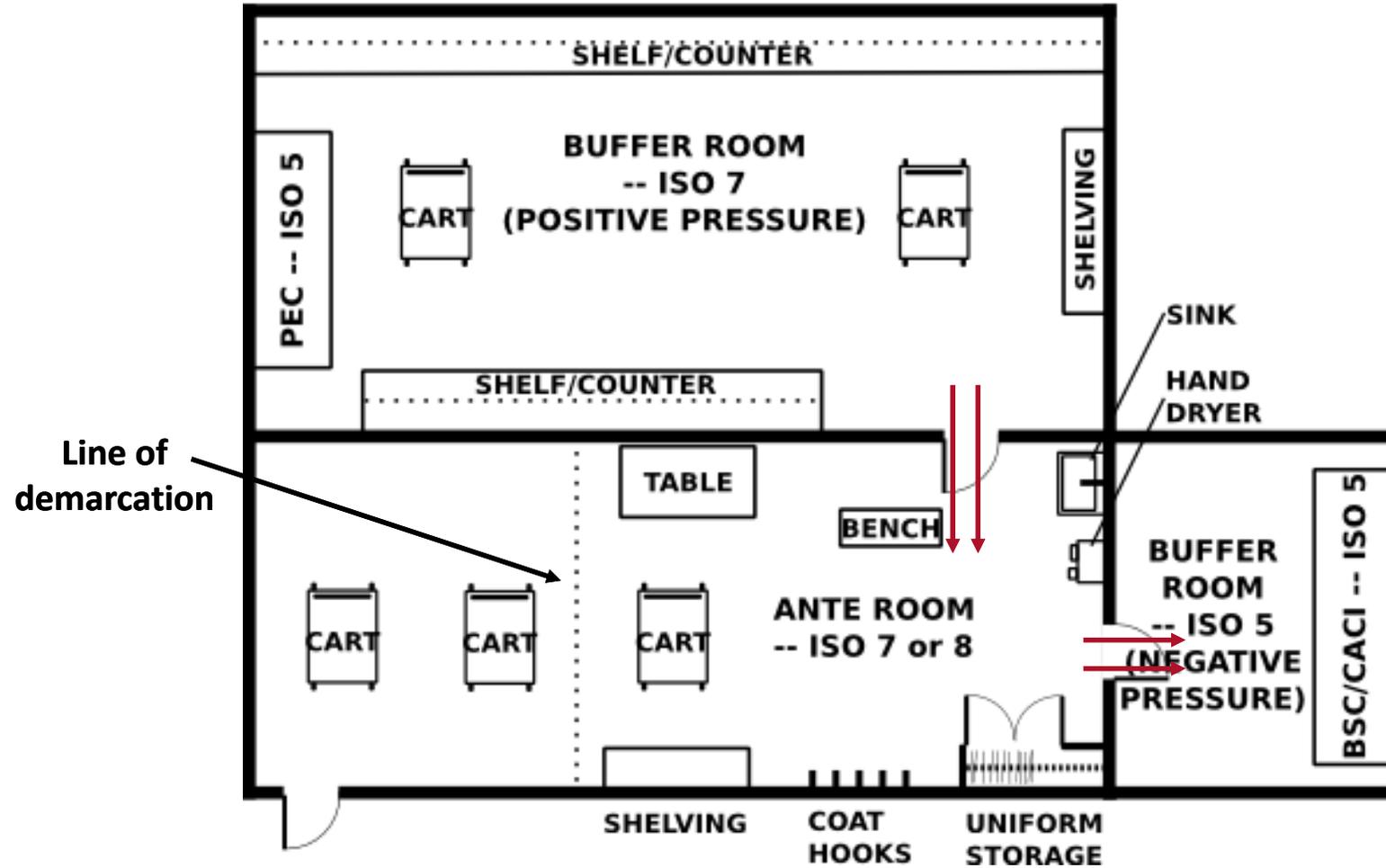
# Airflow is important for infection control

Unidirectional airflow must be maintained in PEC

Goal = blow human germs away from compounded sterile product



## EXAMPLE OF CLEAN ROOM FLOOR PLAN SUITABLE FOR HIGH-RISK LEVEL CSPs AND HAZARDOUS DRUGS



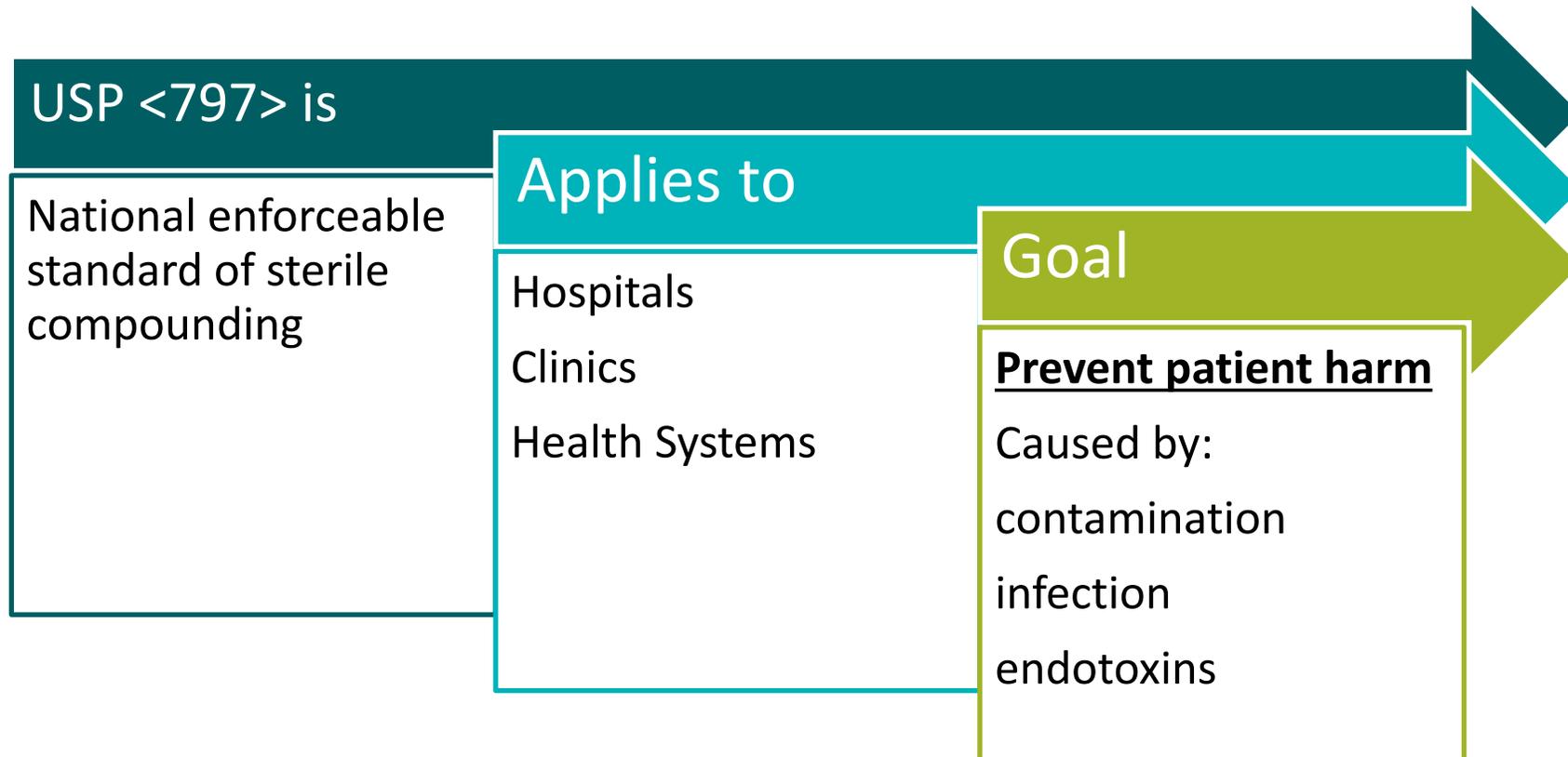
# Pharmacy cleanroom in action



USP <797>



# What is USP <797>?



# Provides guidance on:

Facility  
design

Maintenance

Personnel  
competency

Cleaning and  
disinfection

Beyond-use  
dating



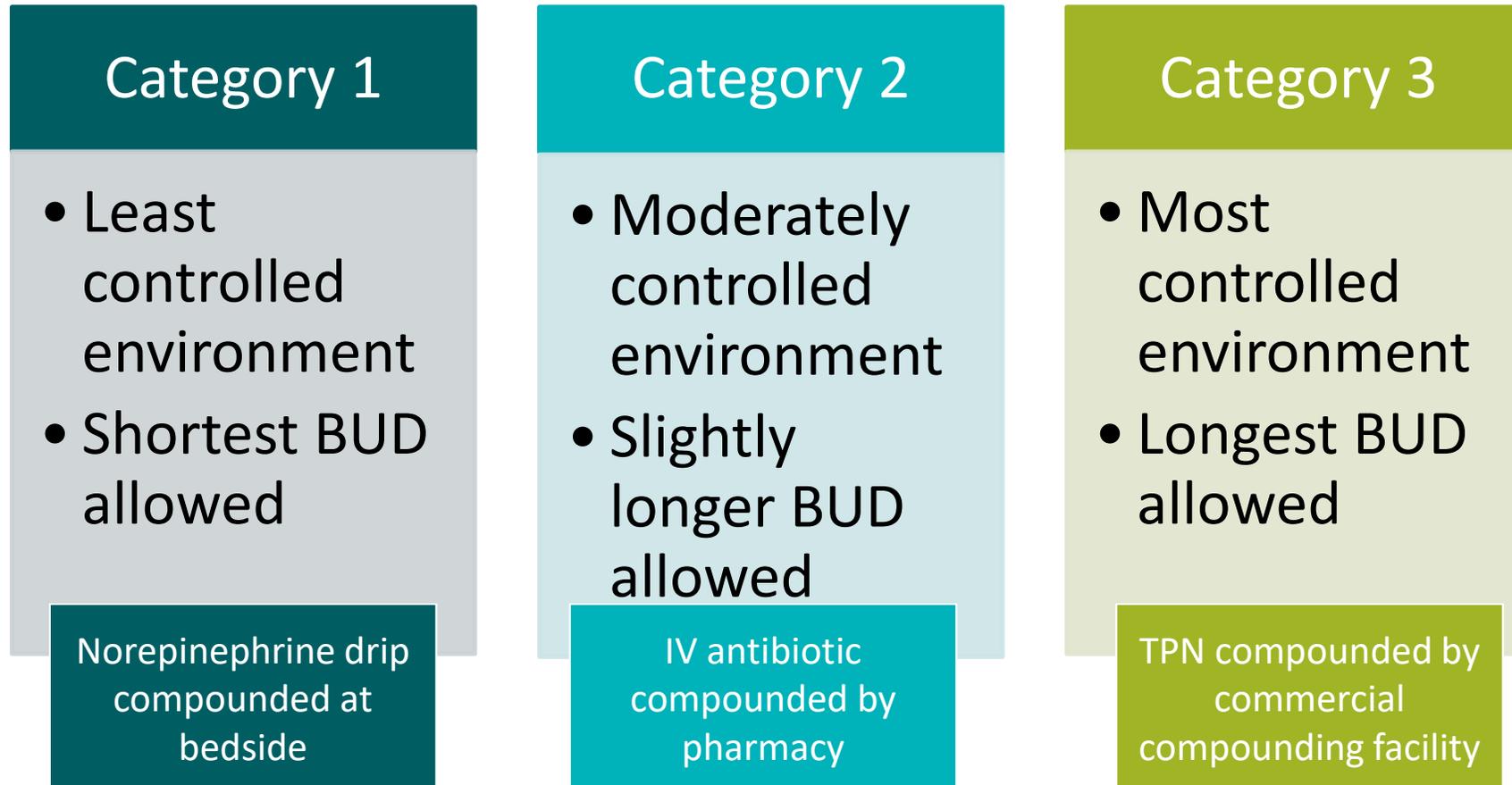
# Beyond-use Date (BUD)

Beyond-use Date (BUD)	Expiration Date
Date and time after which a compounded sterile product (CSP) must no longer be used	Time during which a product can be expected to maintain the expected quality if kept under specified storage conditions
Applies to all CSPs	Applies to all commercially manufactured products
Determined by the conditions in which the product is compounded	Determined by the manufacturer

BUD = beyond use date, CSP = compounded sterile product



# Types of CSPs



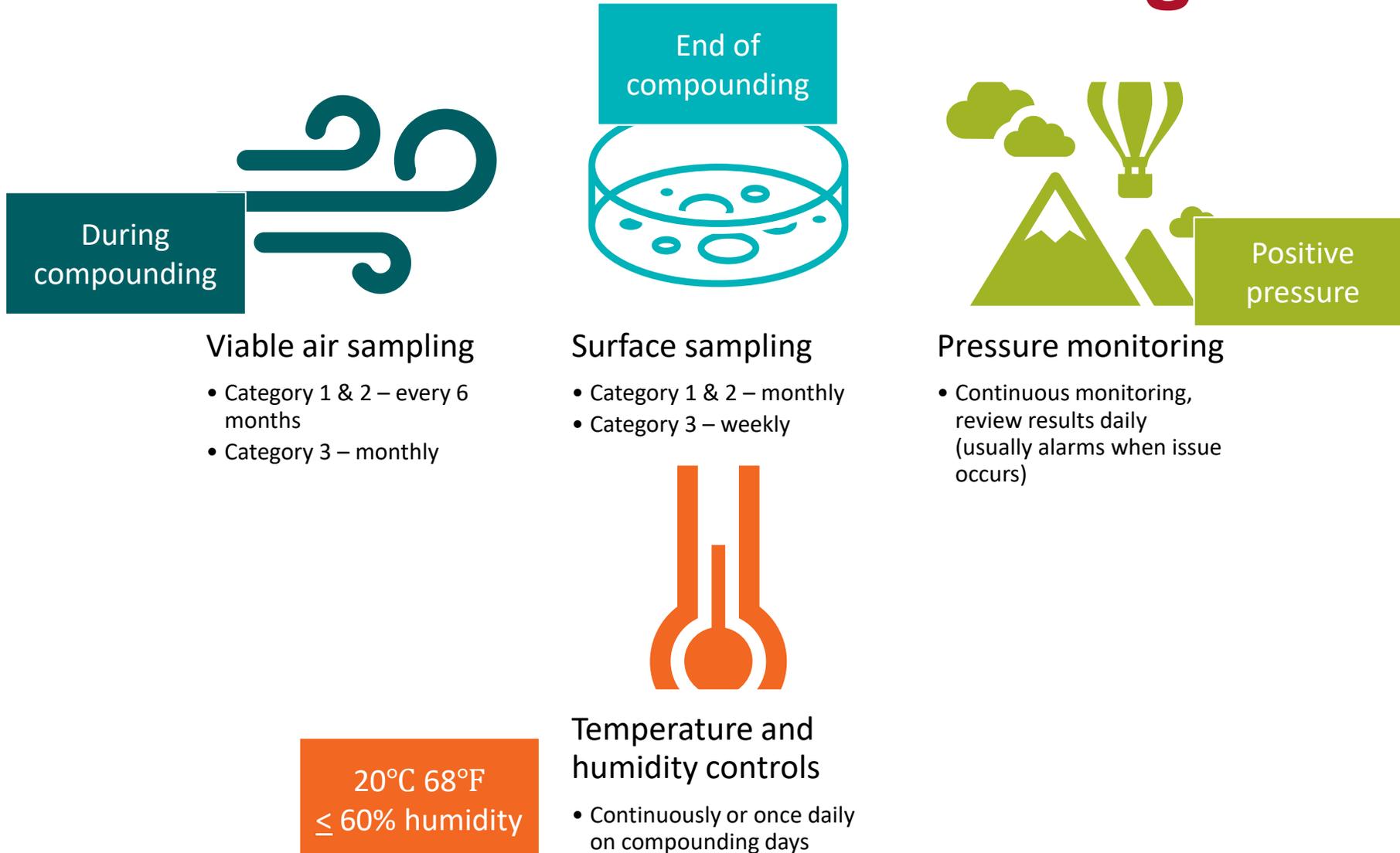
BUD = beyond use date, CSP = compounded sterile product



# Environmental Monitoring



# Environmental Monitoring



# “Out of limit” Results

## Surface sampling

ISO Class 5:  
> 3 CFU/m<sup>3</sup>

ISO Class 7:  
> 5 CFU/m<sup>3</sup>

ISO Class 8:  
> 50 CFU/m<sup>3</sup>

## Air sampling

ISO Class 5: >  
1 CFU/m<sup>3</sup>

ISO Class 7: >  
10 CFU/m<sup>3</sup>

ISO Class 8:  
> 100 CFU/m<sup>3</sup>



# “Out of limit” Results

Surface sampling

ISO Class 5:  
> 3 CFU/m<sup>3</sup>

ISO Class 7:  
> 5 CFU/m<sup>3</sup>

ISO Class 8:  
> 50 CFU/m<sup>3</sup>

An attempt must be made to identify organism if level is exceeded

ISO Class 7: >  
10 CFU/m<sup>3</sup>

ISO Class 8:  
> 100 CFU/m<sup>3</sup>



# How to respond

Evaluate trends

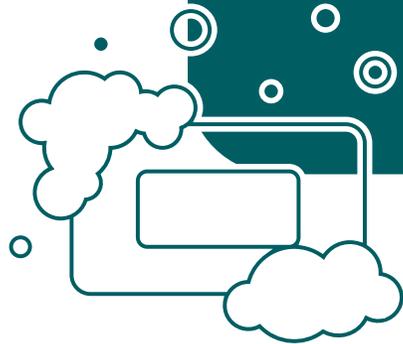
Identify cause

Take corrective action

Example corrective actions: process or facility improvements, personnel training, cleaning or disinfecting, repair or replacement of HEPA filter



# Cleaning, Disinfection & Aseptic Behavior



# Cleaning Basics

Type of agent	Purpose
Cleaning agent	Agent typically containing surfactant used for removal of substances
Disinfecting agent	Chemical or physical agent used to destroy fungi, bacteria, and viruses
Sporicidal agent	Chemical or physical agent that destroys bacterial and fungal spores when used at a sufficient concentration for specified contact time
Contact time	Duration a disinfectant needs to remain on a surface to effectively kill germs. Determined by the manufacturer of the product.



# Cleaning Schedule

Site	Cleaning	Disinfecting	Sporicidal Treatment
PECs and equipment inside PECs	Daily and when surface contamination is expected	Daily and when surface contamination is expected	Category 1 and 2 CSPs: Monthly
			Category 3 CSPs: Weekly
Pass-through, work surfaces and floor outside PECs	Daily	Daily	Category 1 and 2 CSPs: Monthly
			Category 3 CSPs: Weekly
Walls, doors, shelving, equipment outside PECs	Monthly	Monthly	Monthly



# Cleaning Schedule

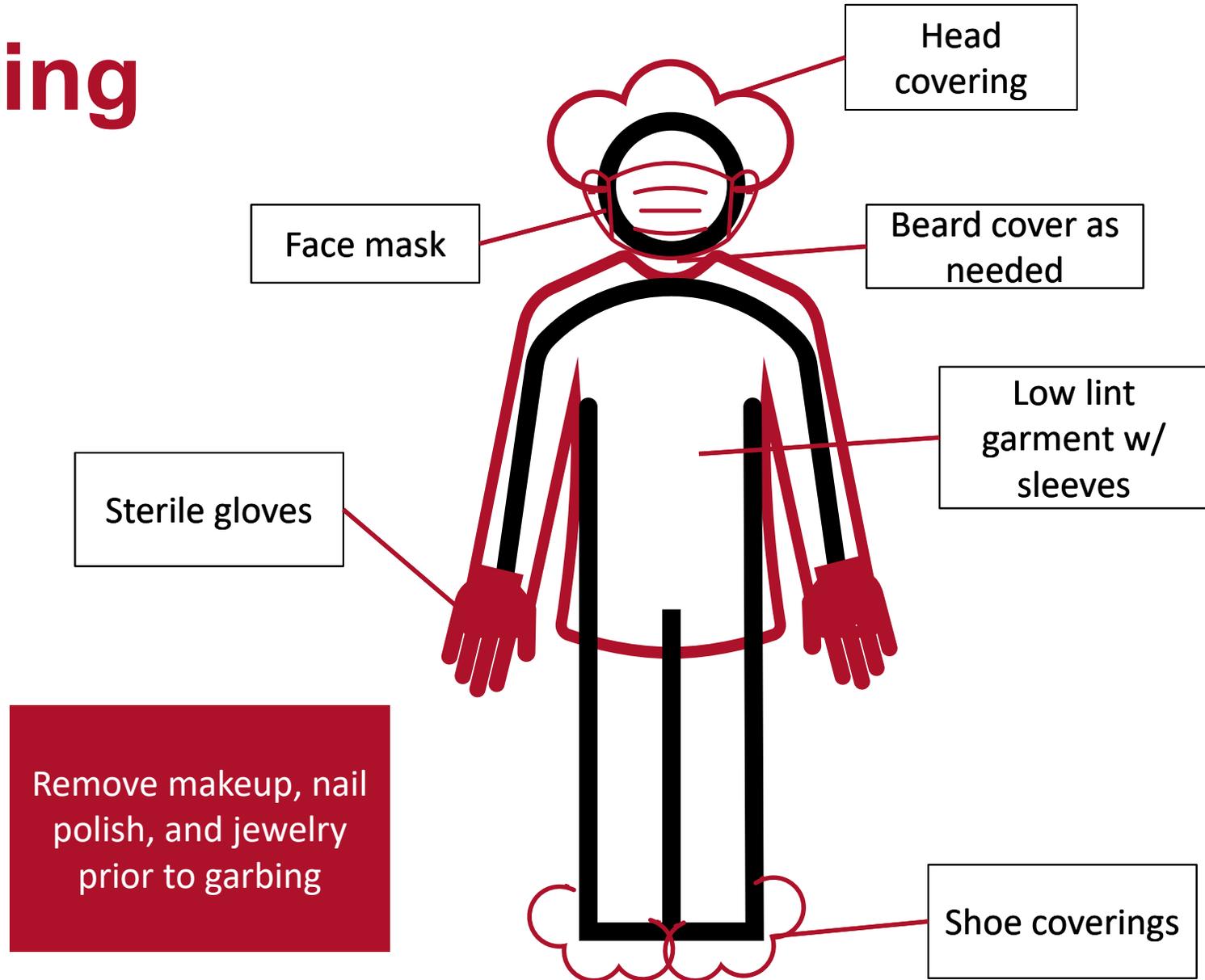
Site	Cleaning	Disinfectant	Frequency	Additional
PECs and equipment inside PECs	Daily and when surface contamination is expected	Category 1 CSPs: Daily	Category 2 CSPs: Weekly	Category 3 CSPs: Monthly
Pass-through, work surfaces and floor outside PECs	Daily	Category 1 CSPs: Daily	Category 2 CSPs: Weekly	Category 3 CSPs: Monthly
Walls, doors, shelving, equipment outside PECs	Monthly	Category 1 CSPs: Monthly	Category 2 CSPs: Monthly	Category 3 CSPs: Monthly

**These are minimum requirements, follow your institutions SOPs**

CSP = compounded sterile product, PEC = primary engineering control



# Garbing



# Cleanroom Hand Hygiene



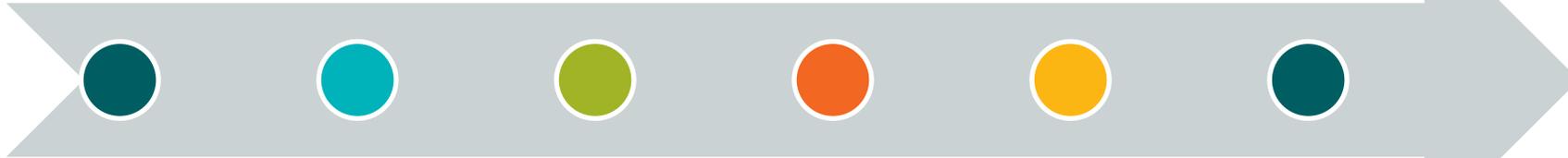
## Wash



Clean under fingernails

Dry with low lint towels

Allow hands to dry



Wash hands up to elbows

Apply alcohol-based hand rub

Don sterile gloves



## Sanitize



# Compounding Supplies



Best practice for infection control = store compounding supplies outside of the compounding area and PEC



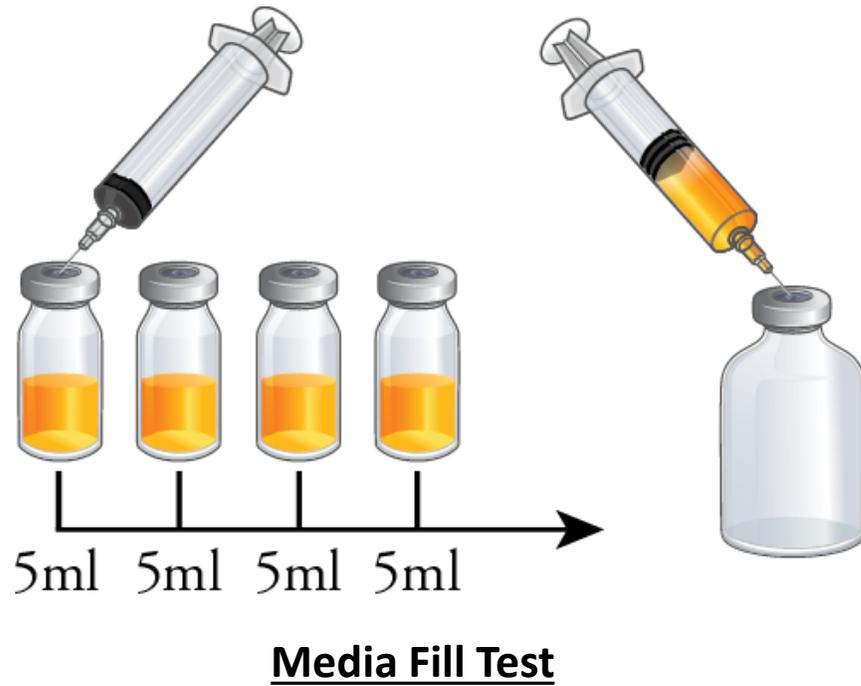
All supplies that are brought into the compounding area and PEC must be wiped down with sterile alcohol



# Training of Personnel



# Personnel Testing



**Gloved Fingertip Test**



# Investigations, Risk & IP involvement



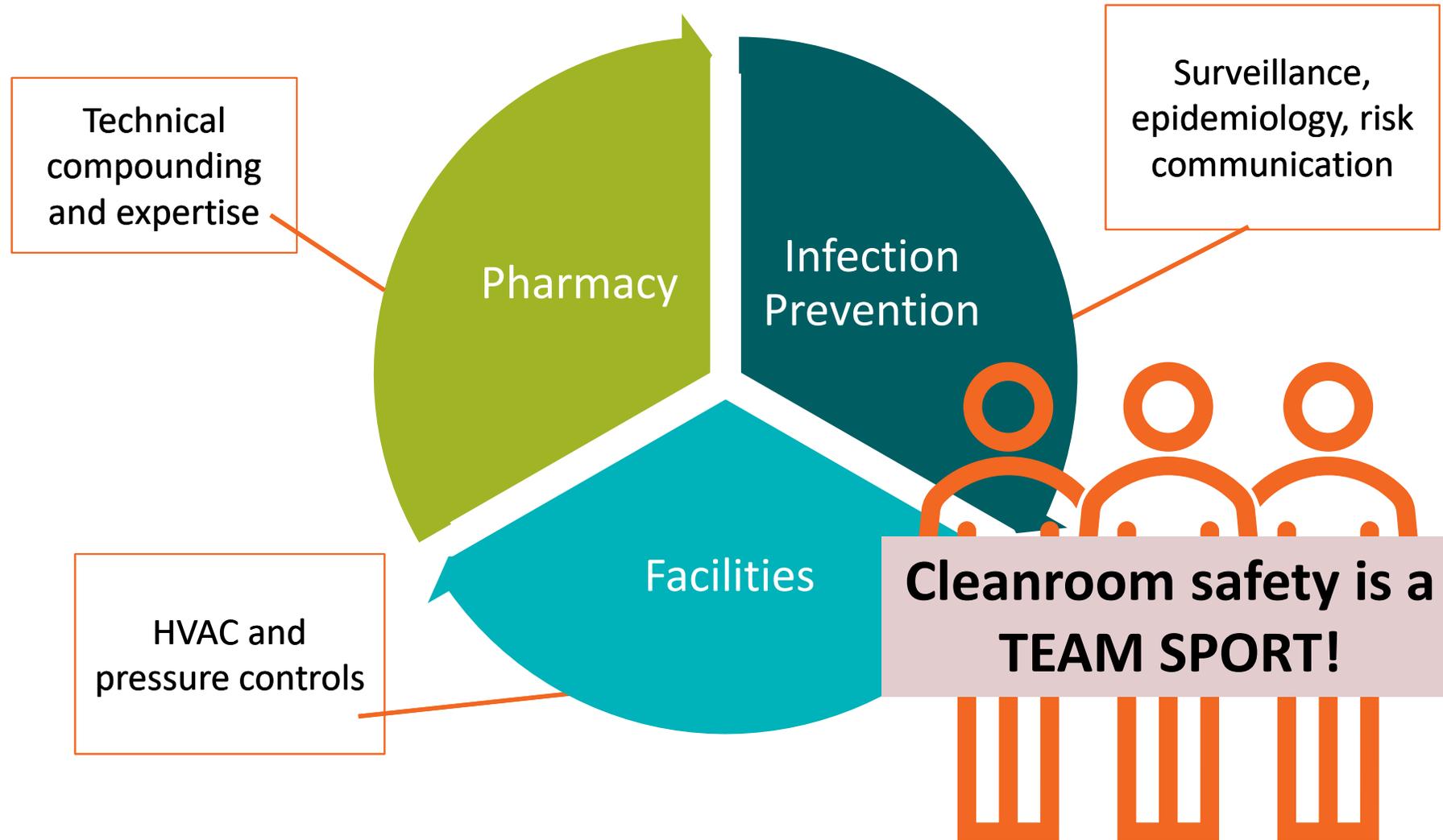
# Sources of Contamination

**An error in any of these categories can lead to contamination**

**IPs play an important role in determining the contributing factor(s)**



# Shared Ownership Model



# When IPs get involved

Positive blood culture clusters

Environmental monitoring failures

Construction or renovation near pharmacy

HVAC or pressure failures

Regulatory inspections



# What IPs should ask

## Were affected products quarantined?

- Specific CSPs and BUDs that could be impacted should be collected and kept for further investigation

## What organisms were recovered?

- Species of organism can clue in the cause of contamination
- Environmental vs human vs other

## Was staff re-evaluated?

- Compounding personnel should be re-evaluated on garbing and aseptic procedures to ensure proper performance
- EVS staff and others who have contact with clean room should also be evaluated
- Education and training should be provided where deficits are recognized



# What IPs should ask

Was a root cause analysis performed?

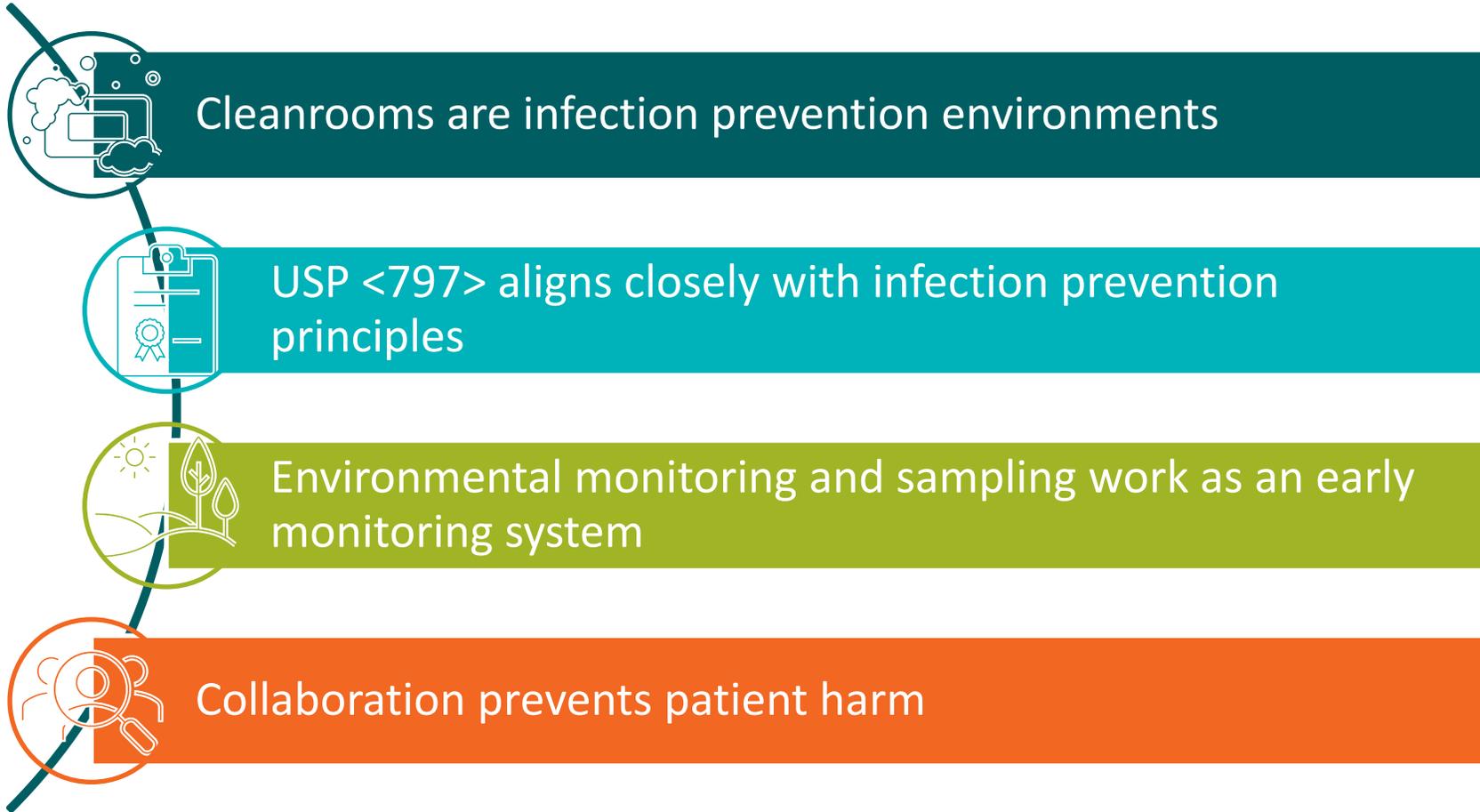
- Determine source and plan for necessary improvements going forward

Is there patient exposure risk?

- Identify patients that could have been affected, provide proper testing and empiric treatment if indicated



# Key Takeaways



# Resources

- USP <797>
- ASHP Sterile Compounding Guidance
- CDC Outbreak Investigation Resources
- State Board of Pharmacy and Health Department



# Inside the Cleanroom: A Guide for Infection Preventionists

Jillian Mack, PharmD  
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# Updates and Upcoming Education

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



# It's Patient Safety Awareness Week!

**March 8–14, 2026, marks Patient Safety Awareness Week** — an opportunity to highlight and reaffirm our shared commitment to protecting patients from harm while receiving care. Patients, caregivers, and healthcare professionals all play a role in patient safety.

CDC works to protect patients and healthcare professionals through the promotion of safety, quality, and value in both national and international healthcare delivery systems. Actions such as preventing healthcare-associated infections and improving antibiotic use, strengthening sepsis recognition, and supporting the healthcare workforce all contribute to safer outcomes.



# CDC Project Firstline Resource

- **Recognize the Risk of *C. auris***
  - *C. auris* can live on surfaces for weeks
  - Some commonly used disinfectants don't kill *C. auris*
- **Stop the Spread of *C. auris***
  - Clean your hands
  - Use contact precautions for patients with suspected or confirmed *C. auris*
  - Clean and disinfect the patient's environment and shared equipment with a disinfectant on [EPA's List P](#)

CDC Project Firstline *C. auris* in Healthcare Infographic

**Candida auris in Health Care:**  
Recognize the Risk and Stop the Spread

**PROJECT FIRSTLINE**

**What Is *Candida auris* (*C. auris*)?**  
*C. auris* is a fungus that spreads easily in hospitals and nursing homes. *C. auris* infections are often difficult to treat and can lead to death in very sick patients.

**Recognize the Risk of *C. auris***

***C. auris* lives on skin and surfaces, including:**

- high-touch surfaces such as doorknobs and bedrails.
- equipment and devices such as vital signs machines, breathing tubes and catheters.

***C. auris* spreads through touch, including:**

- touching a patient or their environment.
- touching contaminated equipment.

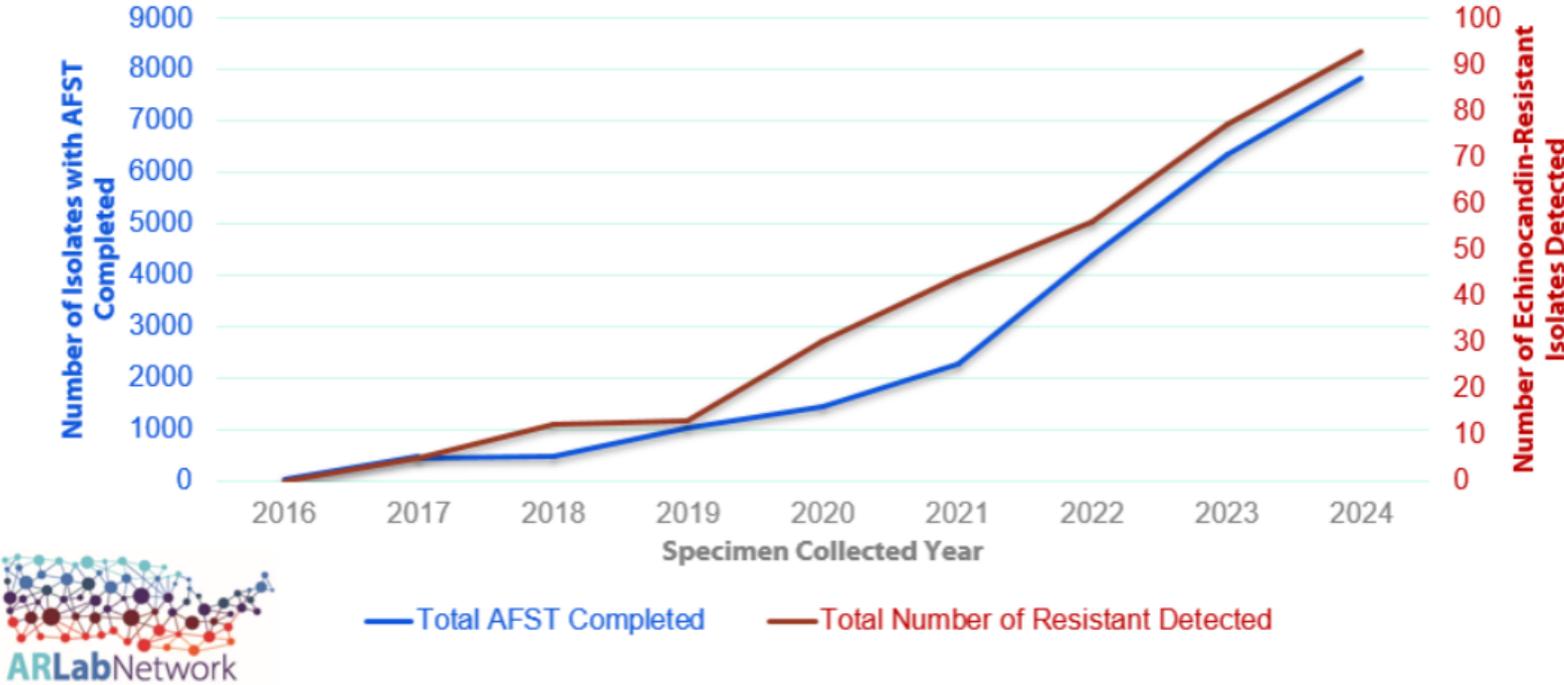
***C. auris* can live on surfaces for weeks and cannot be killed by some of the most common healthcare disinfectants.**

# Importance of *C. auris* Prevention and Control

## *C. auris* Resistance in the United States

<b>Azoles</b>	95%	
<b>Polyenes</b>	15%	
<b>Echinocandins</b> (preferred treatment)	<1%	

## Increase in echinocandin-resistant *C. auris* Isolates through CDC's AR Lab Network, 2016–2024



# Considerations When Choosing Disinfectant

- Multi-disciplinary teams should be involved in selection of disinfectant products.
- The team's goal should be to keep the variety of stocked disinfectants as small as possible to allow for easier training and ensure correct use by the frontline staff.
- Consider the properties of an ideal disinfectant

## Properties of an Ideal Disinfectant

Broad spectrum

Fast acting

Unaffected by environmental factors

Nontoxic

Compatible with surfaces

No or limited residual effect

Easy to use

Odorless or odor acceptable

Economical

Soluble in water

Stable formulation

Cleaner as well

Environmentally friendly

# NHSN Annual Training March 17<sup>th</sup> – April 9<sup>th</sup>

The Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN) will host the live presentation sessions of the 2026 NHSN Virtual Training:

Taking the Lead in Healthcare Surveillance and Analysis  
on **March 17, 2026 - April 9, 2026.**

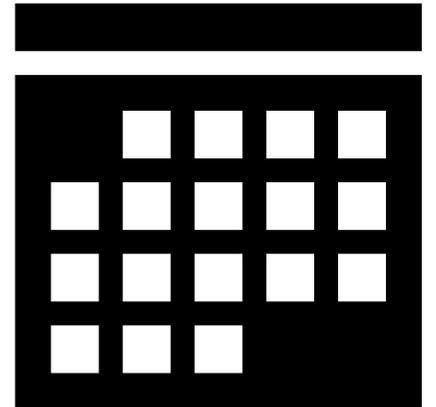
This course is intended for NHSN users of the Patient Safety Component and Outpatient Procedure Component.

The virtual training event will feature live presentations, pre-recorded training videos for self-paced viewing, and opportunities for Q&A.

Training topics include surveillance definitions and analysis for:

- Antimicrobial Use and Resistance
- Device-associated events
- New Digital Quality Measures (dQM)
- MRSA Bacteremia and C. difficile LabID events
- Outpatient Procedures
- Surgical Site Infection events

The virtual course provides participants with the opportunity to gain a better understanding of their NHSN surveillance data and how these data can be used for prevention.



[NHSN Annual Training 2026](#)



Nebraska Infection  
Control Network



## Primary Infection Prevention Course

**Track 1** (two-day): Prevention for All Health Care Settings, Acute Care Hospital, Ambulatory Care & Surgical Centers

**Track 2** (two-day): Prevention for All Health Care Settings and Long-Term Care and Assisted Living Facilities

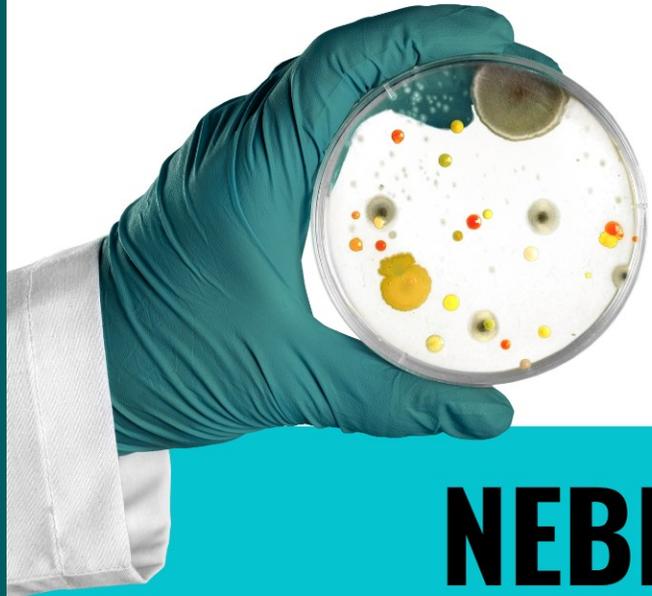
April 22 & 23, 2026

Holthus Convention Center

3130 Holen Ave., York, NE 68467

[NICN Primary Infection Prevention Course Registration](#)

[NICN Registration Flyer](#)



**SAVE  
THE  
DATE**



# **NEBRASKA INFECTIOUS DISEASES CONFERENCE**

**Friday,  
August  
28,  
2026**

**Beardmore  
Event Center,  
Bellevue,  
Nebraska**

**New this year! Join us for a co-hosted event by the Nebraska Infectious Diseases Society and Nebraska ASAP. This conference combines the NIDS annual meeting with the Nebraska Antimicrobial Stewardship Summit  
More details to follow!**

 **Nebraska**

 **ASAP**

# Infection Control Assessment & Response (ICAR) Visits

Surgical Site Infection Prevention

Sterilization

Safe Injection Practices

Environmental Cleaning & Disinfection

Hand Hygiene

High-Level Disinfection

Point of Care Blood Testing

Laundry

PPE & Standard Precautions

Indwelling Devices (e.g. CAUTI, CABSII)

Wound Care

Water Management

Transmission-Based Precautions



# Upcoming NE ICAP Webinars

**Wednesday, April 8, 2026**

**12:00–1:00 PM (CST)**

**Infection Control Essentials for the Clinical Laboratory**

*Presented by Kay Huff, MLS (ASCP), CIC*

**Wednesday, May 13, 2026**

**12:00–1:00 PM (CST)**

***To Be Determined (TBD)***

*Presented by TBD*



# 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 open the [NE ICAP Contact Form](#).

Through this form, you can:

- Request to connect with an Infection Preventionist who specializes in your area
- Join our setting-specific communication lists for webinar and training updates
- Sign up for newsletters and reminders
- Request an ICAR visit for your facility



# 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 completed by the individual earning the credit, only one person per survey.
- Survey functionality is lost on mobile devices.
- One certificate is issued quarterly for all webinars attended.
- Certificate comes directly from ICAP via email.