



TN NHSN User Call

Monday, September 18, 10am CT

Agenda

- **Wastewater Surveillance**
 - Russel Owens
- **COVID-19 Update**
 - Magdalena Dorvil-Joanem, MD, MPH
- **NHSN Update**
 - Vicky Lindsey, RN, CIC
- **Candidemia**
 - Sandra Hardin, RN, BSN
- **Annual Report Review Series: CDI**
 - Abigail Marrero, MPH, CPH
- **Multi-Drug Resistant Organism (MDRO) Surveillance Team Update**
 - Kristina McClanahan, MPH

TDH NHSN Team

- **Abigail Marrero, MPH, CPH**
 - Senior NHSN Epidemiologist
- **Vicky Lindsey, AAS, RN, CIC**
 - Senior NHSN Public Health Nurse Consultant
 - Lead Technological Assistance
 - Infection Prevention and Control Specialist
- **Tara Suhs, MPH**
 - Assistant NHSN Epidemiologist
 - MRSA Initiative Lead
- **Ashley Gambrell, MPH**
 - Assistant NHSN Epidemiologist
- **Marissa Turner, MPH**
 - Assistant NHSN Epidemiologist
- **Alex Kurutz, MPH**
 - Dialysis Epidemiologist

Wastewater Surveillance

Russell Owens, Wastewater Epidemiologist
Jane Yackley, COVID/Waterborne Director
Sarah Waldo, COVID Epidemiologist



Department of
Health

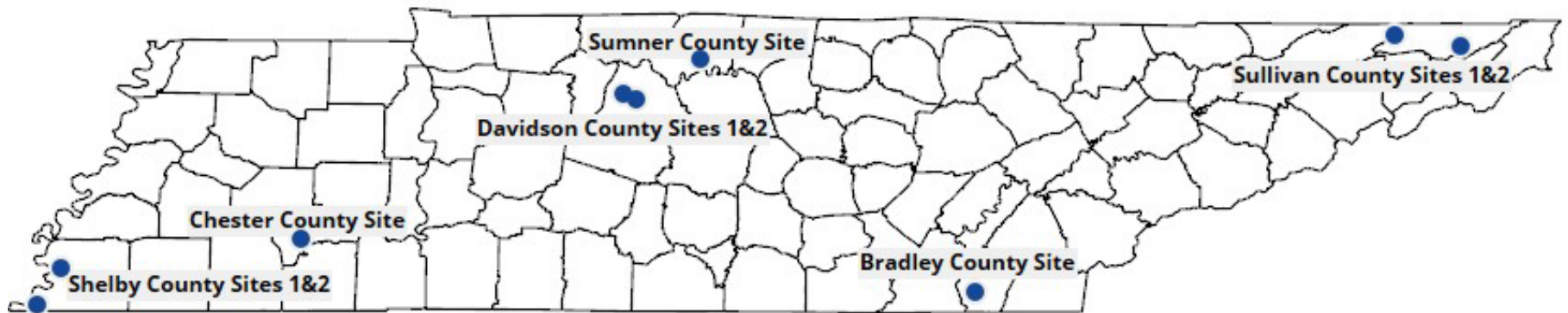
Wastewater Surveillance – How does it work?



https://www.cdc.gov/nwss/how-wws-works.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fhealthywater%2Fsurveillance%2Fwastewater-surveillance%2Fresources%2Fhow-wws-works.html

Wastewater Surveillance – TN’s program

- **Current Status:** We currently have 9 wastewater treatment plants (WWTP) sampling 2x weekly.
 - All samples are being tested through CDC’s contracted lab Biobot.
 - We are only testing for SARS-CoV-2.
- **Future direction:** We are transitioning from this contract to our own State Public Health Lab (SPHL).
 - We plan to expand to more facilities when the SPHL is ready.
 - We will have data on our website after transition.
- **Resources:** Please visit the sites below for more information or contact me directly.
 - <https://www.cdc.gov/nwss/wastewater-surveillance.html>
 - <https://www.tn.gov/health/cedep/ncov/wastewater-surveillance.html>
 - **Contact:** Russell Owens, 615-254-1494, Russell.Owens@tn.gov



Wastewater Surveillance – What does it say?

- **Current Concentration:** Compares recent data with the past **six months** to spot trends in wastewater quality.
- **Percent Change:** Analyzes the entire dataset to understand **long-term trends** and overall changes in wastewater characteristics by looking in 5-sample increments.
- **Significant Increase:** Reviews the last **30 days** of data, and if both the "Current Concentration" and "Percent Change" show high levels, it raises a flag for potential issues or trends.
- **Sequencing:** We do sequence one sample a week per facility and results can be shared if requested.

Wastewater Treatment Plant	Wastewater Analysis			
	Sample Collection Date	Current Concentration	Percent Change	Significant Increase?
Bradley County WWTP	9/10/2023	Very High	Moderate Increase	No alert
Chester County WWTP	9/11/2023	Very High	Large Increase	No alert
Davidson County WWTP 1	9/11/2023	Very High	Moderate Decrease	No alert
Davidson County WWTP 2	9/11/2023	High	Moderate Increase	No alert
Shelby County WWTP 1	9/11/2023	Very High	Moderate Decrease	No alert
Shelby County WWTP 2	9/11/2023	High	Moderate Decrease	No alert
Sullivan County WWTP 1	9/10/2023	Very High	Moderate Increase	Yes
Sullivan County WWTP 2	9/5/2023	Very High	Moderate Decrease	No alert
Sumner County WWTP	9/4/2023	High	Large Decrease	No alert



COVID-19 Surveillance Update

Tennessee Department of Health


Magdalena Dorvil-Joanem, MD, MPH

COVID-19 Surveillance

TN Dept of Health

COVID-19 Trends in TN & US

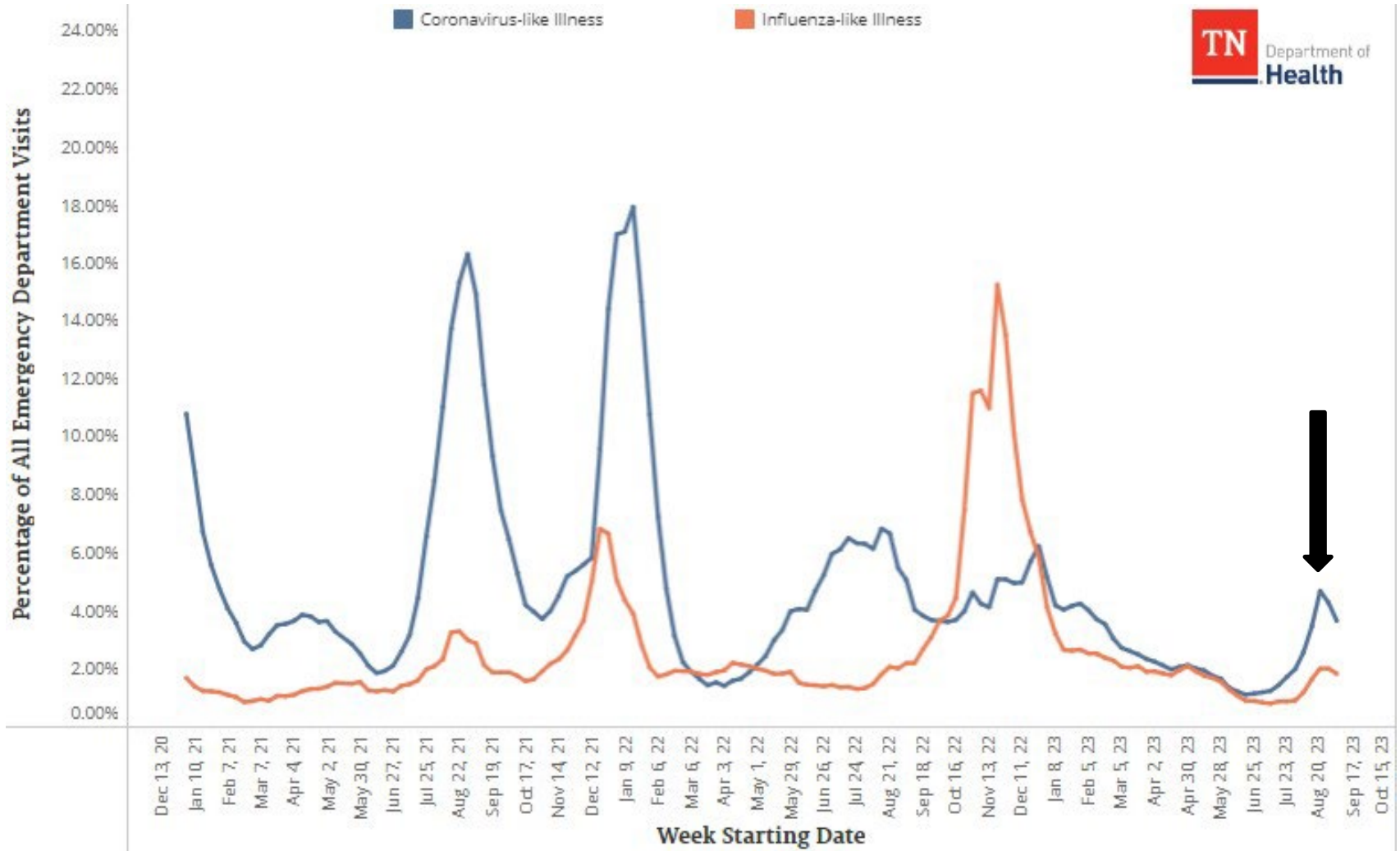
- Tennessee
 - New cases decreasing (total ~4800/week)
 - Hospitalizations increasing (399 hospitalized currently)
- U.S.A.
 - New hospitalizations increasing
 - Deaths increasing

Total Hospitalizations 6,308,630
+8.7% in most recent week
Trend in Hospital Admissions 

Total Deaths 1,141,782
+4.5% in most recent week
Trend in % COVID-19 Deaths 

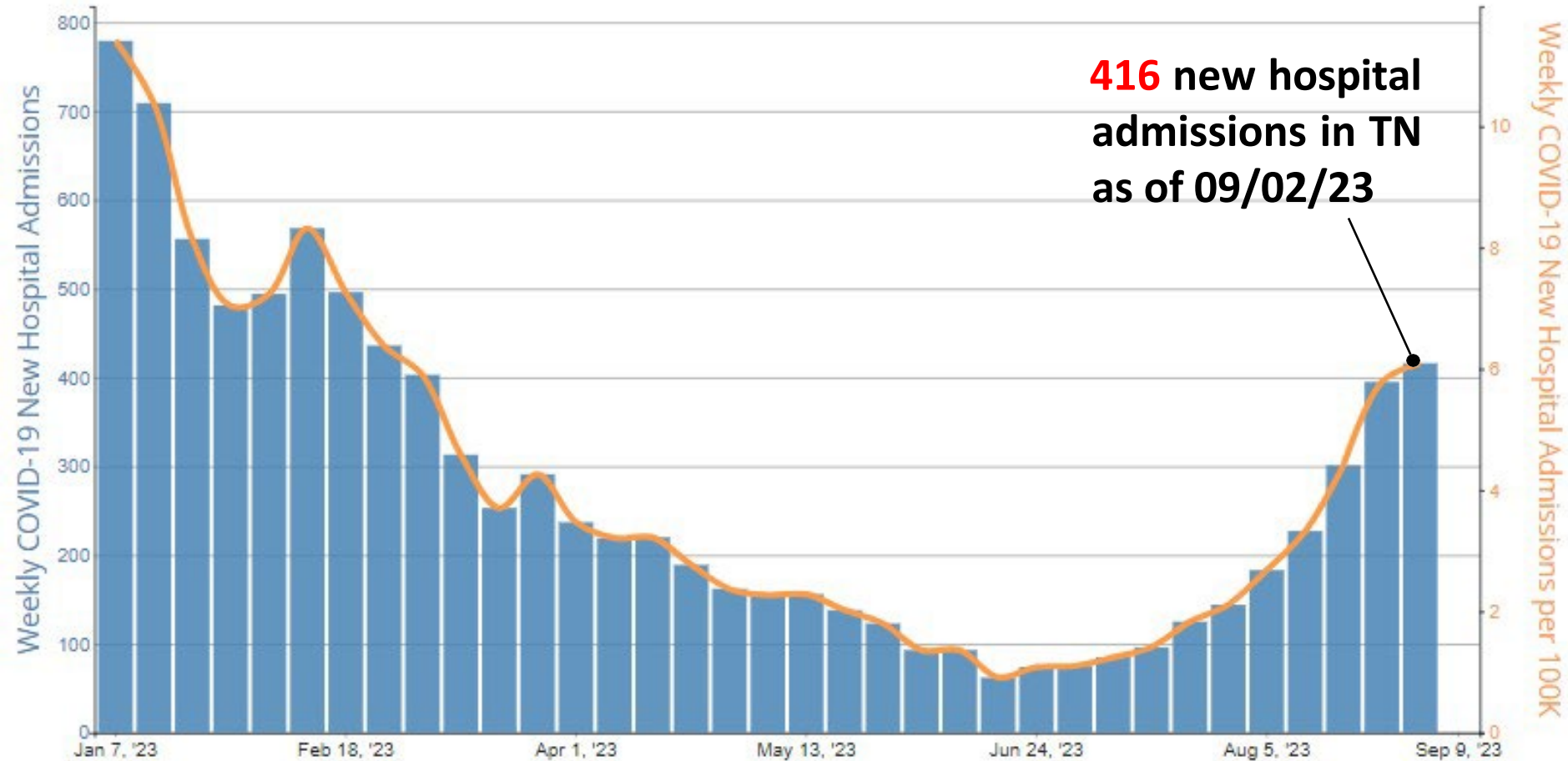
Syndromic Surveillance

Emergency Department Data of chief complaint and discharge diagnosis



New Hospital Admissions

COVID-19 New Hospital Admissions and New COVID-19 Hospital Admissions per 100,000 Population, by Week, in Tennessee, Reported to CDC

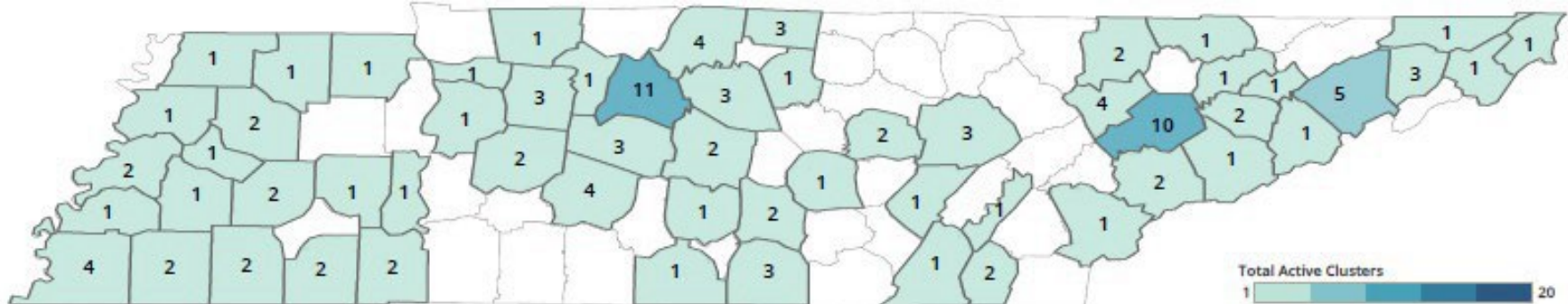


COVID Cluster in High-Risk Settings

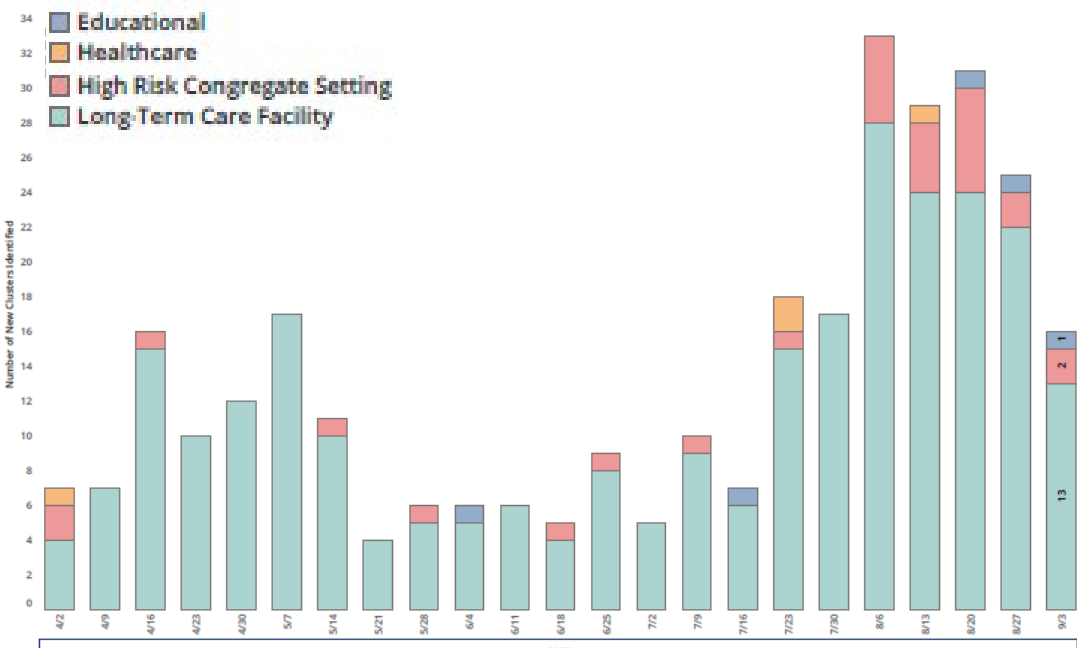
**122
Total Active
Clusters**

High-risk settings include long-term care facilities, correctional facilities, shelters, and other congregate settings

Active Clusters by County



Confirmed Clusters by Week and Facility Type



Variant Proportions for HHS Region 4

Nowcast Estimates in HHS Region 4 for 9/3/2023 – 9/16/2023

Region 4 - Alabama, Florida, Georgia, Kentucky,
Mississippi, North Carolina, South Carolina, and
Tennessee

WHO label	Lineage #	%Total	95%PI	
Omicron	EG.5	19.5%	17.0-22.4%	
	XBB.1.16.6	15.0%	12.4-18.0%	
	FL.1.5.1	10.8%	8.5-13.5%	
	HV.1	10.7%	7.9-14.3%	
	XBB.1.16	10.3%	8.4-12.5%	
	XBB.2.3	5.6%	4.7-6.6%	
	XBB.1.16.1	4.3%	3.5-5.2%	
	XBB.1.16.11	3.8%	2.9-5.0%	
	XBB.1.5.70	3.8%	2.4-5.9%	
	XBB	3.5%	3.0-4.1%	
	GE.1	2.8%	1.9-4.0%	
	XBB.1.5	2.4%	2.0-2.9%	
	XBB.1.9.1	1.6%	1.2-2.0%	
	XBB.1.5.72	1.5%	1.0-2.0%	
	EG.6.1	0.9%	0.7-1.4%	
	XBB.1.5.68	0.7%	0.4-1.3%	
	XBB.1.9.2	0.7%	0.5-0.9%	
	XBB.1.5.10	0.6%	0.4-0.9%	
	FD.1.1	0.4%	0.3-0.6%	
	XBB.1.42.2	0.4%	0.2-0.8%	
	CH.1.1	0.3%	0.2-0.4%	
	FE.1.1	0.2%	0.1-0.3%	
	XBB.1.5.59	0.2%	0.1-0.3%	
	XBB.2.3.8	0.1%	0.0-0.3%	
	EU.1.1	0.1%	0.0-0.1%	
	XBB.1.5.1	0.0%	0.0-0.0%	
	BA.2.12.1	0.0%	0.0-0.1%	
BQ.1	0.0%	0.0-0.0%		
FD.2	0.0%	0.0-0.0%		
B.1.1.529	0.0%	0.0-0.0%		
BA.5	0.0%	0.0-0.0%		
Other	Other*	0.1%	0.0-0.1%	

Key Points:

- All SARS-CoV-2 strains currently circulating are all Omicron subvariants
- EG.5 strain represents a greater percentage (19.5%) of Covid case in region 4 than other Omicron subvariants

COVID-19 Surveillance Summary

	Tennessee	United States
Emergency Department Visits	▼	▲
New Cases	▼	n/a
Hospitalizations	▲	▲

Bottom line:

- COVID activity is up in TN
- If you have not received a COVID-19 vaccine in the past 2 months, get an updated COVID-19 vaccine

Additional Information

- **CDC recommends everyone 6 months and older get an updated COVID-19 vaccine**
 - Facilities Updated COVID-19 vaccines from Pfizer-BioNTech and Moderna are now available
- **How to receive vaccine for free**
 - For people with health insurance, most plans will cover the COVID-19 vaccine
 - For people without health insurance or whose health plans do not cover the vaccine, they can get a free vaccine at their local health centers, local health department, or a pharmacy participating in the CDC's [Bridge Access Program](#)

Central Office Support

- **Test Kits**

- Facilities (Health Departments, LTCFs, Community Partners, etc.) can request free test kits from covid19.testing@tn.gov

- **Cluster Surveillance & Response**

- The CO team manages the statewide cluster database and offers support for outbreak response for regional and metro health departments.
- Contact COVID19.Cluster@tn.gov for information.



NHSN Updates

Vicky Lindsey, AAS, RN, CIC | Tennessee Department of Health | Communicable and Environmental Diseases and Emergency Preparedness

NHSN Protocol and Training Team (PaTT)

- Ask the NHSN Experts
- Monthly Webinars
- [Link](#) to register and submit your Secondary BSI questions.
- If you have any questions about the webinar series, they can be emailed to NHSNTrain@cdc.gov.



**PROTOCOL & TRAINING TEAM
VIRTUAL TRAINING SERIES 2023**

- Upcoming webinar Zoom registration link is in the email.
- Sessions are 60 minutes
- No recordings for external use
- **Audience:**
 - Acute care or other short-term stay hospitals (for instance, general hospitals
 - Critical access hospitals, oncology hospitals, military/VA hospitals)
 - Long-term Acute Care Hospitals (LTACH), Inpatient Rehabilitation Facilities (IRF) & Inpatient Psychiatric Facilities (IPF).
 - OPC users – ASCs reporting SSI events.

Webinars will be held on Wednesdays at 2:00 pm EST
Mark your calendars

Date	Topic
September 20 th	Secondary BSI
October 25 th	Surgical Site Infection (SSI)
November 15 th	Chapter 17 - Surveillance Definitions for Specific Types of Infections
December 13 th	Urinary Tract Infection (UTI)/Pneumonia (PNEU)



Antimicrobial Use and Resistance Module

- **As you know, beginning in 2024 reporting to the AUR Module will be required**
- **NHSN Team will be hosting two Office Hours sessions:**
 - **Thursday, September 28: 3:00-4:00pm ET**
 - [Registration link](#)
 - **Monday, October 30: 12:00-1:00pm ET**
 - [Registration link](#)

Dialysis Q2- 2023 QIP Deadline

- **Outpatient hemodialysis facilities participating in the Centers for Medicare and Medicaid Services End-Stage Renal Disease Quality Incentive Program must submit your Q2 2023 Dialysis Event data to NHSN by Monday, October 2, 2023 at 11:59 PM PT.**
- **This is your opportunity to ensure that your data have been reviewed and validated within the NHSN application in preparation of the deadline on October 2nd.**
- **This is necessary to meet reporting requirements for Payment Year 2025. Quarter two data includes dialysis events that occurred April 01, 2023 through June 30, 2023.**

Dialysis Q2- 2023 QIP Deadline

- **Please pay attention to the alerts that appear on the NHSN home screen and address them accordingly.**
 - **Confirm that the correct CCN number (alphanumeric only) has been entered for your facility.**
- **At each quarterly reporting deadline, NHSN takes a snapshot of your facility's data and creates a permanent data file which is used to create the annual CMS ESRD QIP Final Compliance File.**
 - **New or revised data entered into NHSN after October 2 at 12 midnight PT will not be reflected in the quarter two permanent data file used for the CMS QIP Final Compliance File.**
- **Contact the NHSN Helpdesk (NHSN@cdc.gov, subject line 'Dialysis Quarter 2/2023 Deadline') with any questions.**



Candidemia

CANDIDEMIA

OVERVIEW- TENNESSEE EMERGING
INFECTIONS PROGRAM

SEPTEMBER 2023



TENNESSEE EMERGING INFECTIONS PROGRAM

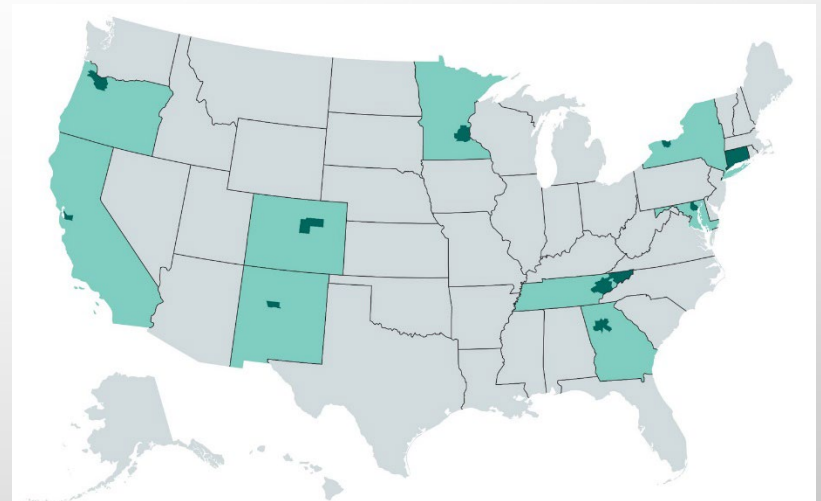
- EMERGING INFECTIONS PROGRAM (EIP) IS A POPULATION-BASED SURVEILLANCE NETWORK INCLUDING THE CENTERS FOR DISEASE CONTROL AND PREVENTION AND STATE HEALTH DEPARTMENTS, WORKING WITH COLLABORATORS (ACADEMIC CENTERS, LOCAL HEALTH DEPARTMENTS, INFECTION PREVENTION PRACTITIONERS, AND OTHER FEDERAL AGENCIES) TO ASSESS THE PUBLIC HEALTH IMPACT OF EMERGING INFECTIONS AND TO EVALUATE METHODS FOR THEIR PREVENTION AND CONTROL.

CANDIDEMIA HISTORY IN TENNESSEE

- SINCE 2011 IN TENNESSEE
- TENNESSEE PRINCIPAL INVESTIGATORS (PI): WILLIAM SCHAFFNER, MD;
H KEIPP TALBOT, MD; TIFFANIE M MARKUS RESEARCH ASSOCIATE
PROFESSOR AND EIP PROGRAM DIRECTOR
- TENNESSEE SURVEILLANCE OFFICER (SO): SANDRA HARDIN, RN
;VALERIE MITCHELL, RN

CANDIDEMIA

- BLOOD STREAM INFECTIONS DUE TO *CANDIDA* SPECIES OF YEAST IS A SERIOUS MEDICAL CONDITION WITH A HIGH MORTALITY RATE
- TEN SURVEILLANCE SITES ACROSS THE US
- TENNESSEE COUNTIES IN SURVEILLANCE CATCHMENT: ANDERSON, BLOUNT, CARTER, GRAINGER, GREENE, HANCOCK, HAWKINS, JEFFERSON JOHNSON, KNOX, LOUDON, ROANE, SEVIER, SULLIVAN, UNICOI, UNION AND WASHINGTON COUNTIES



CANDIDEMIA SURVEILLANCE

- TRACK INCIDENCE OF CANDIDEMIA AND MONITOR LABORATORY AND EPIDEMIOLOGIC TRENDS
- IDENTIFY NEW RISK FACTORS FOR CANDIDEMIA
- DETECT CHANGES IN RESISTANCE TO ANTIFUNGAL AGENTS AND COMMUNICATE THESE RESULTS BACK TO SUBMITTING LABORATORIES
- DETERMINE THE BURDEN OF INFECTIONS DUE TO ANTIFUNGAL-RESISTANT *CANDIDA* SPECIES AND UNDERSTAND THE CAUSES OF RESISTANCE
- IDENTIFY AREAS WHERE CANDIDEMIA PREVENTION AND INTERVENTION STRATEGIES CAN BE FOCUSED

CANDIDEMIA PROCESS

- HOSPITAL LABORATORIES AND INFECTION PREVENTION PERSONEL IDENTIFY ANY CANDIDA IN BLOOD STREAM AND MAKE REPORT TO TN DEPT OF HEALTH
- LABORATORY SENDS SPECIMEN SLANT WITH PH1600 TO TDOH KNOXVILLE REGIONAL LAB ATTN: SANDRA HARDIN (2101 MEDICAL CENTER WAY KNOXVILLE, TN 37920))
- SPECIMEN IS VERIFIED TO MEET CRITERIA, BLINDED AND SENT TO CDC FOR TESTING
- SURVEILLANCE OFFICER ABSTRACTS CHART FOR DEMOGRAPHICS, HEALTH HISTORY, SYMPTOMS, TREATMENT

SPECIMENS

- ACCEPT ANY MEDIUM THAT SUPPORTS GROWTH OF CANDIDA:
 - SABOURAUD'S DEXTROSE AGAR WITH OR WITHOUT GENT.
 - POTATO DEXTROSE AGAR
 - BHI
- Store at 4 Celsius/39 Fahrenheit until shipped
- NOT PREFERRED: MYCOSEL, MUEHLER-HINTON



Click to learn about *Candida* bloodstream infections (Candidemia)

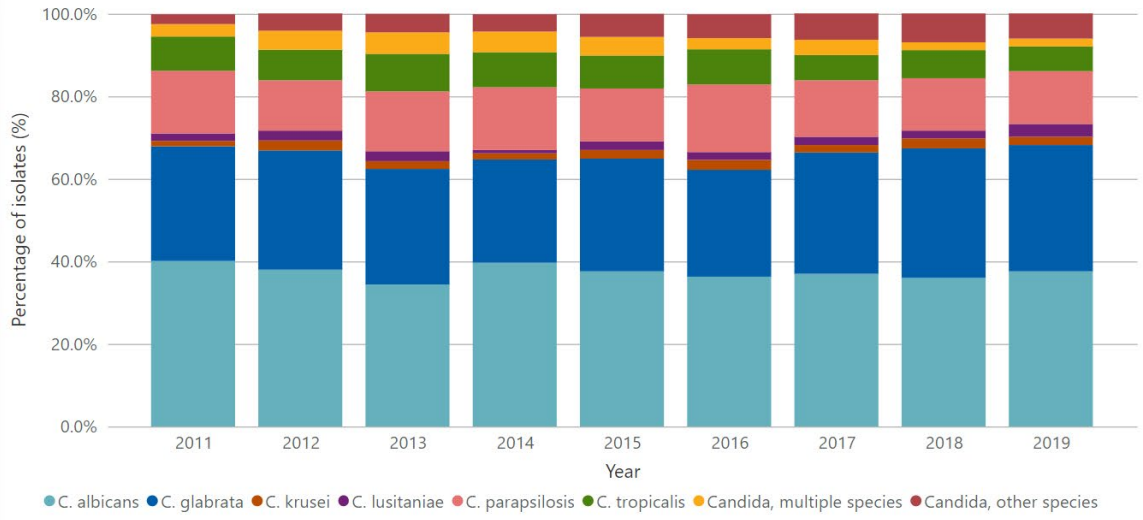
- Topic**
- Incidence
 - Mortality
 - Species
 - Drug resistance

- Year**
- Multiple selections
- Select all
 - 2009
 - 2010
 - 2011
 - 2012
 - 2013
 - 2014
 - 2015
 - 2016
 - C. tropicalis*
 - Candida*, multiple species
 - Candida*, other species

CDC Download Data

- Candida* bloodstream infections (Candidemia)**
- Clostridioides difficile* infections
- Invasive *Staphylococcus aureus* infections
- Multi-site Gram-negative Surveillance Initiative
- HAIC Viz

Percent of *Candida* isolates by species in HAIC surveillance area
Area: All



Note: [Surveillance areas](#) have changed over time. To learn more about the surveillance areas, [click here](#).

Data last updated: 3/16/2023 | **Accessibility:** Right click on the graph area to show as a table

Click to learn about *Candida* bloodstream infections (Candidemia)

Topic

- Incidence
- Mortality
- Species
- Drug resistance

Year

Multiple selections

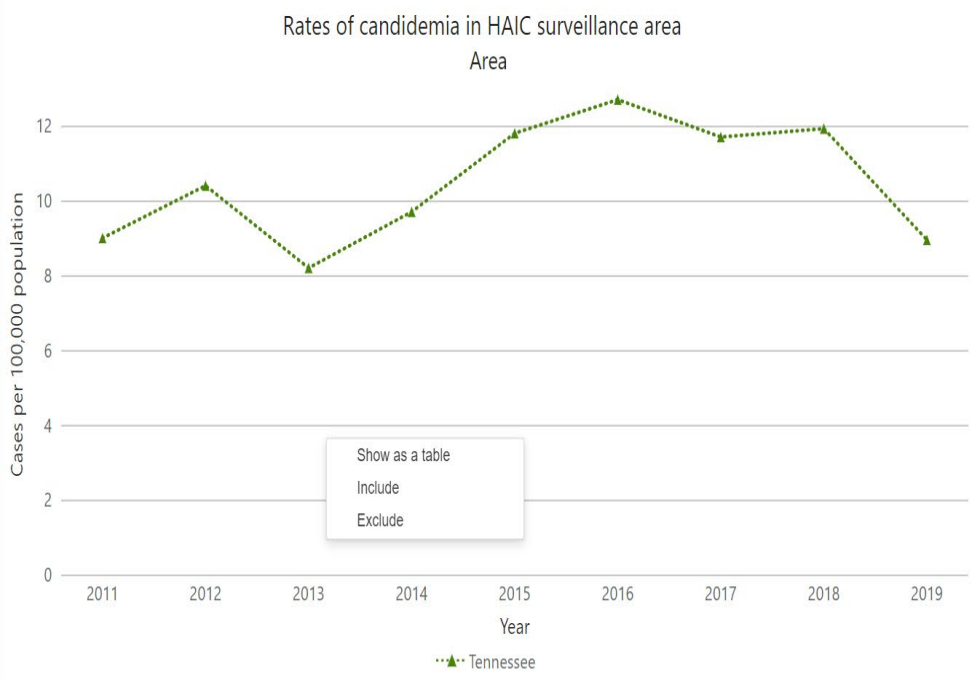
View By

Area

- California
- Colorado
- Connecticut
- Georgia
- Maryland
- Minnesota
- New Mexico
- New York
- Oregon
- Tennessee

CDC Download Data

- Candida bloodstream infections (Candidemia)
- Clostridioides difficile* infections
- Invasive *Staphylococcus aureus* infections
- Multi-site Gram-negative Surveillance Initiative
- HAIC Viz



Note: Surveillance areas have changed over time. To learn more about the surveillance areas, [click here](#).

Data last updated: 3/16/2023 | **Accessibility:** Right click on the graph area to show as a table

PUBLICATIONS/LINKS

- ACQUIRED RESISTANCE IN *C. GLABRATA* CANDIDEMIA CASES -IN PROCESS
- HAICVIZ UPDATES NOW LIVE FOR GENERAL PUBLIC [HAICVIZ](#) | [HAIC ACTIVITIES](#) | [HAIC](#) | [CDC](#)
- [CDC: INVASIVE CANDIDIASIS STATISTICS](#)
- TODA M, WILLIAMS SR, BERKOW EL, FARLEY MM, HARRISON LH, BONNER L, MARCEAUX KM, ET AL. [POPULATION-BASED ACTIVE SURVEILLANCE FOR CULTURE-CONFIRMED CANDIDEMIA — FOUR SITES, UNITED STATES, 2012–2016](#), UNITED STATES, 2012–2016. MMWR. 2019 SEPT 27
- BARTER DM, JOHNSTON HL, WILLIAMS SR, TSAY SV, VALLABHANENI S, BAMBERG WM. [CANDIDA BLOODSTREAM INFECTIONS AMONG PERSONS WHO INJECT DRUGS — DENVER METROPOLITAN AREA, COLORADO, 2017–2018](#). MMWR. 2019 MARCH 29
- ZHANG AY, SHRUM S, WILLIAMS S, PETNIC S, NADLE J, JOHNSTON H, ET AL. [THE CHANGING EPIDEMIOLOGY OF CANDIDEMIA IN THE UNITED STATES: INJECTION DRUG USE AS AN INCREASINGLY COMMON RISK FACTOR – ACTIVE SURVEILLANCE IN SELECTED SITES, UNITED STATES, 2014–2017](#). CLIN INFECT DIS. 2019 NOV 2
- SEAGLE EE, JACKSON BR, LOCKHART SR, GEORGACOPOULOS O, NUNNALLY NS, ROLAND J, ET AL. [THE LANDSCAPE OF CANDIDEMIA DURING THE CORONAVIRUS DISEASE 2019 \(COVID-19\) PANDEMIC](#). CLIN INFECT DIS. 2021 JUNE 18
- GOLD JAW, SEAGLE EE, NADLE J, BARTER DM, CZAJA CA, JOHNSTON H, ET AL. [TREATMENT PRACTICES FOR ADULTS WITH CANDIDEMIA AT NINE ACTIVE SURVEILLANCE SITES – UNITED STATES, 2017-2018](#). CLIN INFECT DIS. 2021 JUNE 3



SAVE THE DATE!!!
EIP Day October 18, 2023

CONTACT US

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RESEARCH NURSE SPECIALIST III

SANDRA.HARDIN@VUMC.ORG



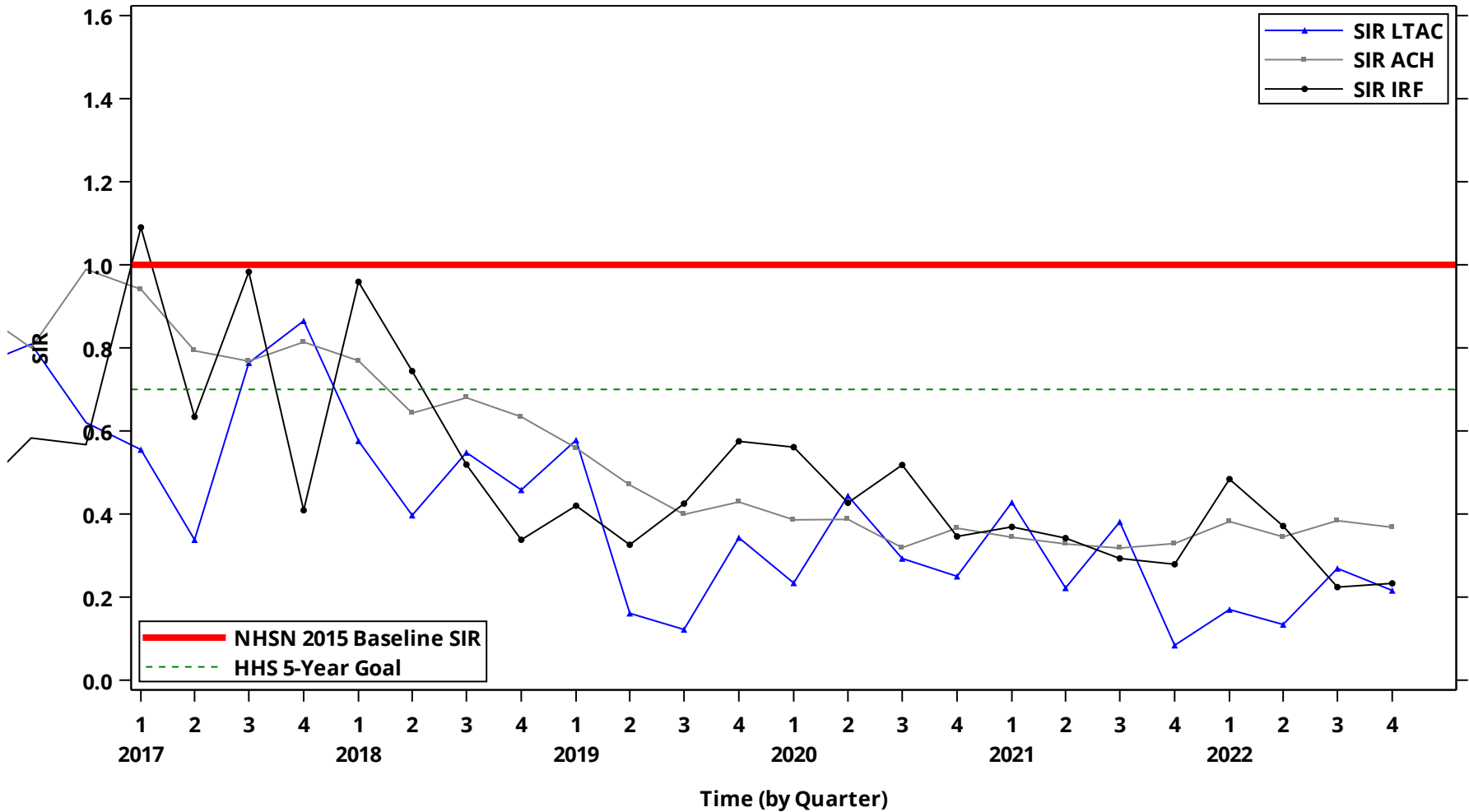
Annual Review: CDI

Abigail Marrero, MPH, CPH | Tennessee Department of Health | Communicable and Environmental
Diseases and Emergency Preparedness

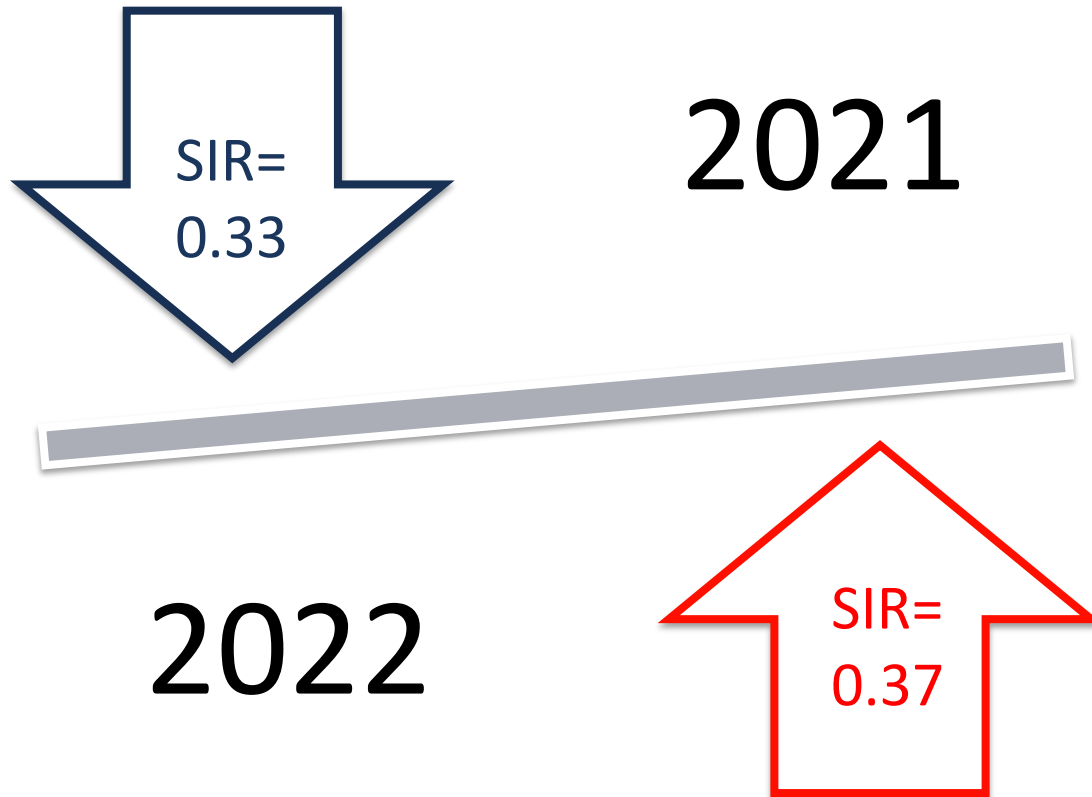
Background

- **C. Difficile Infection (CDI) Events from January 1 – December 31, 2022**
- **Data reported as of May 2023**
- **Total # of facilities:**
 - ACHs – 97
 - LTACs – 9
 - IRFs – 27
- **Device days:**
 - ACHs – 3,672,075
 - LTACs – 89, 062
 - IRFs – 222,554

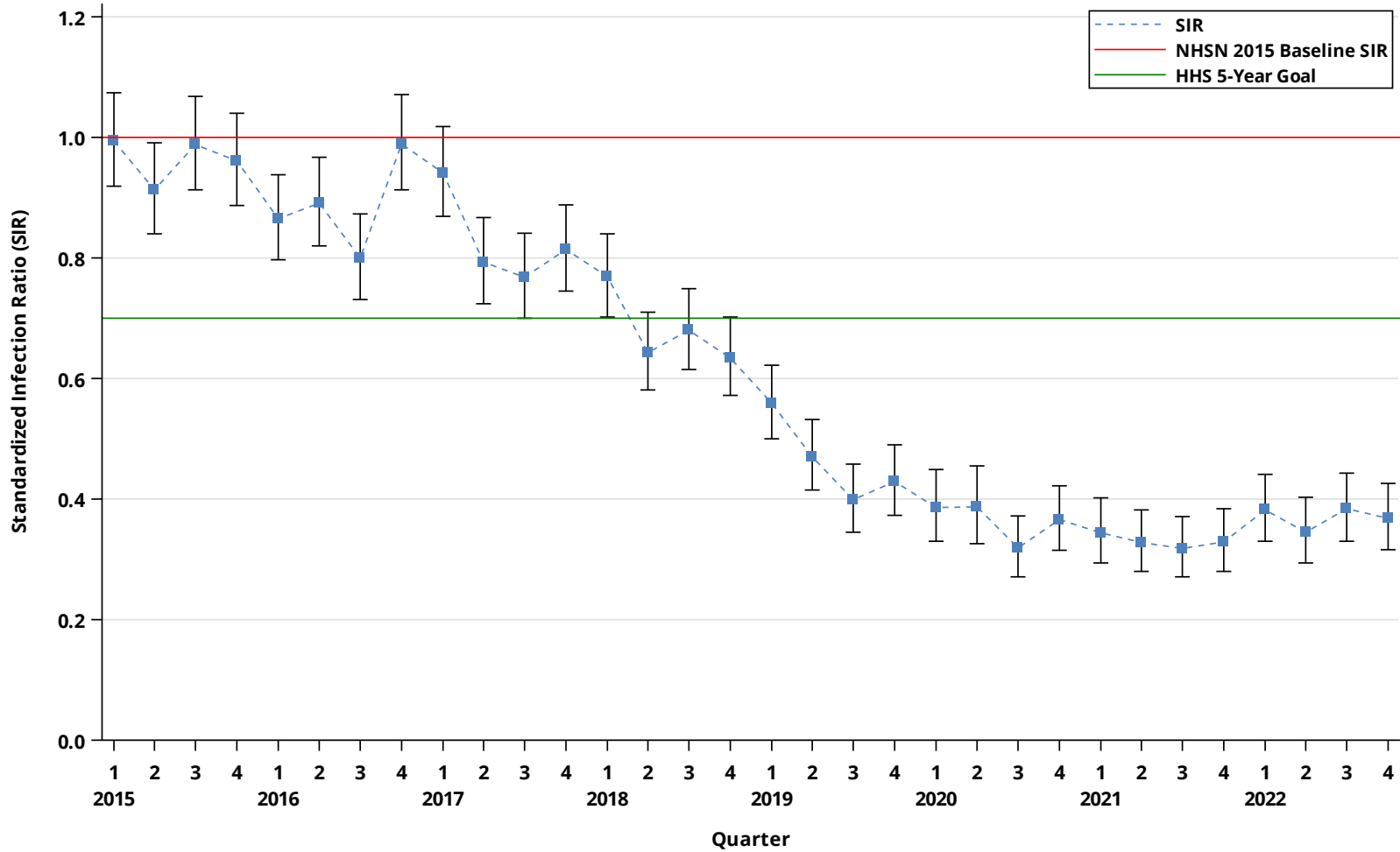
SIRs by Facility Type



Acute Care Hospitals SIR Compared to 2021



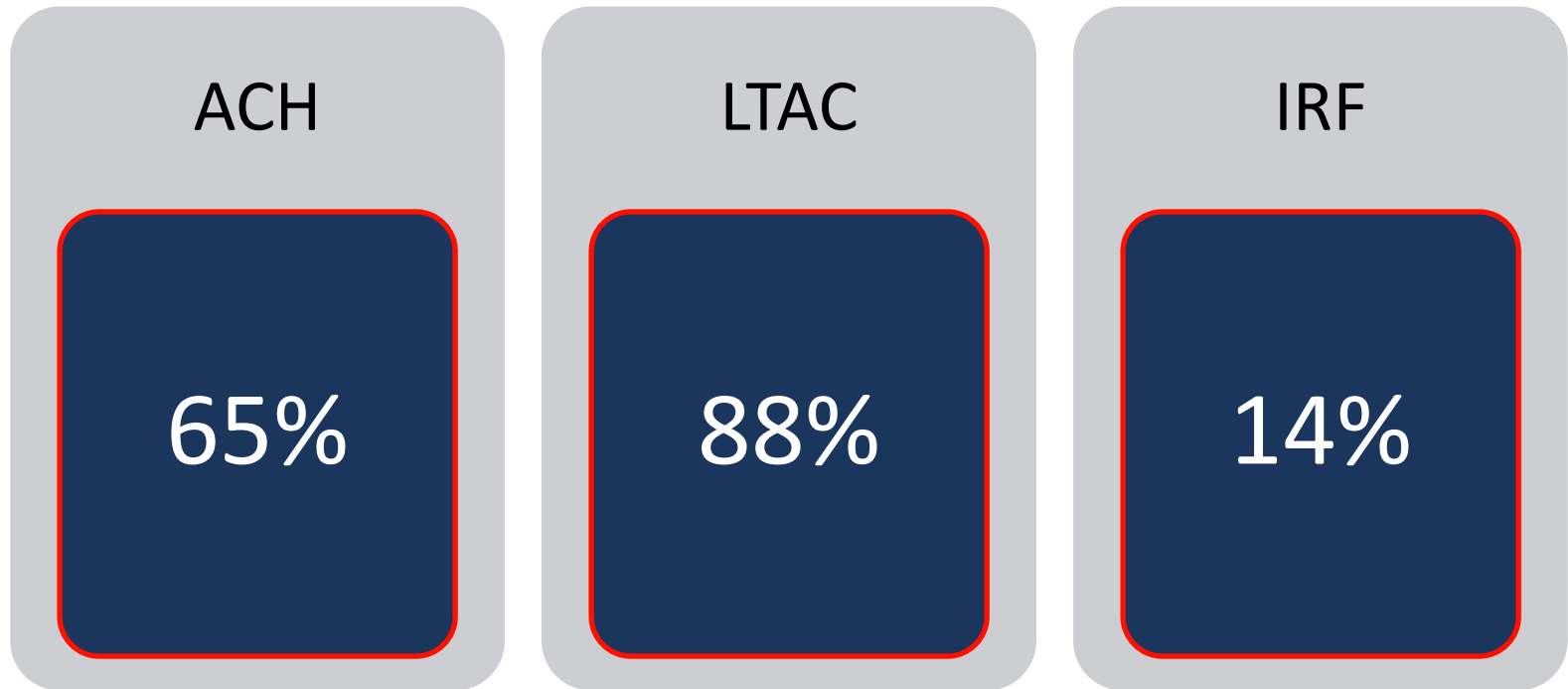
SIRs for ACHs by Quarter



Data Reported as of May 17, 2023

Overall SIR by facility

- Facilities with SIR significantly lower than 1



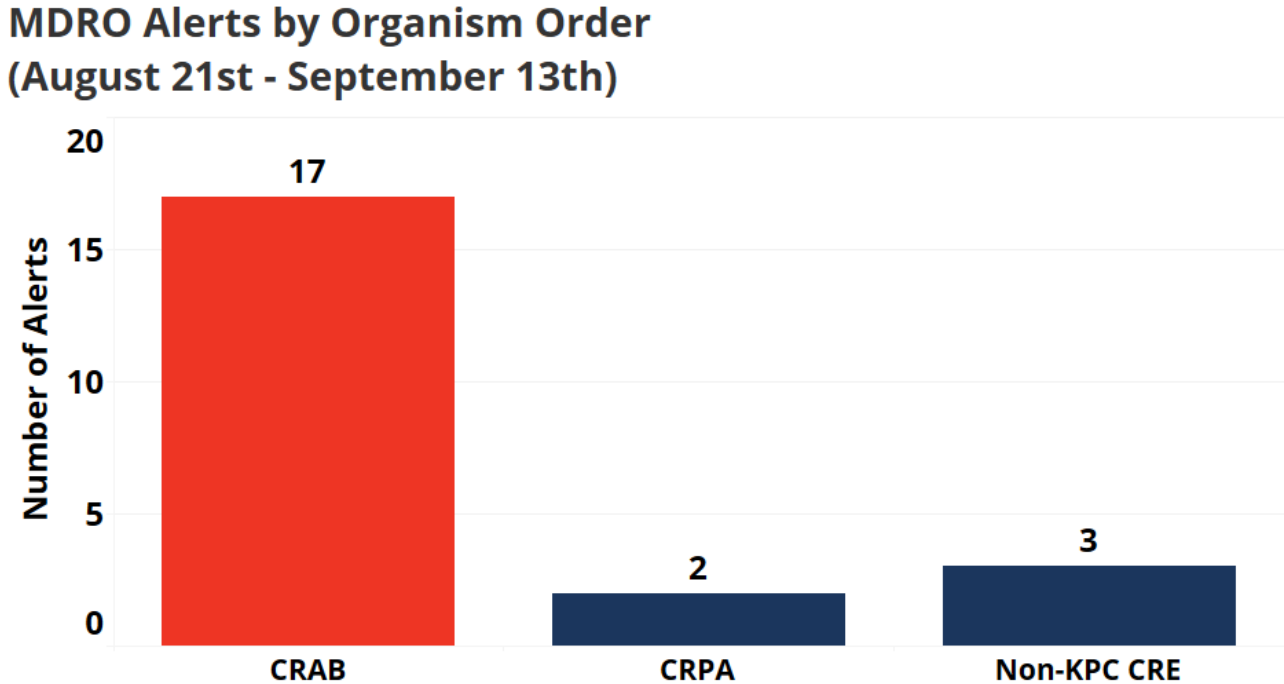


Multi-Drug Resistant Organism (MDRO) Outbreak Team Update

August 21st – September 13th, 2023

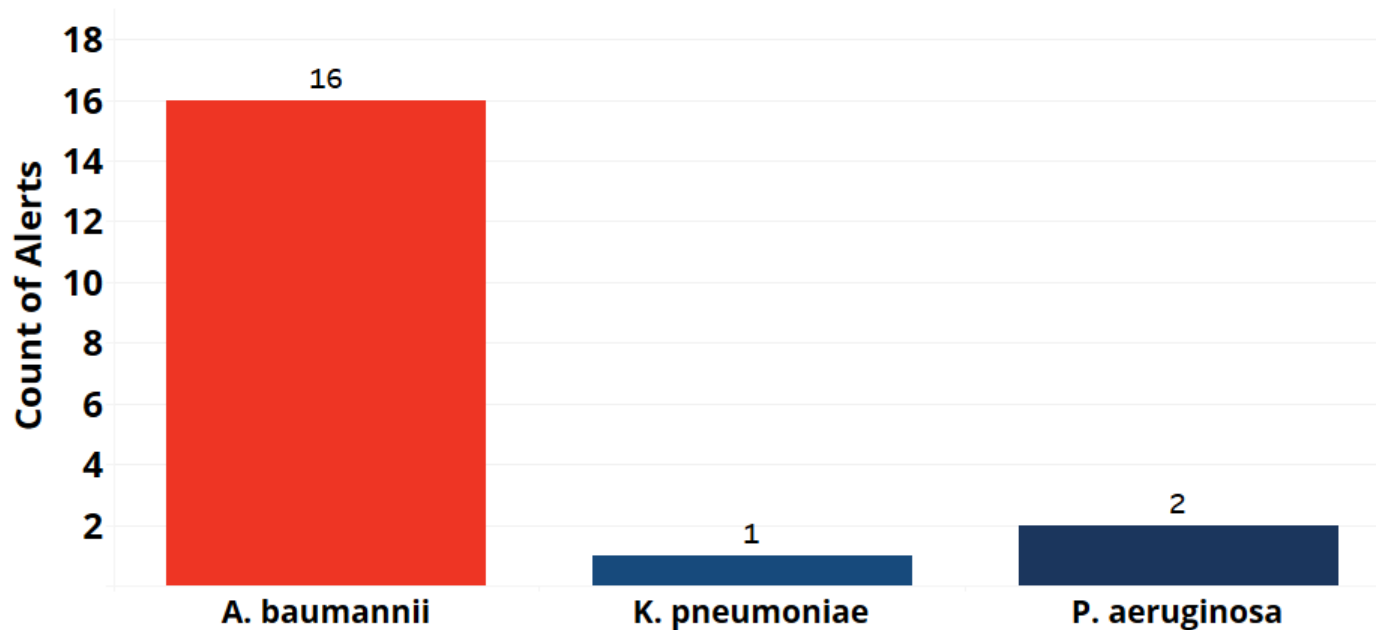
MDRO Alerts

- **CRAB – Carbapenem-resistant *Acinetobacter baumannii***
- **CRE - Carbapenem-resistant *Enterobacterales***
- **CRPA – Carbapenem-resistant *Pseudomonas aeruginosa***
- **KPC – *Klebsiella pneumoniae* Carbapenemase-producing**



MDRO Alert by Organism

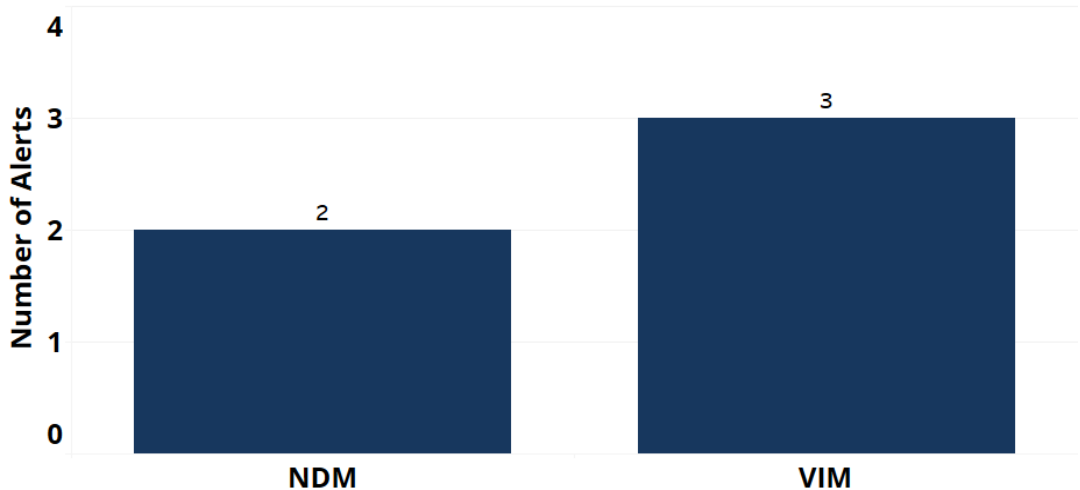
Alerts by Organism
(August 21st - September 13th)



Non-KPC CRE Genes

- Carbapenemase-producing genes:
 - “Big Five”
 - KPC
 - IMP
 - NDM
 - OXA-48
 - VIM

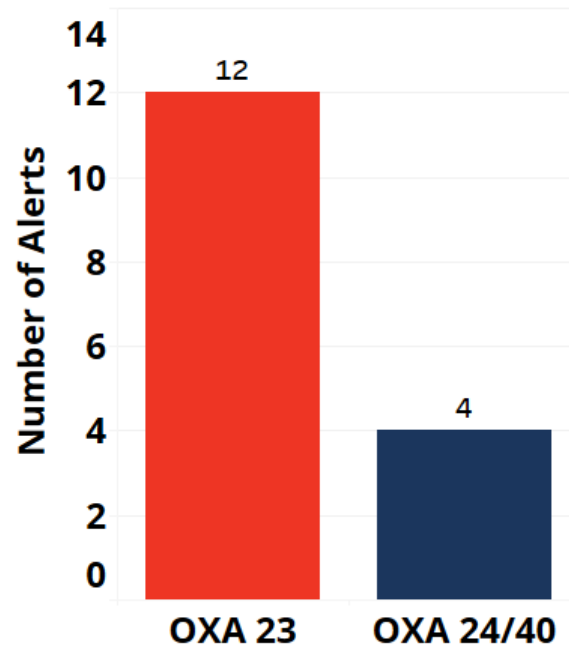
MDRO Alerts by Resistance Gene
(August 21st - September 13th)



CRAB Alerts

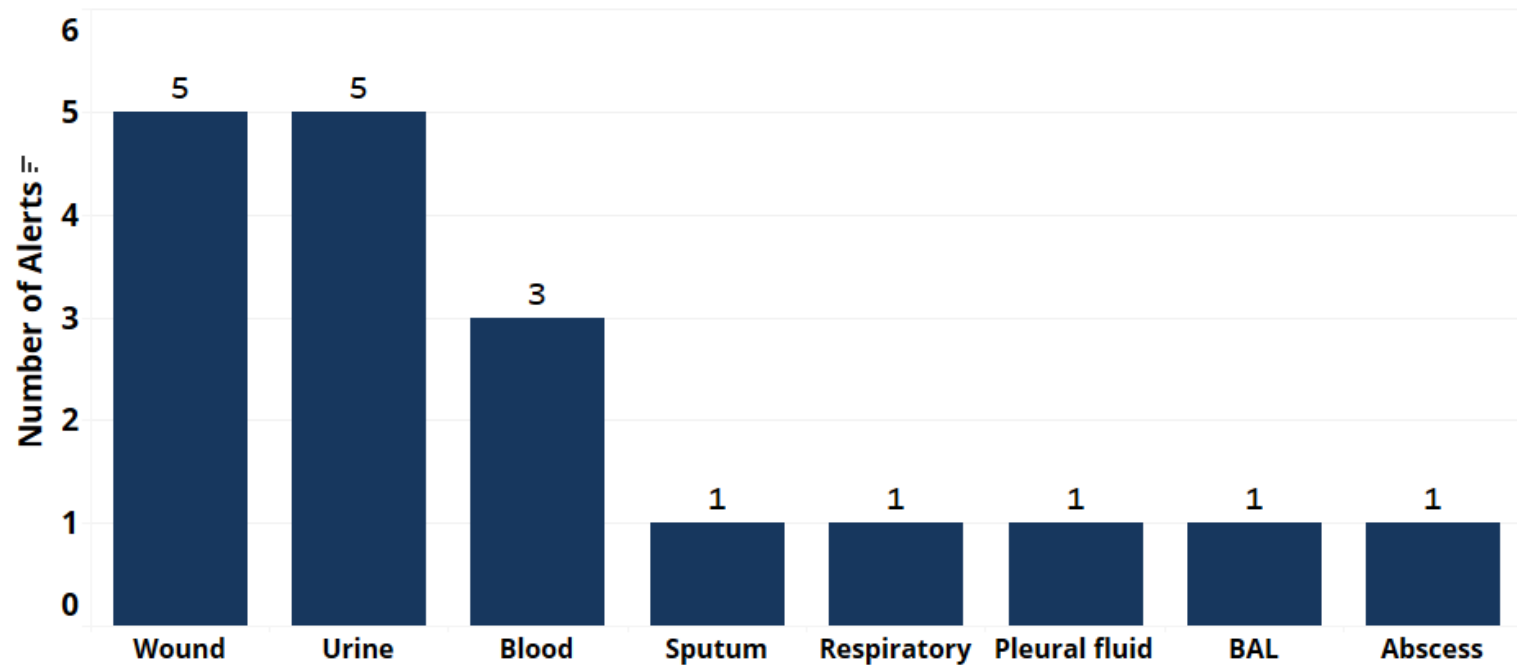
- **Carbapenemase-producing genes:**
 - **Other Oxacillinases**
 - **OXA-24/40**
 - **OXA-23**

CRAB Isolates
(August 21st - September 13th)



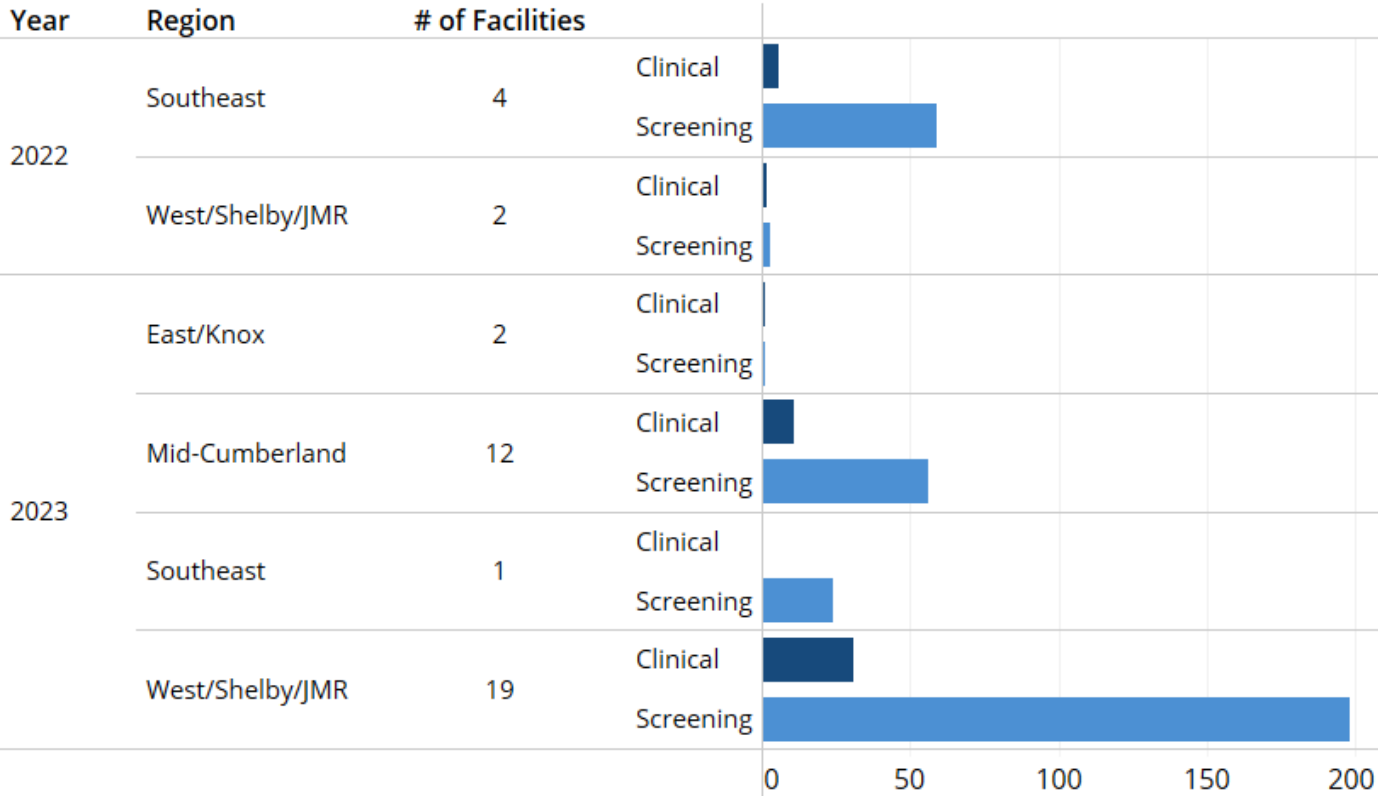
Specimen Sources

Alerts by Specimen Source
(August 21st - September 13th)



2023 *C. auris* Cases

Screening vs Clinical *Candida auris* Cases by Region



TN MDRO Alerts for 2023

- **145 CRAB specimens**

- 107 OXA-23
- 38 OXA-24/40

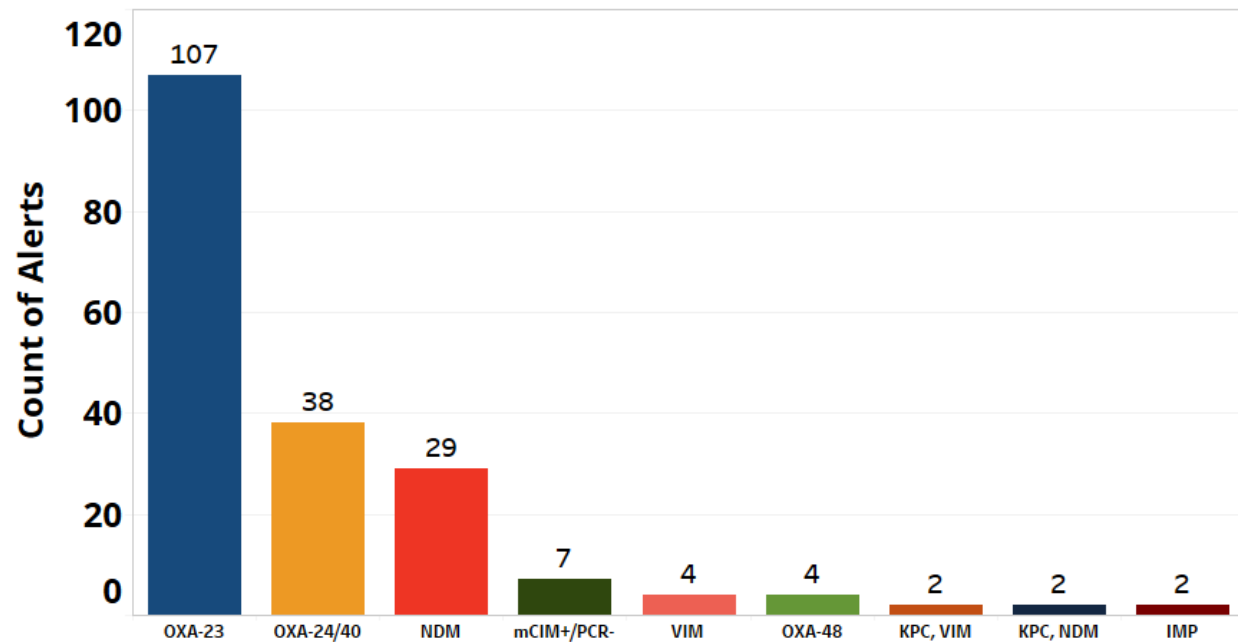
- **50 non-KPC CRI**

- 29 NDM
- 7 mCIM+/PCR-
- 4 OXA-48
- 2 IMP
- 2 KPC, NDM
- 2 KPC, VIM
- 4 VIM

- ***C. auris***

- 43 Clinical cases
- 279 Screening cases

MDRO Alerts in 2023, by Gene (As of September 13, 2023)



Next NHSN User Call

- **Monday, October 16, 2023**
 - **10am CT / 11am ET**
- **NHSN Related**
 - Vicky.Lindsey@tn.gov
 - Abigail.Marrero@tn.gov
- **AU/AR Module**
 - Christopher.Evans@tn.gov
- **Infection Prevention**
 - HAI.Health@tn.gov