TN NHSN User Call

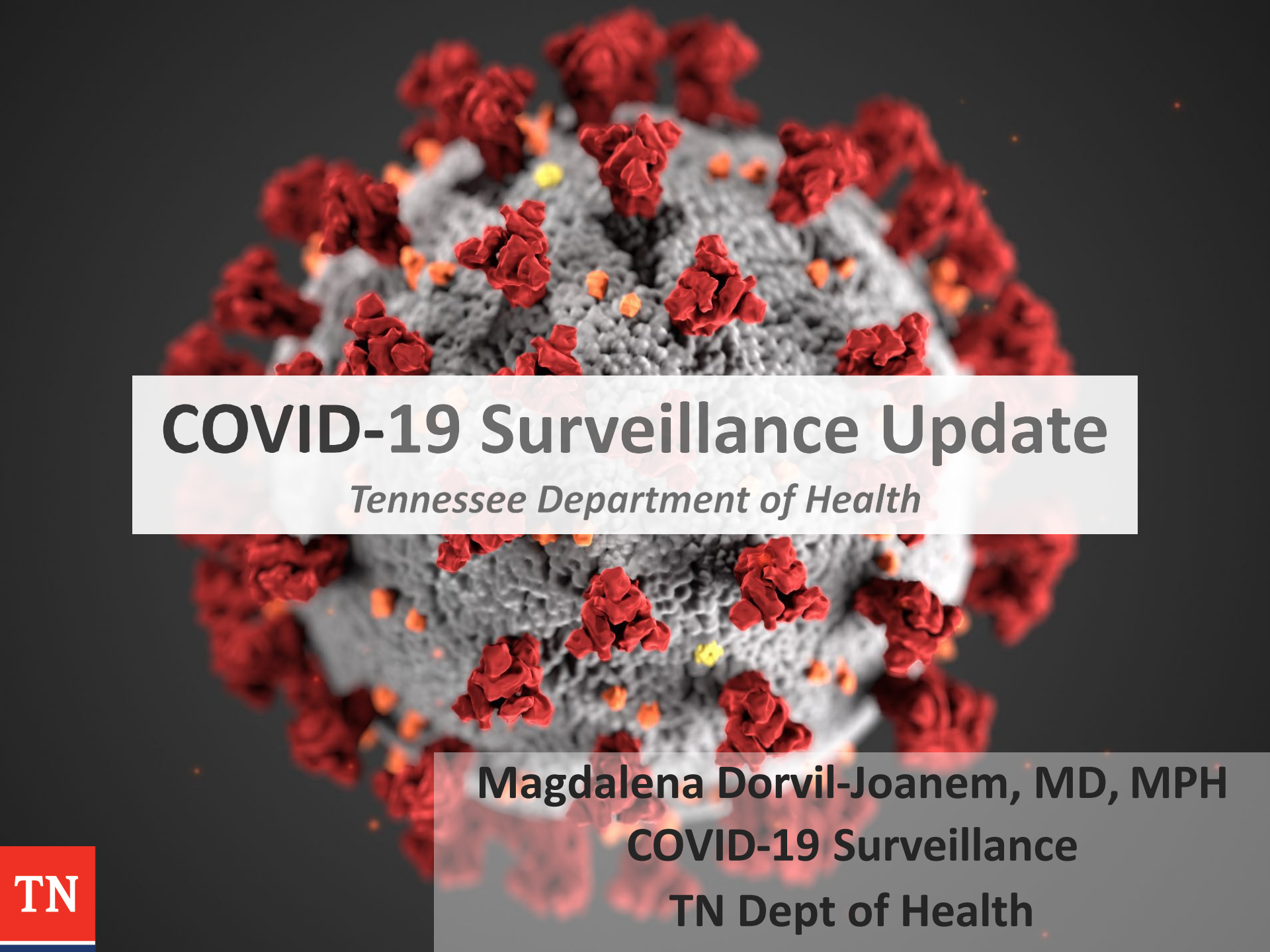
Monday, August 21, 10am CT

Agenda

- COVID-19 Update
  - Magdalena Dorvil-Joanem, MD, MPH
- NHSN Update
  - Vicky Lindsey, RN, CIC
- MDRO Announcements
  - Simone Godwin, DVM, MPH, MS, CIC
- What's New in NHSN Surveillance
  - Christopher Wilson, MD, MPH
- HAI Pathogens and Antimicrobial Resistance Report
  - Abigail Marrero, MPH, CPH
- Multi-Drug Resistant Organism (MDRO) Surveillance Team Update
  - Tara Suhs, 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



COVID-19 Surveillance Update

Tennessee Department of Health

Magdalena Dorvil-Joanem, MD, MPH
COVID-19 Surveillance
TN Dept of Health

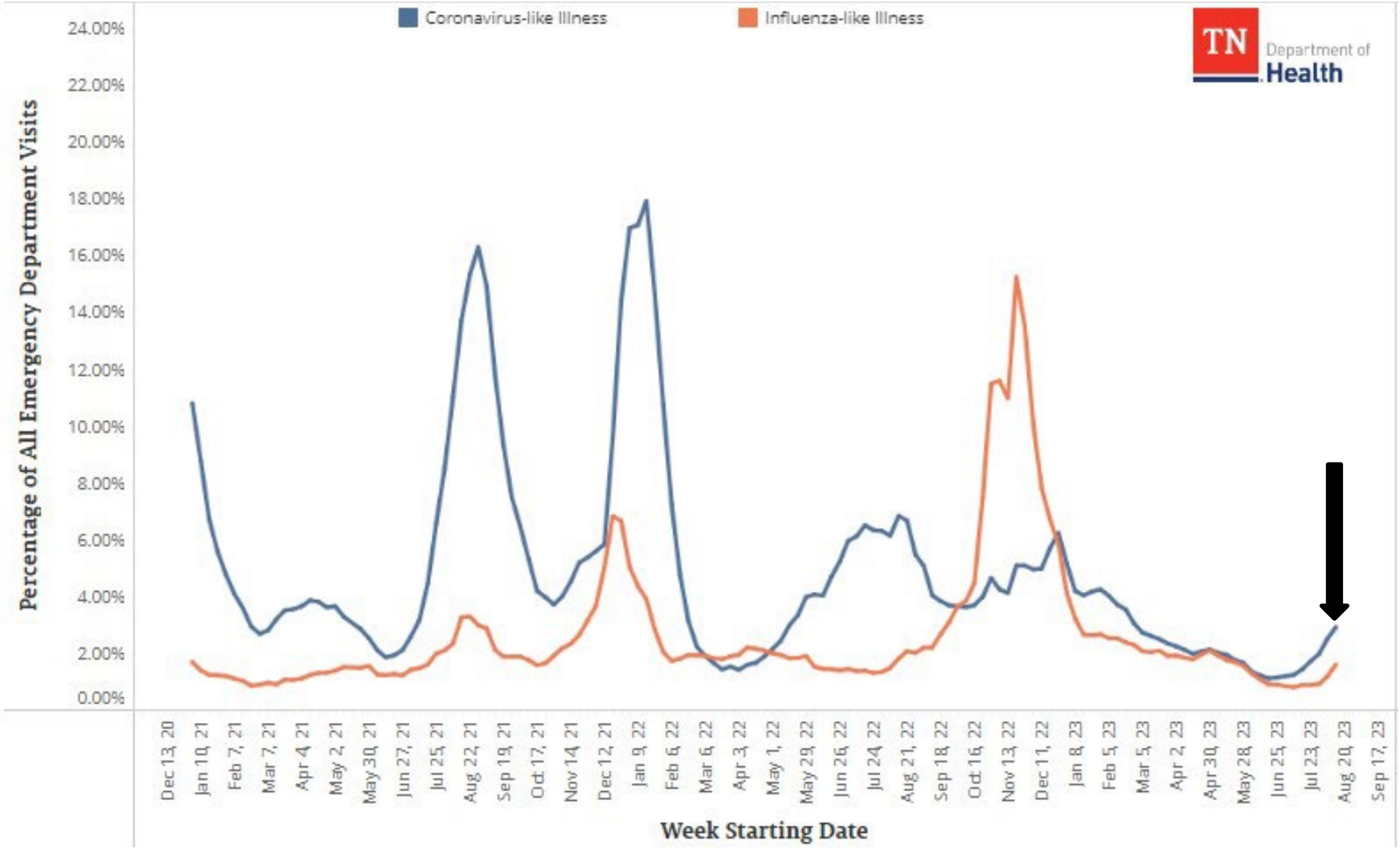
COVID-19 Trends in TN & US

- **Tennessee**
  - **New cases increasing (total ~5800/week)**
  - **Hospitalizations increasing (239 hospitalized currently)**

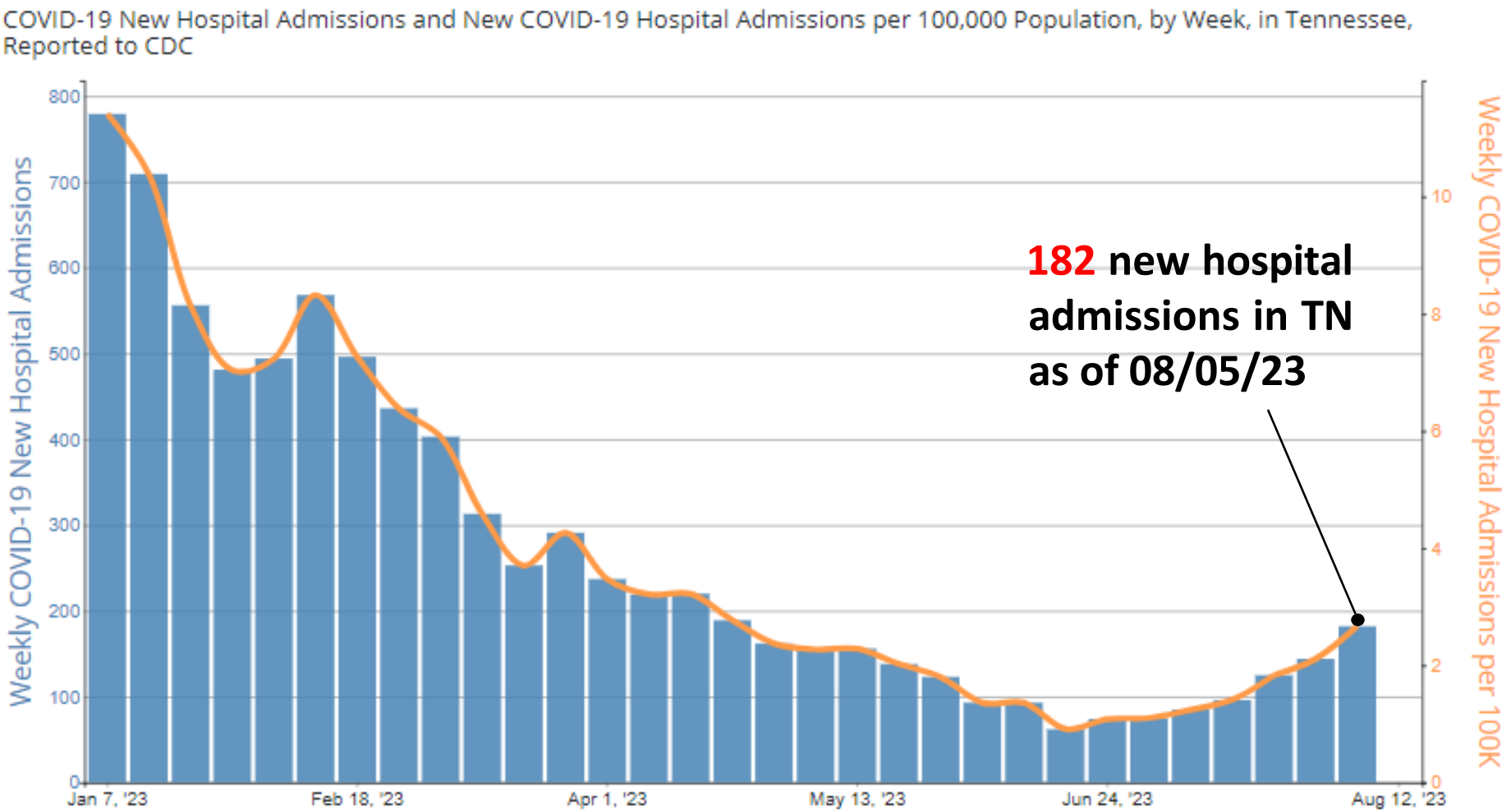
- **U.S.A.**
  - **New hospitalizations increasing**
  - **Deaths increasing**

Syndromic Surveillance

Emergency Department Data of chief complaint and discharge diagnosis



New Hospital Admissions

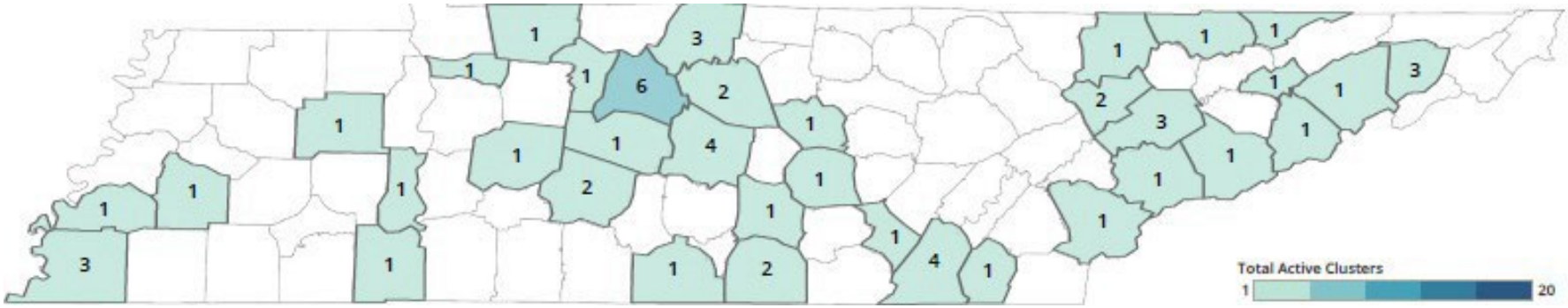


COVID Cluster in High-Risk Settings

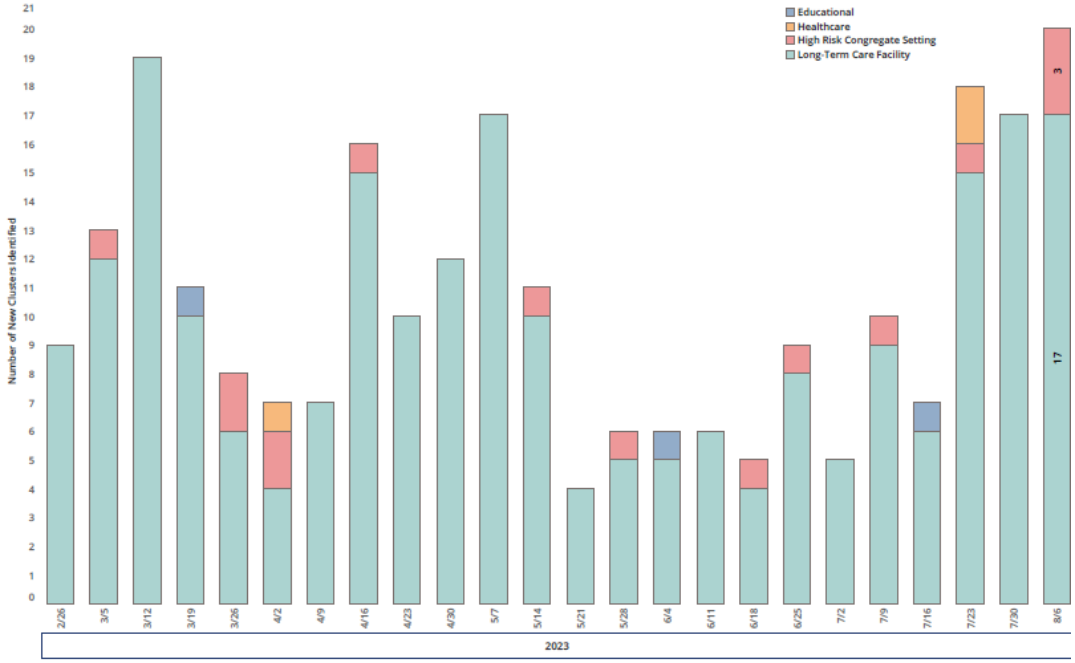
59 Total Active Clusters

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 8/6/2023 – 8/19/2023

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

WHO label	Lineage #	%Total	95%PI
Omicron	EG.5	16.5%	13.7-19.6%
	FL.1.5.1	14.9%	10.8-20.1%
	XBB.1.16.6	12.5%	10.2-15.2%
	XBB.1.16	10.3%	8.3-12.6%
	XBB.2.3	7.5%	6.4-8.7%
	XBB	6.2%	4.5-8.5%
	XBB.1.16.1	5.3%	4.3-6.6%
	XBB.1.5	5.1%	4.2-6.2%
	XBB.1.9.1	3.3%	2.8-3.9%
	XBB.1.5.70	2.8%	2.0-4.0%
	GE.1	2.7%	1.7-4.4%
	XBB.1.16.11	2.2%	1.1-4.4%
	XBB.1.5.72	2.2%	1.4-3.3%
	EG.6.1	1.5%	0.7-2.9%
	XBB.1.9.2	1.5%	1.1-1.9%
	XBB.1.5.10	1.3%	0.9-1.7%
	FD.1.1	1.1%	0.7-1.8%
	FE.1.1	0.8%	0.6-1.3%
	CH.1.1	0.8%	0.4-1.5%
	XBB.1.5.68	0.7%	0.4-1.2%
	XBB.1.5.59	0.4%	0.2-0.8%
	EU.1.1	0.3%	0.1-0.4%
	XBB.1.5.1	0.1%	0.1-0.1%
	BA.2	0.0%	0.0-0.1%
	BA.5	0.0%	0.0-0.0%
	FD.2	0.0%	0.0-0.0%
	BQ.1.1	0.0%	0.0-0.0%
	BQ.1	0.0%	0.0-0.0%
	BA.2.12.1	0.0%	0.0-0.0%
Other	Other*	0.1%	0.0-0.2%

Key Points:

- All SARS-CoV-2 strains currently circulating are all Omicron subvariants
- EG.5 strain represents a greater percentage (16.5%) of Covid case in region 4 than other Omicron subvariants

COVID-19 Surveillance Summary

	Tennessee	United States
Coronavirus-Like Illness	▲	▲
New Cases	▲	▲
Hospitalizations	▲	▲

Bottom line:

COVID activity is up in TN

COVID-19 Reporting Requirements

- **Tennessee state law and reportable conditions did not change with the expiration of the PHE**
  - **The law continues to require reporting of positive SARS-CoV-2 results**
  - **Information on required reporting for reportable conditions including SARS-CoV-2, is found here: https://www.tn.gov/health/cedep/reportable-diseases.html**

COVID-19 Reporting Mechanisms

- **Reporting mechanisms**
  - **Report via fax:**

    PH-1600 may be faxed or emailed directly to the local or regional health office at https://www.tn.gov/health/health-program-areas/localdepartments.html, or to the (CEDEP) Division at TDH at (615) 741-3857

  - **Report online:**

    National Electronic Disease Surveillance System (NEDSS) Base System (NBS): https://hssi.tn.gov/auth/login.

    Reporters can request an account at https://redcap.health.tn.gov/redcap/surveys/?s=8L7CMWHN4M. If you encounter problems, email ceds.informatics@tn.gov

  - **Report POC tests using NHSN:**

    Pathway reporting only includes summary data and does not meet reporting requirements.

  - **Work with the Cluster Team to report cases:**

    If you are working directly with public health staff to monitor and report current cases and clusters at your facility, line lists or forms that are completed per public health instructions will meet state reporting requirements

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

- If you have any questions about the webinar series, they can be emailed to NHSNTrain@cdc.gov.

PSC Data Quality Webinar

- Data quality (DQ) is an integral part of NHSN's goal of providing states, regions, and the nation with:
  - data needed to identify problem areas,
  - measure progress of prevention efforts,
  - ultimately eliminate healthcare-associated infections (HAI).

- Through these webinars, NHSN strives to ensure that facilities are equipped with the tools to perform ongoing DQ checks on their HAI data for complete, accurate and timely data submitted via NHSN.

- This webinar will focus on the following areas:
  - A summary of recent AUR Module data quality outreach
  - Common Data Quality Checks for Better Reporting
  - Changes in Reported Unusual Susceptibility Profiles During the COVID-19 Pandemic

PSC Data Quality Webinar

- Please see information for the next DQ Webinar and register below.

- Data Quality Webinar

  August 24, 2023, at 2 pm EST.
  https://cdc.zoomgov.com/webinar/register/WN_gdxMn6NaTCamFLk41nVS5A

- After registering, you will receive a confirmation email containing information about joining the webinar.

MDRO Announcements

Simone Godwin, DVM, MPH, MS, CIC | Tennessee Department of Health | Communicable and Environmental Diseases and Emergency Preparedness

C. auris Susceptibility Testing

- The State Public Health Lab (SPHL) will no longer perform AST on **repeat** clinical isolates
  - Repeat: another clinical isolate was received within the past 30 days
- Exception for cases of **treatment failure**
- Please indicate if there has been treatment failure on submission documents

Reminder ep-NTM

- Extra-pulmonary Non-Tuberculosis Mycobacterium is reportable through the normal channels
- Provider Reportable Disease List
  - "Nontuberculous Mycobacteria Infection (extra-pulmonary only) "
- Detailed Laboratory Guidance

Mycobacterium species other than *M. tuberculosis* (extra-pulmonary sites only) *Mycobacterium tuberculosis* complex *(M. tuberculosis, M. bovis, M. africanum, M. canettii, M. microti)*	Any AFB smear, culture, HPLC, DNA probe or nucleic acid amplification test (NAAT) from any non-pulmonary site indicating presence of acid-fast bacilli. All specimens, except respiratory.	Requested	L & P
	The first AFB-positive respiratory specimen (by fluorochrome or acid-fast stain) indicating presence of acid-fast bacilli; submit specimen within 3 business days of collection.	Required	L & P
	Any specimen, from any site, with a positive nucleic acid amplification test (NAAT — including, but not limited to: PCR, MTD, GeneXpert, MTBDR Plus (HAIN test)) indicating detection of *Mycobacterium tuberculosis* complex or associated point mutation from any site; submit specimen within 3 business days of test result. ☎	Required	L & P
	Any culture result by HPLC or DNA probe positive for *Mycobacterium tuberculosis* complex from any site; submit isolate within 5 business days of test result.☎	Required	L & P
	All anti-TB drug susceptibility results, by molecular or dilutional method, from a specimen or isolate from any site, with confirmed presence of *Mycobacterium tuberculosis*; anti-TB drugs include: isoniazid, rifamycins, pyrazinamide, ethambutol, streptomycin, levofloxacin, moxifloxacin, amikacin, capreomycin, kanamycin, cycloserine, ethionamide, para-aminosalicylate (PAS), clofazimine, bedaquiline, delamanid, linezolid, amoxicillin-clavulanate, and imipenem.☎	Required	L & P
	Positive interferon-gamma release assay (IGRA) test results (including, but not limited to: QuantiFERON®-TB Gold In-Tube, QuantiFERON® Plus, T-Spot.*TB*® test), for persons of any age; provide qualitative and quantitative positive IGRA results within 1 week of specimen collection.	--	L & P

https://www.tn.gov/content/dam/tn/health/documents/reportable-diseases/2023-Detailed-Laboratory-Guidance.pdf

Clostridioides difficile

Healthcare Facility-onset antibiotic- treated (HT-CDI) proposed changes for 2024

Christopher Wilson, MD, MPH
On behalf of the HAI/AR Team

2023 *C. difficile* definition

C. difficile-positive laboratory assay:

A positive laboratory test result for *C. difficile* toxin A and/or B, (includes molecular assays [PCR] and/or toxin assays) tested on an unformed stool specimen (must conform to the container).

OR

A toxin-producing *C. difficile* organism detected by culture or other laboratory means performed on an unformed stool sample (must conform to the container).

Notes:

- When using a multi-step testing algorithm for CDI on the same unformed stool specimen, the finding of the last test performed on the specimen that is documented in the patient medical record will determine if the CDI positive laboratory assay definition is met.

2023 *C. difficile* definition

Healthcare facility-onset, antibiotic Treated *C. difficile* infection (HT-CDI) definition

1. **Any** qualifying *C. difficile*-positive assay collected in an inpatient location on day 4 or later of healthcare facility admission,

   and

2. **New** qualifying antimicrobial therapy for *C. difficile* started ≤ 2 calendar days before or after specimen collection date and continued for at least calendar 5 days or until the calendar day of /or day prior to discharge.

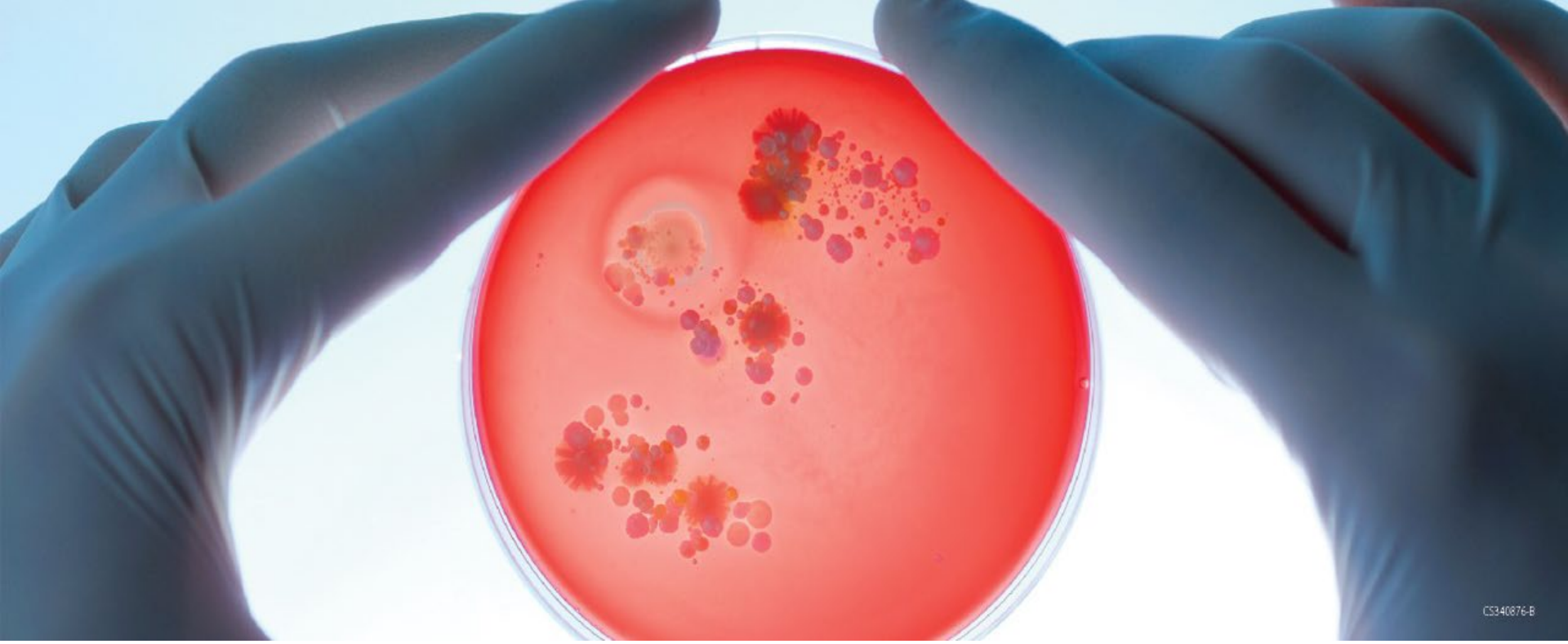
NHSN *C. difficile* measures

NHSN Measure	C. difficile LabID	Healthcare facility onset, antibiotic Treated C. difficile Infection (HT-CDI)
Numerator Data Categories	Final positive lab test Microbiology	Any positive lab test Microbiology + Antimicrobial Use
Status in 2022	In use	In development
Near-term plans	Continue reporting (in parallel with CDI)	NHSN launch in 2023, initially running in parallel with C. difficile LabID
Longer-term plans	Retire from NHSN and quality measures	Widespread use and reporting for appropriate quality programs

Bonus content

Hospital-Onset Bacteremia & Fungemia (HOB)

- *Purpose*: Surveillance for broader reduction of bloodstream infections, regardless of organism (eg. MRSA) or association with device (CLABSI)
- *Definitions*:
  - HOB: Blood culture collected on day 4 or later with pathogenic bacteria or fungi
  - *Complimentary metrics: Blood culture utilization, Contamination, Community-onset bacteremia & fungemia, Matching Commensal Hospital-Onset Bacteremia*
- *Key Data Elements*: Microbiology
- *Timeline: NHSN launch mid 2023*



HAI Pathogens and Antimicrobial Resistance Report, 2018-2021

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

Outline

- Background
- Methods
- Results
  - HAIs in Adult Patients
    - Antimicrobial Resistance
  - HAI's in Pediatric Patients
- Conclusion

Background

- NHSN data can:
  - alert us to new resistant pathogens
  - provide insight for new drug development
  - encourage evaluation of local pathogen and susceptibility data
  - guide strategies intended to interrupt the transmission of antimicrobial-resistant pathogens.

Methods

- Pathogens and their AST results reported from these HAIs were included in this report
  - CLABSIs
  - CAUTIs
  - SSIs
  - selected types of VAEs
- Facilities:
  - ACHs
  - CAHs
  - LTACHs
  - IRFs

Methods

- HAI Inclusion Criteria
  - CLABSIs classified as MBI-LCBI were included in the analysis. CLABSIs reported from IRFs were excluded
  - CAUTI data were limited to symptomatic urinary tract infections (SUTIs)
  - VAE data were limited to events classified as possible ventilator-associated pneumonia (PVAP)
  - SSI data included all types of SSIs following an inpatient surgery, regardless of the closure technique used on the incision
- Stratified by:
  - Age
  - Location
  - Surgery type based on body site

Pathogen Data

- Contained pathogen data:

100% CLABSIs	100% CAUTIs
97% VAEs	76% SSIs

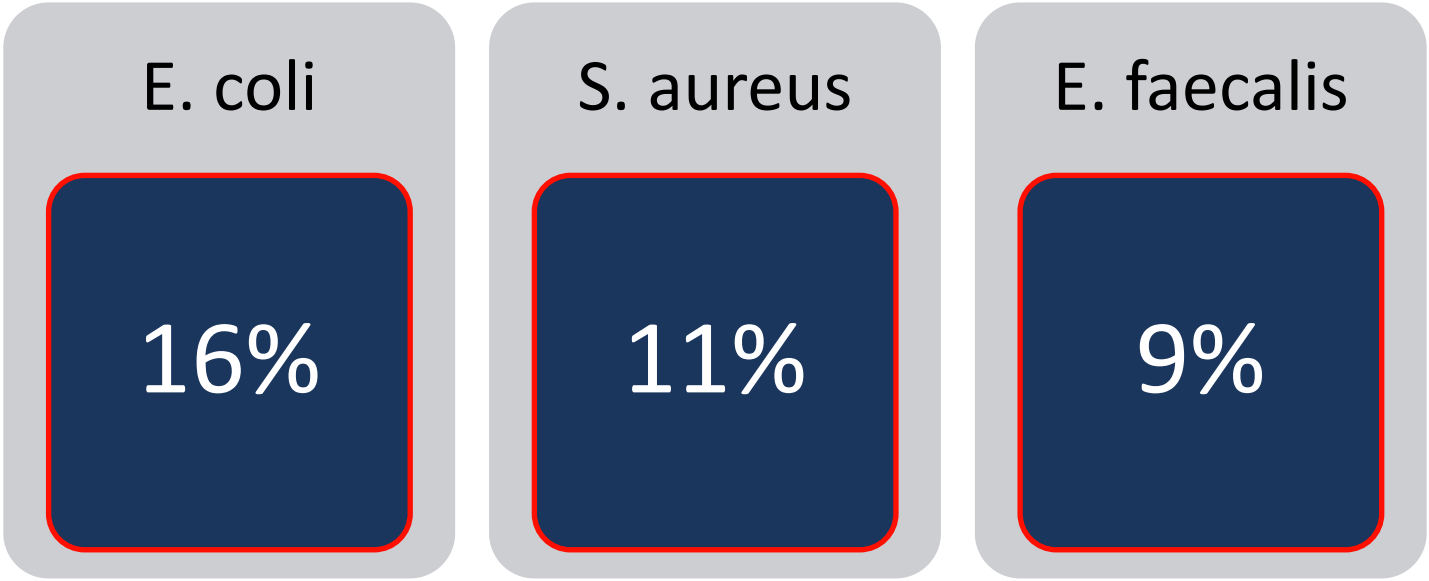
Results: HAIs in Adult Patients

- 4,836 healthcare facilities performed surveillance of HAIs in adult patients
- Total of 401,323 HAIs and 452,940 pathogens were reported

		Facilities		Pathogens	
		#	%	#	%
Facility Type	General	3,195	66.1	415,931	91.8
	Critical Access	557	11.5	2,650	0.6
	Long-term Acute Care	439	9.1	17,572	3.9
	Free-standing Inpatient Rehabilitation	310	6.4	2,659	0.6
	Veterans' Affairs	106	2.2	1,463	0.3
	Surgical	87	1.8	1,525	0.3
	Children's	40	0.8	419	0.1
	Military	28	0.6	677	0.1
	Oncology	20	0.4	7,603	1.7
	Orthopedic	20	0.4	893	0.2
	Women's and Children's	13	0.3	514	0.1
	Women's	12	0.2	965	0.2
	Psychiatric	9	0.2	69	0.0
Bed Size	1-50	1,618	33.5	19,367	4.3
	51-100	871	18.0	22,159	4.9
	101-200	993	20.5	58,133	12.8
	≥ 201	1,354	28.0	353,281	78.0
	Total	4,836	100.0	452,940	100.0

Results: HAIs in Adult Patients

- Most reported pathogens for all HAIs analyzed:



HAIs in Adult Patients

- SSIs contributed the highest proportion of pathogens (48%), followed by CLABSIs (25%)

	Pathogens[1]		HAI Events[2]	
HAI Type	#	%	#	%
SSI	215,669	47.6	190,384	47.4
CLABSI	113,604	25.1	100,851	25.1
CAUTI	107,934	23.8	96,974	24.2
PVAP	15,733	3.5	13,114	3.3
Total	452,940	100.0	401,323	100.0

CLABSI Pathogens

- Greatest proportion of CLABSI pathogens (39%) were reported from ACH ICUs
  - Coagulase-negative staphylococci (CNS) were the most common pathogens (17%) reported in ICUs
- Top CLABSI pathogen reported from ACH wards:

E. coli

CAUTI Pathogens

- Largest proportion of CAUTI pathogens were reported from wards (45%)
- Top 3 most frequently reported CAUTI pathogens were:

E. Coli

Klebsiella

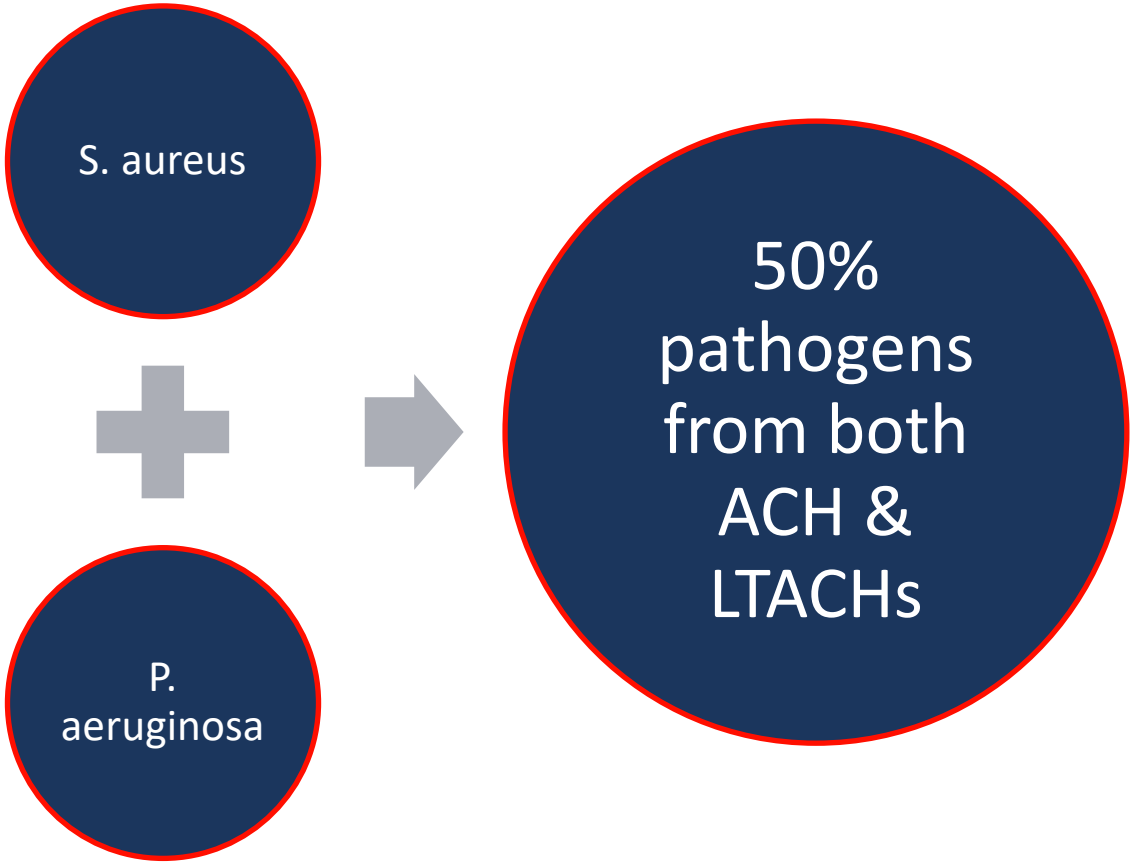
P. aeruginosa

SSI Pathogens

- Majority were reported as an organ/space infection
  - 54%
- Most reported SSI pathogen:

S. aureus

PVAP Pathogens



Results: Antimicrobial Resistance

- DA infections reported 45% of tested Acinetobacter as non-susceptible to carbapenems, compared to 28% in SSIs.
- Across all phenotypes, resistance percentages were highest for vancomycin-resistant E. faecium

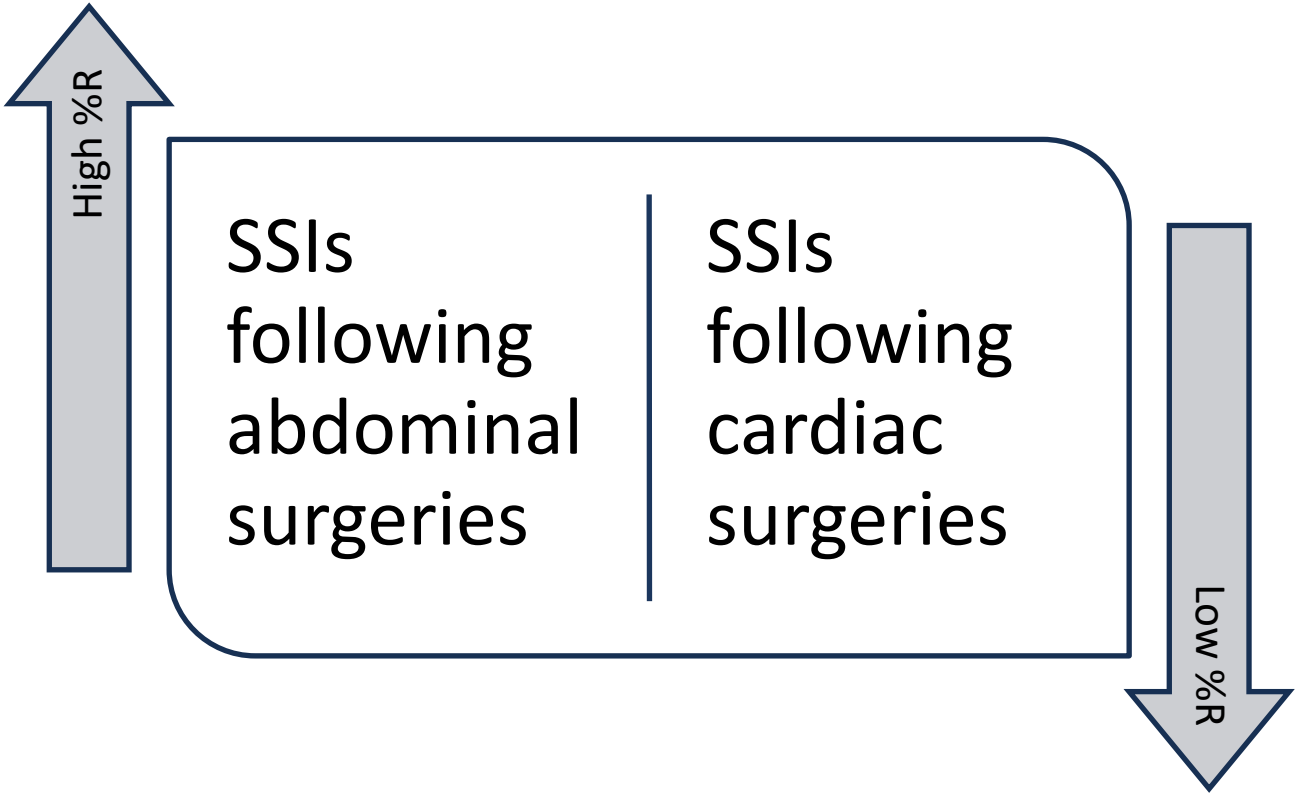
Antimicrobial Resistance

- Among CLABSIs in LTACHs

Acinetobacter non-susceptible to carbapenems	Enterobacterales classified as CRE	S. aureus were classified as MRSA	Enterobacterales non-susceptible to ESCs
70%	17%	70%	~50%

Antimicrobial Resistance

- Carbapenem-non-susceptible Acinetobacter and MRSA had the highest resistance percentages (both at 36%)



Antimicrobial Resistance Calculations

- Resistance is measured as a percentage (%R) of the total number of isolates that tested resistant
- Percentages were compared using a mid-P Exact test; $p<0.05$ was considered statistically significant

Antimicrobial Resistance

- Resistance values were statistically significantly lower for:

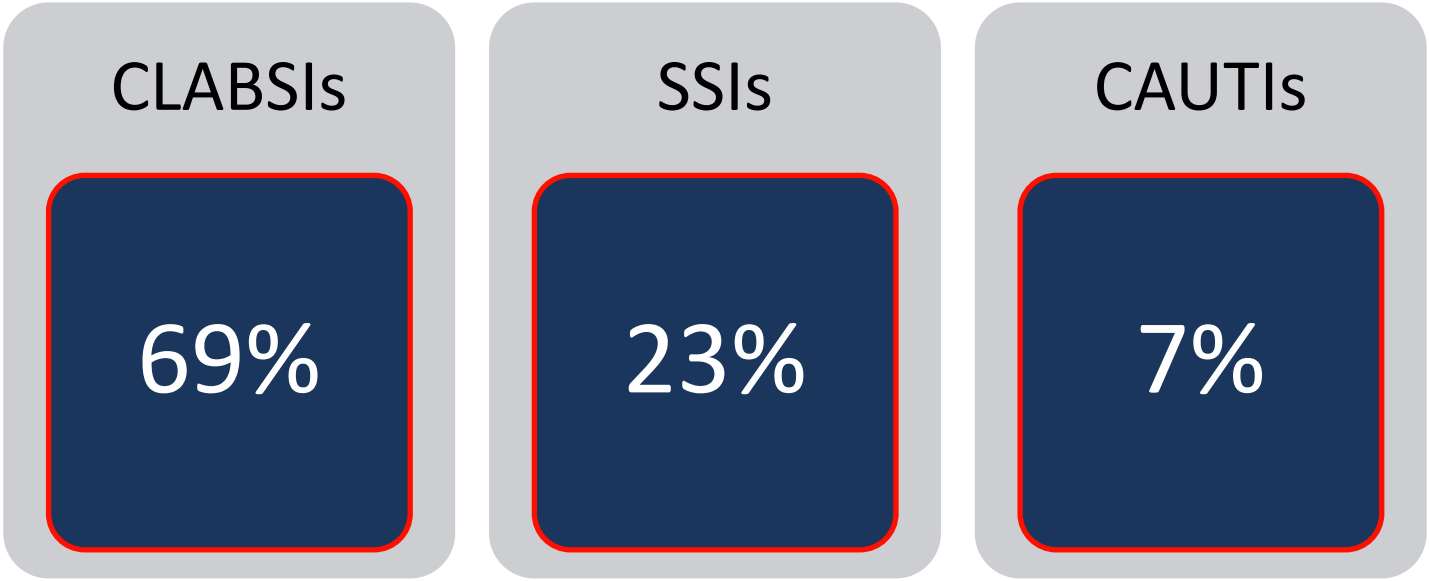
Vancomycin-resistant enterococci (VRE)

Multidrug-resistant (MDR) P. aeruginosa

Methicillin, oxacillin or cefotoxin-resistant S. aureus (MRSA)

Results: HAIs in Pediatric Patients

- Most reported infections for all HAIs analyzed:



HAIs in Pediatric Patients

- Vancomycin resistance among E. faecium reported from pediatric ICU and oncology CLABSIs was significantly lower in 2018-2021 than in 2015-2017
- Methicillin resistance among S. aureus reported from pediatric oncology locations was significantly higher in 2018-2021 (34%) than during 2015-2017 (24%)

Conclusion

- Our results demonstrate that antimicrobial resistance remains a significant problem in hospitals, especially among high-risk patient populations
- The data shown in this report highlights the need for targeted infection prevention and stewardship activities to address the challenges posed by antimicrobial-resistant pathogens.
- HAI Pathogens and Antimicrobial Resistance Report 2018-2021

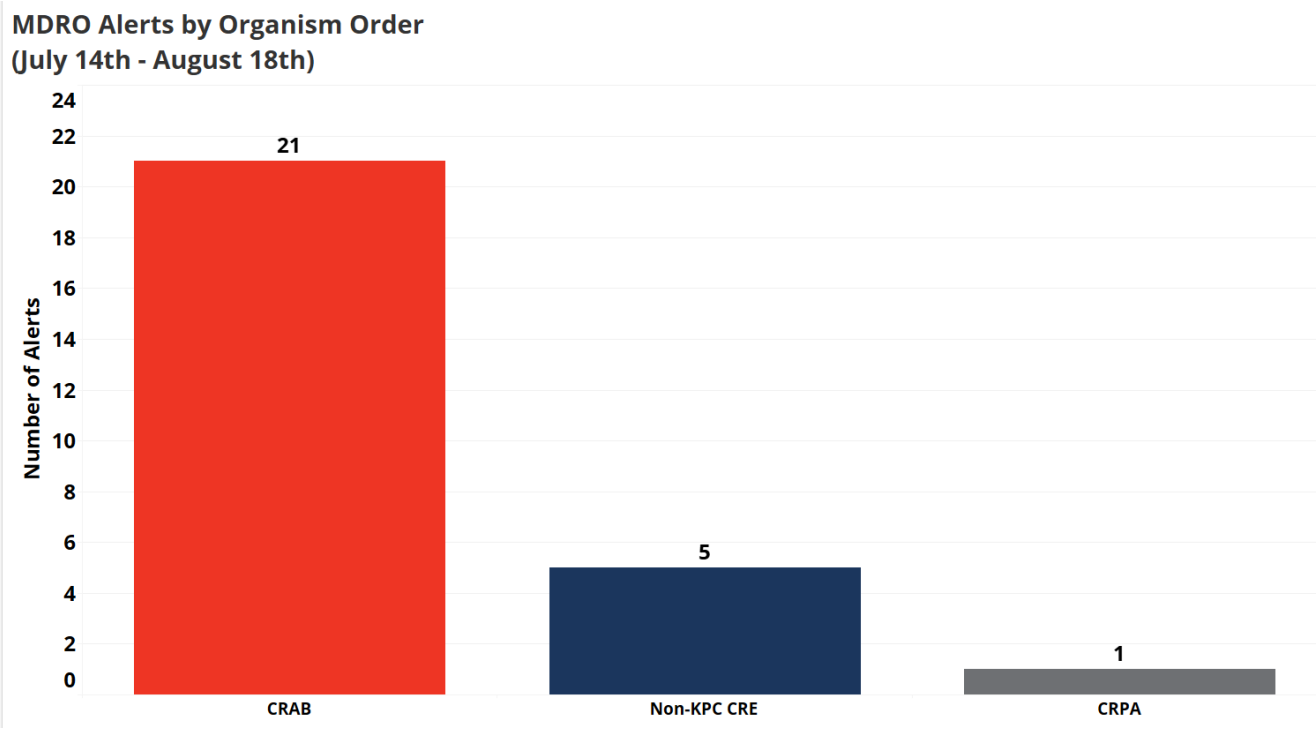
Multi-Drug Resistant Organism (MDRO) Outbreak Team Update

July 14th – August 18th, 2023

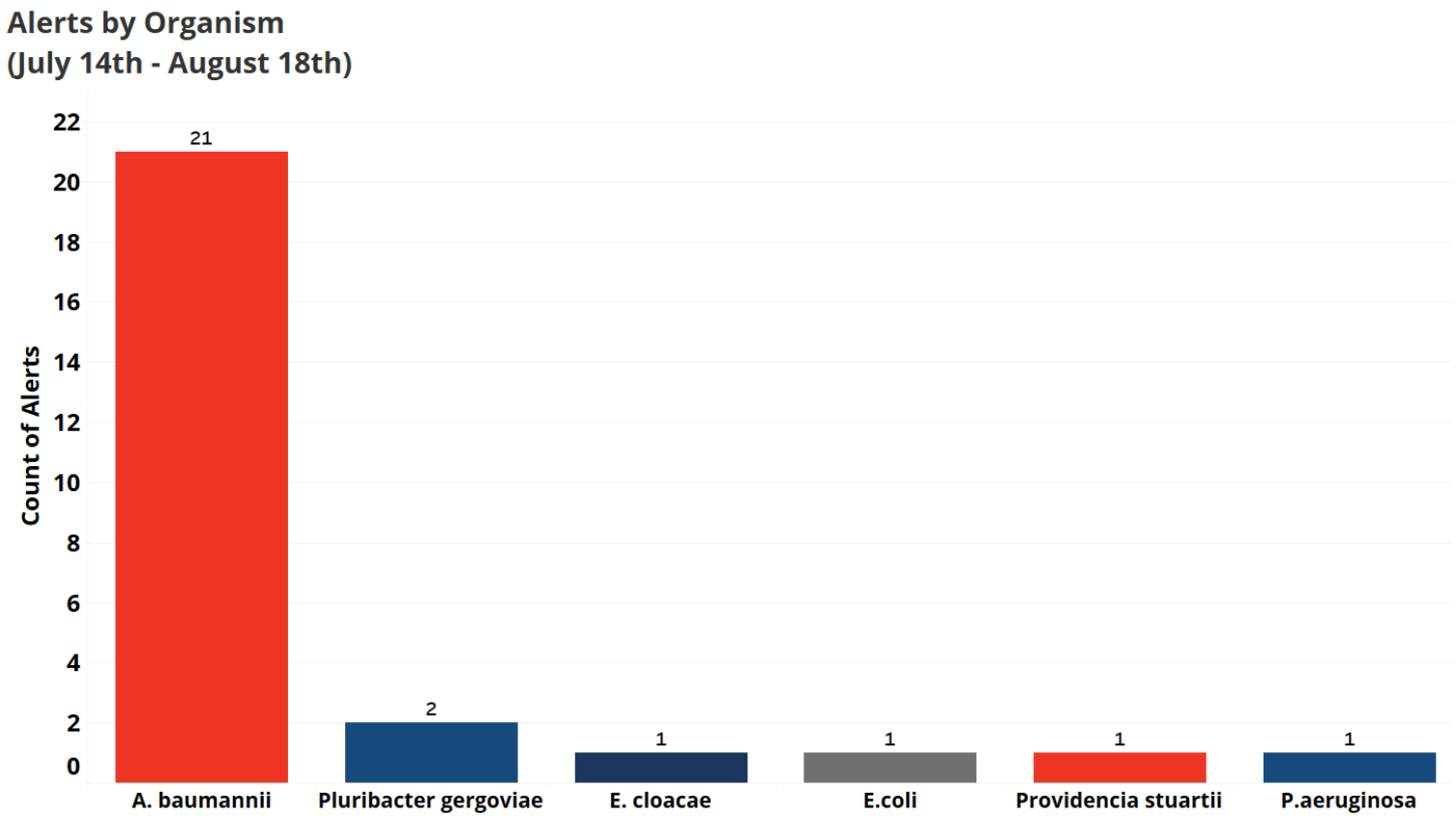
Tara Suhs, MPH | August 21st, 2023

MDRO Alerts

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

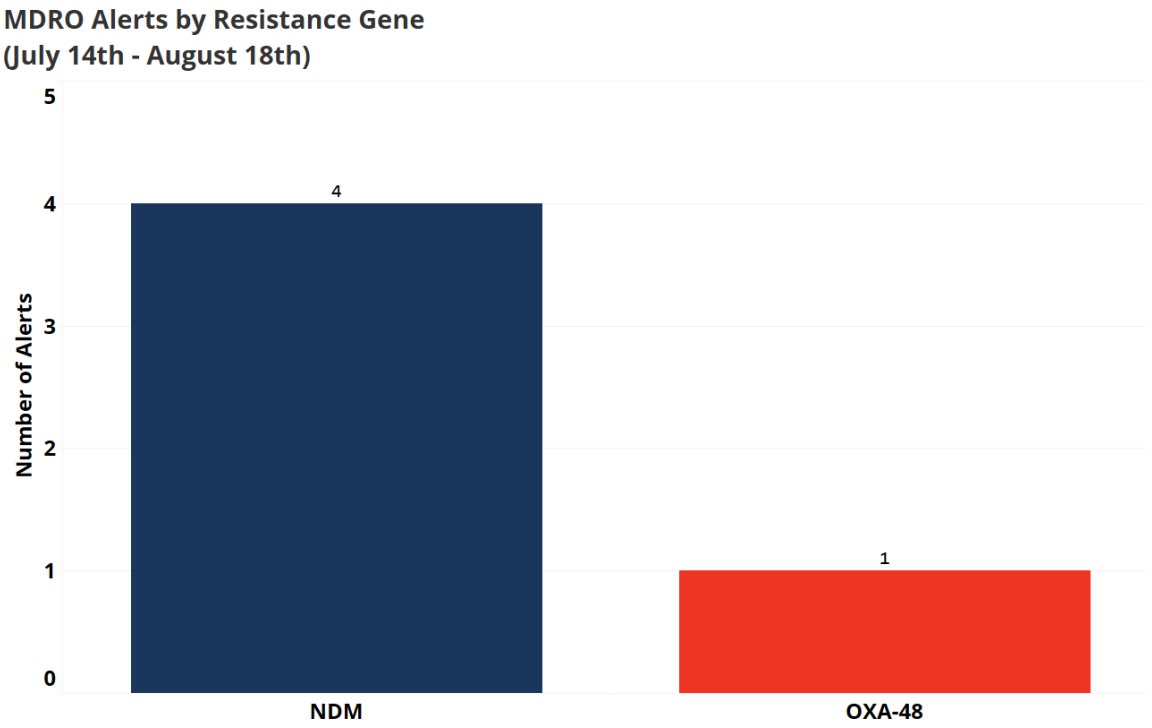


MDRO Alert by Organism



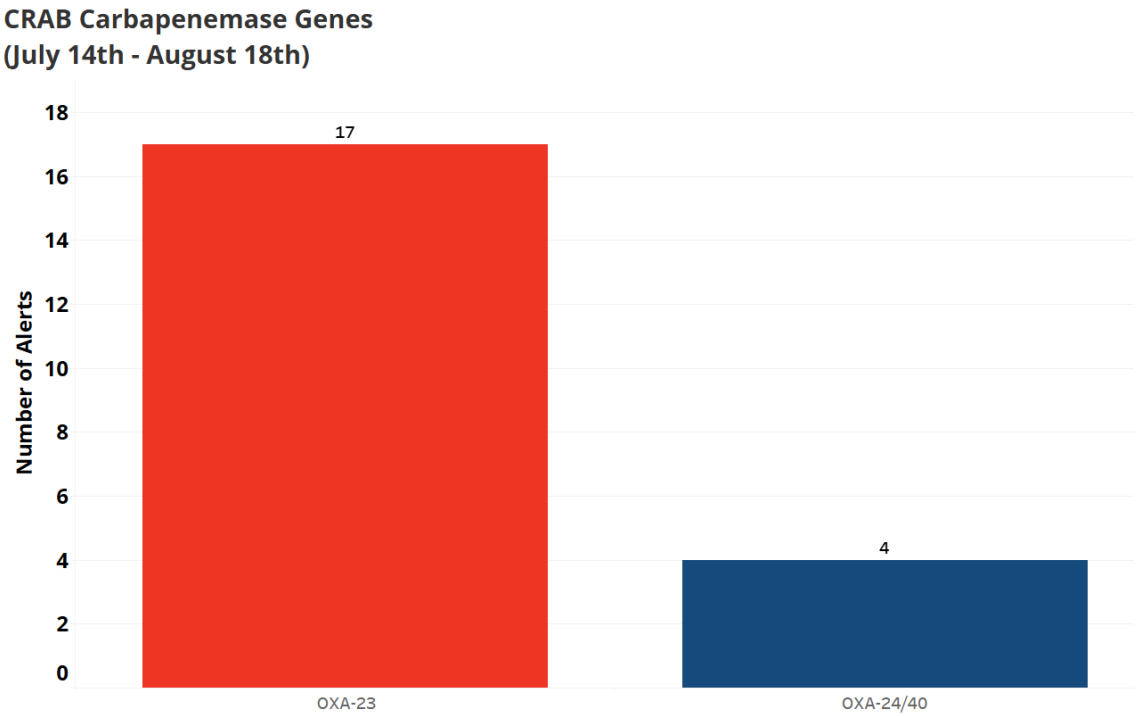
Non-KPC CRE Genes

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

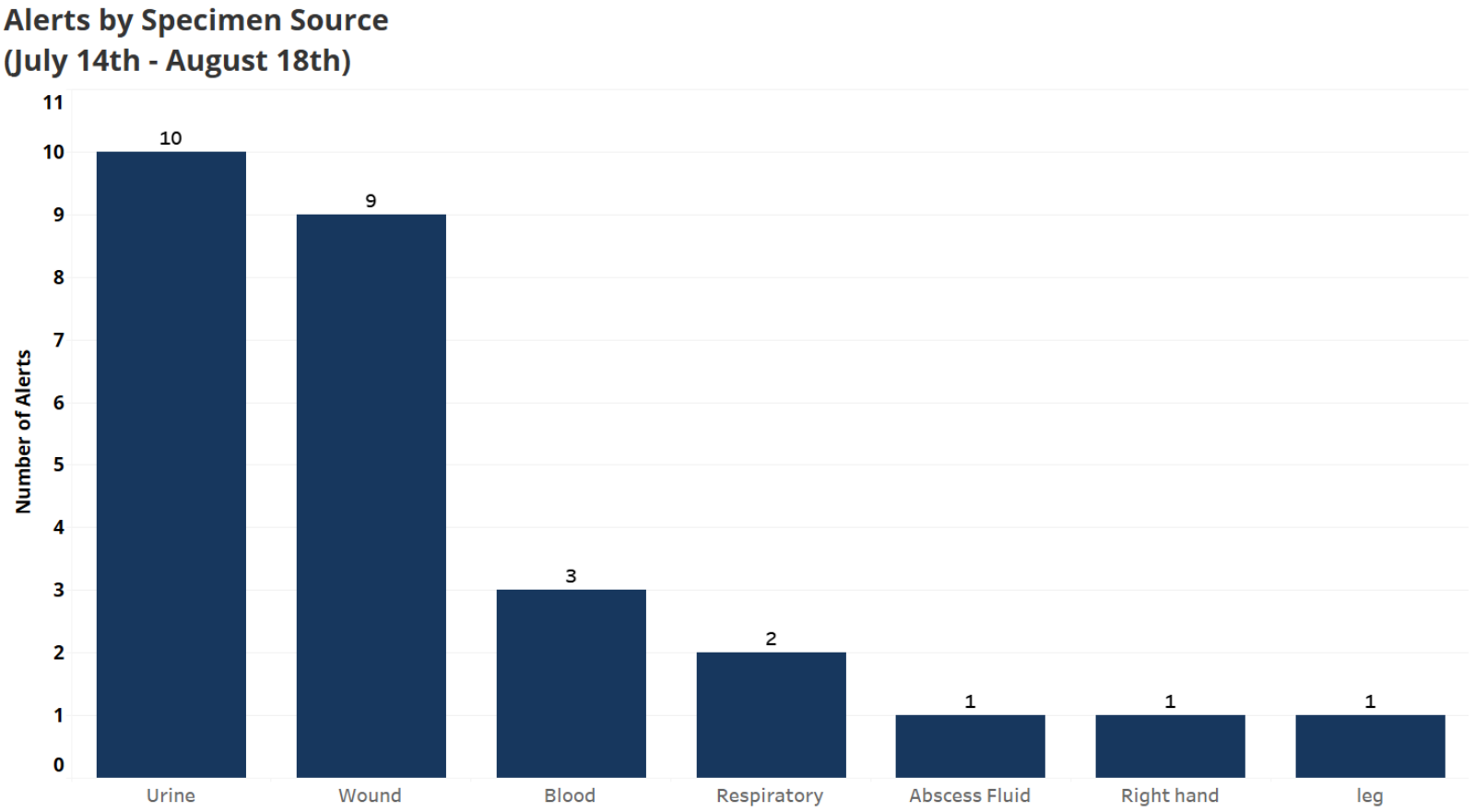


CRAB Alerts

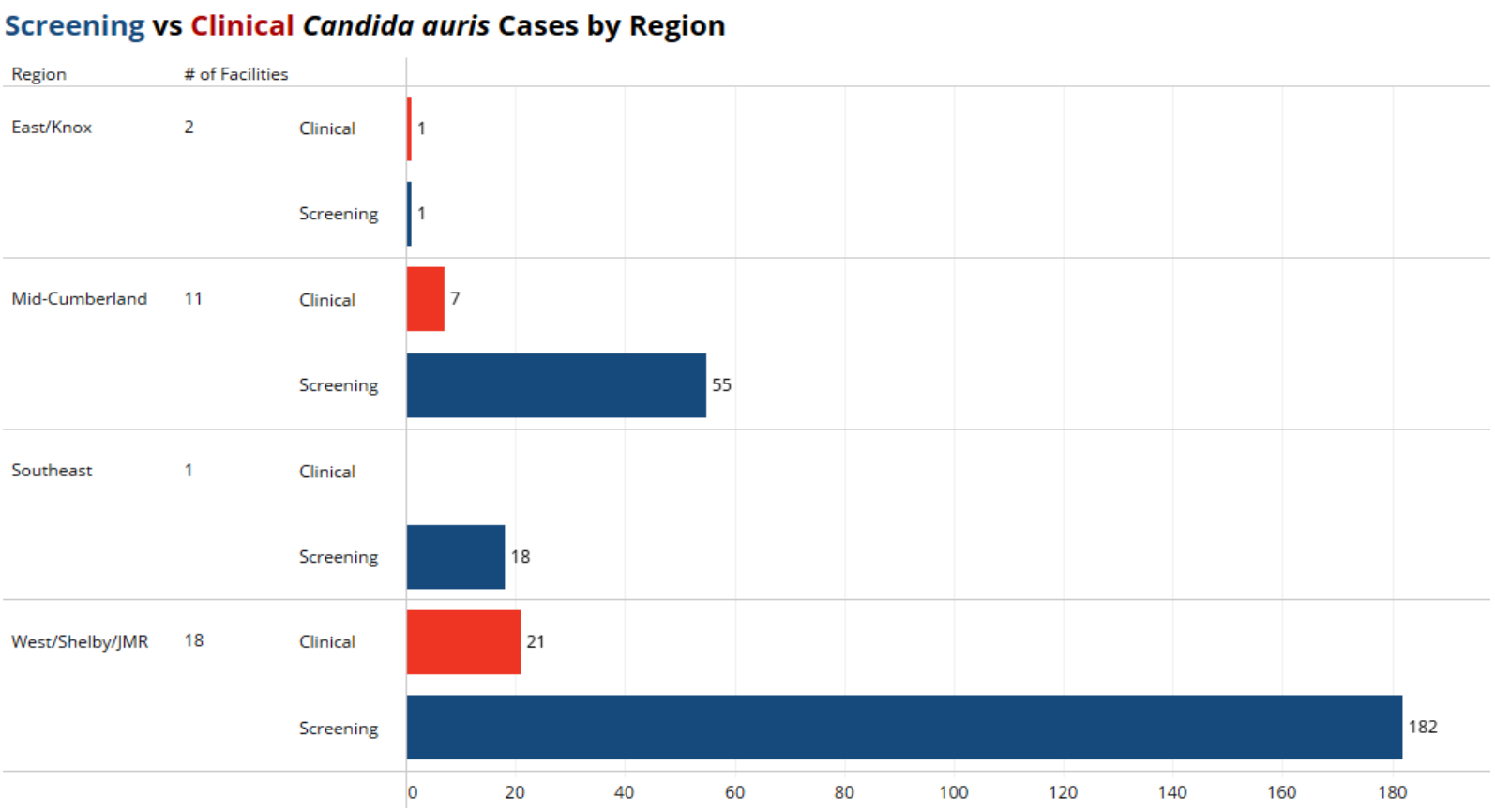
- **Carbapenemase-producing genes:**
  - **Other Oxacillinases**
    - **OXA-24/40**
    - **OXA-23**



Specimen Sources

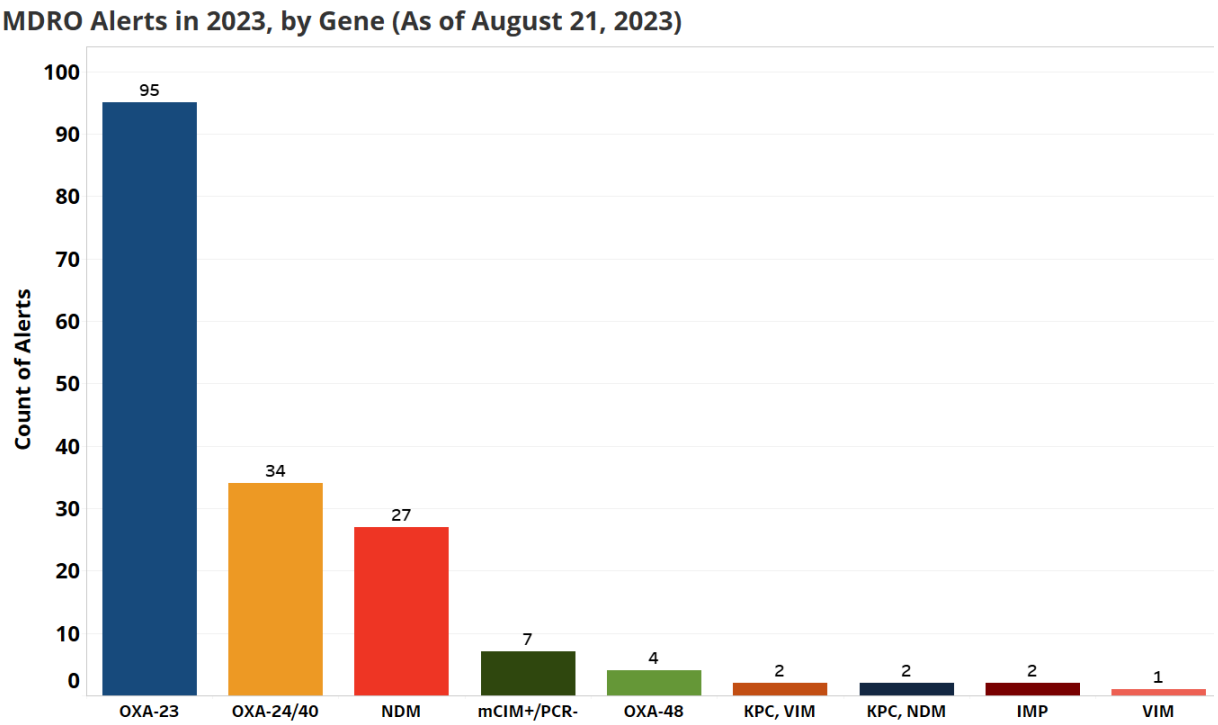


2023 *C. auris* Cases



TN MDRO Alerts for 2023

- **129 CRAB specimens**
  - 95 OXA-23
  - 34 OXA-24/40
- **45 non–KPC CRE**
  - 27 NDM
  - 7 mCIM+/PCR-
  - 4 OXA-48
  - 2 IMP
  - 2 KPC, NDM
  - 2 KPC, VIM
  - 1 VIM
- ***C. auris***
  - 29 Clinical cases
  - 256 Screening cases



Next NHSN User Call

- **Monday, September 18, 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**