WISCONSIN DEPARTMENT of HEALTH SERVICES

The National Healthcare Safety Network for New Infection Preventionists

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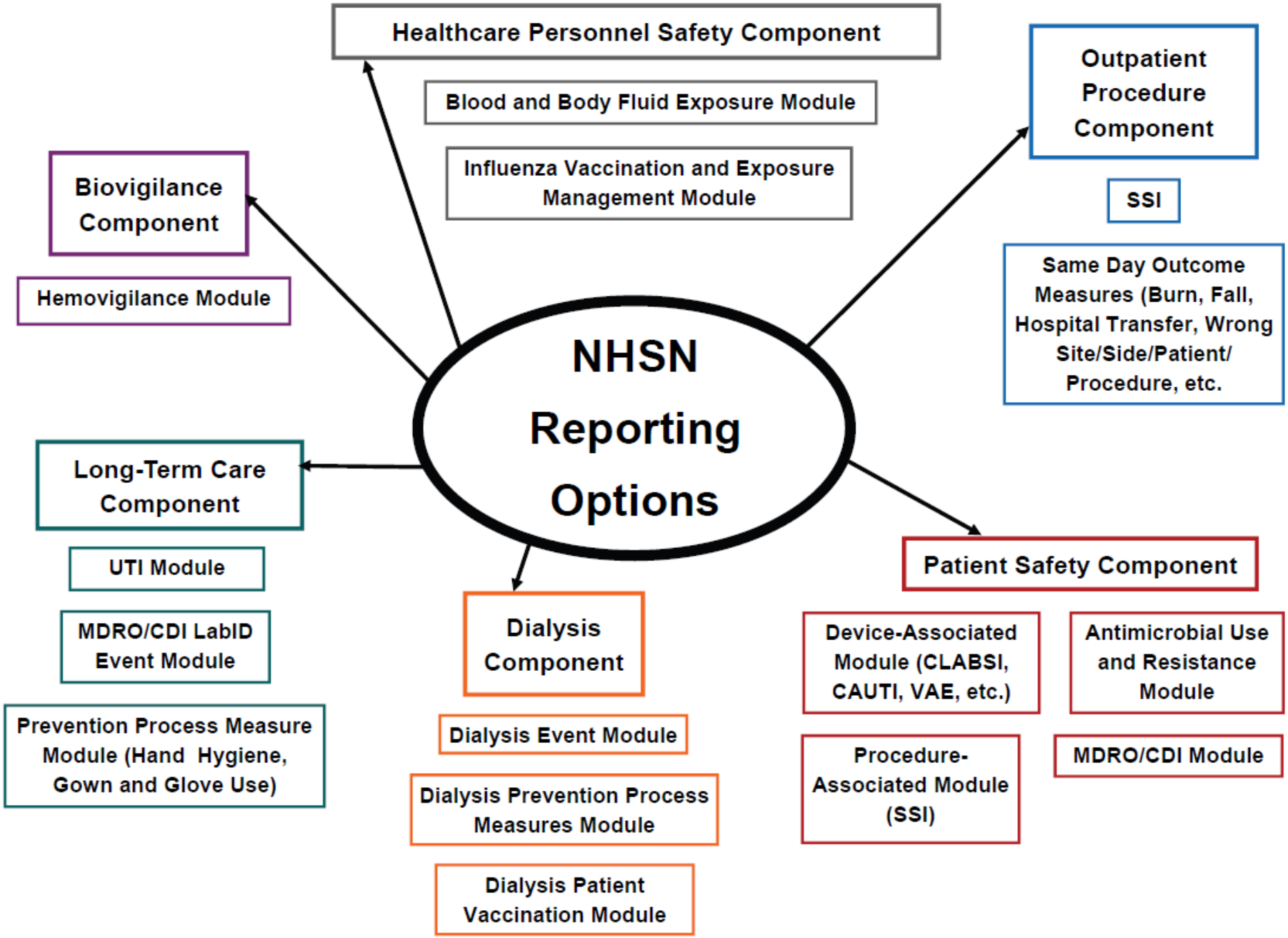
October 23, 2019

Objectives

- Provide high-level National Healthcare Safety Network (NHSN) overview
- Review NHSN data entry
- Discuss NHSN analysis options
- View resources for successful NHSN use


NHSN Reporting Options
Healthcare Personnel Safety Component
Blood and Body Fluid Exposure Module
Influenza Vaccination and Exposure Management Module
Biovigilance Component
Hemovigilance Module
Outpatient Procedure Component
SSI
Same Day Outcome Measures (Burn, Fall, Hospital Transfer, Wrong Site/Side/Patient/ Procedure, etc.
Long-Term Care Component
UTI Module
MDRO/CDI LabID Event Module
Prevention Process Measure Module (Hand Hygiene, Gown and Glove Use)
Dialysis Component
Dialysis Event Module
Dialysis Prevention Process Measures Module
Dialysis Patient Vaccination Module
Patient Safety Component
Device-Associated Module (CLABSI, CAUTI, VAE, etc.)
Antimicrobial Use and Resistance Module
Procedure-Associated Module (SSI)
MDRO/CDI Module

Hospital CMS Reporting

Affects

- Prospective payment system (PPS) hospitals
- Inpatient rehabilitation facilities
- Long-term acute care hospitals

Modules

- CLABSI
- CAUTI
- SSI (inpatient colon and abdominal hysterectomy)
- MRSA bacteremia
- CDI

Note: All acute care and critical access hospitals contribute these measures to the Wisconsin Hospital Association CheckPoint public reporting website (https://www.wicheckpoint.org/Home_main.aspx) too.

Wisconsin Hospital Reporting

Department of Health Services carbapenem-resistant *Enterobacteriaceae* (CRE) mandate

- Reporting via NHSN
- Reporting via WEDSS (DHS chapter 145)

More information available at
https://www.dhs.wisconsin.gov/disease/cre.htm
https://www.dhs.wisconsin.gov/hai/nhsn-resources.htm

NHSN Enrollment Basics

- Facility enrollment vs. individuals
- Secure access management system (SAMS)
- NHSN facility administrator
- Conferred rights

Facility Activation Basics

- Location mapping
  https://www.cdc.gov/nhsn/pdfs/pscmanual/15locationsdescriptions_current.pdf
- Additional users
- Annual facility survey
  https://www.cdc.gov/nhsn/forms/instr/57_103-toi.pdf

Tip 1: Review Location Mapping At Least Annually

- Review location mapping (Facility > Locations > Find)
- Assess accuracy and adjustment needs
- Consult with unit managers for typical patient populations on an average day (80-20 rule)
- Edit units as needed during/after construction
- Determine need to edit versus add locations
  - Edit: Name change, population stays the same
  - Add: Change to patient population

NHSN Data Entry

Every month:

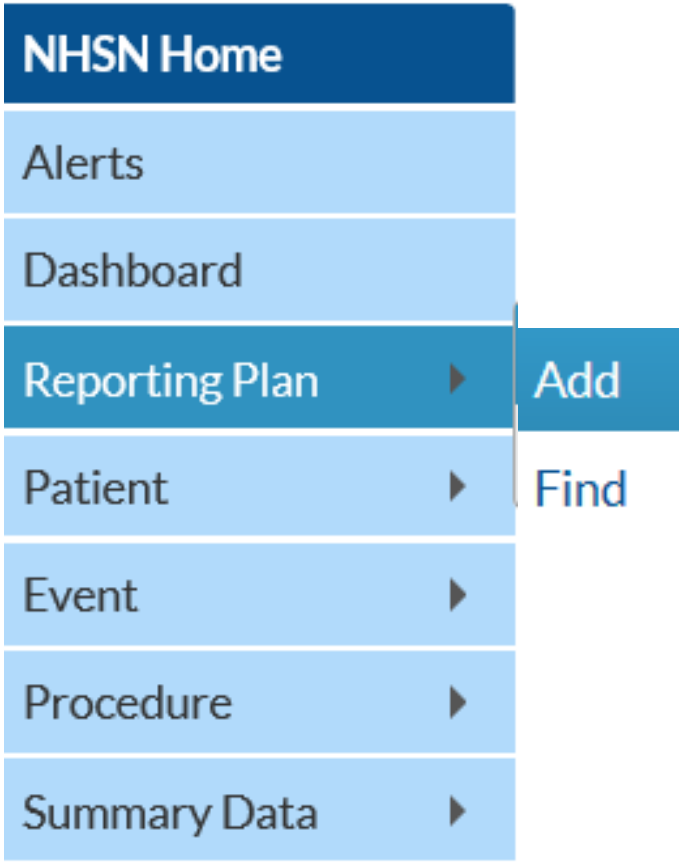
- ☑ Reporting plan
- ☑ Numerator
- ☑ Denominator
- ☑ Missing data alerts

Tip 2: Surveillance Protocols

- Have the current surveillance protocol in front of you while assessing cases.
- Bookmark the surveillance protocol index.
  https://www.cdc.gov/nhsn/acute-care-hospital/index.html
- Don't forget about "Chapter 17."
  https://www.cdc.gov/nhsn/pdfs/pscmanual/17pscnosinfdef_current.pdf

Monthly Reporting Plan

- Lists surveillance plan for the month
- Certifies adherence to NHSN protocols
- Triggers missing data alerts
- Allows data inclusion in national benchmarking aggregates



Monthly Reporting Plan

Facility ID *: NHSN Test Medical Clinic #3 (ID 14352)
Month *: August
Year *: 2019
☐ **No NHSN Patient Safety Modules Followed this Month**

Device-Associated Module

	Locations	CLABSI	VAE	CAUTI
🗑	SICU - SURGICAL ICU	☑	☐	☑
🗑	MEDSURG2 - MED/SURG WARD	☑	☐	☑

Add Row | Clear All Rows | Copy from Previous Month

Procedure-Associated Module

	Procedures	SSI
🗑	COLO - Colon surgery	IN: ☑ OUT: ☐
🗑	HYST - Abdominal hysterectomy	IN: ☑ OUT: ☐

Multi-Drug Resistant Organism Module

	Locations	Specific Organism Type
🗑	FACWIDEIN - Facility-wide Inpatient (FacWIDEIn)	CRE - CRE (CRE-Ecoli, CRE-Enterobacter, CRE-Klebsiella)

Process and Outcome Measures

Infection Surveillance	AST-Timing	AST-Eligible	Incidence	Prevalence	Lab ID Event All Specimens	Lab ID Event Blood Specimens Only	HH	GG
☐			☐	☐	☑	☐	☐	☐

Tip 3: Enter Reporting Plans Monthly

- More frequent entry = more practice
- Create a habit (plan, numerator, denominator)

Denominator Data

- Summary data: Unit-based surveillance for device-associated modules
  - Patient days
  - Device days
- Summary data: Facility-wide inpatient, ED, and 24-hour observation unit surveillance for the MDRO/CDI modules and process measures
  - Patient days
  - Patient admissions
  - Encounters (outpatient locations)

Tip 4: Validate Electronic Data

- When to validate?
  - Manual to electronic reports
  - Electronic report vendor change
  - Consider regular validation (i.e., annual)
- How to validate?
  - Compare to manual collection for three months
  - Assess percent difference (goal is +/- 5%)

Procedure Data

Surgical site infections

- Procedure record for every surgery done each month in selected categories, even if there is no infection
- Manual entry
- Electronic entry
  - CSV file (Excel)
  - Clinical document architecture (CDA)

Numerator Data

- Add an event

Or

- Check “report no events”
  - Missing procedure-associated events alert for SSI
  - Summary data form for all other modules

Report No Events

	Specific Organism Type							
	MRSA	VRE	CephR-Klebsiella	CRE-Ecoli	CRE-Enterobacter	CRE-Klebsiella	C. difficile	MDR-Acinetobacter
LabID Event (All specimens)	☐	☐	☐	☑	☑	☑	☐	☐
Report No Events	☐	☐	☐	☑ **	☑ **	☑ **	☐	☐

Tip 5: Use Tables of Instruction and NHSN FAQs

Resources for NHSN Users Already Enrolled

- Training +
- Protocols +
- Frequently Asked Questions +
- Data Collection Forms −

All Data Collection Forms are Print-only

- 57.108 Primary Bloodstream Infection (BSI) form January 2019 [PDF – 107 KB]
  - Customizable form [DOCX – 39 KB]
  - Table of Instructions for BSI form 57.108 [PDF – 169 KB]

NHSN CRE Definition

Any *Escherichia coli*, *Klebsiella oxytoca*, *Klebsiella pneumoniae*, or *Enterobacter* spp. testing resistant to imipenem, meropenem, doripenem, or ertapenem by standard susceptibility testing methods.

OR

Any organism producing a carbapenemase (specifically, KPC, NDM, VIM, IMP, OXA-48) demonstrated using a recognized test (examples: PCR, metallo-β-lactamase test, Carba-NP, Xpert® Carba-R).

Report carbapenem-resistant *Enterobacteriaceae* (i.e., carbapenemase-producing [CP] and non-CP) of the following species: *Escherichia coli*, *Klebsiella oxytoca*, *Klebsiella pneumoniae*, or *Enterobacter* spp.

Is This CRE?

Culture

>10,000 org/mL Enterobacter cloacae complex !

>10,000 org/mL Enterobacter cloacae complex !

Unable to rule out carbapenemase resistance (KPC/CRE/Oxa48/NDM1type). Patient requires isolation. Please see Policy #1074: Management of Patients with Carbapenem-Resistant Enterobacteriaceae (CRE). Isolate sent to State Laboratory for PCR confirmation. Please see separate report.
Report to follow

Susceptibility

	Enterobacter cloacae complex (1) MIC - VITEK 2	Enterobacter cloacae complex (2) MIC - VITEK 2	Enterobacter cloacae complex (2) MIC - DISK DIFFUSION
AMIKACIN	<=2 ug/mL Susceptible [S]	<=2 ug/mL Susceptible [S]	
Caz/Clav Zone Difference			Susceptible [S]
CEFAZOLIN	>=64 ug/mL Resistant [S]	>=64 ug/mL Resistant [S]	
CEFEPIME	<=1 ug/mL Susceptible [S]	<=1 ug/mL Susceptible [S]	
CEFOTAXIME			Resistant [S]
CEFOXITIN	>=64 ug/mL Resistant [S]	>=64 ug/mL Resistant [S]	
CEFTAZIDIME	<=1 ug/mL Susceptible [S]	>=64 ug/mL Resistant [S]	Resistant [S]
CEFTRIAXONE	<=1 ug/mL Susceptible	>=64 ug/mL Resistant	
CIPROFLOXACIN	<=0.25 ug/mL Susceptible	<=0.25 ug/mL Susceptible	
Ctx/Clav Zone Difference			Susceptible [S]
ERTAPENEM	<=0.5 ug/mL Susceptible [S]		
GENTAMICIN	<=1 ug/mL Susceptible	<=1 ug/mL Susceptible	
keyhole			Negative [S]
MEROPENEM	<=0.25 ug/mL Susceptible [S]	<=0.25 ug/mL Susceptible [S]	
NITROFURANTOIN	128 ug/mL Resistant	64 ug/mL Intermediate	
PIPERACILLIN/TAZOBACTAM	16 ug/mL Susceptible [S]	>=128 ug/mL Resistant [S]	

Tip 6: Carbapenems

- It's not CRE if the carbapenems were susceptible.
  - Meropenem
  - Imipenem
  - Doripenem
  - Ertapenem
- Carbapenem-resistant does not necessarily mean it is a carbapenemase-producer.

Wisconsin State Laboratory of Hygiene

SENDING LAB *Wisconsin State Laboratory of Hygiene (52D0669558) 2601 Agriculture Dr Madison, WI 53718 (800) 862-1013	
ACCESSION # [redacted]	PLACER ORDER # [redacted]
SPECIMEN COLLECTED DATE 03/02/2019 11:42	SPECIMEN RECEIVED DATE 03/07/2019
SPECIMEN SOURCE Bacterial Isolate	RESULT
SPECIMEN NOTES Body Site: Urine	
REPORTED 03/13/2019 15:38	RESULTED 03/13/2019 15:38

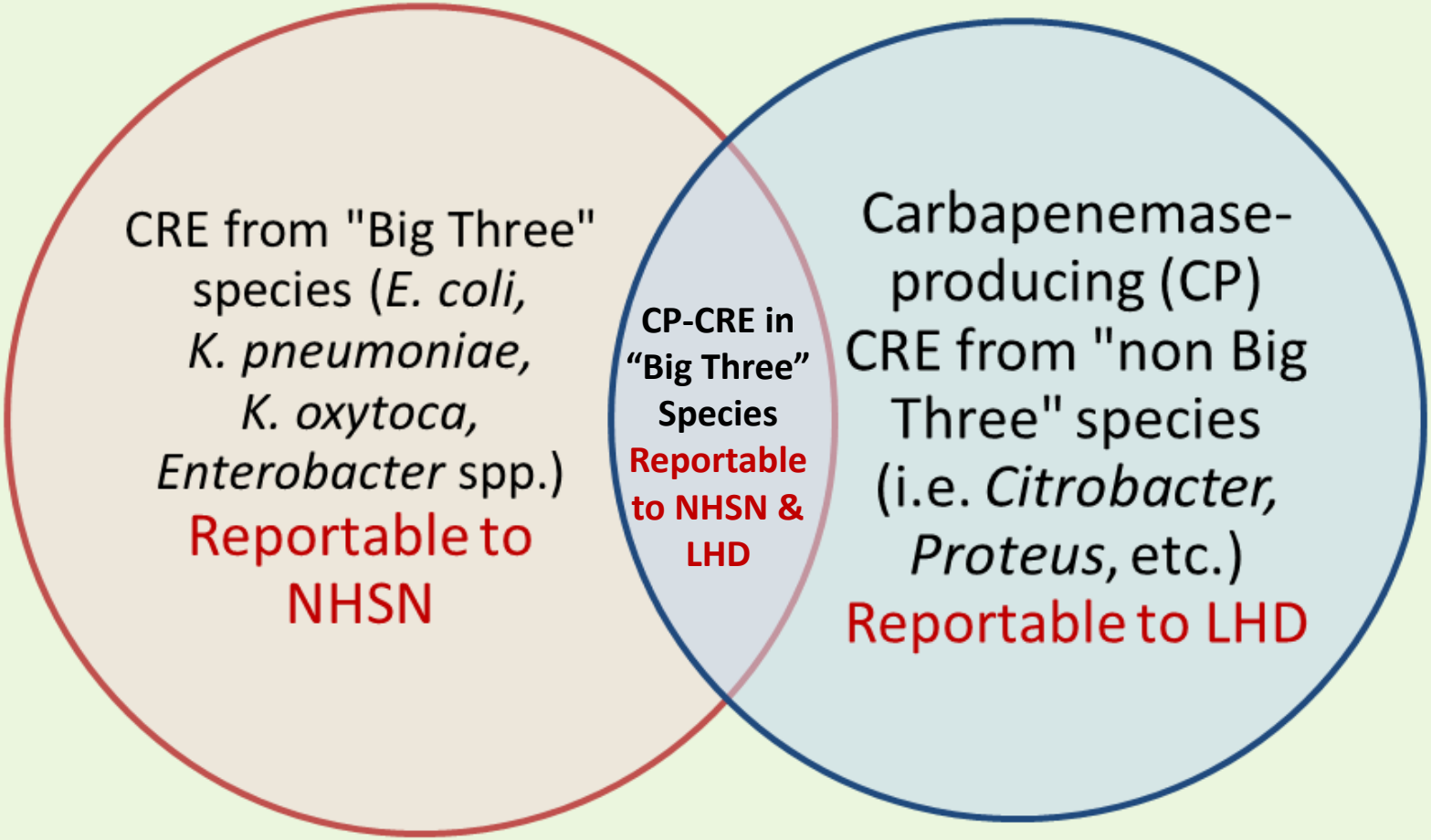
TEST ORDERED: CARBAPENEMASE PCR

This test was developed and its performance characteristics determined by the Wisconsin State Laboratory of Hygiene. It has not been cleared by the U.S. Food and Drug Administration.

RESULT	VALUE	UNITS	REFERENCE RANGES	ABNORMAL	RESULT STATUS
KPC	KPC gene detected.			Abnormal	Final
blaKPC AnorectIlsIt QI PCR	KPC gene detected.			Abnormal	Final

RESULT	VALUE	UNITS	REFERENCE RANGES	ABNORMAL	RESULT STATUS
NDM-1	No NDM-1 gene detected.				Final
blaNDM AnorectIlsIt QI PCR	No NDM-1 gene detected.				Final

All Carbapenem-Resistant Enterobacteriaceae (CRE)



Tip 7: Is This CRE Reportable?

Consider	NHSN	DHS 145
Organism	*E. coli* *Enterobacter* *K. pneumoniae* *K. oxytoca*	Any *Enterobacteriaceae*
Carbapenem-resistant?	Report to NHSN	Lab will send specimen for carbapenemase testing
Carbapenemase-producer?	Report to NHSN	Report to local health department

Alerts

- Based on reporting plan entries (i.e., missing plans won't display alerts for the month)
- Displayed upon login for every facility user and via "Alerts" navigation bar option

Common Questions

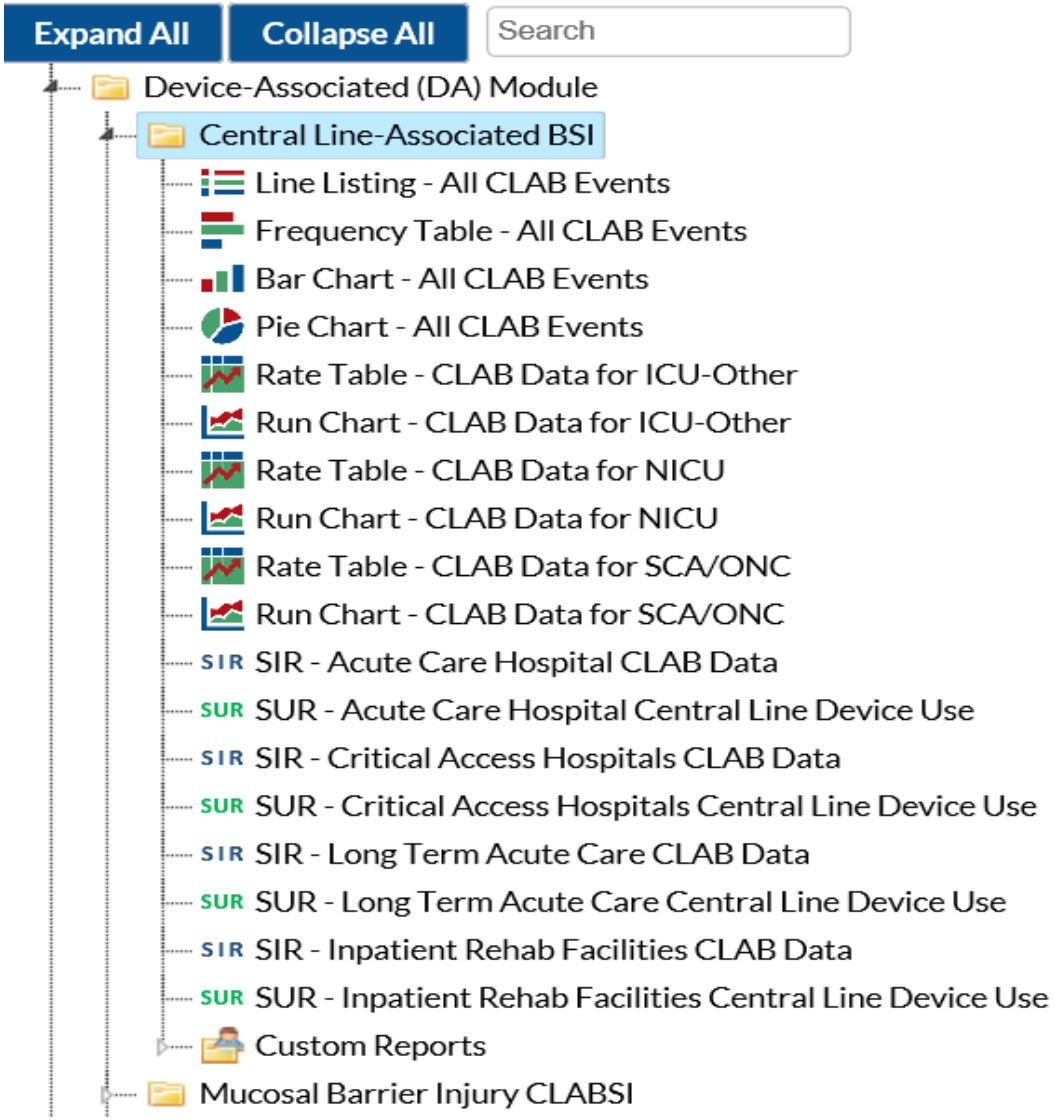
- Summary data look at the population at risk, not just those with the specific MDRO/HAI.
- Data need to be entered every month, even when there are no HAIs.
- Ask your lab if unsure about the right CDI test type. PCR is a type of NAAT.

NHSN Analysis

Analysis Basics

- Data set generation
- Real-time availability
- Module-specific pre-configured reports
- Statistical testing built-in (p-values, confidence intervals)
- Risk adjustment
- Exportable results (Excel, SAS, Access, etc.)
- Report filtering/modification

Reports


Expand All
Collapse All
Search
Device-Associated (DA) Module
Central Line-Associated BSI
Line Listing - All CLAB Events
Frequency Table - All CLAB Events
Bar Chart - All CLAB Events
Pie Chart - All CLAB Events
Rate Table - CLAB Data for ICU-Other
Run Chart - CLAB Data for ICU-Other
Rate Table - CLAB Data for NICU
Run Chart - CLAB Data for NICU
Rate Table - CLAB Data for SCA/ONC
Run Chart - CLAB Data for SCA/ONC
SIR SIR - Acute Care Hospital CLAB Data
SUR SUR - Acute Care Hospital Central Line Device Use
SIR SIR - Critical Access Hospitals CLAB Data
SUR SUR - Critical Access Hospitals Central Line Device Use
SIR SIR - Long Term Acute Care CLAB Data
SUR SUR - Long Term Acute Care Central Line Device Use
SIR SIR - Inpatient Rehab Facilities CLAB Data
SUR SUR - Inpatient Rehab Facilities Central Line Device Use
Custom Reports
Mucosal Barrier Injury CLABSI

Internal Data Validation

Every month

- ☑ Monthly reporting plans
- ☑ Events
- ☑ Denominator data
- ☑ Denominator data plausability

Every quarter

- ☑ CMS reports
- ☑ SIRs
- ☑ SURs
- ☑ Determine reasons for excluded procedures
- ☑ CDI test type

NHSN internal validation guide:
https://www.cdc.gov/nhsn/pdfs/validation/2019/2019-nhsn-iv-for-facilities-508.pdf

Underutilized Reports

- Frequency tables for quick counts
- Data quality folder reports
- Procedure line list for details and general exclusion application

Common Analysis Questions

- MDRO SIRs are available at a minimum by quarter.
- Annual survey answers can affect SIR reports.
- Protocol data analysis sections contain rate calculation details (especially LabID).
- Each SSI SIR has different inclusion and exclusion criteria (All, Complex A/R, and 30-day Complex A/R).

All SSI SIR Model	• Includes separate models for inpatient and hospital outpatient procedures (under the 2015 baseline) • Includes Superficial, Deep & Organ/Space SSIs • Superficial & Deep incisional SSIs limited to primary incisional SSIs only • Includes SSIs identified on admission, readmission & via post-discharge surveillance
Complex A/R SSI Model	• Includes only Deep incisional primary SSIs & Organ/Space SSIs • Includes only SSIs identified on Admission/Readmission to facility where procedure was performed • Includes only inpatient procedures • Used for the HAI Progress Report, published annually by CDC
Complex 30-day SSI model (used for CMS IPPS)	• Includes only in-plan, inpatient COLO and HYST procedures in adult patients (specifically, ≥ 18 years of age) • Includes only deep incisional primary SSIs and organ/space SSIs with an event date within 30 days of the procedure • Includes SSIs identified on admission, readmission & via post-discharge surveillance • **Uses Diabetes, ASA score, gender, age, BMI, oncology hospital and closure technique to determine risk for COLO (under the 2015 baseline, BS2)** **Uses Diabetes, ASA score, age, BMI and oncology hospital to determine risk for HYST (under the 2015 baseline, BS2)** • **NOTE:** The Complex 30-day SSI model, under the 2006-2008 baseline, BS1, uses only age and ASA to determine risk for both COLO and HYST (BS1 applies to data up to 2016) • Used only for CMS IPPS reporting and for public reporting on Hospital Compare

Stay Current with NHSN Surveillance

- Review quarterly NHSN newsletters.
- Attend annual NHSN Patient Safety Component webstream training.
- Review notes or attend monthly DPH NHSN teleconferences.
- Contact DPH when you have questions. We are here to help!

What's Next?

- Get access to NHSN if you do not have it yet, either as a user or as a facility administrator.
- Determine data sources. Ask questions.
- Start entering data.
- Reach out with questions. Don't struggle alone.
- Validate data to ensure accuracy and completeness.

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

All CDC Topics
Choose a topic above
SEARCH

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

National Healthcare Safety Network (NHSN)

www.cdc.gov/nhsn

CDC's National Healthcare Safety Network is the nation's most widely used healthcare-associated infection tracking system. NHSN provides facilities, states, regions, and the nation with data needed to identify problem areas, measure progress of prevention efforts, and ultimately eliminate healthcare-associated infections.

In addition, NHSN allows healthcare facilities to track blood safety errors and important healthcare process measures such as healthcare personnel influenza vaccine status and infection control adherence rates.

Email page link
Print page

NHSN Login
Tips for navigating the new NHSN website [PDF - 1.6 MB]

About NHSN
CDC's NHSN is the largest HAI reporting system in the U.S.

Data & Reports
See national and state reports using NHSN data

Guidelines and Recommendations
Review CDC HAI prevention guidelines

New to NHSN? Enroll Facility Here.
For first time facility enrollment.

Reporting & Surveillance Resources for Enrolled Facilities
Training, protocols, forms, support materials, analysis resources, and FAQs

Group Users
View resources for group users here.

Contact NHSN:

Centers for Disease Control and Prevention
National Healthcare Safety Network
MS-A24
1600 Clifton Rd
Atlanta, GA 30333
Contact NHSN@cdc.gov

Contact Us:

Centers for Disease Control and Prevention
1600 Clifton Rd
Atlanta, GA 30333
800-CDC-INFO
(800-232-4636)
TTY: (888) 232-6348
New Hours of Operation
8am-8pm ET/Monday-Friday
Closed Holidays
Contact CDC-INFO

Training / Demo

Newsletters / Members Meeting Updates

E-mail Updates

State-based HAI Prevention Activities

HIPAA Privacy Rule

Questions?

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More Info on NHSN

- Enrollment: https://www.cdc.gov/nhsn/enrollment/index.html
- Surveillance materials: https://www.cdc.gov/nhsn/acute-care-hospital/index.html
- DPH NHSN resources (tutorials, guides, enrollment memos, worksheets): https://www.dhs.wisconsin.gov/hai/nhsn-resources.htm
- NHSN training modules: https://www.cdc.gov/nhsn/training/index.html
- NHSN Help Desk: nhsn@cdc.gov