



22nd Annual Chicago Infection Control Conference

Enhancing Illinois' Extensively Drug-Resistant Organism (XDRO) Registry and HAI/AR Updates

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All planners, editors, faculty and reviewers of this activity have no relevant financial relationships to disclose. This presentation was created without any commercial support.

Learning Objectives

At the conclusion of this course participants will be able to

- Discuss how enhancements to the XDRO registry improve rapid identification of patients who are infected or colonized with CRE and other selected emerging pathogens.
- Describe the criteria and process for submitting CRE isolates to IDPH laboratory for supplemental testing.

To obtain credit you must:

- **Be present for the entire session**
- **Complete an evaluation form**
- **Return the evaluation form to staff**

Certificate will be sent to you by e-mail upon request.

In support of improving patient care, [Insert name of Joint Accredited Provider] is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Rush University Medical Center designates this live activity for a maximum of 6.25 AMA PRA Category 1 Credit(s)[™]. Physicians should claim only credit commensurate with the extent of their participation in the activity.

ANCC Credit Designation – Nurses

The maximum number of hours awarded for this CE activity is 6.25 contact hours.

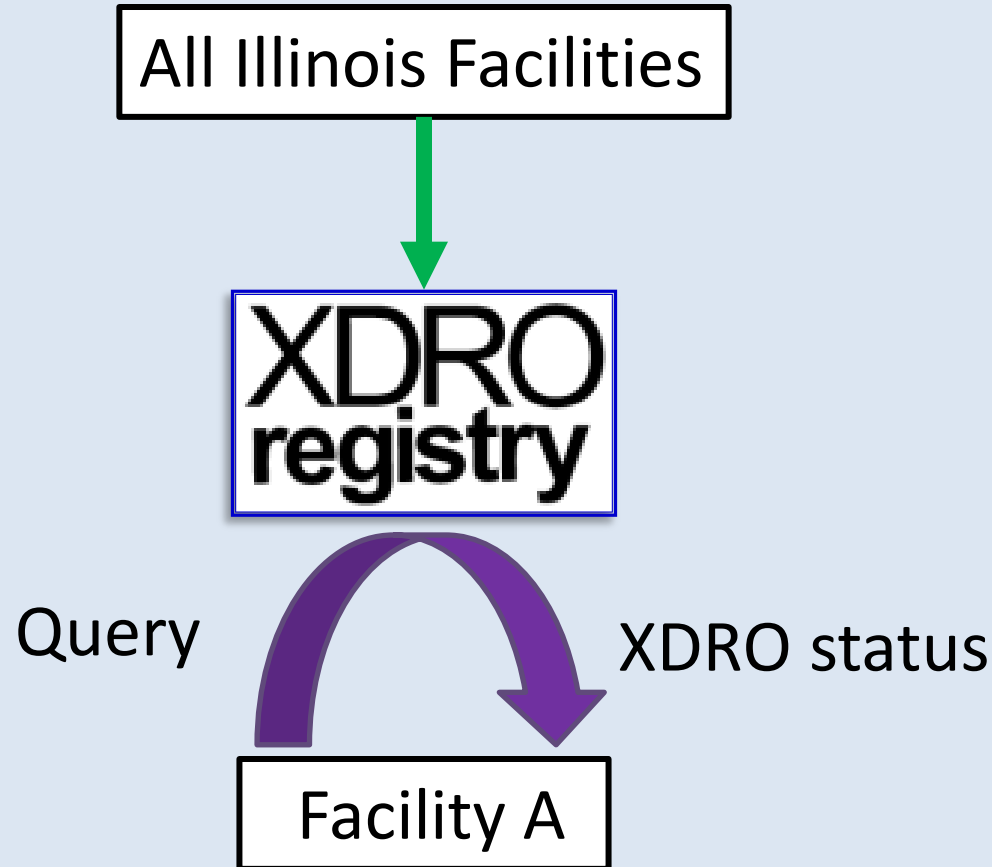
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This activity is being presented without bias and without commercial support.

Rush University is an approved provider for physical therapy (216.000272), occupational therapy, respiratory therapy, social work (159.001203), nutrition, speech-audiology, and psychology by the Illinois Department of Professional Regulation.

XDRO registry overview

1. Mandatory reporting – carbapenem-resistant Enterobacteriaceae (CRE)



2. Information exchange

XDRO registry expansion

1. Mandatory CRE reporting

All Illinois Facilities

2. Emerging pathogens

IDPH

**XDRO
registry**

ADT Feed/
Manual query

XDRO status

Facility A

3. Information exchange

Candida auris

Clinical Alert to U.S. Healthcare Facilities - June 2016

Global Emergence of Invasive Infections Caused by the Multidrug-Resistant Yeast *Candida auris*

Summary: The Centers for Disease Control and Prevention (CDC) has received reports from international healthcare facilities that *Candida auris*, an emerging multidrug-resistant (MDR) yeast, is causing invasive healthcare-associated infections with high mortality.

Morbidity and Mortality Weekly Report

Investigation of the First Seven Reported Cases of *Candida auris*, a Globally Emerging Invasive, Multidrug-Resistant Fungus — United States, May 2013–August 2016

Snigdha Vallabhaneni, MD¹; Alex Kallen, MD²; Sharon Tsay, MD^{1,3}; Nancy Chow, PhD¹; Rory Welsh, PhD¹; Janna Kerins, VMD^{3,4}; Sarah K. Kemble, MD⁴; Massimo Pacilli, MS⁴; Stephanie R. Black, MD⁴; Emily Landon, MD⁵; Jessica Ridgway, MD⁵; Tara N. Palmore, MD⁶; Adrian Zelzany, PhD⁶; Eleanor H. Adams, MD⁷; Monica Quinn, MS⁷; Sudha Chaturvedi, PhD⁷; Jane Greenko, MPH⁷; Rafael Fernandez, MPH⁷; Karen Southwick, MD⁷; E. Yoko Furuya, MD⁸; David P. Calfee, MD⁹; Camille Hamula, PhD¹⁰; Gopi Patel, MD¹⁰; Patricia Barrett, MSD¹¹; Patricia Lafaro¹²; Elizabeth L. Berkow, PhD¹; Heather Moulton-Meissner, PhD²; Judith Noble-Wang, PhD²; Ryan P. Fagan, MD²; Brendan R. Jackson, MD¹; Shawn R. Lockhart, PhD¹; Anastasia P. Litvintseva, PhD¹; Tom M. Chiller, MD¹

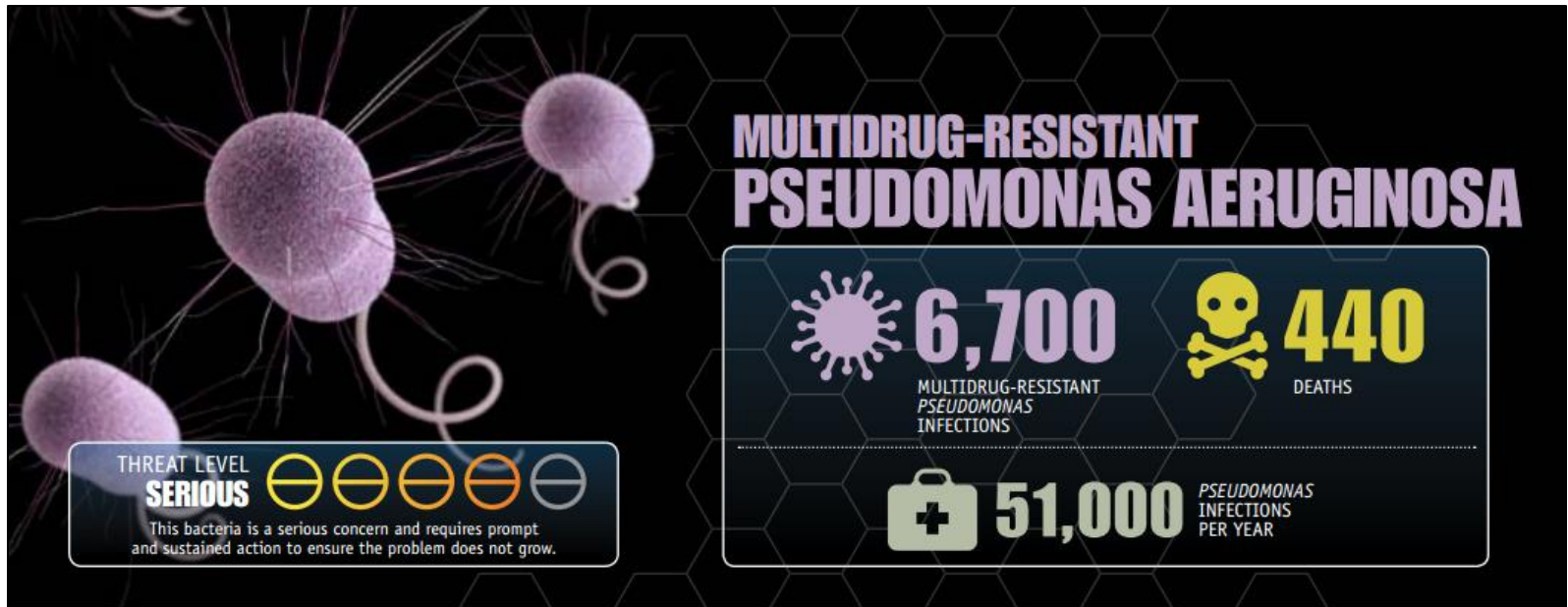
On November 4, 2016, this report was posted as an MMWR Early Release on the MMWR website (<http://www.cdc.gov/mmwr>).

Candida auris, an emerging fungus that can cause invasive infections, is associated with high mortality and is frequently

carbapenem-resistant Enterobacteriaceae, but have been uncommon among *Candida* spp.

To determine whether *C. auris* cases were occurring in the United States, CDC issued a clinical alert (8) in June 2016

Carbapenemase-producing *Pseudomonas aeruginosa*



Pseudomonas aeruginosa is a common cause of healthcare-associated infections including pneumonia, bloodstream infections, urinary tract infections, and surgical site infections.

RESISTANCE OF CONCERN

- Some strains of *Pseudomonas aeruginosa* have been found to be resistant to nearly all or all antibiotics including aminoglycosides, cephalosporins, fluoroquinolones, and carbapenems.
- Approximately 8% of all healthcare-associated infections reported to CDC's National Healthcare Safety Network are caused by *Pseudomonas aeruginosa*.
- About 13% of severe healthcare-associated infections caused by *Pseudomonas aeruginosa* are multidrug resistant, meaning several classes of antibiotics no longer cure these infections.

PUBLIC HEALTH THREAT

An estimated 51,000 healthcare-associated *Pseudomonas aeruginosa* infections occur in the United States each year. More than 6,000 (or 13%) of these are multidrug-resistant, with roughly 400 deaths per year attributed to these infections.

	Percentage of all <i>Pseudomonas aeruginosa</i> healthcare-associated infections that are multidrug-resistant	Estimated number of infections	Estimated number of deaths attributed
Multi-drug resistant <i>Pseudomonas aeruginosa</i>	13%	6,700	440

For more information about data methods and references, please see technical appendix.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

XDR0 registry statistics, 11/2013 – 5/2017*

Reporting

- Reports submitted: 6,611
- Unique patients: 4,139 (~90-100/mo.)
- Reporting facilities: 190

Querying

- Queries submitted: 11,600 (~260/mo.)
- Querying facilities: 173

*Includes CRE, *C. auris* (n=11),
VIM/KPC *P. aeruginosa* (n=36)

XDRO registry expansion & auto alerts

1. Mandatory CRE reporting

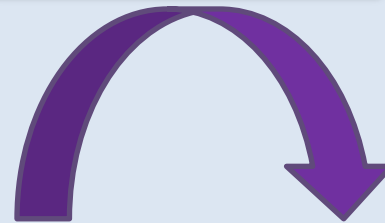
All Illinois Facilities

2. *C. auris*, CP-PA

IDPH

**XDRO
registry**

ADT Feed/
Manual query



Facility A

XDRO
status

**Auto
Alerts**

3. Information exchange

XDRO Auto Alerts



Pager/SMS texts (optional feature):

Real-time alerts from 8 am-8 pm;
Off-hours alerts queued until 8 am next day

ADT = Admission/Discharge/Transfer; IP = Infection Preventionist

Sample XDRO alert email

Subject: Alert notification from XDRO registry
(AID 123)

The XDRO registry has identified that a patient recently admitted to <hospital name> may carry an organism that is highly resistant to antibiotics. Please log in to the XDRO registry (dph.partner.illinois.gov) for details.

Sample XDRO alert text message



Log in to the registry to view alerts

XDRO
registry

Sample Hospital [change facility](#)

Test User1

[Home](#) [Help](#) [Go Back](#) [Logout](#)

Submit Report

Search Registry

Facility Submission History

Facility Alert History ←

XDRO Dashboard

Facility Alert Page

Sample Hospital Alert

Please click [here](#) to confirm your alert contact information and facility

First name

Last name

Date of birth

 / /

Search

Alerts Tracking

Acknowledge	AID	Name	Date of Birth	Organism	Matching	Alert Date
By A.T. 06/01/2016 09:23	323	Submission, Test	01/02/1934	Klebsiella pneumoniae	Full Match	05/23/2016
By R.L. 04/09/2015 15:47	3	E, Ds	11/11/1982	Enterobacter aerogenes	Partial Match	03/21/2014
<input type="button" value="Acknowledge"/>	2	Bug, Super	01/01/1914	Klebsiella pneumoniae	Full Match	03/20/2014

Disclaimer: A match on name and date of birth only may not be 100% accurate. We recommend that you verify XDRO status with the patient or by contacting the facility that entered the result.

Note: Full match: There was a complete match on first name, last name, and date of birth.

Partial match: There was a match on last name and date of birth; the first name was matched only on the first initial.

As of January 2017, the Illinois Department of Public Health is entering Candida auris cases into the XDRO registry; such patients can be identified through the above search query. Patients with C. auris should be placed on standard and contact precautions and, when possible, in single rooms. More information is available on CDC's [Questions and Answers](#) and [Interim Recommendations](#) pages.

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Tracking Alert Outcomes

Sample Hospital Alert Tracking

AID
Last name
Date of birth / /

[Alert History](#)

Action	AID	Patient	Alert Date	Not Inpatient	Correct Patient? ^a	Known CRE? ^b	Previous positive at our facility? ^c	Communicated by other facility? ^c	Already on contact precautions? ^d
<input type="button" value="Save"/>	323	T.S.	05/23/2016	<input type="checkbox"/>	<input type="text" value="select: ▼"/>	<input type="text" value="select: ▼"/>	<input type="text" value="select: ▼"/>	<input type="text" value="select: ▼"/>	<input type="text" value="select: ▼"/>
<input type="button" value="Edit"/>	3	D.E.	03/21/2014	<input checked="" type="checkbox"/>	—	—	—	—	—
<input type="button" value="Edit"/>	2	S.B.	03/20/2014	<input type="checkbox"/>	Yes	Yes	Unknown	Yes	Yes

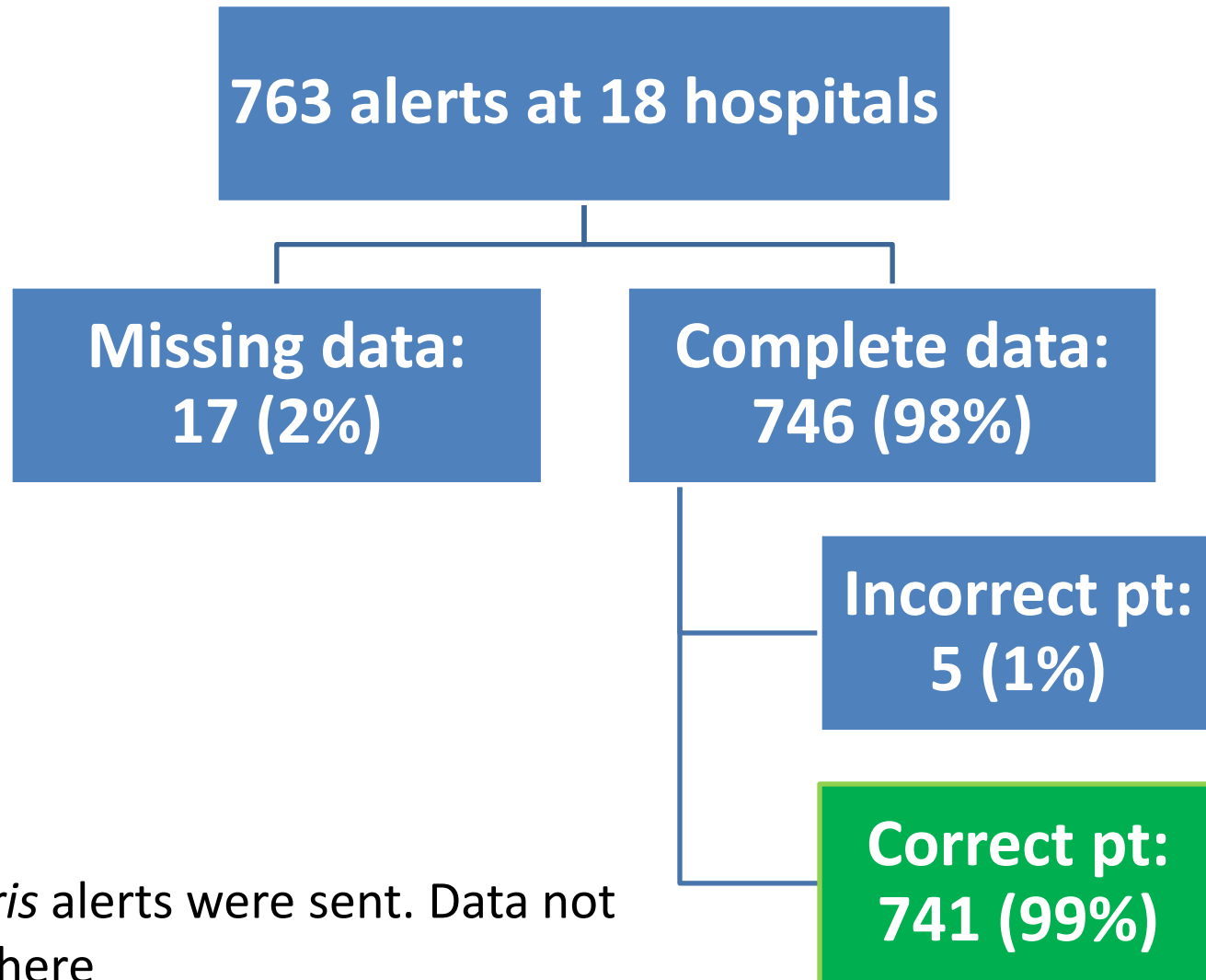
a. Sometimes a name and date of birth do not match up to the correct patient, especially if there is a partial match (using date of birth, last name, first initial). Occasionally, you may need to confirm the identity of the patient using additional information (for example, home address).

b. Prior to receiving the CRE alert, did you know that the patient was CRE colonized?

c. If the patient is already a "known CRE", how did you find out? (Answer only if "Known CRE?"= Yes)

d. At the time you acknowledged (viewed) the alert, was the patient already on contact precautions?

CRE Alert Outcomes, 1/7/15 – 5/28/17

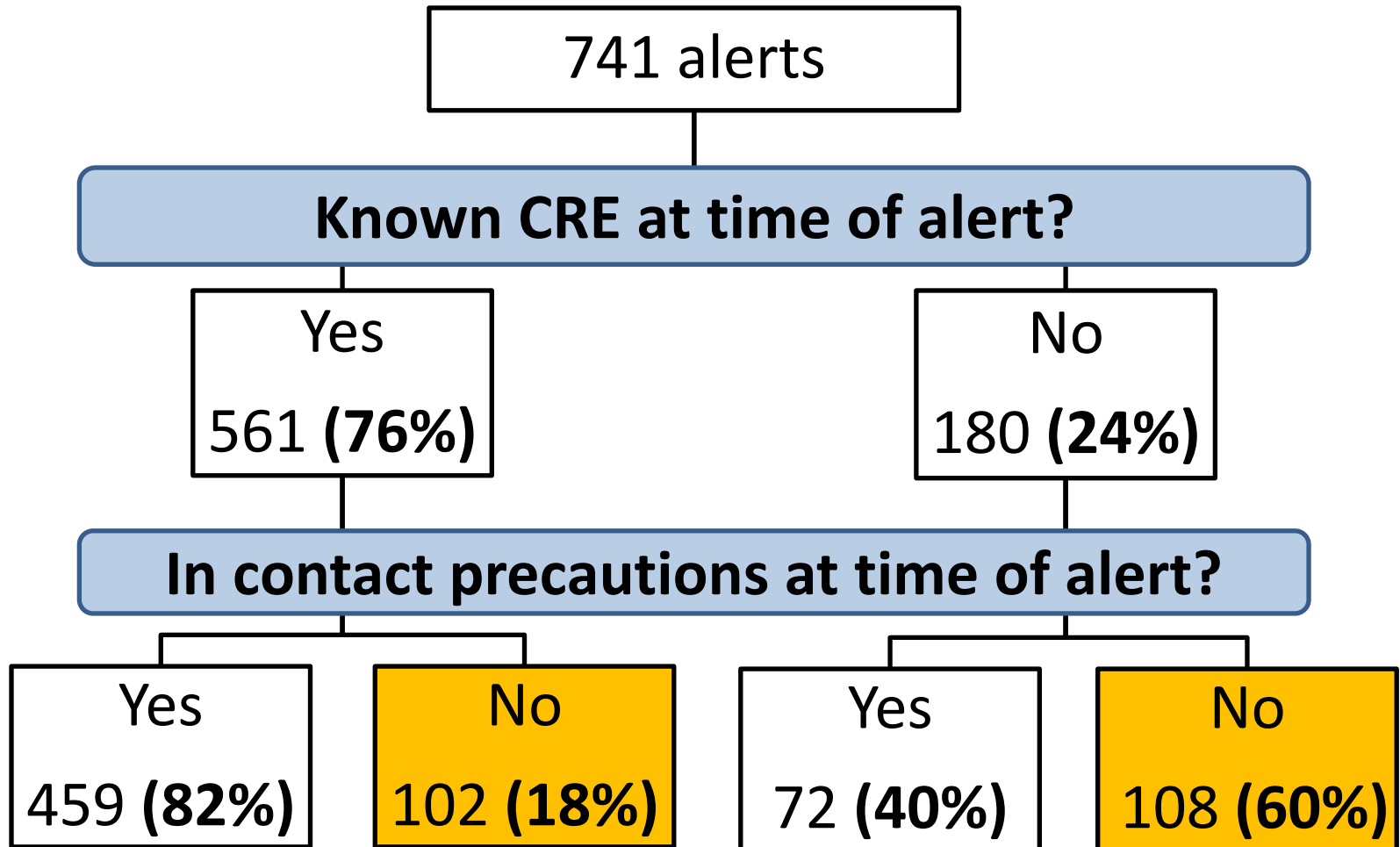


Notes:

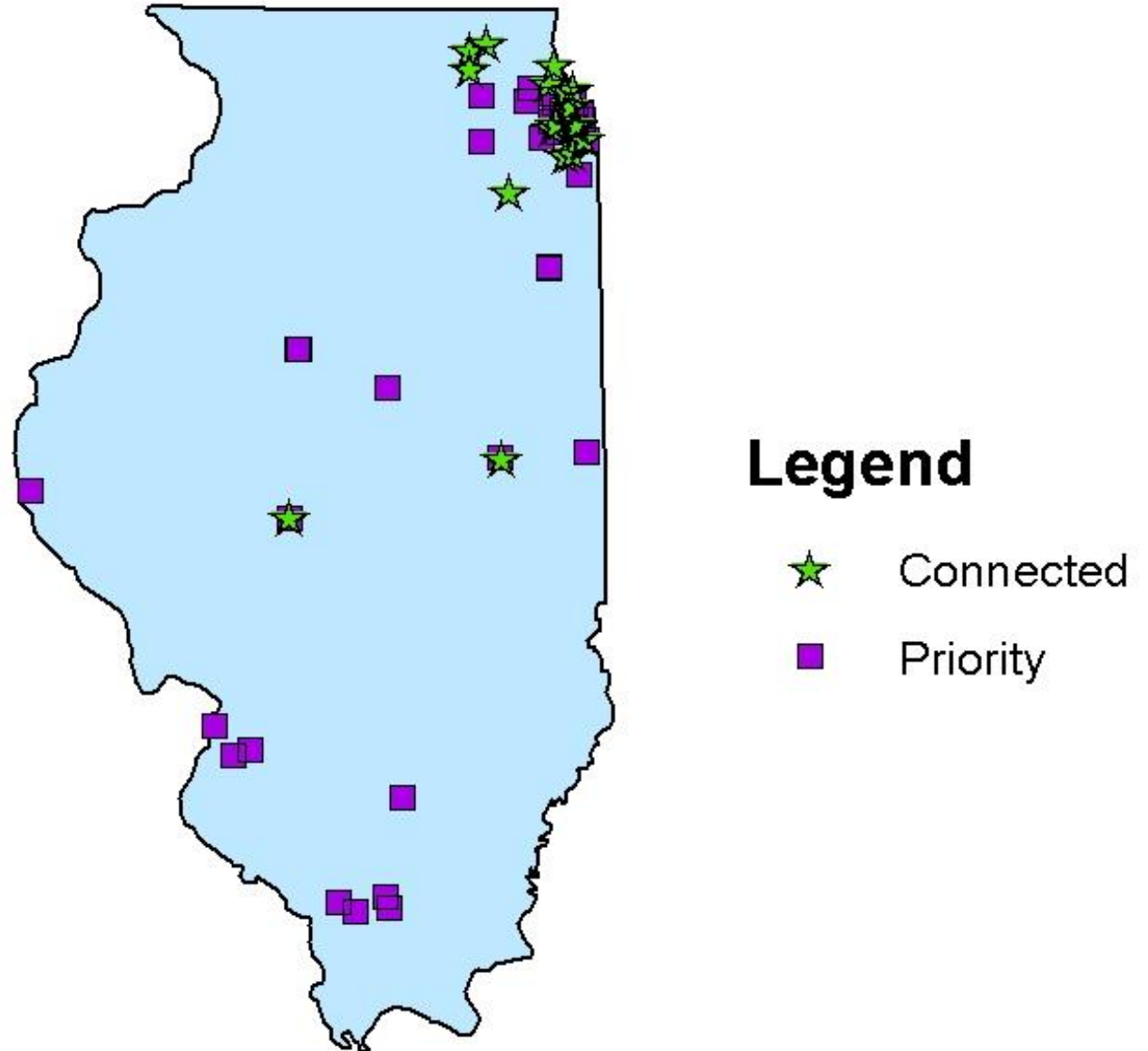
- 2 *C. auris* alerts were sent. Data not shown here
- 1 hospital has not received an alert yet

Alert Outcomes:

All correct inpatient CRE alerts, 1/7/15 – 5/28/17

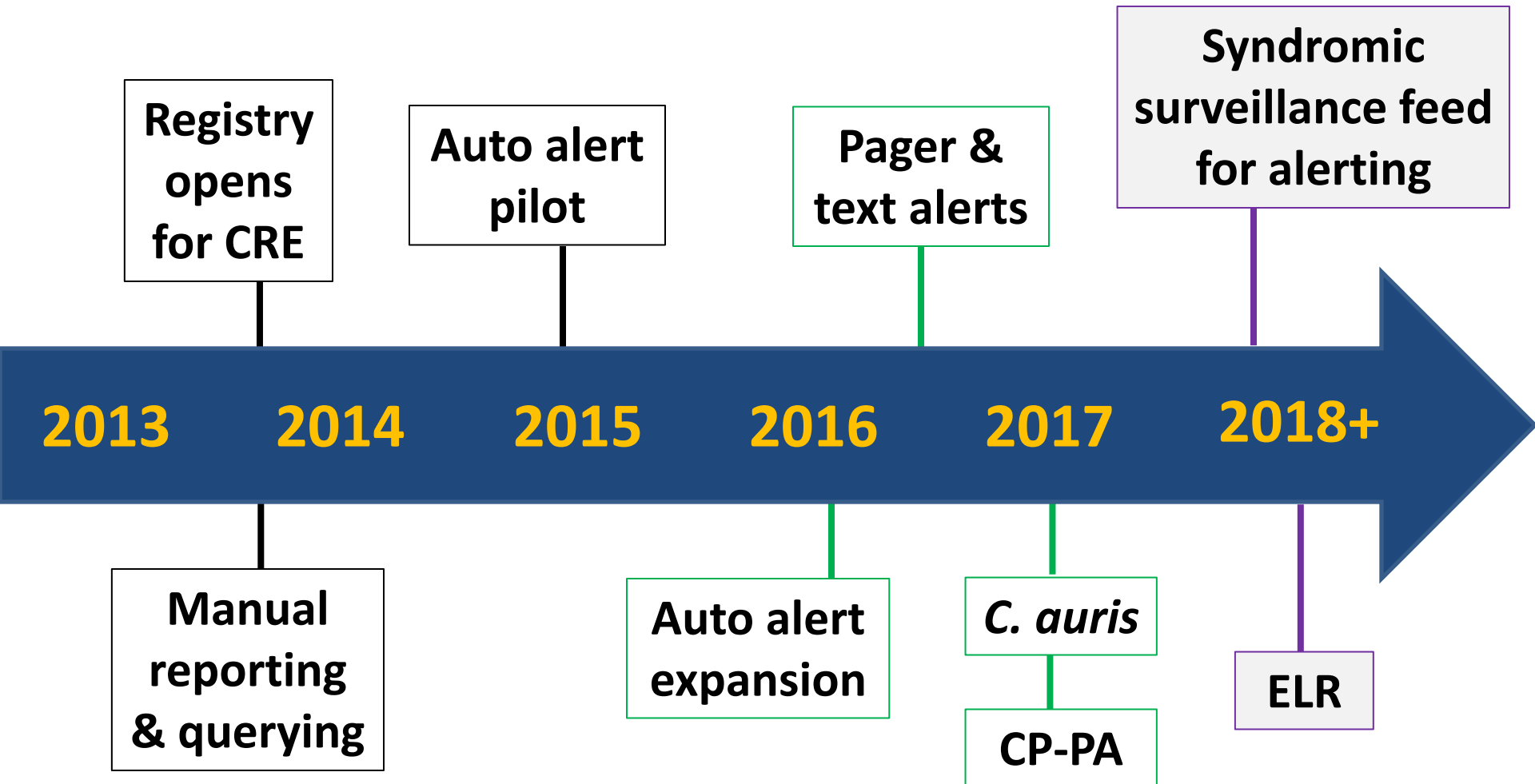


XDRO auto alert progress (statewide)



Credit: Emily Augustini

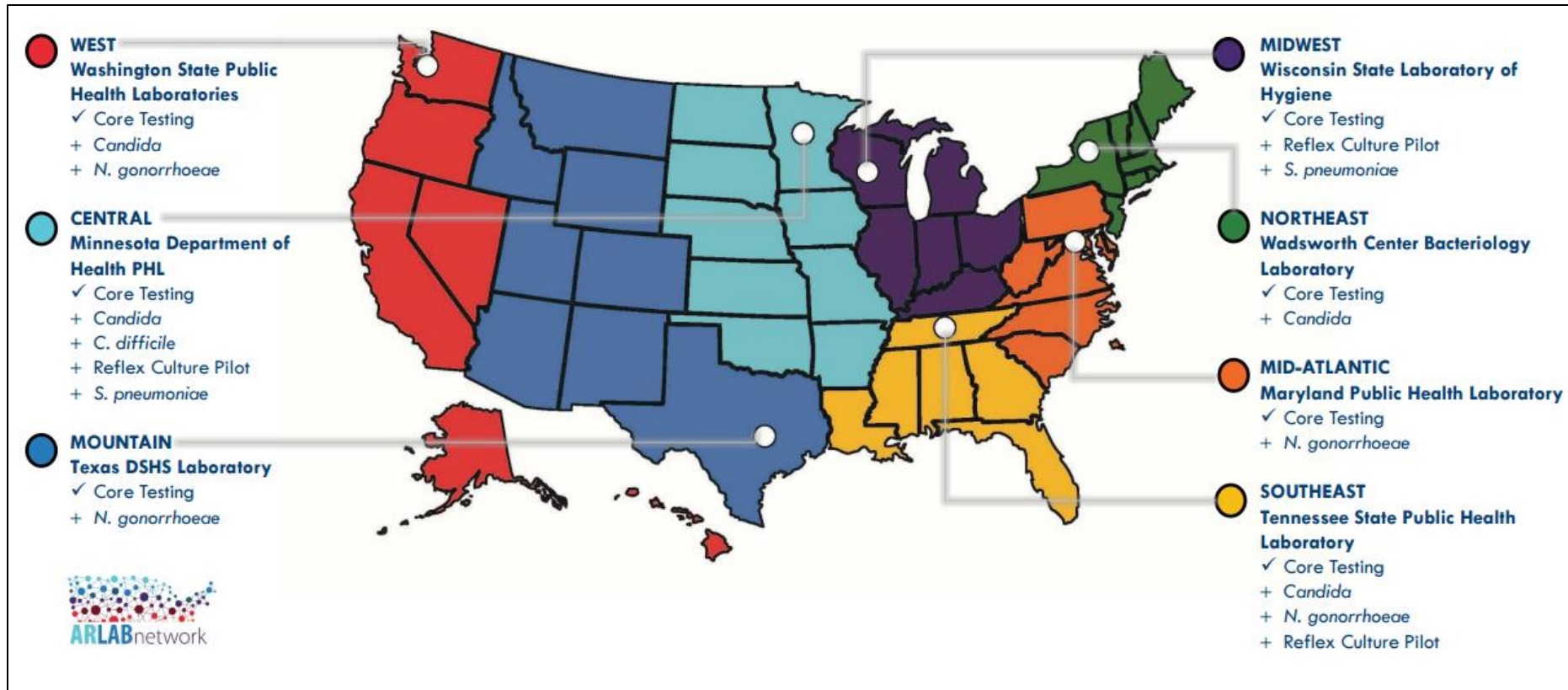
XDR0 registry developments



CP-PA= Carbapenemase-producing *Pseudomonas aeruginosa*;
ELR= Electronic Laboratory Reporting

LABORATORY TESTING

CDC's Antibiotic Resistance Laboratory Network (ARLN)



Builds capacity for AR testing at regional and state levels

CRE Testing at IDPH



122 S. Michigan Ave., Suite 700 • Chicago, IL 60603-6119 • www.dph.illinois.gov

MEMORANDUM

TO: Hospital Laboratories, Independent or Free-Standing Laboratories, and Sentinel Laboratories; Hospital Infection Preventionists

FROM: Erica Runningdeer
Healthcare-Associated Infection Prevention Coordinator, Division of Patient Safety and Quality

E. Matt Charles
Chief, Division of Laboratories

DATE: March 27, 2017

SUBJECT: Supplemental testing of carbapenem-resistant Enterobacteriaceae (CRE) isolates - Interim guidance

The Illinois Department of Public Health (IDPH) is providing interim guidance for supplemental testing (phenotypic and molecular characterization) of CRE isolates to laboratories that do not have the capacity to conduct this testing:

- For routine supplemental testing for CRE, consider sending isolates to a commercial reference laboratory.
- **For isolates associated with suspected outbreaks or isolates suspected of exhibiting unusual mechanisms of resistance (e.g., NDM, OXA, IMP, VIM carbapenemases), contact your local health department** about potentially submitting isolates to the IDPH Chicago Laboratory for Modified Hodge and PCR testing (for carbapenemase genes NDM, OXA, IMP, VIM, and KPC, and other β -lactamases).

CRE Testing at IDPH

- 1) Unusual resistance mechanism
- 2) Suspected outbreak

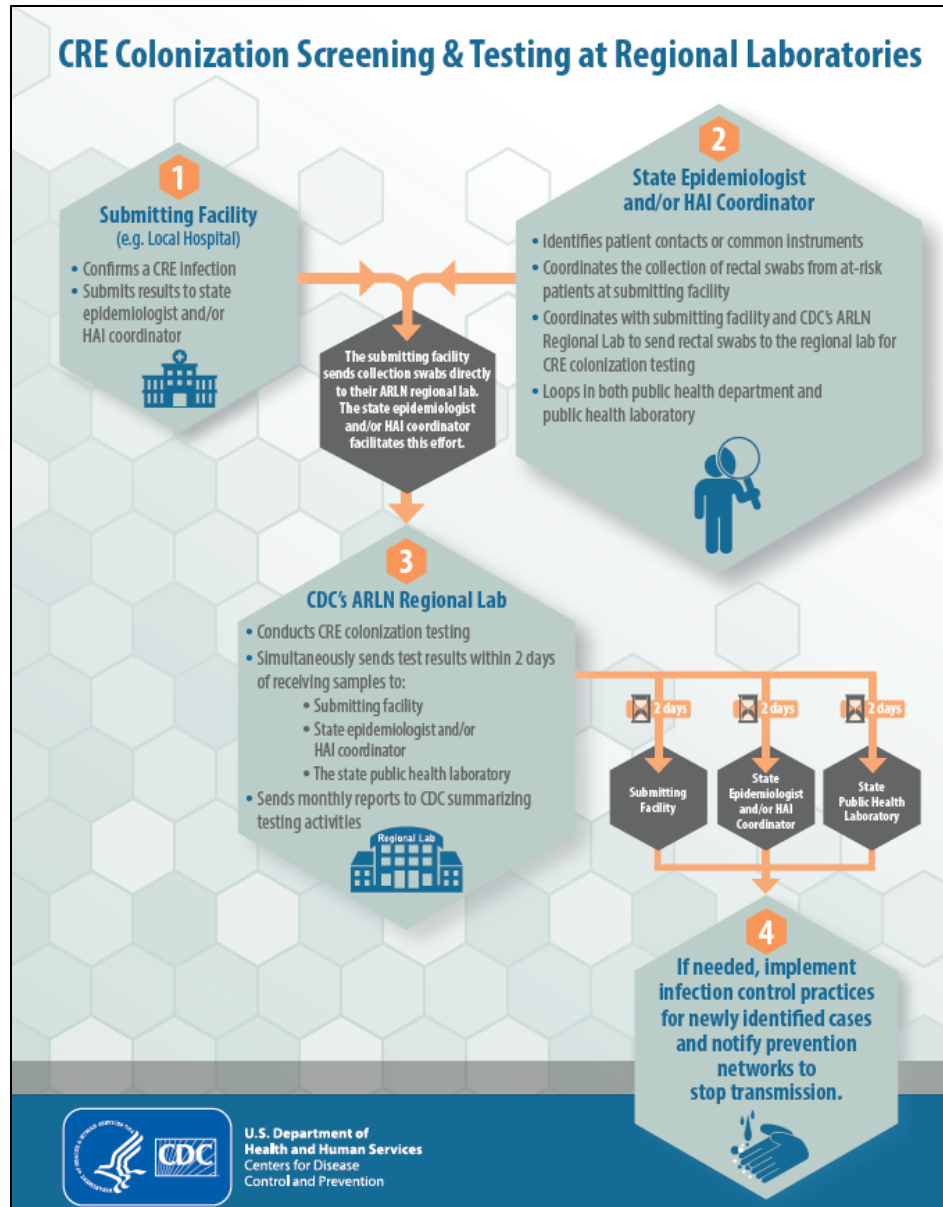


Report to XDRO registry



Contact LHD for authorization

CRE Colonization Testing at Wisconsin ARLN



CRE Colonization Testing at Wisconsin ARLN

- 1) Unusual resistance mechanism
- 2) Suspected outbreak

Facility/LHD contacts IL HAI
Prevention Coordinator

If approved, facility sends swabs
to WI Lab

Acknowledgments

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- **Angela Tang (Hektoen)**
- Chinyere Alu

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- **Bill Trick**
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- Helen Zhang
- George Markovski

BD/MedMined

- Vikas Gupta
- Autumn Langford

MRAIA

Hospital IPs

For more information:

www.xdro.org

DPH.XDRRegistry@illinois.gov