

# Welcome

Office for State, Tribal, Local and Territorial Support  
*presents...*

## ***CDC Vital Signs***

**Stop the Spread of Antibiotic Resistance and *C. difficile* Using a Coordinated Approach for Action**

**August 11, 2015**  
**2:00–3:00 pm (EDT)**



Centers for Disease Control and Prevention  
Office for State, Tribal, Local and Territorial Support

# Agenda

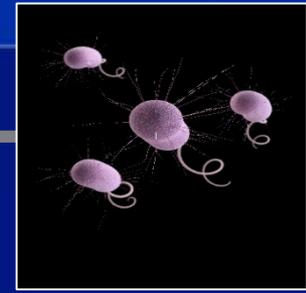
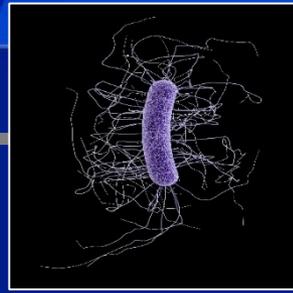
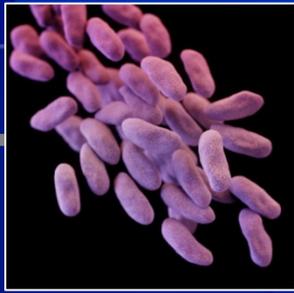
- |                |                                    |   |
|----------------|------------------------------------|---|
| <b>2:00 pm</b> | <b>Welcome &amp; Introductions</b> | <b>Dan Baden, MD</b><br>Senior Medical Advisor, Office for State, Tribal, Local and Territorial Support, CDC  |
| <b>2:05 pm</b> | <b>Presentations</b>               | <b>Scott K. Fridkin, MD</b><br>Senior Advisor, Antibiotic Resistance in Healthcare, Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases, CDC<br><br><b>Marion A. Kainer, MD, MPH, FRACP</b><br>Director, Healthcare-Associated Infections and Antimicrobial Resistance Program, Tennessee Department of Health<br><br><b>Erica Runningdeer, MSN, MPH, RN</b><br>Healthcare-Associated Infection Prevention Coordinator, Division of Patient Safety and Quality, Illinois Department of Public Health<br><br><b>Gwen Borlaug, MPH, CIC</b><br>Coordinator, Healthcare-Associated Infections Prevention Program, Division of Public Health, Wisconsin Department of Health Services |
| <b>2:30 pm</b> | <b>Q&amp;A and Discussion</b>      | <b>Dan Baden, MD</b>  |
| <b>2:55 pm</b> | <b>Wrap-up</b>                     |   |
| <b>3:00 pm</b> | <b>End of Call</b>                 |   |



# **CDC** *Vital*signs™ Teleconference

to support STLT efforts and build momentum around the monthly release of CDC *Vital Signs*





# **CDC *Vital Signs* Town Hall Making Health Care Safer Stop Spread of Antibiotic Resistance**

**Scott Fridkin, MD**

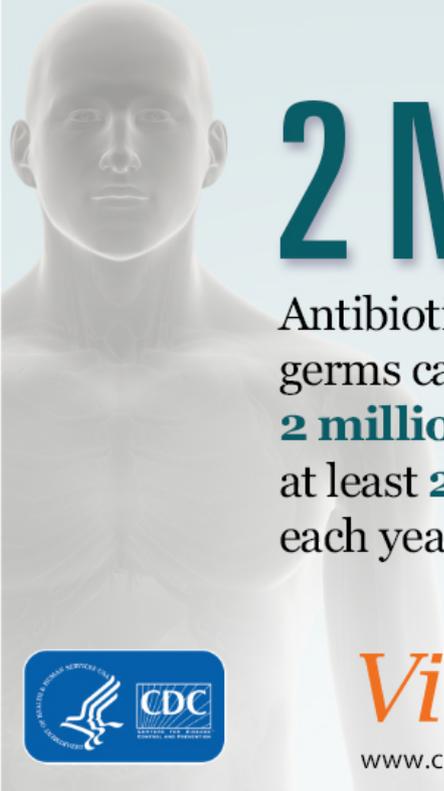
**Senior Advisor**

**Antibiotic Resistance in Healthcare**

**Division of Healthcare Quality Promotion**

**National Center for Emerging and Zoonotic Infectious Diseases**

# Spread of Antibiotic-Resistant Germs



**2 Million**

Antibiotic-resistant germs cause more than **2 million illnesses** and at least **23,000 deaths** each year in the US.



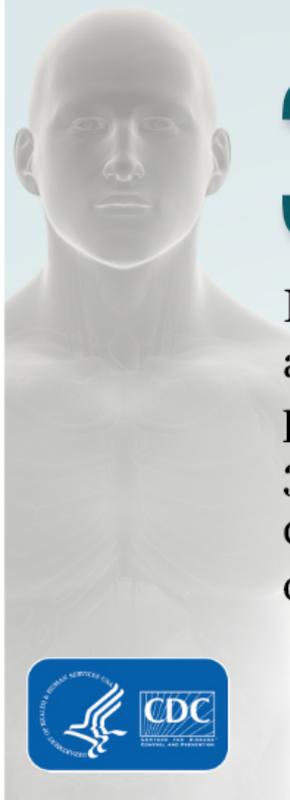
**Vital**<sup>CDC</sup>signs™

[www.cdc.gov/vitalsigns/stop-spread](http://www.cdc.gov/vitalsigns/stop-spread)

- ❑ Antibiotic-resistant germs cause more than 2 million illnesses and at least 23,000 deaths each year

# Preventing Infections Saves Lives

- ❑ CDC modeling projects that immediate, nationwide improvements in infection control and antibiotic prescribing could prevent life-threatening infections



**37,000**

Preventing infections and improving antibiotic prescribing could save 37,000 lives from drug-resistant infections over 5 years.

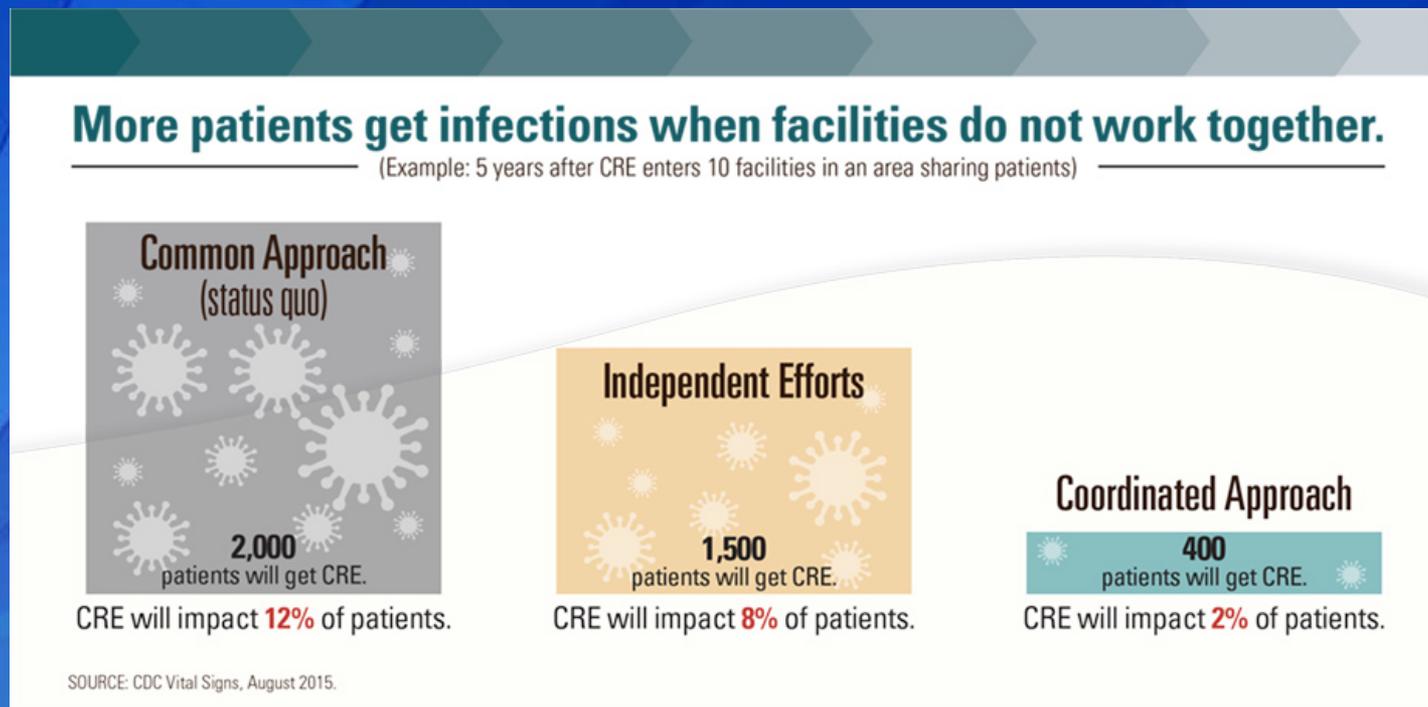


**Vital**<sup>CDC</sup>**signs**<sup>TM</sup>

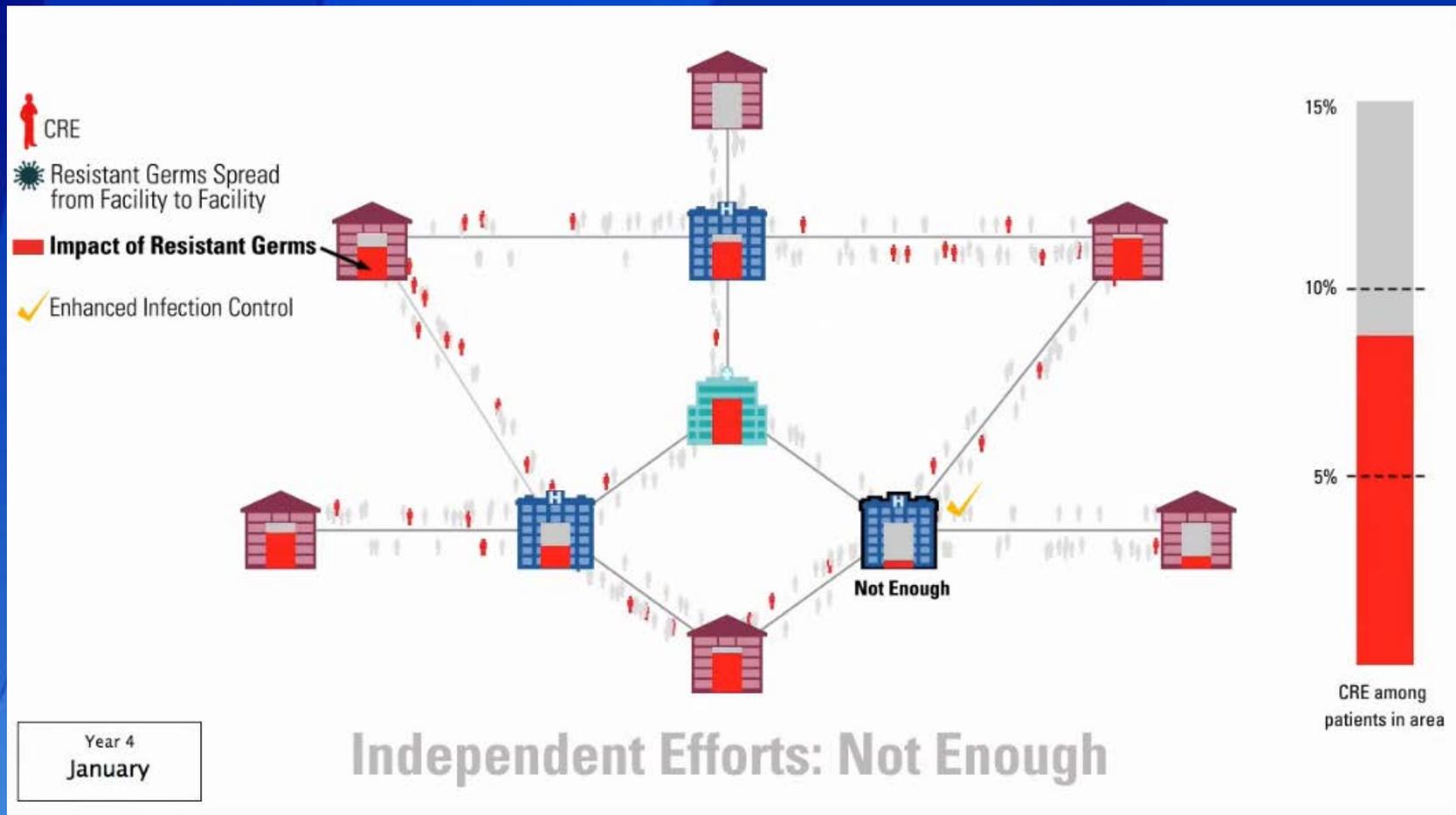
[www.cdc.gov/vitalsigns/stop-spread](http://www.cdc.gov/vitalsigns/stop-spread)

# Working Together Is Vital

- ❑ More patients get infections when facilities do not work together
- ❑ Up to 70% fewer patients will get CRE over 5 years if facilities coordinate to protect patients



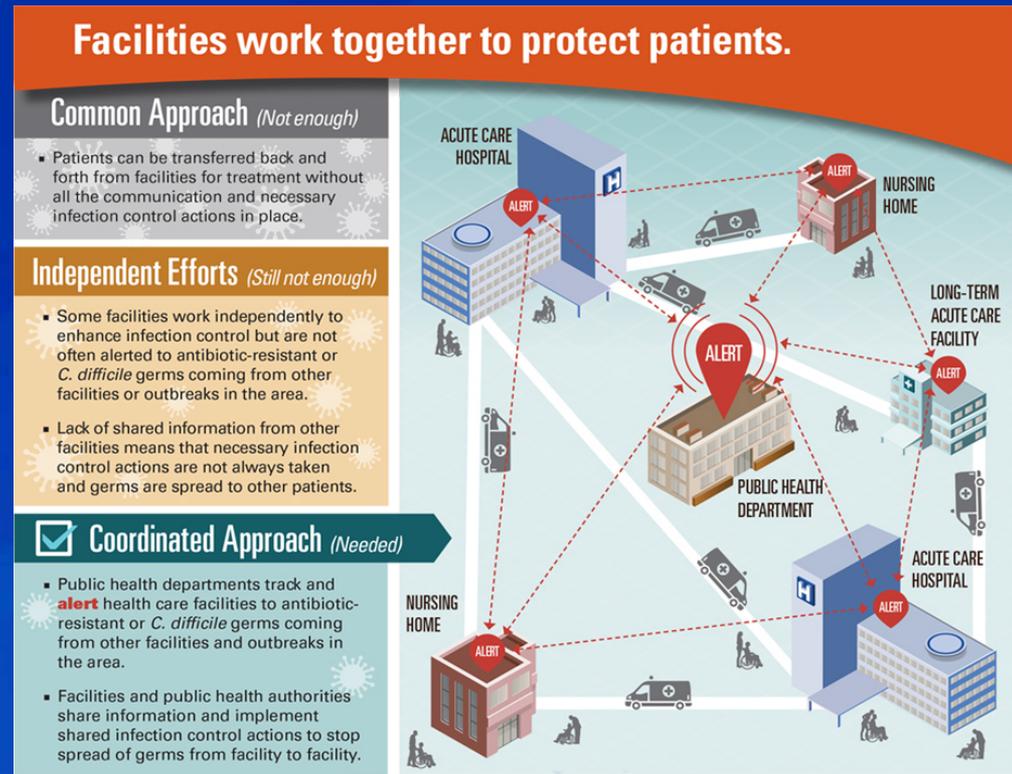
# Independent Efforts Are Not Enough



Video: <http://bit.ly/1KTjTQ9>

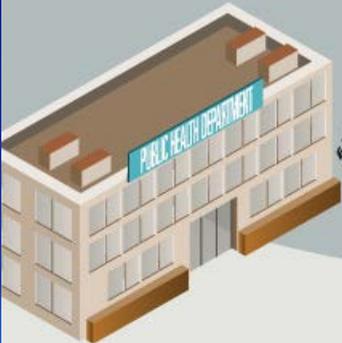
# CDC Recommends a Coordinated Approach

- ❑ Public health authorities and health care facilities should work together to share experiences and connect patient safety efforts
- ❑ Lack of coordination between facilities can put patients at increased risk



# State and Local Health Departments Can

**Take Steps Now!**  
Public health departments can lead coordination



- Identify the health care facilities in the area and how they are connected.
- Dedicate staff to improve connections and coordination with health care facilities in the area.
- Work with CDC to use data for action to better prevent infections and improve antibiotic use in health care settings.
- Know the antibiotic resistance threats in the area and state.



**VitalSigns**<sup>™</sup>  
www.cdc.gov/vitalsigns/stop-spread #VitalSigns

- Identify the healthcare facilities in the area and how they are connected. Know their infection prevention and antibiotic stewardship activities
- Dedicate staff to improve connections and coordination with healthcare facilities in the area
- Work with CDC to use data for action to better prevent infections and improve antibiotic use in health care settings
- Know the antibiotic resistance threats in the area and state

# Forward Looking Approach: Investments Needed

- ❑ Now we have a clear sense not only how bad the problem is, but also what needs to be done, and what the benefits of doing it will be
- ❑ Now it is up to Congress to support the resources needed to protect Americans from drug-resistant bacteria and the risk of a post-antibiotic age that undermines many life-saving procedures of modern medicine



**70%**

Up to 70% fewer patients will get CRE over 5 years if facilities coordinate to protect patients.

 **Vital**<sup>CDC</sup>**signs**<sup>TM</sup>

[www.cdc.gov/vitalsigns/stop-spread](http://www.cdc.gov/vitalsigns/stop-spread)

# Thank You

## Contact Information

**Scott K. Fridkin, MD**

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**For more information, please contact Centers for Disease Control and Prevention**

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Visit: [www.cdc.gov](http://www.cdc.gov) | Contact CDC at: 1-800-CDC-INFO or [www.cdc.gov/info](http://www.cdc.gov/info)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

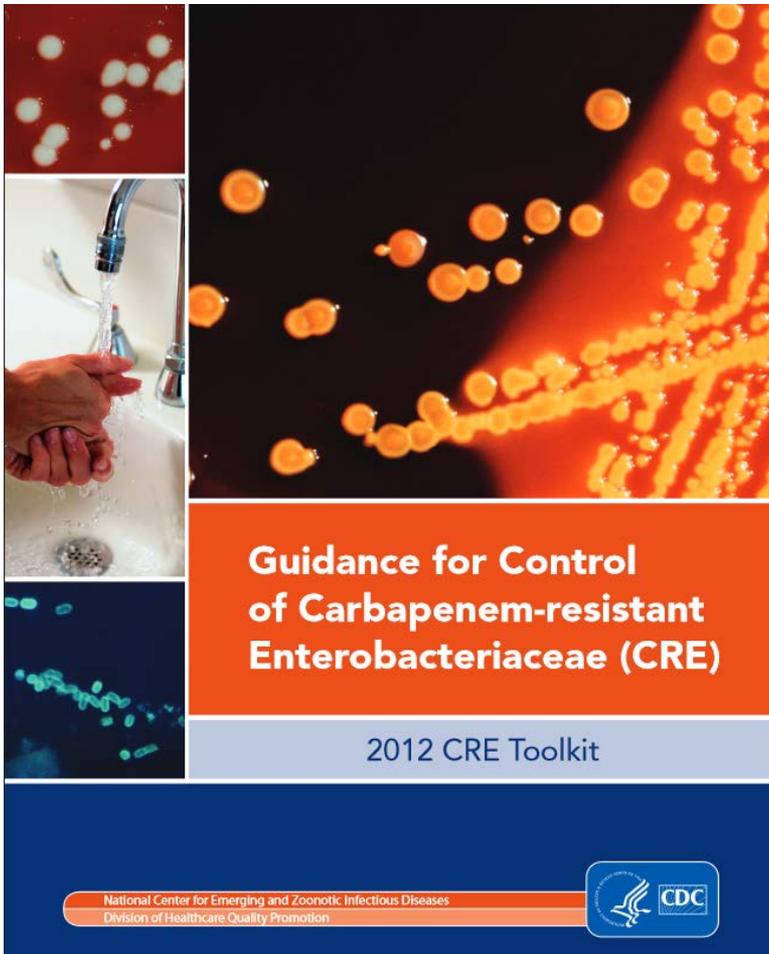


# Marked Geographic Variation in Incidence of CRE in Tennessee: *Implications for Prevention Efforts*

**Marion A. Kainer, MD, MPH, FRACP, FSHEA**

Director, Healthcare Associated Infections and Antimicrobial Resistance Program

# CDC 2012 CRE Toolkit



**Regions with no CRE**

**Regions with few CRE**

**Regions where CRE are common**

**<http://www.cdc.gov/hai/organisms/cre/cre-toolkit/index.html>**

# CRE Definition: CSTE PS 15-ID-05



15-ID-05

**Committee:** Infectious Disease

**Title:** Standardized definition for Carbapenem-resistant Enterobacteriaceae (CRE) and recommendation for sub-classification and stratified reporting

## I. Statement of the Problem

Carbapenemase-producing carbapenem-resistant Enterobacteriaceae (CP-CRE) are an emerging public health problem in the United States. Interventions to control the spread of CP-CRE require:

- 1) Comparable measures of CRE and CP-CRE both within and across public health jurisdictions to facilitate reporting of CRE and CP-CRE data to professional audiences, policy makers, and the public
- (2) Actionable epidemiology for healthcare facilities about CRE and CP-CRE detection and response

<http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/2015PS/2015PSFinal/15-ID-05.pdf>

# Case Definition

## 2011–2014 [CDC toolkit, EIP]

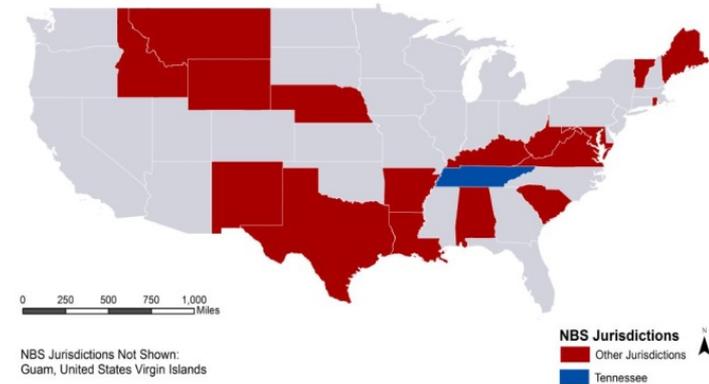
- *Klebsiella* spp., or *E. coli*, or *Enterobacter* spp.
- **Non-susceptible** to at least one carbapenem (**excluding** ertapenem)
- Resistant to all of the third general cephalosporins tested

## 2015 [CSTE PS: 15-ID-05 ]

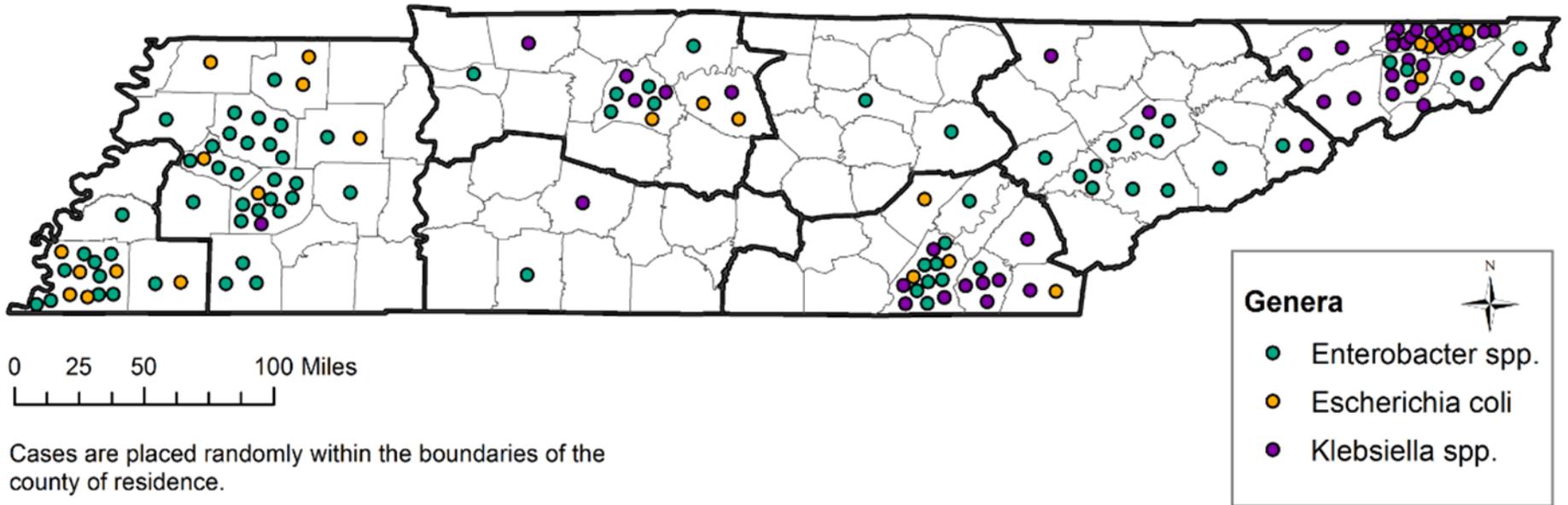
- *Klebsiella* spp., or *E. coli*, or *Enterobacter* spp.
- **Resistant** to at least one carbapenem (**including** ertapenem)
- ~~Resistant to all of the third general cephalosporins tested~~

# Case Criteria for Analysis

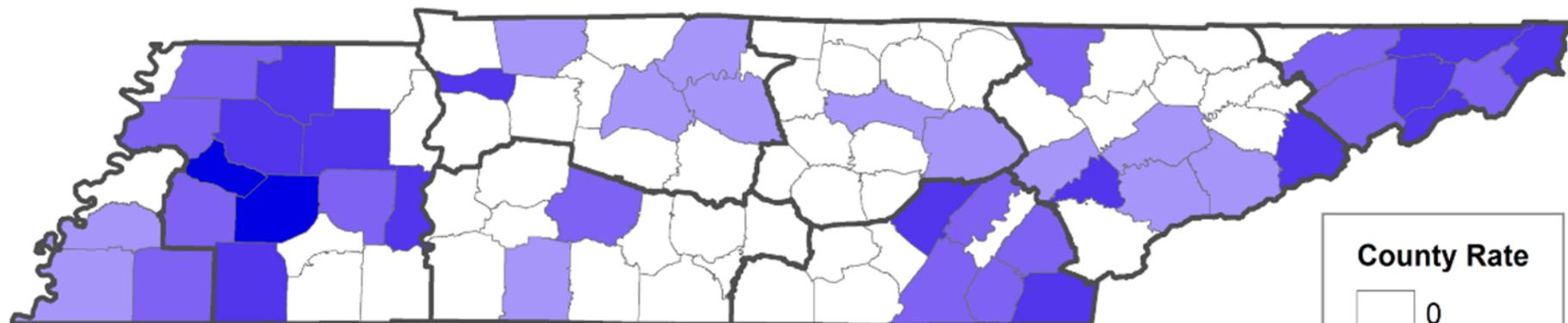
- **Tennessee residents reported in NBS**
- **Specimen collection date: 01/01/2014 - 12/31/2014**
- **Organism: *Klebsiella* spp., *E. coli*, *Enterobacter* spp.**
- **Resistant to at least one carbapenem, including ertapenem (CSTE PS 15-ID-05; NHSN LabID 2015)**
- **Numeric MIC value using the 2012 CLSI breakpoints**
- **Each person was counted once per organism for the calendar year (did not count multiple specimens more than 30 days apart – *i.e.*, investigations)**



## Cases of CRE by Genera and County of Residence, Tennessee 2014



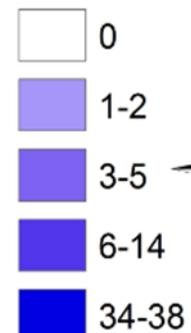
## Annual Incidence Rate of CRE Cases, by County, Tennessee 2014



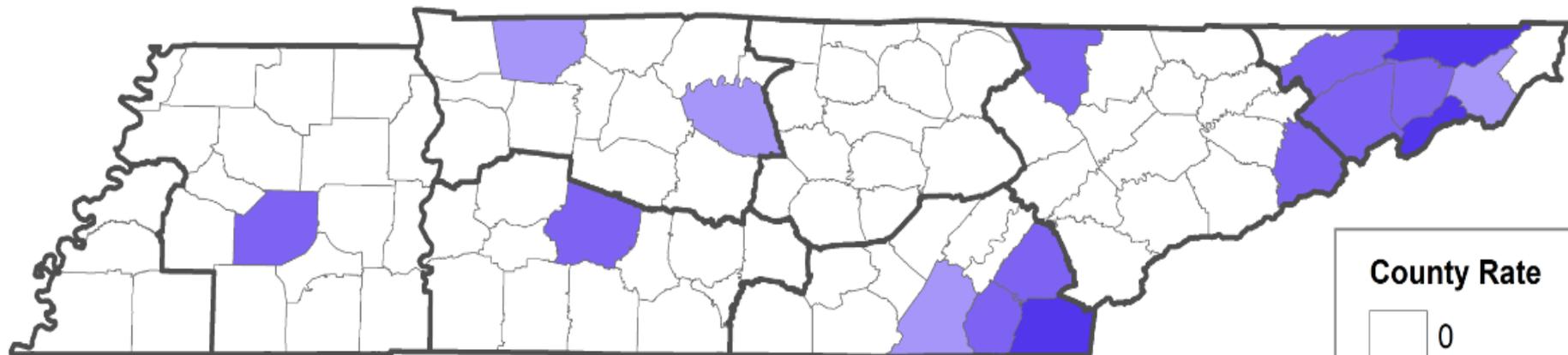
0 25 50 100 Miles

Cases are assigned to a county based on the county of residence. Rates are calculated at the county level using the Census estimates for July 1, 2014, and based on the base estimates from the April 1, 2010 Census counts. Rates are calculated per 100,000 persons in the county population.

### County Rate



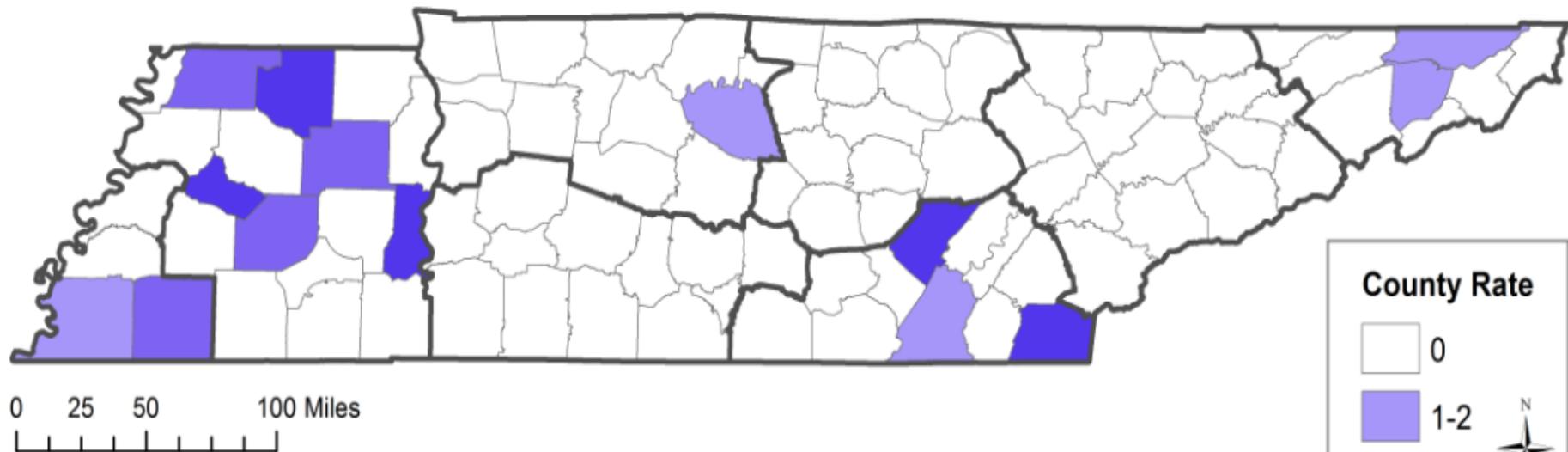
## Annual Incidence Rate of *Klebsiella spp.* Cases, by County, Tennessee 2014



0 25 50 100 Miles

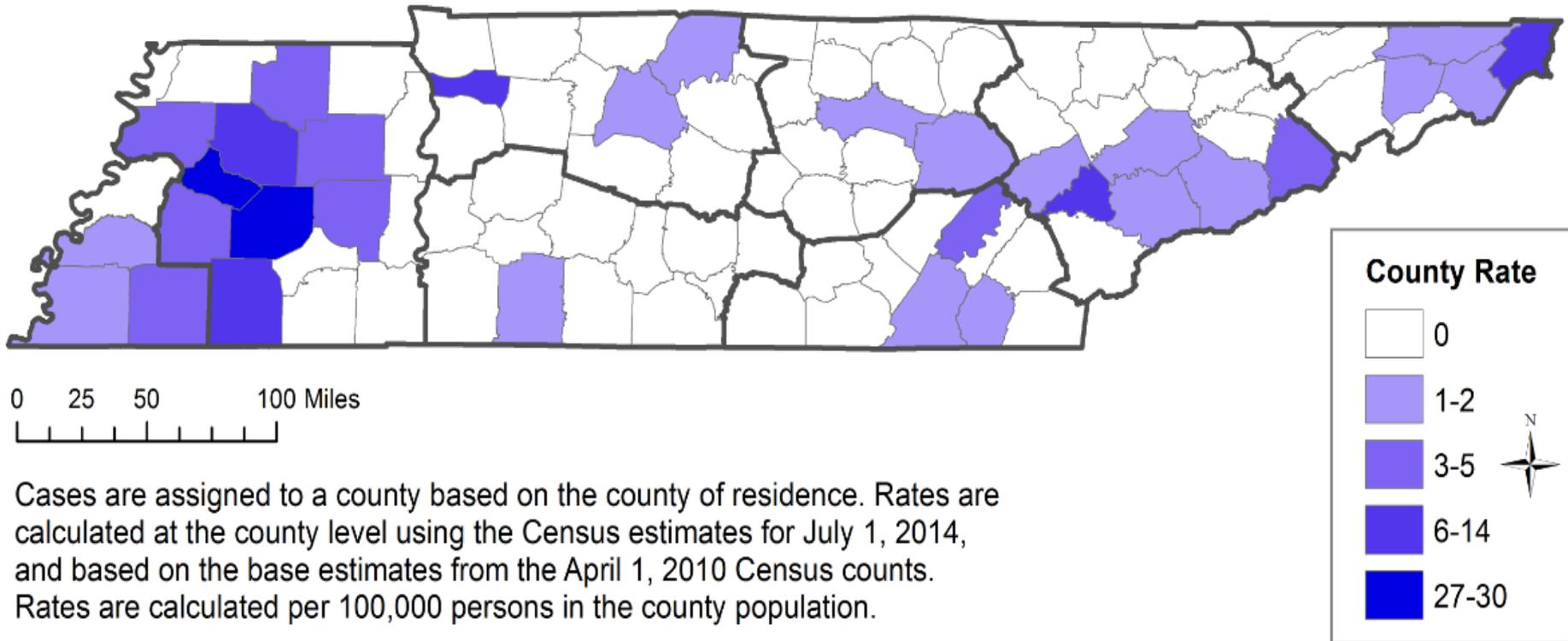
Cases are assigned to a county based on the county of residence. Rates are calculated at the county level using the Census estimates for July 1, 2014, and based on the base estimates from the April 1, 2010 Census counts. Rates are calculated per 100,000 persons in the county population.

## Annual Incidence Rate of *Escherichia coli* Cases, by County, Tennessee 2014

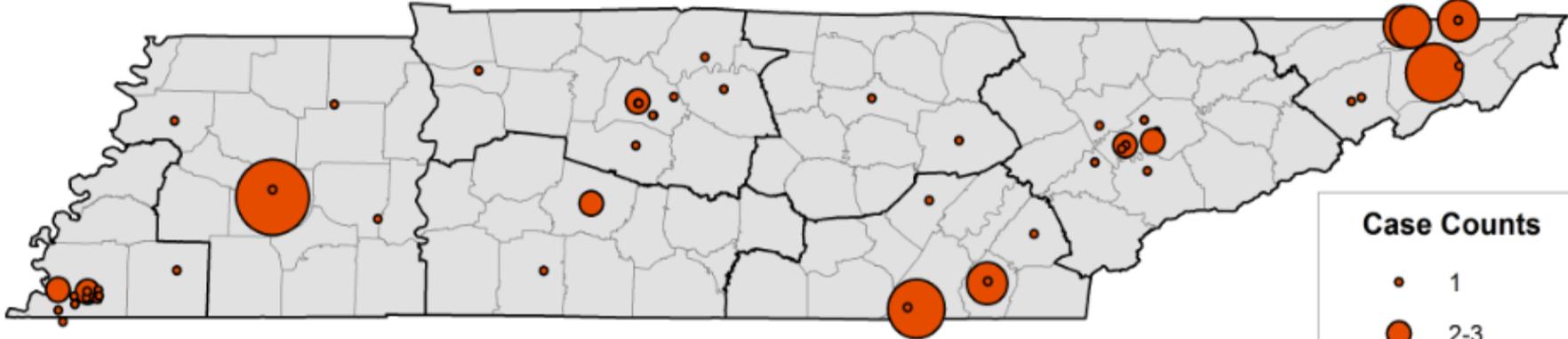


Cases are assigned to a county based on the county of residence. Rates are calculated at the county level using the Census estimates for July 1, 2014, and based on the base estimates from the April 1, 2010 Census counts. Rates are calculated per 100,000 persons in the county population.

## Annual Incidence Rate of *Enterobacter spp.* Cases, by County, Tennessee 2014



# CRE Cases by Healthcare Facility Laboratory, Tennessee, 2014



0 25 50 100 Miles

Cases were summed according to the healthcare facility completing the laboratory testing. When not indicated, the facility or provider requesting the testing is shown as the testing facility. A total of 63 facilities are represented, with a range of one to thirty cases per facility.

**Case Counts**

- 1
- 2-3
- 6-8
- 10-12
- 30



# Next Steps

- **Ongoing sharing of data for situational awareness and targeted interventions**
- **Capture additional variables on case report form (NBS)**
  - **e.g., Names of healthcare facilities**
- **De-duplicate names of healthcare facilities & laboratories in NBS to allow easier analysis by healthcare facility**
- **Expand resistance mechanism testing at State Public Health Laboratory**
- **Classify as (i) likely CP-CRE, (ii) likely not CP-CRE, (iii) unknown as per CSTE PS 15-ID-05**
- **Create maps of likely CP-CRE and by resistance mechanism (e.g., KPC, NDM)**

# Next Steps

- **Better understanding of degree of connectivity of individual healthcare facilities with other healthcare facilities**
  - **Within TN**
  - **Surrounding states**
  - **Target interventions more specifically**
    - **If subset of facilities highly interconnected (sharing of patients)**
    - **Facilities that appear to be amplifying/disseminating CRE to other facilities in region**
  - **Expand reporting requirement: TN residents AND anyone seeking care in a TN healthcare facility**
- **Explore leveraging NBS data to create registry**



# Contact

**Marion A. Kainer, MD, MPH, FRACP, FSHEA**

**Director, Healthcare Associated Infections and  
Antimicrobial Resistance Program**

**[Hai.Health@tn.gov](mailto:Hai.Health@tn.gov)**



# IDPH

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

*CDC VITAL SIGNS* TOWN HALL  
COORDINATED ACTION TO  
STOP THE SPREAD OF ANTIBIOTIC  
RESISTANCE

**Erica Runningdeer, MSN, MPH, RN**

**Healthcare Associated Infection (HAI) Prevention Coordinator**

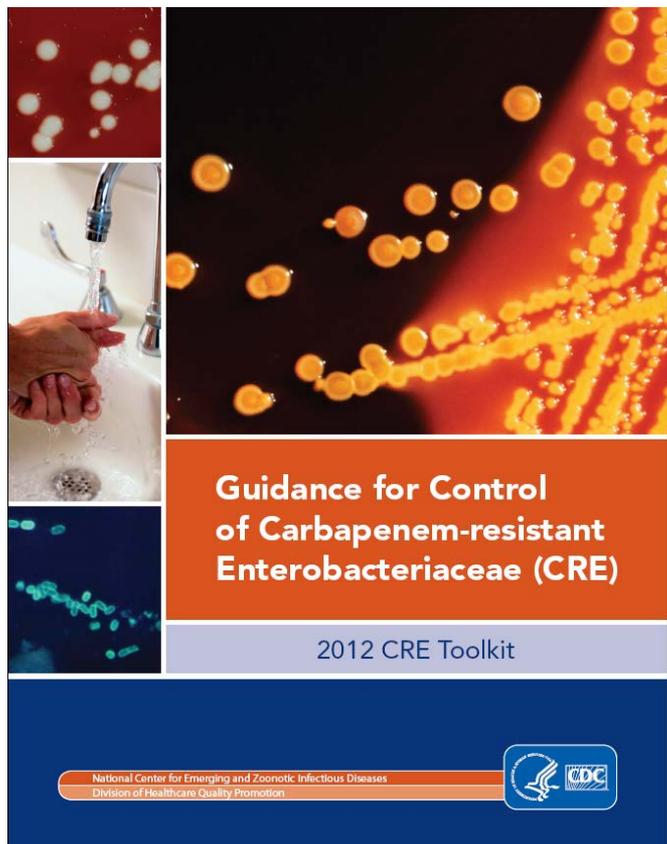
August 11, 2015

# CDC CRE Toolkit: Detect and Protect

1. **Detect:** Find CRE-carrying patients

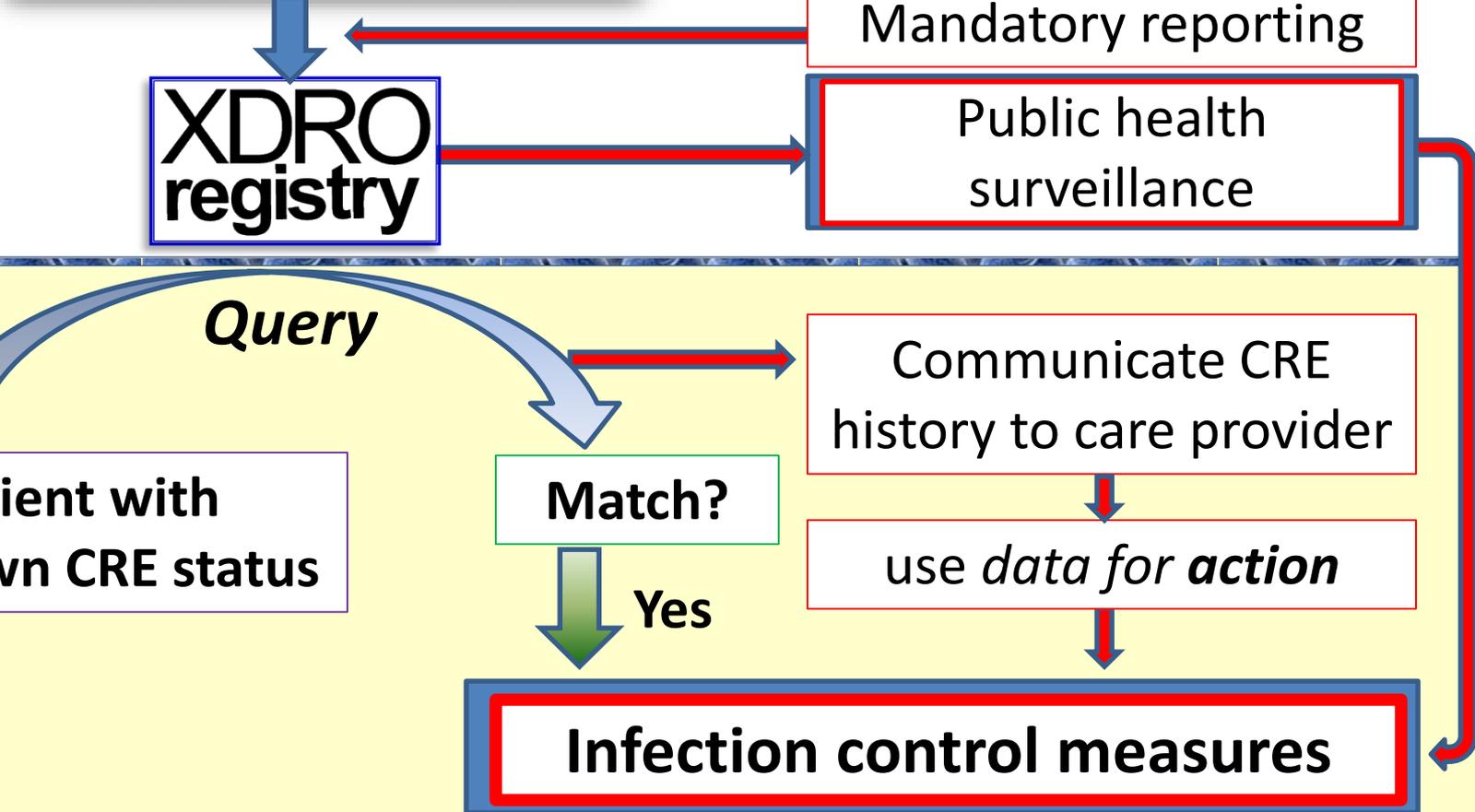


2. **Protect:** Take appropriate infection control actions



[www.xdro.org](http://www.xdro.org)

[www.idph.state.il.us/patientsafety/cre](http://www.idph.state.il.us/patientsafety/cre)



XDR0 registry is a collaborative effort between IDPH, Chicago CDC Prevention Epicenter, & Medical Research Analytics and Informatics Alliance (MRAIA)

# Dashboard Overview

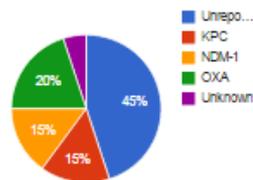


## XDRO Report

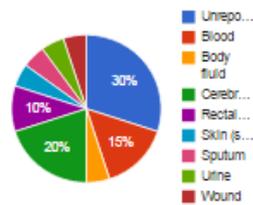
### Facility Data [a]

### Sample Hospital (fictitious)

#### Resistance Mechanism



#### Specimen Source



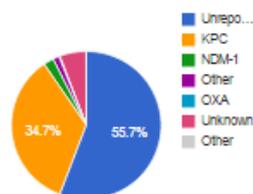
Entire Dataset

#### Trend, Last 12 Months

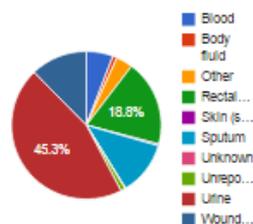


### State Data [b]

#### Resistance Mechanism



#### Specimen Source



Entire Dataset

#### Trend, Last 12 Months



a: The facility level report removes all duplicates regardless of time. A duplicate is defined at the level of the patient and facility, using the patient's first name, last name, and date of birth.

b: The state level report removes all duplicates regardless of time and facility. A duplicate is defined at the level of the patient, using the patient's first name, last name, and date of birth.

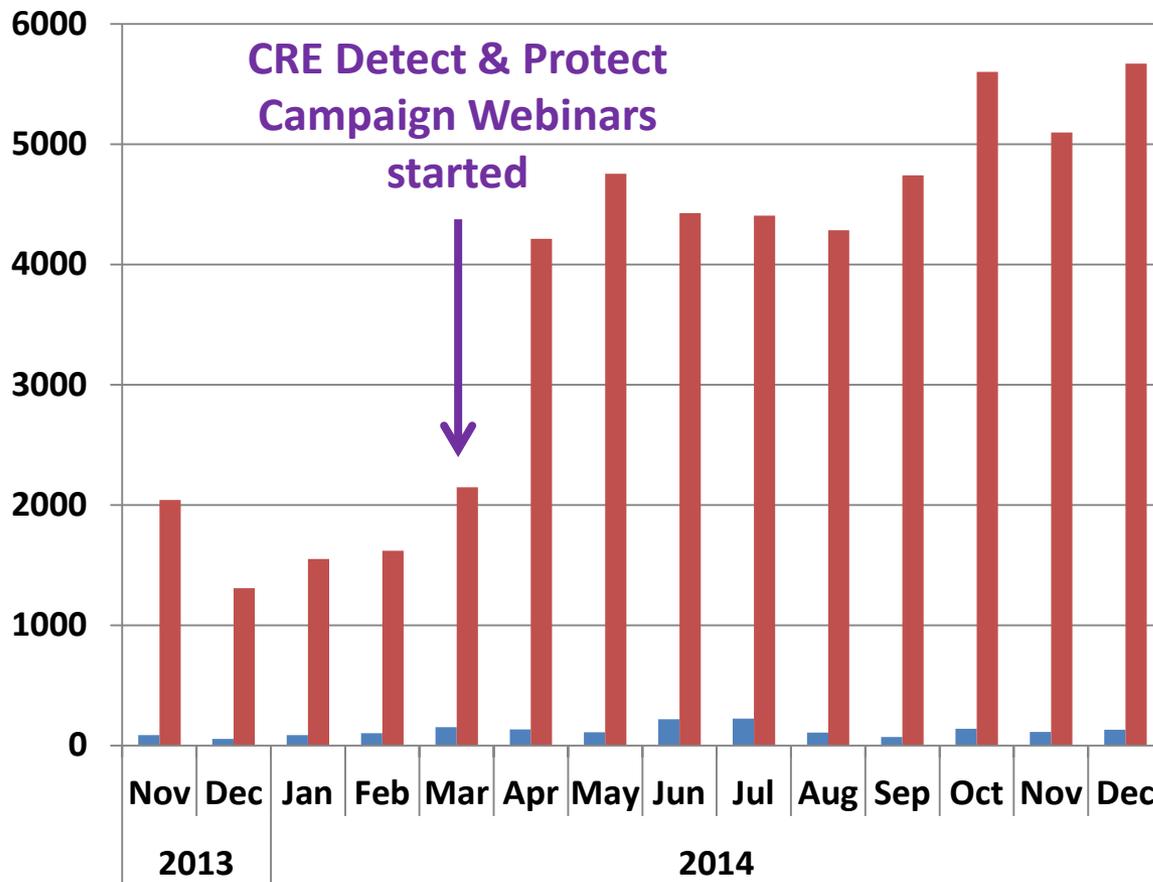
- Mandatory reporting began November 2013

### As of August 2, 2015:

- 162 facilities submitted 2,949 reports
- 136 facilities queried for patients
- **1,943 unique patients** have reports in the registry
- Average of **2–3 new patients added per day**

# Usage Trends

■ Patient queries ■ Webpage views



## CRE Detect & Protect Campaign

March 2014—July 2015



- 213 facilities participated
- 23 stakeholder sponsors
- 9 webinars attended by 1,033 people from 227 facilities

### Distributed

- 350 CRE lab detection packets
- 300 CRE facility packets
- 3 regional workshops attended by 406 people
  - May/July 2015
  - Case studies with transitions
  - Antimicrobial Stewardship

323 campaign survey respondents

- 25% identified a patient in the registry who had been admitted to their facility.
- 62% took additional infection control actions as a result of the campaign.



# *C. difficile* Infection Prevention Across Transitions of Care Collaborative

## **Collaborative effort with the Chicago Department of Health**

- Leverage existing relationship between facilities and local health departments
- Create synergy with partner activities for greater facility buy-in

## **Focus areas & activities**

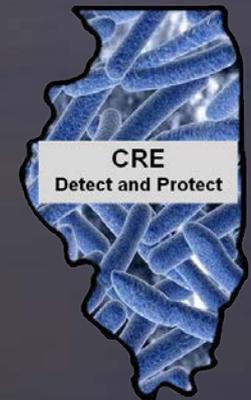
- On-site assessment & feedback
- Disseminate best practices
- NHSN onboarding & training
- Communication at interfacility transfer
- Antimicrobial Stewardship
- CDI prevention bundle
  - Setting specific strategies

## **10 facilities**

- 3 acute care hospitals
- 3 long-term acute care hospitals
- 4 skilled nursing facilities



**Thank You**  
**[Erica.Runningdeer@illinois.gov](mailto:Erica.Runningdeer@illinois.gov)**





# **Carbapenem-resistant *Enterobacteriaceae* (CRE): The Public Health Response in Wisconsin**

Gwen Borlaug, MPH, CIC  
Coordinator, Healthcare-  
Associated Infections (HAI)  
Prevention Program  
Division of Public Health



# Topics

- How are we conducting CRE surveillance?
- What useful information have we gained?
- What CRE control strategies are we using?
- What role do local health departments play?
- What do we need to do next?



# CRE Surveillance Methods

- Division of Public Health (DPH)
  - Mandated during December 2011
  - Conducted among hospital inpatients
  - Based on use of the National Healthcare Safety Network (NHSN)
- State Laboratory of Hygiene (SLH)
  - Began during January 2010
  - Conducted among inpatients and outpatients
  - Based on submission of clinical laboratory specimens



# Laboratory-identified (labID) CRE events per 100,000 hospital admissions, Wisconsin 2013–2014

	2013	2014
<b>Statewide prevalence (number of labID events*/number of admissions x 100,000)</b>	<b>7.2</b>	<b>6.4</b>
SE public health region	11.9	12.4
Remainder of state	3.8	2.3
<b>Total labID events</b>	<b>43</b>	<b>38</b>
SE public health region	30	30
Remainder of state	13	8
<b>Total reported admissions</b>	<b>596,810</b>	<b>592,211</b>
SE region	251,441	241,014
Remainder of state	345,369	351,197

\*LabID event = a clinical specimen positive for CRE (*Klebsiella* spp. or *E. coli*) per patient, per month, per facility



# Transmission of CRE from Long-Term Care to Acute Care Facility



Long-Term Care Facility



Patient A



Patient B

- Unidentified CRE-positive Patient A was transferred from a long-term to an acute care facility.
- CRE was transmitted to Patient B, located in a hospital room adjacent to Patient A.
- Rectal cultures of all patients on the affected unit did not reveal additional transmission.
- Patient B was not discharged to another facility, thus no follow-up with receiving facilities was required.



# Prevention

- Regional Collaborative Groups
  - Southeastern Public Health Region
  - Dane County
  - Local chapters of the Association for Professionals in Infection Control and Epidemiology (APIC)
- CRE Toolkit
  - Prompt use of transmission-based precautions
  - Notification to receiving facilities
  - Submission of isolates to SLH
  - Screening of potentially exposed patients
  - Education of facility staff, patients, and families



# Role of Local Health Departments

- Convene regional collaborative groups
- Facilitate communications among healthcare settings in their jurisdictions
- Provide CRE education to healthcare facilities and the general public
- Help coordinate antibiotic stewardship activities in their jurisdictions



## Next Steps

- Engage skilled nursing facilities in voluntary CRE reporting
- Conduct CRE data validation among hospital reporters
- Build on existing antibiotic stewardship programs to coordinate statewide efforts among key partners



**Gwen Borlaug, MPH, CIC**  
**[gwen.borlaug@wi.gov](mailto:gwen.borlaug@wi.gov)**  
**608-267-7711**

DPH CRE website

<https://www.dhs.wisconsin.gov/disease/cre.htm>

Annual CRE Surveillance Report

<https://www.dhs.wisconsin.gov/publications/p0/p00578.pdf>

# CDC *Vital Signs* Electronic Media Resources

Become a fan on Facebook

[www.facebook.com/cdc](http://www.facebook.com/cdc)

Follow us on Twitter

[twitter.com/CDCgov/](http://twitter.com/CDCgov/)

Syndicate *Vital Signs* on your website

<http://tools.cdc.gov/syndication/search.aspx?searchURL=www.cdc.gov%2fvitalsigns>

*Vital Signs* interactive buttons and banners

<http://www.cdc.gov/socialmedia/tools/buttons/vitalsigns/index.html>

# Prevention Status Reports

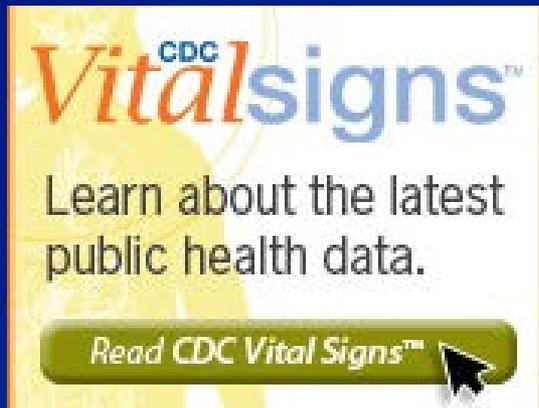
- The Prevention Status Reports (PSRs) highlight—for all 50 states and the District of Columbia—the status of public health policies and practices designed to prevent or reduce 10 important public health problems.

Topics	
 Excessive Alcohol Use	 Motor Vehicle Injuries
 Food Safety	 Nutrition, Physical Activity, and Obesity
 Healthcare-Associated Infections	 Prescription Drug Overdose
 Heart Disease and Stroke	 Teen Pregnancy
 HIV	 Tobacco Use

[www.cdc.gov/psr/](http://www.cdc.gov/psr/)

Provide feedback on this teleconference:

[OSTLTSFeedback@cdc.gov](mailto:OSTLTSFeedback@cdc.gov)



Please mark your calendars for the next

***Vital Signs Town Hall Teleconference***

**Tuesday, September 8, 2015**

**2:00–3:00 pm (EDT)**

**For more information, please contact Centers for Disease Control and Prevention.**

1600 Clifton Road NE, Atlanta, GA 30333

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Centers for Disease Control and Prevention

Office for State, Tribal, Local and Territorial Support