Welcome

Office for State, Tribal, Local and Territorial Support presents

CDC Vital Signs Town Hall
CDC’s Containment Strategy for Unusual Antibiotic Resistance

April 10, 2018
2:00–3:00 PM (ET)
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<th>Time</th>
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| 2:00 pm  | Welcome & Introduction      | Matthew Penn, JD, MLIS  
Director, Office of Public Health Law Services, Office for State, Tribal, Local and Territorial Support |
| 2:05 pm  | Vital Signs Overview        | Arjun Srinivasan, MD, (Capt, USPHS)  
Associate Director for Healthcare-Associated Infection Prevention programs, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention |
| 2:10 pm  | Presentations               | Marion A. Kainer, MD, MPH, FRACP, FSHEA  
Director, Healthcare Associated Infections and Antimicrobial Resistance Program, Tennessee Department of Health  
Stephanie R. Black, MD, MSc  
Medical Director, Communicable Disease Program, Chicago Department of Public Health |
| 2:35 pm  | Q&A and Discussion          | Matthew Penn, JD, MLIS                                                       |
| 2:55 pm  | Wrap-up                     |                                                                             |
| 3:00 pm  | End of Call                 |                                                                             |
to support STLT efforts and build momentum around the monthly release of CDC Vital Signs
CDC Vital Signs: Containing Unusual Resistance

Arjun Srinivasan, MD (CAPT, USPHS)
Associate Director, Healthcare-Associated Infection Prevention Programs
Division of Healthcare Quality Promotion

April 10, 2018
Once antibiotic resistance spreads, it is harder to control.

Finding and responding to unusual resistance early, before it becomes common, can help stop its spread and protect people.

New or rare types of antibiotic resistance can be easier to contain when found rapidly—like a spark or campfire.
Main Points

• “Unusual” types of antibiotic resistance (AR) are widespread across the U.S.

• CDC’s Containment Strategy is an aggressive approach to stop the spread of “unusual” AR.

• For carbapenem-resistant Enterobacteriaceae (CRE) alone, CDC estimates show that the Containment Strategy would reduce infections by 76%.
First Results from AR Lab Network

• *MMWR* report summarized the experience over the first several months of improved lab testing by CDC’s Antibiotic Resistance Lab Network.

• Expanded laboratory testing capacity in all 50 states, 5 cities, and Puerto Rico for rapid identification. Regional labs support colonization testing.

• Health departments and health care facilities can work together to aggressively respond to protect patients from these threats and keep infections from spreading within and between facilities.
The Containment Strategy

- Rapid detection in health care facilities
- Infection control assessments led by the health department
- Colonization screenings, when needed
- Coordination between healthcare facilities
- Continued vigilance until spread is controlled
Containment Strategy: Be on guard to contain the first spark.

THE NATION CAN IDENTIFY AND RESPOND TO UNUSUAL ANTIBIOTIC RESISTANCE

In addition to leading the Containment Strategy, CDC is working with other Federal agencies to combat antibiotic resistance nationwide by preventing infections and improving antibiotic use. CDC’s activities are supported by ongoing resources from Congress.

- 7 AR Lab Network Regional Labs
- 56 AR Lab Network State and Local Labs
- 500+ Local Staff to Combat AR
- 49 Projects Expanding Innovative Detection & Prevention
- 35 Advanced Programs to Prevent Spread & Improve Antibiotic Use
Rapid Containment Response in Tennessee

Marion A. Kainer MD, MPH, FRACP, FSHEA
Director, Healthcare Associated Infections and Antimicrobial Resistance (HAI/AR) Program
Hai.health@tn.gov
Day 1: Identification and Next Steps

Dr. X: we have identified NDM in one of your patients. This is a Tier 2 organism. We will be following CDC's guidance document. Would like to have conference call to discuss.

2 hours after identification of NDM:

- Conference Call
- Joint Risk Assessment

NDM + Klebsiella pneumoniae (CP-CRE)

30 minutes:

https://www.cdc.gov/hai/outbreaks/mdro/

NDM = New Delhi Metallo-betalactamase
CP-CRE Carbapenemase producing Carbapenem resistant Enterobacteriaceae
Day 1: Joint Risk Assessment
Recommendations: Based on CDC’s Containment Guidance

Tier 1
- Infection Control Assessment
- Lab Lookback
- Prospective Surveillance
- Broader Healthcare Contact Screening
- Household Contact Screening
- Environmental Sampling

Tier 2
- Healthcare Roommate Screening

Tier 3
- Healthcare Personnel Screening

For Tier 3, the following screening is recommended:
- Tier 1: Infection Control Assessment
- Tier 2: Lab Lookback, Prospective Surveillance, Healthcare Roommate Screening, Broader Healthcare Contact Screening, Household Contact Screening, Environmental Sampling

Yes Sometimes No

https://www.cdc.gov/hai/outbreaks/mdro/
Day 1 continued; Day 2: Collect Swabs

**Hospital Leadership**

- Confirm best address for shipment of swabs
- Point of contact for swabs
- Email: Document packet, including instructions, FAQ, sample assent, specimen requisition form

**Logistics**

**Next Day...**

- Frequently Asked Questions (FAQs) and Example Verbal Scripts to Request Assent for Multidrug-Resistant Organism (MDRO) Screening
- Collect Swabs
- Regional Laboratory

https://www.cdc.gov/hai/outbreaks/mdro/
Day 3: Regional Laboratory: Testing

Next Day...

12/12 swabs negative
- 11 patients on unit >3 days
- 5 patients on unit before contact precautions initiated

Dr. X notified of results
< 48 hours after initial NDM notification
Keys to Rapid Response

• Advance protocol knowledge

• Effective communications:
  – Healthcare staff
  – Hospital leadership
  – Laboratory
  – Health department

• Logistics

• ARLabNetwork:
  – Report out results within 2 working days of specimen receipt

• CP-CRE reportable, isolate submission required in Tennessee
Advance Protocol Knowledge

- Multi-disciplinary Advisory Group on Healthcare Associated Infections (HAI)
- Statewide monthly call with Infection Preventionists
- Association for Professionals in Infection Control (APIC) chapter meetings
- Emerging Infection Program (EIP) Scientific Day
- Monthly statewide webinar for Public Health (PH) staff
- Regional Tabletop Containment Exercises x 8
- Laboratory “Roadshow”

Planned:

- Chief Medical Officer (CMO) Society meeting (to raise awareness among senior healthcare leadership)
Early Identification: Timely Isolate Submission

- **Isolate submission:** required in Tennessee (TN)
- **Prioritization:**
  - CRE isolates from patients hospitalized outside U.S. in last 6 months
  - Isolates from laboratories serving high risk patient populations

CP-CRE is National Notifiable (effective: January 2018)
Proposal to add *Candida auris*

http://www.cste.org/?page=PositionStatements
ARLN Admission Screening

• Patients with hospitalization outside the U.S. in past 6 months
  – Screen patient
  – Place in Contact Precautions pending screening result

– ARLN now can process these admission colonization swabs

How to operationalize?
• Protocol for direct admissions
• Travel question (time interval)

Day 1
Potential Challenges to Rapid Containment

- Laboratories may be located out of jurisdiction
  - Long term acute care hospitals (LTACHs)
  - Ventilator skilled nursing facilities (vSNF)
  - Dialysis facilities
  - Skilled nursing facilities (SNF)
  - May not report and/or submit isolates

- Name of healthcare facility where specimen was collected may not be noted on isolate/specimen submission form
  - Centralized laboratory / Referred out

Delay in recognizing threat

Delay in initiating containment response
Acknowledgements

• **Laboratory staff:**
  - Hospital, State PH Lab/Regional Lab for the South East Region

• **Hospital staff:**
  - Hospital epidemiologist, infection preventionists, nurses, hospital leadership

• **Public health (PH) staff:**
  - HAI/AR team, regional/local PH

Epidemiology and Laboratory Capacity Cooperative Agreement

CDC

ARLAB network

TECHNICAL SUPPORT

Epidemiology staff
Laboratory staff
The room where it happened...

VIM and *C. auris* in Chicago

Stephanie R. Black, MD, MSc
Medical Director, Communicable Disease Program
April 10, 2018
CDC Vital Signs Town Hall
stephanie.black@cityofchicago.org
Collaboration

Chicago Prevention and Intervention Epicenters

PROTECT and REALM

RUSH UNIVERSITY
MEDICAL CENTER

COOK COUNTY
HEALTH & HOSPITALS SYSTEM

CCHHS

PROTECT and REALM

IDPH

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

XDROR

registry

CDC

APIC

ARLAB network

HEALTHY CHICAGO

CHICAGO DEPARTMENT OF PUBLIC HEALTH
Outbreak Notification

- Nov 2016 point prevalence survey
- Chicago skilled nursing facility with ventilated residents (vSNF A)
- 20 cases of VIM-producing *Pseudomonas aeruginosa* colonization
- All rectal screening cultures

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<tr>
<th></th>
<th>VIM-PA</th>
<th>Total Swabbed</th>
<th>% Positive</th>
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<tbody>
<tr>
<td>Skilled nursing floor</td>
<td>4</td>
<td>56</td>
<td>7%</td>
</tr>
<tr>
<td>Ventilated/Trached floor</td>
<td>16</td>
<td>62</td>
<td>26%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>118</td>
<td>17%</td>
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VIM-PA=Verona Integron Metallo-beta-lactamase-producing *Pseudomonas aeruginosa*
Interventions

• Recommendations:
  – CHG bathing on ventilator unit
  – Improved environmental cleaning practices
  – APIC follow up hand hygiene and bathing practices
  – Cohorting

• Chicago Dept Public Health/Illinois Dept Public Health actions:
  – Carbapenemase-producing Pseudomonas added to XDRO Registry
  – Environmental sampling
  – Follow up point-prevalence surveys

CHG=chlorhexidine gluconate; APIC=Association of Professionals in Infection Control and Epidemiology
Number of newly identified VIM-CRPA during PPS at vSNF A, Nov 2016-Nov 2017

- **SN Floor Case Count**
  - 11/1/16: 4
  - 1/17/17: 0
  - 5/10/17: 0
  - 7/5/17: 0
  - 7/24/17: 0
  - 3/28/18: 0

- **Vent Floor Case Count**
  - 11/1/16: 16
  - 1/17/17: 2
  - 5/10/17: 3
  - 7/5/17: 4
  - 7/24/17: 9
  - 3/28/18: 0

PPS=point prevalence survey; vSNF=skilled nursing facility with ventilated residents; SN=skilled nursing floor; Vent=ventilator/trach floor
Total number of VIM-CRPA on days of PPS at vSNF A, Nov 2016-Nov 2017

PPS=point prevalence survey; vSNF=skilled nursing facility with ventilated residents; SN=skilled nursing floor; Vent=ventilator/trach floor
vSNF A Ventilator/Trach Floor
July 2017 PPS Results

Carbapenamase-producing organism colonization

NDM=New Delhi Metallo-beta-lactamase; KPC=Klebsiella pneumoniae carbapenemase; CRE=carbapenem-resistant Enterobacteriaceae; CRPA=carbapenem resistant *Pseudomonas aeruginosa*
C. auris cases (n=120) – Illinois, May 2016-March 8, 2018

Slide courtesy of A. Tang
**vSNF B Ventilator/Trach Floor**
March 2017 *C. auris* PPS Results

*C. auris* colonization prevalence=1.5% (1/69)

- C. *auris* positive
- Screened negative for *C. auris*
- Not tested for *C. auris* (refused or not in room)

PPS=point prevalence survey; vSNF=skilled nursing facility with ventilated residents
vSNF B Ventilator/Trach Floor
January 2018 C. _auris_ PPS Results

*C. auris* colonization prevalence=43% (29/67)

- C. *auris* positive
- Screened negative for *C. auris*
- Not tested for C. *auris* (refused or not in room)
vSNF B Ventilator/Trach Floor
January 2018 C. auris and CPO PPS Results

C. auris and Carbapenemase-producing organism colonization

CPO=carbapenemase-producing organism; PPS=point prevalence survey; vSNF=skilled nursing facility with ventilated residents
vSNF* B Outbreak Response Strategy

• Intervention bundle
  – Surveillance and XDRO registry access
  – Contact precautions and cohorting
  – Daily chlorhexidine gluconate bathing
  – Accessible hand hygiene
  – Environmental cleaning

• Cohorting consultation

• Set expectations

vSNF=skilled nursing facility with ventilator unit
How to clean a quad room

Treat each resident area as a separate room
Summary

• Monitor implementation and provide ongoing support and technical assistance
• Health alert to local facilities to place SNF* residents who are vented/trached on contact precautions and clean room with sporicidal agent
• Notify patient sharing networks
• Continued point prevalence surveys
• Environmental sampling post cleaning

SNF=skilled nursing facility
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Mary Hayden
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Robert Weinstein

vSNF A and B staff
CDC Vital Signs Electronic Media Resources

- Become a fan on Facebook
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- Follow us on Twitter
  www.twitter.com/CDCgov
- Syndicate Vital Signs on your website
  https://tools.cdc.gov/medialibrary/index.aspx#/media/id/305883
- Vital Signs interactive buttons and banners
  https://www.cdc.gov/socialmedia/tools/buttons/vitalsigns
Thank You

Provide feedback on this teleconference:
OSTLTSFeedback@cdc.gov

Please mark your calendars for the next Vital Signs Town Hall Teleconference
May 8, 2018
2:00–3:00 PM (ET)

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

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