ELC HAI/AR Grantees' Meeting

Grantee Summary Report

March 2017

Executive Summary

Thank You

Thank you so much for attending the 2017 Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Healthcare-associated Infections and Antibiotic Resistance (HAI/AR) Grantees' Meeting. As ELC grant recipients, **your work is critical** to our shared mission to eliminate healthcare-associated infections, contain and reduce antimicrobial resistance, and improve healthcare safety and quality. We hope this meeting was helpful in addressing priority topics that are at the heart of this mission: **response and containment** of novel and targeted multi-drug resistant organisms (MDROs), prevention of ***Clostridium difficile*** **(*C. diff*) and MDRO transmission** across settings, and prevention of **device-associated infections.**

In This Report

The following slides contain an overview of each day's presentations, activities, report outs and Q&A sessions. In addition to this summary report, we will provide slides for each day's didactic sessions.

What's Next

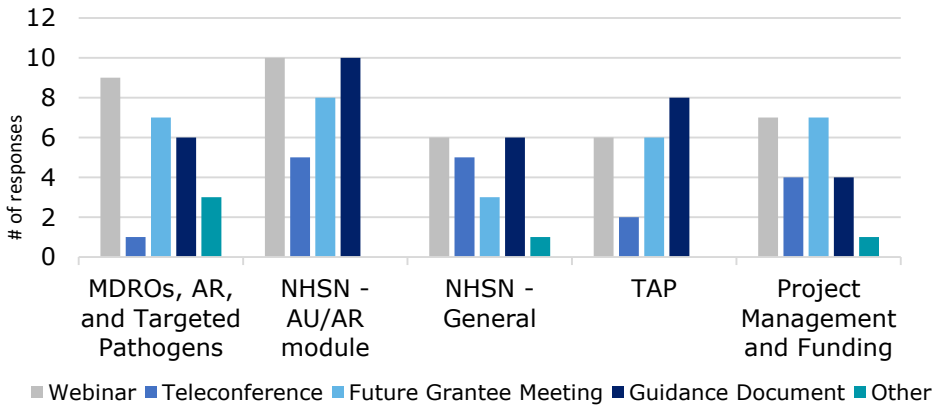
During the meeting, we collected your feedback. Summarized below are the top follow-up actions that we identified:

1. Provide **individualized support** and technical assistance as needed
2. Notify you when **new regional laboratory capacities** are operationalized
3. Apply your texted survey responses and wrap-up survey feedback to our **planning for next year's Grantees' Meeting**

Upcoming Resources

Throughout the meeting, we asked you what topics you'd like more information on, and what mode of delivery would be most helpful. Here is a sneak peek at your responses – more resources to come!

Top 5 Topics for Additional Support, by preferred mode of delivery



ELC HAI/AR Grantees' Meeting by the Numbers

220 Total Attended

370 Minutes of Interactive Activities

62 Jurisdictions Represented

27 Presentations and Panel Sessions

Day 1 Summary: Response / Containment of Novel & Targeted MDROs

After an introduction by DHQP Division Director Denise Cardo, the meeting kicked off with discussions of cutting edge research and new resources for containing the spread of multi-drug resistant organisms (MDROs), as well as an overview of program support provided by DHQP.

Key Takeaways

Program Support and ICAR

- DHQP's State Support Unit (SSU) triages inquiries, tracks requests, maintains awareness of HAI program history and progress, and communicates subject-matter updates and guidance to grantees to support ELC activities.
- The new support mailbox for ICAR and ELC is HAIAR@cdc.gov. Use haioutbreaks@cdc.gov to request consults for potential outbreaks.
- Next steps for ICAR include developing final reports for Activity A in May 2017, and continuing Activity B through March 2018.

ARLN

- The Antibiotic Resistance Laboratory Network (ARLN), consisting of 7 regional labs, was created to boost local capacity and technology to detect, support response to, and prevent AR threats.
- Regional laboratories will coordinate testing and reporting logistics with their jurisdictional state/local public health labs. State/local public health departments will reach out to clinical labs to solicit target isolates.
- State/local health departments should contact their Regional Lab if they would like to request colonization screening.

Novel Pathogens

- *Candida auris* is a new superbug emerging worldwide. Transmission of *C. auris* has been identified within clusters of closely interconnected hospitals and nursing homes in three states. Multiple introductions of *C. auris* into the US have likely occurred. *C. auris* can be controlled with rigorous tracking and infection control.
- The goal for state carbapenem resistance mechanism testing is to establish a network of clinical labs that provide isolates from healthcare facilities. Suspected carbapenem-resistant Enterobacteriaceae (CRE) and *Pseudomonas aeruginosa* (CRPA) isolates are tested at the state/local level; isolates with suspected novel resistance will be sent to regional labs.
- Key findings from *mcr-1* investigations show that most cases are associated with travel, a majority of isolates are found in *E. coli*, no transmission has been identified, and it generally has a limited duration of intestinal colonization.
- Carbapenemase-Producing Non-Fermenters (CP-NF) are rare in the U.S., but an aggressive response is needed to contain their spread and responses should consider the different attributes of these organisms (e.g., environment can play a role in transmission).
- A new approach has been developed to respond to emerging novel MDROs called the Tiered Containment Approach. This approach is divided into 3 response tiers:
  - Tier 1: most concerned about, novel to the US
  - Tier 2: largest group, MDROs primarily found in the healthcare setting
  - Tier 3: already established in the US but not common
- For more information, please visit https://www.cdc.gov/hai/outbreaks/mdro/index.html.

The Antibiotic Resistance Laboratory Network (ARLN)

The ARLN transforms much of the current national AR lab landscape by boosting local capacity and technology to detect, support response to, prevent AR threats, and create new innovations to combat AR threats.

Seven Regional Labs with comprehensive lab capacity for numerous AR threats, including:

- **Carbapenem-resistant Enterobacteriaceae (CRE)** colonization testing for outbreak response
- ESBL-producing Enterobacteriaceae testing for ***mcr*-1** mediated colistin resistance
- Detection of carbapenem-resistant ***Acinetobacter***
- ***Neisseria gonorrhoeae*** culture and reference testing of specimens from STD clinics for detecting new resistance, developing treatment guidance, and identifying and responding to outbreaks
- **Candida spp.** susceptibility testing of sterile body site isolates of any *Candida* spp. other than *C. albicans*, *C. dubliniensis*, *C. krusei*, *C. parapsilosis*, *C. lusitaniae*, and *C. tropicalis*; susceptibility and identification of *C. auris* and *C. haemulonii*
- ***Steptococcus pneumoniae*** susceptibility testing and serotyping of MDR isolates from sterile body sites to identify vaccine-escape strains

55 sites, including all 50 states, 4 large cities, and Puerto Rico, will characterize CRE and CRPA isolates, including testing for carbapenemase production and resistance mechanisms.

Day 1 Activity: Outlining Containment Plans for CRE

On Day 1, participants used a CRE case study to illustrate how key players across disciplines need to work together in an outbreak scenario to contain the spread of a multidrug-resistant organism (MDRO).

Key Takeaways

Working in teams across geographies and disciplines, participants formulated containment plans when they found out that a patient in their region tested positive for VIM-producing CRE. Participants rehearsed the following steps:

- Develop key questions to begin planning a containment strategy and identify initial data sources
- Evaluate the potential for transmission through facility infection control assessments and contact screening, which may include a point prevalence survey (PPS) of patients
- Formulate action plans with affected facilities if transmission risks are identified and request screening for contacts at highest risk for transmission
- Work with the Antibiotic Resistance Laboratory Network (ARLN) to triage and perform colonization screening tests
- If transmission is detected, expand contact screening, adjust/improve infection control practices/interventions, notify connected facilities, and complete follow-up PPSs until 2 PPSs indicate no additional transmission has occurred

Activity Report Out:

- Communication will be sent out as regional laboratories are operationalized for colonization screening.
- When prioritizing or triaging contact screenings, considerations should be given as to what will be done if healthcare worker screenings test positive.
- Usually, healthcare worker screening only occurs when there is a suspicion that they were part of transmission.
- Preventing transmission in healthcare settings requires meticulous attention to infection control, particularly the use of transmission-based precautions, hand hygiene, and environmental cleaning.

Day 2 Summary: Prevention of Transmission of *Clostridium difficile* Infection (CDI) and MDROs Across Settings

Day 2 opened with an introduction from Rima Khabbaz, CDC Deputy Director for Infectious Diseases and the Director of the Office of Infectious Diseases. She stressed the importance of collaboration and perseverance in performing this critical work.

Key Takeaways

CDI Updates & Successes

- To reduce facility-onset CDI and the rate of CDI hospitalization by 30%, as described in the National Action Plan (2020), we must understand that CDI prevention is multifaceted.
- CDC recommends the TAP Strategy and accompanying tools to help prioritize efforts and maximize resources for CDI prevention.

Surveillance Data

- The epidemiology, surveillance, and detection of CDI are advanced and influenced by antibiotic resistance. Health departments can draw inferences from estimates of non-hospital onset case burden using surveillance data in NHSN and EIP to drive CDI prevention efforts.
- The ARLN can also be leveraged to fill in gaps in surveillance of CDI, thereby increasing the knowledge of *C. difficile* epidemiology and improving prevention practices.

Research to Practice

- Transmission of HAI pathogens across healthcare settings might be largely driven by inter-facility movement via colonized patients. To achieve regional impact most efficiently, interventions should be initially directed at facilities that drive transmission.
- Research and mathematical modeling suggests that focusing initial interventions in healthcare settings that are highly connected to other facilities and where length of stay is longest, such as long-term acute care hospitals (LTACHs) and skilled nursing facilities (SNFs) with medically complicated patients, would have significant impact on achieving regional reductions in MDRO transmission. Other sources of data that can focus initial control and containment efforts include TAP reports and surveillance data.

Antibiotic Stewardship

- There is evidence suggesting a strong correlation between antibiotic stewardship (especially those reducing the use of fluoroquinolones) and a decrease in CDI incidents.
- Data can be used to better engage partners and identify antibiotic stewardship opportunities.

Engaging Patient Representatives

Ensure that you have patient representative(s) on your state HAI advisory group and encourage hospitals to do the same.

Question and Answer Themes

- **Data:** Data for CDI range in both form (NHSN, EIP, Patient Safety Atlas, CMS data, AHRQ website, etc.) and availability. “Perfect” data is not necessary to drive improvements in standard interventions.
- **Models:** Mathematical models include many assumptions and need to be evaluated in real world settings. Although modeled interventions are still being tested in demonstration projects, they are providing information that health departments can consider using as a starting point for developing interventions with regional impact.
- **TAP:** TAP Reports can be useful in targeting locations, however, health departments should work across settings in the prevention of CDI to make the greatest impact.

Day 2 Activity: Understanding the Components of a CDI Prevention Plan Across the Continuum of Care

On Day 2, participants walked through three scenarios of CDI (hospital-onset, community-onset, and community-associated) that illustrated the importance of integration across the continuum of care to reduce CDI.

Key Takeaways

Teams across multiple regions worked together on a case study to establish a CDI prevention plan in three settings:

Scenario 1: Hospital-Onset CDI

- Definition: *LabID Event collected >3 days after admission to the facility. (NHSN)*
- Using TAP report data to prioritize hospitals, participants simulated information gathering from a high priority hospital and developed interventions based on the data received.
- Intervention activities included: using TAP Reports to prioritize locations in hospitals and TAP Facility Assessments to assess for gaps, encouraging environmental service audits, pursuing dialogue with leadership, conducting direct observations of wards through ICAR assessments, evaluating training and education opportunities, and reviewing the policies in place for inter-facility communication and hygiene.

Scenario 2: Community-Onset CDI

- Definition: *LabID Event collected in an outpatient location or an inpatient location ≤3 days after admission to the facility. (NHSN)*
- Teams practiced estimating and inferring burden of community-onset CDI using multiple sources of data before discussing potential intervention activities to address CDI in nursing home settings.
- Ideas to address community-onset CDI in nursing homes included: site visits, hygiene audits, engaging QIN-QIOs, improving inter-facility transfer communication, and encouraging nursing homes to enroll in NHSN for more precise data.

Scenario 3: Community- Associated CDI

- Definition: *A positive stool specimen collected in an outpatient setting or within 3 days of admission to a hospital in a person with no documented overnight stay in a healthcare facility in the prior 12 weeks. (EIP)*
- Teams participated in a series of brainstorming activities on community-associated CDI, focusing on outpatient stewardship activities, and discussed what partners, data, and other resources were needed for implementation of activities.
- Interventions included: creating educational campaigns, surveying dentists, engaging patients/families, improving prescription processes, and using/sharing antibiograms with clinicians.

Day 2 Activity: Report Out Results

Following the day's presentations and activities, teams shared the insights they made during the activity on CDI across the continuum of care.

In 1-2 words, describe a challenge or barrier your state health department has when addressing community-onset CDI (e.g., nursing homes, etc.)

In 1-2 words, describe a challenge or barrier your state health department has when addressing community-associated CDI

- **Challenges and Barriers**
  - Appropriate **data** and access to data are consistent challenges to CDI prevention. Facilities often lack necessary resources, and data is not yet readily available to understand rates of CDI outside of the acute care hospital setting.
  - There is a **cultural** barrier in healthcare facilities, resulting from the high turnover rate in nursing homes, limited incentives to enroll in surveillance like NHSN, and overall uncertainty about surveillance data in healthcare facilities.
  - Further support is needed for **education/training** for the new TAP Strategy, additional resources and data tools, as well as communication to align activities.
  - There is a perception that **funding/resources** for CDI are limited for state health departments and healthcare facilities, and that those limitations may constrain the implementation of prevention strategies.
- **Activities and Resources**
  - Intervention activities ranged widely, but often included the use of HIINs, QIN-QIOs, and other partners; TAP strategy; and the use of webinars and other training methodologies.
- **Lessons Learned and Best Practices**
  - Teams acknowledged that current data is not perfect, but also discussed how to creatively work around this issue, including the addition of site-visits and sharing regional reports to encourage facilities to join NHSN and share data with health departments or other partners.
  - Participants stressed the value of including external partners, such as pharmacy groups, dental organizations, healthcare networks, and other health departments, to successfully address CDI in their regions.

ELC Continuation Guidance Panel and Q&A

During this session, DHQP and Division of Preparedness and Emerging Infections (DPEI) representatives summarized the FY17 consolidation changes, discussed guidance that will be provided to grantees, and held a question and answer session about the upcoming Funding Opportunity Announcement (FOA).

Key Takeaways

Consolidation

- The 8 projects, totaling $60M in funding, in FY16 will be consolidated to 3 projects in FY17 to streamline and simplify activities. Despite consolidation, budgets will remain separate for each project.
- **FY17 K1:** The new Detection, Containment, and Prevention project consolidates FY16 K1 and K6 into one core project, and includes as optional three projects that were standalone in FY16: K3 External Data Validation, K4 Hemodialysis BSI, and K5 Injection Safety.
- **FY17 K2:** The new Coordinated Prevention and Stewardship project consolidates FY16 K2 and J into one core project.
- **FY17 K3:** The Antimicrobial Resistance Regional Laboratory Network project is designated as K3.

Guidance

- Guidance was published March 20, including a webinar on March 23 and a targeted webinar for DHQP activities on March 28. Applicants will have 60 days to apply, with applications due May 16.
- DPEI's grantees' meeting is April 12-13, 2017, at CDC.

Q&A Highlights

- CDC anticipates level funding for this grant year. Priority will be given to states who already receive funding.
- However, CDC strongly advises grantees to do their best to spend their funding before the 36-month project period concludes in 2018.
- A one-pager will be developed on reporting requirements. For progress reports, guidance is being developed on the consolidation. All reporting for ICAR will be pushed back to May.

Last Year's (ELC Year 3; FY16) Project Name	This Year's (ELC Year 4; FY17) Project Name
J Educational Efforts to Promote Appropriate Antibiotic Use	K2 Coordinated Prevention and Stewardship
K1 Detection and Response Infrastructure	K1 Detection, Containment, and Prevention
K2 Coordinated Prevention	K2 Coordinated Prevention and Stewardship
K3 Data Validation	K1 External Data Validation (Optional)
K4 Hemodialysis BSI	K1 Hemodialysis BSI (Optional)
K5 Injection Safety	K1 Injection Safety (Optional)
K6 State CRE Laboratory Capacity	K1 Detection, Containment, and Prevention
K7 Antimicrobial Resistance Regional Laboratory Network	K3 Antimicrobial Resistance Regional Laboratory Network
K8 Threat of Antibiotic-resistant Gonorrhea: Rapid Detection and Capacity	J1 Threat of Antibiotic-resistant Gonorrhea: Rapid Detection and Capacity

Summary of FY17 Activity Consolidation

Laboratory Break-out Sessions

On Days 2 and 3, laboratory representatives participated in break-out sessions to dive deeper into technical laboratory issues and network with one another.

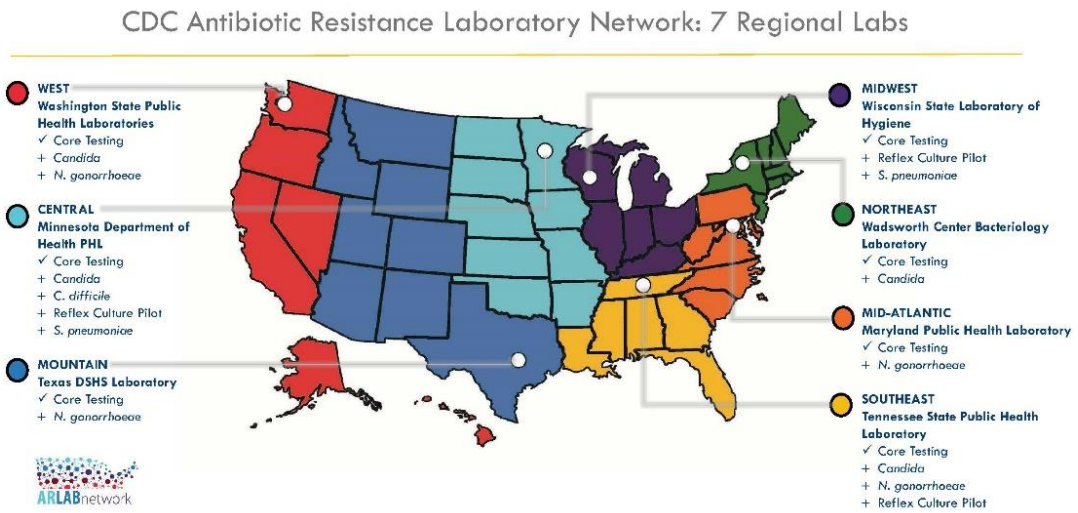
Key Takeaways

APHL Updates

- Association of Public Health Laboratories (APHL) provides several resources that grantees can take advantage of, including providing lab trainings by region, offering an Antimicrobial Resistance Fellowship, and facilitating partnerships with healthcare laboratories.
- APHL also conducts several informatics initiatives, including a phased approach to deploying the AIMS portal (APHL Informatics Messaging System), a cloud-based infrastructure which includes the electronic test order and result (ETOR) portal for CRE colonization testing.

CRE Testing and Trouble-Shooting

- Detection of CRE and CRPA is a challenge, and different types of testing are available at state/local laboratories, regional laboratories, and CDC.
- A full review of the testing directories highlighted various tools and tips for species identification, antimicrobial susceptibility testing, phenotypic screening for carbapenemase production, and PCR detection of carbapenemase genes.
- Several recommendations provided can assist labs with troubleshooting ARLN CRE data interpretation.



Day 3 Summary: Prevention of Device-Associated Infections

Michael Bell, Deputy Director of the Division of Healthcare Quality Promotion (DHQP), opened Day 3 and discussed the approach to prevention as a combination of new strategies and on-going research to prevent HAIs.

Key Takeaways

National Healthcare Safety Network

- Data Use Agreements (DUAs) have been used to extend National Healthcare Safety Network (NHSN) access to state health departments for surveillance and prevention purposes. DUAs assure confidentiality of data, and CDC plans to introduce a new online NHSN DUA form by early 2018.
- Long Term Care Facilities (LTCFs) are not required to submit data for HAI surveillance, except in one state. In order to encourage LTCF participation and foster trust, LTCF data will not be included in DUAs but LTCFs may voluntarily participate via NHSN groups.
- The uniform assessment methodology by implementing the NHSN validation toolkit is necessary to evaluate gaps and variations in data accuracy.
- The NHSN outpatient procedure component (OPC) targets ambulatory surgery centers (ASCs). While reporting is optional for CMS mandated measures, this new component addresses measures which are unique to the ASC environment.

Target, Assess, Prevent

- The TAP Strategy is a stepwise framework for quality improvement that uses data for action to prevent HAIs.
- The TAP Strategy allows you to target locations with an excess burden of HAIs, identify gaps using standardized assessments, and prioritize and customize prevention efforts.

STRIVE

- The States Targeting Reductions in Infections Via Engagement (STRIVE) Project aims to improve implementation of infection prevention and control efforts, and to increase the alignment and coordination of HAI prevention activities.
- Using NHSN TAP Reports to identify and prioritize short-stay and long-term acute care hospitals, the national project teams (represented today by the Health Research & Educational Trust partners) in STRIVE have utilized an online educational framework to provide modules as part of the HAI prevention strategies.

67% of programs used TAP reports to target facilities for HAI prevention.

6 % of programs deployed TAP facility assessments in identified facilities.

11 % of programs provided feedback to facilities that completed the TAP facility assessments.

Question and Answer Themes

- **Partners**: Coordination and communication between partners and facilities is difficult, but necessary to determine what gaps and opportunities exist for growth.
- **Training Resources:** Staff, time, and materials are limited but some states have found success by engaging partners, such as vendors and pharmacists, to share resources.
- **Data Validations:** There are a range of methodologies and modules, and upcoming discussions on these differences are being planned.

Day 3 Activity: Identifying & Closing Gaps in Device Associated Infections

On Day 3, Grantees participated in a facilitated discussion including rapid brainstorming and idea sharing with other participants located in proximal states, cities, and territories.

Idea Themes

Discussing at tables, participants worked through guided questions together, capturing ***Success Stories***, ***Challenges, Resources Used*** and ***Resources Desired***.

Success Stories

- STRIVE Project
- Work with QIN-QIOs and HIINs
- ESRD Network Partnerships
- Partnerships with Infection Preventionists at Healthcare Systems or Corporations
- Completed ICAR Assessments
- Partnership with Licensing and Trade Organizations
- Completed TAP Assessments and Reports
- CHAIN Collaborative Network
- CIC for Each Region to Act as SME
- Risk Assessment Systems (Pulled from Multiple Data Sources)
- Regional Collaboration Opportunities (Should Increase Calls)

Challenges

- Addressing Deficiencies Identified Through ICAR
- Sustained Staff and Resources
- Patient Education
- Communication Throughout Patient Transfers and Lab Testing
- VSNFs in Nursing Homes
- Lack of VAE Data Access
- Different Care Processes and Clinician Habits Across Settings
- CMS Hospital Compare Lag Time from NHSN Update
- Too Many Advisory Groups / Similar Roles
- Poor Knowledge Sharing Practices Between Clinicians
- Coordination with Stakeholders
- Variation of Data Use Agreements / Mandates by State

Resources Used

- NHSN
- TAP Report Data
- State / Local Agency Data
- Electronic Laboratory Reporting
- Prevalence Surveys
- Facility Staff Reports
- Outbreak Reporting
- State Hospital Associations
- Advisory Councils, Regulatory, and Other Partnerships (SHEA, APIC, Academia, BCBS, etc.)
- Nursing Home and Hospital Compare

Resources Desired

- Dialysis and LTC NHSN Data
- Electronic Inter-Facility Communications
- Competency-Based Trainings (Webinars, Site Visits, etc.)
- Relationship with Vendors, Consumer Groups
- Standardized HIE and University Data Access
- Data from Federal Healthcare Institutions (VA, Indian Health Service Facilities)
- Informatics and Audit Skillsets or Training for Staff
- Simple Communications Tools
- Payer Claim and Medicaid Data
- Out-of-State Data Access
- Education Tools to Share with Non-Acute Care Facilities
- ICAR Assessment Scorecard (State Access to Facility Comparison)

Day 3 Activity: Report Out and Q&A Session

Following the day's presentations and activities, teams shared comments on the brainstorming and planning that took place during the discussion.

What "**one thing**" will your health department start doing to better prevent device associated infections?

Grantee Discussion Comments:

- State level resources, education, and training are critical to success at health departments.
- Vendors can be a valuable resource at healthcare facilities to provide education and training on specific techniques of device use and infection prevention.
- Coordination role of state health departments is crucial to ensuring connectivity with partners and facilities.