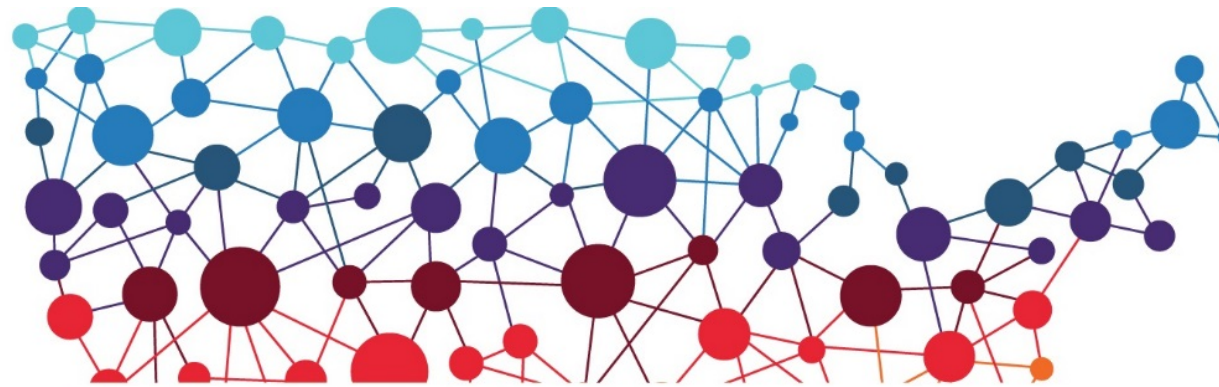




ARLABnetwork Update

Allison C Brown, PhD MPH
Division of Healthcare Quality Promotion
CDC

2018 CSTE
West Palm Beach

AR Lab Network

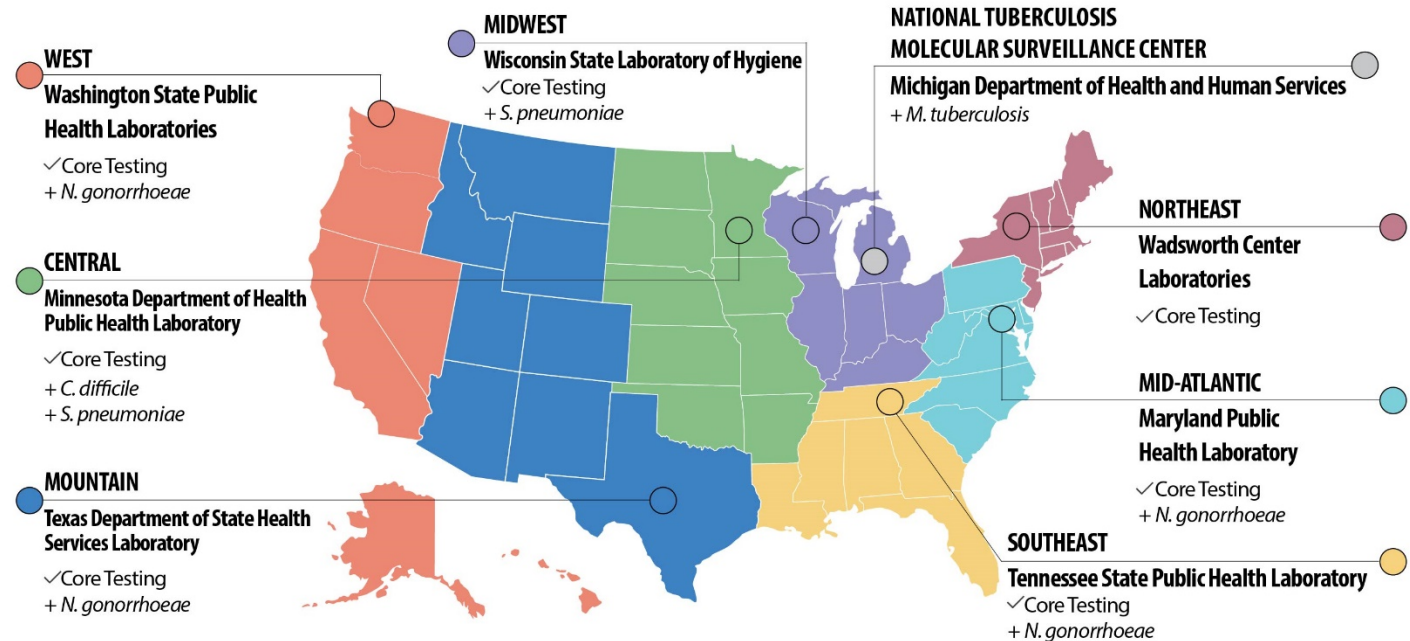
Establishing nationwide lab capacity to detect AR threats

Detecting and stopping outbreaks faster

56 state and local labs

7 regional/specialty labs

Coordination of public health response



AR Lab Network Regional Lab Core Testing



- CRE/CRPA Isolate Characterization
- Targeted surveillance
 - Carbapenem-R *Acinetobacter* spp.
 - ESBL-producing *Enterobacteriaceae* – Isolate testing for *mcr*-mediated colistin resistance

Outbreak Response Colonization Screening



Confirmed CRE Case
Engage HAI Coordinator



Identify Patient Contacts
Coordinate Swab Collection



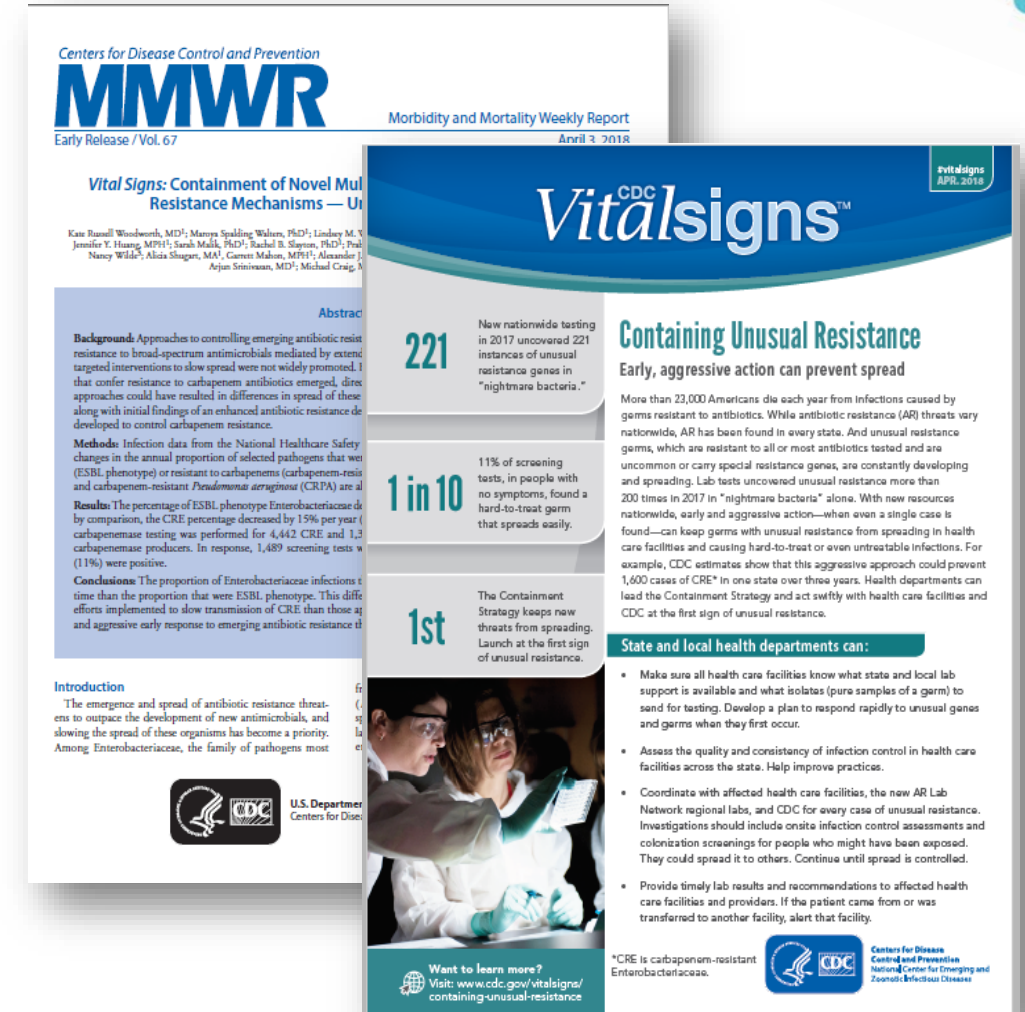
CRE Colonization Screening
from Rectal Swabs



Results to Facility,
Epidemiologist, and Lab in 2
Days

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.

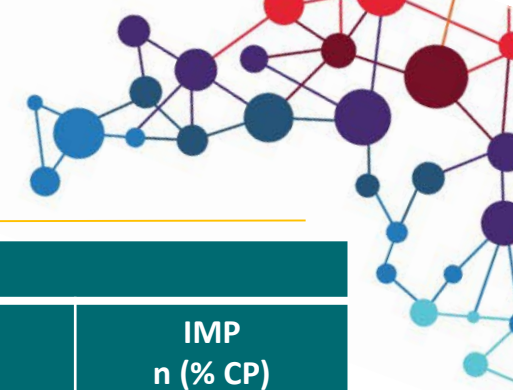


CRE/CRPA Testing Summary—2017



- Total isolates tested: 10,590
 - CRE tested: 6,891
 - 34% (2,311) CP-CRE
 - CRPA tested: 3,699
 - 3% (98) CP-CRPA
- >1600 screening swabs tested in >50 facilities
 - 11% positive overall
 - 14% positive in post-acute care facilities vs 6% in short-stay acute care
- Number of ARLN Alerts sent: 425
 - 2018: >500 alerts reported

CRE/CRPA Testing Summary—2017



Genus	Isolates Tested N	Carbapenemase Producing n (%)	Carbapenemase Gene				
			KPC n (% CP)	NDM n (% CP)	OXA-48 n (% CP)	VIM n (% CP)	IMP n (% CP)
<i>Enterobacteriaceae</i>	6891	2311 (33%)	2056 (30%)	185 (3%)	77 (1%)	24 (<1%)	24 (<1%)
<i>Klebsiella</i>	2383	1585 (67%)	1431 (60%)	96 (4%)	51 (2%)	6 (<1%)	1 (<1%)
<i>Enterobacter</i>	2557	383 (15%)	346 (14%)	21 (<1%)	0 (0%)	8 (<1%)	8 (<1%)
<i>Escherichia</i>	1096	202 (18%)	119 (11%)	60 (5%)	23 (2%)	0 (0%)	0 (0%)
<i>Citrobacter</i>	162	52 (32%)	47 (29%)	1 (<1%)	0 (0%)	4 (2%)	0 (0%)
<i>Serratia</i>	133	25 (19%)	25 (19%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<i>Proteus</i>	106	17 (16%)	9 (8%)	5 (5%)	0 (0%)	1 (<1%)	2 (2%)
<i>Providencia</i>	57	19 (33%)	2 (4%)	0 (0%)	0 (0%)	5 (9%)	12 (23%)
Other species	397	83 (21%)	77 (19%)	2 (<1%)	3 (<1%)	0 (0%)	1 (<1%)
<i>Pseudomonas aeruginosa</i>	3699	98 (3%)	11 (<1%)	3 (<1%)	0 (0%)	52 (1%)	8 (<1%)

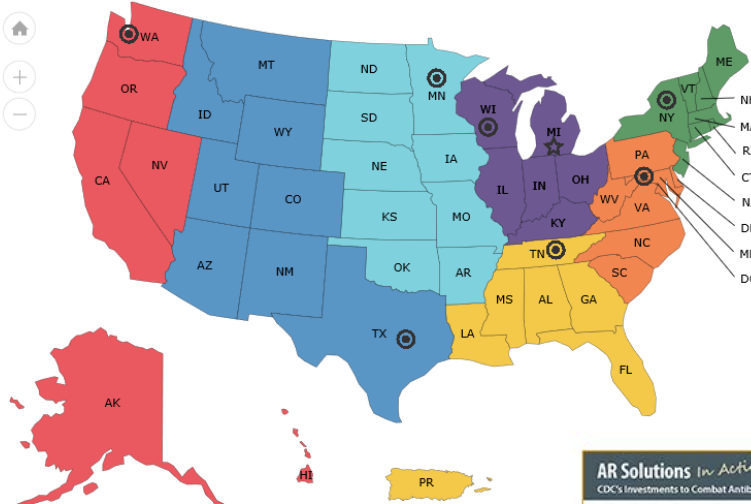
Preliminary data

Resources

Investments in the AR Laboratory Network

AR Regional Labs & Testing Activities

Hover over and select state for more details.

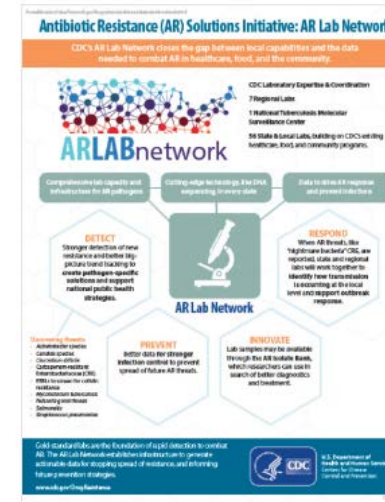


Established in 2016, CDC's AR Laboratory Network supports nationwide lab capacity to rapidly detect antibiotic resistance in healthcare, food, and the community, and inform local responses to prevent spread and protect people.

The AR Laboratory Network includes seven regional labs, the National Tuberculosis Molecular Surveillance Center (National TB Center), and labs in 50 states, five cities, and Puerto Rico. As a whole, the network tracks changes in resistance and helps identify and respond to outbreaks faster. [Learn more.](#)

📍 Location of one of seven AR Laboratory Network regional labs.

★ Location of the National Tuberculosis Molecular Surveillance Center.



AR Solutions Initiative, AR Lab Network

[Factsheet \(Print Only\)](#) [PDF - 1 page]

Printable Fact Sheets about Testing



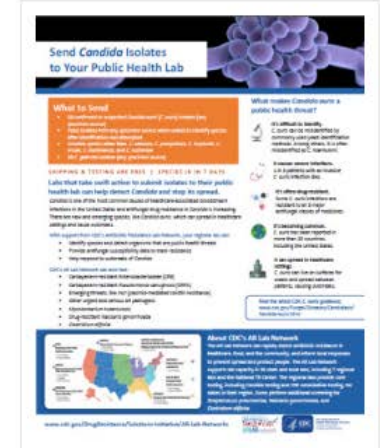
About CDC's AR Lab Network (Print only)

[PDF - 1 page]



Request CDC's AR Lab Network Test to Prevent Spread of CRE (Print only)

[PDF - 1 page]



Send Candida Isolates to Your Public Health Lab (Print only)

[PDF - 1 page]



AR Lab Network Data for Action



Testing numbers to date (January, 2017-March, 2018)

- ***Neisseria gonorrhoeae***
 - 9,935 isolates tested (AST)
 - 1347 isolates sequenced
- ***Candida***
 - 673 isolates tested
 - 227 identified as *C. auris*
 - 1412 colonization screenings performed
 - 133 *C. auris* identified
- ***Streptococcus pneumoniae***
 - 372 isolates serotyped with AST
- ***Clostridium difficile***
 - 510 isolates sequenced
 - 271 isolates cultured

Over 800 alerts sent to CDC since January 1, 2017

Goals for 2018

- Testing
 - Increase use of colonization screening capacities
 - Increase submissions and target long-term care facilities
 - Integrate new testing protocols and capacities (OXA-23 multiplex, mcr3/mcr4 multiplex, custom AST panels for new drugs)
- Reporting
 - Send data using APHL AIMS portal
 - Implement ETOR for screening
- Programmatic
 - Increase recruitment and testing for targeted AR threats
 - Improve use of ARLN data to initiate containment activities and guide prevention efforts
 - Provide communications materials to facilitate recruitment and collaboration

ETOR via the AR Lab Network's LabWeb Portal



- ETOR provides a critical data solution to disrupt CRE transmission in healthcare facilities
 - Easy test ordering and rapid return of results are needed to quickly test and report CRE colonization tests results to healthcare facilities
- Who orders CRE colonization screening tests?
 - State HAI coordinators/epidemiologists or a facility-level infection preventionist can request CRE colonization screening testing services from their AR Lab Network Regional Laboratory
 - Facility-level requests still require approval from the jurisdictional state HAI coordinator/epidemiologist
- Test results are delivered electronically within 2 days of the lab's receipt of samples
 - Data recipients are notified via email when reports are available

ARLN Lab Web Portal/ETOR Snapshot



Regional Testing: CRE Colonization (5 Regional PHLs)

Status	CRE Colonization (LWP/ETOR)
In Production	MD, WI
End to End Testing	TX
Validation	WA, TN

Custom AST Panels for New Drugs



- There is often a gap between the approval of a new drug and the availability of testing methods in hospital laboratories
- This gap can result in under use and over use of a new antibiotic
- Testing is most important for pan or nearly pan-resistant bacteria
- We can leverage AR Lab Network capacity to place reference broth microdilution testing capabilities in regional labs and use electronic test order and report capabilities for rapid reporting

On Demand MIC Panels

- Easy method to place reference BMD capacity in AR Lab Network regional labs
- Applications
 - Testing susceptibility of pan-R pathogens to new drugs
 - Collect AST data for breakpoint decisions
- Can leverage electronic test order and result processes for faster turn-around times



AR Lab Network: Partnerships Make it Possible

