AR Solutions *In Action*

CDC's Investments to Combat Antibiotic Resistance Threats

FISCAL YEAR 2019

MARYLAND

$8,982,447

Funding for AR Activities
Fiscal Year 2019

HIGHLIGHTS

- One local CDC AR expert & one local CDC fellow
- Regional Lab for the AR Lab Network (Mid-Atlantic)
- One of 10 sites for the Emerging Infections Program

FUNDING TO STATE HEALTH DEPARTMENTS

$1,893,291

AR LABORATORY NETWORK REGIONAL LABS boost state and local testing capacity and technology to detect, support response to, and prevent AR threats across the nation—and inform new innovations to detect AR.

With 2018 funding, the Maryland Mid-Atlantic Regional Lab more than quadrupled the volume of CRE colonization swabs tested from the previous year, which enabled support for 80+ CRE colonization investigations in 7 ELC-funded jurisdictions. Working closely with state and regional epidemiologists, the public health lab began CRE admission screenings in high risk settings in 4 jurisdictions, facilitating improved implementation of containment responses.

$2,836,545

RAPID DETECTION & RESPONSE: State, territory, and local public health partners fight antibiotic resistance in healthcare, the community, and food. Programs use the AR Lab Network to rapidly detect threats and implement prevention, response, and antibiotic stewardship to stop the spread of resistant germs.

With 2018 funding, the Maryland Department of Health, in collaboration with the University of Maryland and Johns Hopkins University Prevention Epicenters, continued the Statewide Prevention and Reduction of *C. difficile* (SPARC) collaborative. Through SPARC, experts provide site visits, assessments, and interventions for acute care hospitals. One participating hospital reported 18 healthcare-associated *C. difficile* cases in 2019, a 57% reduction from 42 cases in 2018.

$134,446

FOOD SAFETY projects protect communities by rapidly identifying drug-resistant foodborne bacteria to stop and solve outbreaks and improve prevention.

Maryland uses whole genome sequencing to track and monitor local outbreaks of *Listeria*, *Salmonella*, *Campylobacter*, and *E. coli* and uploads sequence data into PulseNet for nationwide monitoring of outbreaks and trends. In Fiscal Year 2020, Maryland will continue monitoring these isolates for resistance genes. When outbreaks are detected, local CDC-supported epidemiologists investigate the cases to stop spread.

$112,130

FUNGAL DISEASE projects improve our ability to track antifungal resistance and stop it from spreading.

With funding for fungal disease surveillance, Maryland increased their ability to identify fungal diseases, monitor for new and emerging resistance, and implement strategies to prevent its spread in high-risk areas. Improving detection for fungal diseases, like *Candida auris*, means patients receive appropriate treatment while reducing unnecessary antibiotic use.

This data represents CDC's largest funding categories for AR. It shows extramural funding that supports AR activities from multiple funding lines.

AR: antibiotic resistance **HAI:** healthcare-associated infection

CDC provides critical support in the U.S. and abroad to protect people from antibiotic resistance.

www.cdc.gov/ARinvestments

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

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MARYLAND AR Investments (cont.)

$292,000

GONORRHEA RAPID DETECTION & RESPONSE works with state and local epidemiology and laboratory partners to test for and quickly respond to resistant gonorrhea to stop its spread in high-risk communities. Only one treatment option remains for gonorrhea and resistance continues to grow.

With 2019 funding, Baltimore, Maryland participates in a sentinel surveillance project, the STD Surveillance Network, monitoring adherence to national gonorrhea treatment guidelines for patients diagnosed and reported with gonorrhea from all provider settings. To help inform national treatment guidelines for gonorrhea, Maryland also participates in the Gonococcal Isolate Surveillance Project (GISP), testing how well antibiotics work on laboratory samples from sentinel STD clinics, which are often the first to detect the threat.

$1,037,578

EMERGING INFECTIONS PROGRAM (EIP) sites improve public health by translating population-based surveillance and research activities into informed policy and public health practice.

CDC's EIP network is a national resource for surveillance, prevention, and control of infectious diseases. For example, the EIP in Maryland performs population-based surveillance for candidemia, *C. difficile*, invasive *S. aureus*, and resistant Gram-negative bacteria. The EIP also conducts HAI and antibiotic use prevalence surveys.
Learn more: www.cdc.gov/hai/eip

FUNDING TO UNIVERSITIES & HEALTHCARE PARTNERS

$715,764

UNIVERSITY OF MARYLAND, BALTIMORE: CDC Prevention Epicenter

CDC collaborates with medical academic investigators to conduct innovative research to protect patients from AR germs in healthcare settings. Investigators in Maryland are leading a project evaluating methods for tracking HAIs. Other projects include improving testing for *C. difficile* (which can cause deadly diarrhea), assessing routes for pathogen transmission in long-term care facilities, and evaluating a device that prevents post-surgery infections.
Learn more: www.cdc.gov/hai/epicenters

$750,271

JOHNS HOPKINS UNIVERSITY: CDC Prevention Epicenter

CDC collaborates with medical academic investigators to conduct innovative research to protect patients from antibiotic-resistant germs in healthcare settings. Investigators from Maryland are evaluating methods for improving testing for *C. difficile* (which can cause deadly diarrhea). Other research topics include evaluating methods for tracking HAIs and assessing potential routes for pathogen transmission in long-term care facilities.
Learn more: www.cdc.gov/hai/epicenters

$1,138,422

UNIVERSITY OF MARYLAND: Innovative Prevention & Tracking

Investigators are studying the use of gowns and gloves during care of nursing home residents who have risk factors for acquiring antibiotic resistant germs. Strengthening infection prevention and control during high-touch activities in nursing homes could decrease the spread of germs by healthcare staff working with this frail and older adult population.

$72,000

UNIVERSITY OF MARYLAND: Innovative Prevention & Tracking

This project will study the antibiotic resistance profiles and mechanisms among targeted bacterial isolates collected from geographically diverse sites in the United States to generate an annual repository of ~1,600 isolates. Isolates of more than ten different antibiotic-resistant bacterial species will be collected, with a focus on collection of isolates from clinical laboratories serving long-term care facilities.

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