

Maine CDC: Working with Healthcare to Address Antibiotic Resistant Disease

New Strategies to Tackle Antibiotic Resistant Disease

In 2010, [Maine Center for Disease Control and Prevention](#) (Maine CDC) began an antibiotic stewardship effort in order to reduce the rising rates of multiple drug resistant organisms in hospitals. Maine CDC held a two



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day certification program for antibiotic stewardship that was attended by a pharmacist and champion physician from every acute care hospital. Maine CDC also collaborated with the University of New England to study regional differences in antibiograms. During this time, Maine CDC began statewide education of nursing facilities regarding infection prevention and control practices. In 2011 to 2012, four nursing homes in the Augusta-Waterville area reported outbreaks of *Clostridium difficile* infection (CDI) — an infection that is largely the result of taking antibiotics. Maine CDC then joined the Public Health Foundation's (PHF) [Antibiotic Stewardship Program](#), which fosters collaboration between public health and healthcare partners to optimize antibiotic use and reduce antibiotic resistant disease. Based on Maine's surveillance data, Maine CDC concentrated its interventions on long-term care facilities (LTCs) — and "hot spots" within LTCs — with the highest rates of CDI. Maine CDC identified the Augusta-Waterville area and worked collaboratively with the Northeast Healthcare Quality Foundation (a Quality Improvement Organization) to reduce CDI rates in this region.

"I am thoroughly convinced that if we do not address antibiotic stewardship and the appropriate use of antibiotics, we will continue to see increasing resistance and the problems of resistant infections will grow dramatically over the ensuing years."

— Stephen D. Sears, MD, MPH
State Epidemiologist, Maine CDC

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Using PHF's [Public Health Antibiotic Stewardship Driver Diagram](#), Maine CDC identified drivers for preventing and treating CDI at Augusta LTCs, which had many of the state's highest CDI rates. Maine CDC then developed interventions to strengthen these drivers within each facility, including:

- 📌 Establishing standardized protocols for containing CDI outbreaks
- 📌 Establishing a universal protocol for nursing facilities regarding prevention of *C. difficile* transmission
- 📌 Training employees at LTCs to use tracer kits to improve environmental cleaning
- 📌 Training employees on hand hygiene compliance and observation
- 📌 Holding monthly educational meetings to discuss CDI prevention and treatment protocols
- 📌 Collecting facility-specific data to track CDI trends within and across LTCs
- 📌 Educating physicians on best practices for antibiotic use for outpatients, both children and adults

With guidance from PHF's Senior Quality Advisor [Jack Moran](#), Maine CDC created a Fishbone (or Cause and Effect) Diagram to identify barriers to preventing transmission and acquisition of antibiotic resistant disease within LTCs. Then Maine CDC worked with each LTC to pinpoint and correct specific barriers. The LTC infection preventionists found working closely with Maine CDC and the Northeast Healthcare Quality Improvement Organization (QIO) was essential to successfully adopting the new protocols. Maine CDC was dedicated to building collaborative relationships with the LTCs to achieve their common goals. Throughout this process, the LTCs viewed Maine CDC as a facilitator and guide in infection prevention — not merely a regulatory enforcer.

Collaborating with Healthcare Partners

Because this challenge exists at the crossroads of public health and healthcare, Maine CDC engages healthcare partners to optimize the effectiveness efforts to reduce CDI at LTCs. In order to reduce antibiotic resistant infections at LTCs, the health department has formed partnerships with the following organizations:

- 📌 The Northeast Health Care Quality Foundation, a regional QIO experienced at addressing antibiotic resistant infections in healthcare facilities
- 📌 The University of New England School of Pharmacy (UNESP), which analyzed Maine CDC's data about rates of antibiotic resistance by organism and by region
- 📌 The Maine Medical Association/Maine Independent Clinical Information Service (MICIS), which distributed United States Centers for Disease Control and Prevention (CDC) Get Smart materials and a Maine CDC physician pocket reference for prescribing antibiotics and provided onsite education to LTC medical directors and other physicians to improve prescribing practices
- 📌 LTCs in the cities of Augusta and Waterville, which effectively adopted new strategies and interventions to reduce CDI

Expanding the Reach of Collaboration

Maine CDC is monitoring CDI trends in LTCs, and will release a report on infection rates in July 2014. To expand the reach of its pilot activities, Maine CDC will partner with the Maine Medical Association to educate 400 additional outpatient physicians and LTC directors about practices to reduce the spread of CDI. Maine CDC also hopes to bring this collaborative approach to addressing antibiotic resistant infections to many more LTCs in Maine. To do this, Maine CDC is partnering with the Maine Healthcare Association, a provider organization serving nursing facilities. The Maine Healthcare Association will host two webinars in which Maine CDC and the QIO will share four tools developed during the pilot with other LTC facilities throughout Maine.

Related Links and Resources

- 📌 [Public Health Antibiotic Stewardship Driver Diagram](#) — The driver diagram referenced by Maine CDC used to identify drivers for preventing CDI. www.phf.org/abxdriverdiagram
- 📌 PHF provides customized training, facilitation, and workforce development services to public health agencies and other organizations that protect the public's health. To inquire about technical assistance, please visit PHF at www.phf.org/TechnicalAssistance or call 202-218-4415.
- 📌 [PHF's Antibiotic Stewardship Program](#) — Information about PHF's Antibiotic Stewardship Program, which helped support efforts by Maine CDC to prevent CDI. www.phf.org/antibioticstewardship

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