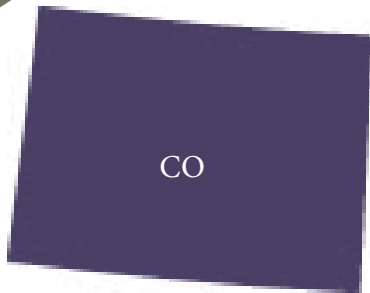


Public Health Practice Stories from the Field



Statewide Surveillance Directs Prevention for Carbapenem-Resistant Enterobacteriaceae Efforts

Engaging

health-care facilities, physicians, and other public health partners in detecting CRE and preventing its transmission in Colorado

Requiring

laboratories to report CRE to the Colorado Department of Public Health and Environment

Providing

education to health-care facilities to reduce transmission of CRE and protect patients

Offering

CRE screening to Colorado health-care facilities via Colorado's public health laboratory

Infections with antibiotic-resistant bacteria are a serious and growing public health problem. One of the most concerning types of resistant bacteria is carbapenem-resistant Enterobacteriaceae (CRE).

Enterobacteriaceae are a family of bacteria that includes *Escherichia coli* (*E. coli*) and *Klebsiella*, among others. These bacteria normally live in our intestines but can cause infections when they spread beyond the gastrointestinal tract to the bladder, blood, or other parts of the body. CRE have become resistant to all or almost all antibiotics, including carbapenems, which are commonly used to treat serious infections. This has made CRE infections very difficult, and in some cases, impossible to treat.

Up to half of hospital patients who contract CRE bloodstream infections die as a result. CRE not only spread among people; these bacteria easily transfer their antibiotic resistance to other bacteria, raising the worry that potentially untreatable infections could appear in otherwise healthy people.

CDC has tracked one type of CRE from a single health-care facility in 2001 to health-care facilities in at least 42 states. In some places, these bacteria are now encountered routinely and pose a challenge to clinicians. CDC recommends that states and health-care facilities understand the prevalence of CRE in their region and be proactive in CRE prevention efforts. Even areas not yet affected by CRE can take proactive measures.

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What We Did

In 2011, the Colorado Department of Public Health and Environment (CDPHE) began work to determine the most effective way to understand the extent of CRE in Colorado. CDPHE did the following:

- Administered an online survey to Colorado laboratories to assess methods used to detect CRE and to obtain preliminary data on the prevalence of CRE in Colorado. Resulting estimates indicated that Colorado might have as many as several hundred cases of CRE each year. However, survey responses also indicated that in some cases, the definition of CRE was not well understood and thus CRE cases were likely over-reported in the survey. Therefore, estimates were likely high.
- Created a working group of physicians, infection control experts, pharmacists, and public health officials to determine the best next steps for detecting and preventing the transmission of CRE. The group determined that more information was needed about the prevalence of CRE in the state and that this information should be gathered systematically.
- Engaged health-care facilities, providers, and laboratories in the process of making CRE a reportable condition in Colorado. The process increased awareness of the public health importance of CRE.

What We Accomplished

In August 2012, an acute care hospital in Colorado detected an outbreak of CRE. The hospital, aware of efforts to make CRE reportable, notified CDPHE about the outbreak. An investigation by hospital, CDPHE, and CDC staff identified eight patients with a type of CRE rarely seen in the United States. Staff used CDC recommendations about CRE control to contain the outbreak and prevent more patients from acquiring CRE.

On November 30, 2012, Colorado made CRE infection (*E. coli*, *Klebsiella*, and *Enterobacter*) a reportable condition, enabling better surveillance and detection of outbreaks. For each case of CRE reported, surveillance staff members at CDPHE contact the affected health-care facility to educate providers about CRE prevention measures (i.e., using gloves and gowns when caring for patients with CRE, screening other patients for CRE, and improving communication between facilities when transferring patients with CRE). As a result, outbreaks are now detected much sooner, allowing public health authorities to help facilities contain them more quickly.

To further support health-care facilities, CDPHE

- Has made two types of CRE testing available at the state public health laboratory: 1) general CRE screening and 2) specialized testing for types of CRE
- Has developed CRE educational brochures for health-care workers and patients
- Will disseminate data on reported CRE cases to educate health-care providers, public health personnel, and the public.

For more stories, visit

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