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## Patient registries useful in fight vs. antibiotic-resistant bacteria



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Carbapenem-resistant Enterobacteriaceae (CRE) are bacteria that are resistant to most antibiotics. It is estimated that at least two million people get infected each year with antibiotic-resistant bacteria, resulting in at least 23,000 deaths. Such bacteria can quickly spread across healthcare facilities as doctors and hospital personnel may not realise which patients, including new ones entering a facility, are infected.

New research from the Johns Hopkins Bloomberg School of Public Health highlights the importance of using patient registries to track which patients are carrying CRE. The study found that CRE spread could be reduced if only 25 percent of the largest healthcare facilities in a region used a patient registry (or database).

The findings, published online in the journal *Clinical Infectious Diseases*, suggest that maintaining a computer registry that can track patients who carry CRE and warn healthcare facilities to take appropriate action when such patients are admitted could in turn reduce the spread of CRE by 15.5 percent over three years.

Researchers used a computer simulation model of all 462 healthcare facilities – e.g., hospitals, long-term acute care hospitals, skilled nursing facilities and ventilator-capable skilled nursing facilities – that serve a population of 9.9 million people in the Chicago metropolitan area. The study area included parts of Illinois, Wisconsin and Indiana. The model included virtual representations of patients and simulated their movements between their communities and different healthcare facilities as well as within each healthcare facility. Each virtual patient can either carry or not carry CRE.

As the researchers observed, when 25 percent of the largest healthcare facilities used a registry that included 60 percent of CRE carriers, there were 9.1 percent fewer new CRE carriers regionwide after three years. When all 402 Illinois healthcare facilities participated, the registry reduced the number of new CRE carriers by 11.7 percent and CRE prevalence by 7.6 percent over three years. When half of the Illinois healthcare facilities participated, the registry reduced the number of new CRE carriers by 10.7 percent and CRE prevalence by 5.6 percent over the course of three years.

"This study shows the value of data-sharing among healthcare facilities in a region, even those that may compete with each other," says lead author Bruce Y. Lee, MD, MBA, executive director of the Global Obesity Prevention Center (GOPC) at the Bloomberg School. When dealing with antibiotic-resistant bacteria like CRE, Dr. Lee explains, healthcare facilities in a region "form a complex interconnected system" where cooperation and information-sharing are essential to help better contain the enemy.

It was in 2013 when the Illinois Department of Public Health launched an electronic registry that could allow healthcare facilities to share information about which patients are carrying CRE. Other regions have been considering implementing similar registries but have lacked information on the benefits of such an investment. There was also concern that not all healthcare facilities would consent to releasing such information.

The study showed that such a registry could yield significant benefits, even when only a fraction of healthcare facilities agree to participate and exchange such information.

"Identifying CRE patients with a registry can save considerable resources and time, especially if known carriers do not need to be re-identified," says Sarah M. Bartsch, MPH, faculty at the GOPC and co-author of the study. "Thus, a registry for extensively drug-resistant organisms could be an effective tool in combatting the spread of antibiotic-resistant bacteria between healthcare facilities in a region."

Source: *Clinical Infectious Diseases*

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