



## GLOBAL INSIGHT

# CRE outbreak in Israel

BY VICKY UHLAND

**CARBAPENEM-RESISTANT ENTEROBACTERIACEAE (CRE)** is a triple threat. It's highly transmissible, there's no reliable treatment, and it has an attributable mortality rate of about 50 percent. When one of the first cases appeared in Israel in 2005, it quickly spread to more than 1,300 people in less than two years. In the session titled "The Central Role of IPs in Creating Real-Time Responses in a Multi-Year National Intervention to Control Carbapenem-Resistant Enterobacteriaceae in Israel" at the APIC 2014 Annual Conference in Anaheim, California, Ester Solter, RN, MHA, of the National Center for Infection Control in Israel, described how her country handled that outbreak of carbapenem-resistant *Klebsiella pneumoniae* (CRKP).

CRKP was particularly virulent in Israel for a number of reasons, Solter said. The country is small and densely populated, and patients often move from hospital to hospital. In 2006, when the cases began multiplying, there was no national surveillance of multidrug-resistant organisms or healthcare-associated infections (HAIs). The philosophy was "every hospital for itself," Solter said.

So it's no surprise that without any mechanism to prevent it, CRKP rapidly infiltrated the entire Israeli healthcare system. In 2006, there were about 700 cases, and approximately 600 more cases in the first four months of 2007. In March 2007, at the peak of the outbreak, the Israeli Health Ministry issued CRE treatment guidelines for all acute-care hospitals. That resulted in an immediate decrease in cases, Solter said, but the levels were still higher than the pre-outbreak 2005 levels. In May

2007, a task force began an intervention, and in June 2008, screening guidelines were issued. Now, the numbers of CRE clinical acquisitions are back to 2005 levels.

The March 2007 guidelines mandated physical separation of CRE carriers from non-carriers, and required dedicated nursing staff and equipment for carriers.

"Our ratio of nurses to patients is low, so it was a radical idea to insist on dedicated nursing for CRE patients," Solter said. The 2008 screening guidelines required screening on admission for all patients admitted from other acute-care hospitals or long-term care facilities (LTCF), or patients who were recently hospitalized. The guidelines also required screening of all contacts of newly detected CRE cases. In addition, the 2008 guidelines mandated daily CRE reports from infection preventionists in each hospital. With no electronic surveillance equipment, the reporting system relies on Excel spreadsheets, phone calls, and emails. The reports include the number of CRE carriers detected or admitted since the previous day, where they came from, department of presumed acquisition, the date the first

positive culture for CRE was taken, and the culture source.

Solter said this daily census allows real-time assessment of the number of CRE carriers, early detection of an increase in incidence, examination of any failures in isolation, tracking of the screening of high-risk patients, and the potential to involve hospital management.

"The daily census is really the heart of the whole intervention," she said. "If a hospital is doing everything correctly, we've learned there are no transmissions. In other words, infection control works."

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Would you like to learn more about how Israel controlled its CRE outbreak? Order the APIC 2014 Conference Proceedings to see Ester Solter's entire presentation. Visit [www.apic.org/ac2014](http://www.apic.org/ac2014) to order.



Ester Solter, RN, MHA, National Center for Infection Control in Israel.

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Israel also instituted annual hospital site visits, with a team that included Solter, a doctor, and a microbiologist.

The team meets with hospital and nursing administration and professional staff, presents data, tours wards and microbiology labs, makes personal acquaintance with infection prevention teams, and issues post-tour reports listing deficiencies that the hospital must correct. Solter also sends monthly and yearly CRE reports to hospital CEOs so that each hospital can see how well its CRE infection control efforts are working compared to other institutions of similar size. CRE guidelines were also implemented in LTCFs in 2008. The guidelines are similar to those for acute-care facilities but don't require dedicated nursing staffs or daily reporting. After the guidelines were implemented, Solter said CRE prevalence in LTCFs dropped from 12.1 percent in 2008 to 3.8 percent in 2013. 



### **READ MORE ABOUT CRE IN THE *AMERICAN JOURNAL OF INFECTION CONTROL***

**Fecal carriage of carbapenem-resistant Enterobacteriaceae in a Chinese university hospital,** Zhao, Zhi-chang et al., Volume 42, Issue 5, e61-e64.

**Duration of carriage of carbapenem-resistant Enterobacteriaceae following hospital discharge,** Zimmerman, Frederic S. et al., Volume 41, Issue 3, 190-194.

**"Swimming in resistance": Co-colonization with carbapenem-resistant Enterobacteriaceae and *Acinetobacter baumannii* or *Pseudomonas aeruginosa*,** Marchaim, Dror et al., Volume 40, Issue 9, 830-835.

**The carbapenem-resistant Enterobacteriaceae score: A bedside score to rule out infection with carbapenem-resistant Enterobacteriaceae among hospitalized patients,** Martin, Emily T. et al., Volume 41, Issue 2, 180-182.