

## Highly Antibiotic-Resistant Organisms: Reporting and Specimen Submission Requirements for Healthcare Facilities, Healthcare Providers and Laboratories in Washington State

November 5, 2012

Dear Healthcare Provider:

### Requested Action

- Notify Kitsap Public Health District (360) 337-5235 within 24 hours of patients from whom the following multidrug-resistant organisms are identified:
  - Carbapenem-resistant Enterobacteriaceae (CRE)
  - Vancomycin-resistant *Staphylococcus aureus* (VRSA)
- We will facilitate the submission of all VRSA and CRE<sup>1</sup> isolates to the Washington State Public Health Laboratories (PHL) for confirmation.
- If infection or colonization with a multidrug-resistant organism (MDRO) (e.g., MRSA, VRE, VISA/VRSA, Extended spectrum beta-lactamases (ESBLs), CRE, resistant *Streptococcus pneumoniae*) is suspected in a patient, implement contact precautions immediately.
- To determine carbapenem-nonsusceptibility, refer to new Clinical and Laboratory Standards Institute (CLSI) breakpoints for carbapenem susceptibility testing for Enterobacteriaceae (Table 1).

### Background

Multidrug-resistant organisms (MDROs) pose a serious public health threat, especially in healthcare settings. Morbidity, mortality, costs and treatment failures are all increased for infections due to antibiotic-resistant organisms. Furthermore, some antibiotic resistance is easily transmissible between bacterial species and even genera.

The Washington State Department of Health (DOH) encourages healthcare providers, hospital infection preventionists, healthcare facilities, and laboratories to report and submit specimens for certain MDROs. The reasons for emphasizing reporting at this time are:

- Healthcare-associated infections (HAIs) are a huge problem in the United States, causing around 1.7 million infections, 99,000 deaths, and \$28-33 billion in excess healthcare costs each year.
- MDROs cause only about 16% of all HAIs each year, but require special infection control precautions and active surveillance after identification.
- Certain organisms, such as carbapenem-resistant Enterobacteriaceae (CRE), are rare in our state. Prompt recognition and preventive actions can keep them from becoming endemic.
- DOH can offer epidemiologic and laboratory assistance in HAI investigations, including consultation on infection control and providing molecular testing, if indicated.

Carbapenem-resistant Enterobacteriaceae (CRE) are endemic in several eastern states, but are rare in Washington. The family Enterobacteriaceae includes fecal organisms such as *Klebsiella*, *E. coli*, *Enterobacter*, *Morganella*, *Proteus* and *Serratia*. Several different mechanisms cause carbapenem resistance, but any CRE requires urgent infection control measures to prevent spread. **As of October 2012, DOH is aware of only 11 CRE isolates detected in Washington**, including *Klebsiella pneumoniae* with a Verona integron-encoded metallo-beta-lactamase (VIM) carbapenemase in a patient who received medical care in Greece (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5937a4.htm>), several Enterobacteriaceae producing New Delhi metallo-β-lactamase (NDM-1) carbapenemase in a patient with medical care in India, and *K. pneumoniae* containing the KPC gene in a patient transferred from a California hospital.

According to CDC, as of June 2012, Washington and California are the only states in the country that have identified all three of these mechanisms of carbapenem-resistance in Enterobacteriaceae. DOH requests that healthcare providers, healthcare facilities, and laboratories report CRE to local public health as a “rare disease of public health significance” and an “emerging condition with outbreak potential.”

**Only 13 cases of vancomycin-resistant *S. aureus* have been identified in the United States since 2002; none have been reported in Washington State.** Due to the rarity of this organism and the ease of transferring resistance among bacterial species, Centers for Disease Control and Prevention (CDC) request that healthcare providers coordinate with public health authorities and submit surveillance isolates to CDC.

**Table 1.** Current Clinical and Laboratory Standards Institute Interpretive Criteria for Carbapenems and Enterobacteriaceae

Agent	Current Breakpoints (M100-S22) MIC (µg/mL)		
	Susceptible	Intermediate	Resistant
Doripenem	≤1	2	≥4
Ertapenem	≤0.5	1	≥2
Imipenem	≤1	2	≥4
Meropenem	≤1	2	≥4

(Table 1 reproduced from CDC 2012 CRE Toolkit - Guidance for Control of Carbapenem-resistant Enterobacteriaceae [CRE] (<http://www.cdc.gov/hai/organisms/cre/cre-toolkit/index.html>))

**Contact**

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This message will be posted on the Healthcare Provider page on our website.

Sincerely,

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