



MLS Laboratory Update
Detection of Isolates with NDM-1 Resistance
Mechanism - Minnesota
November 17, 2011



Purpose of this Message:

To inform the healthcare community about the identification of two highly resistant clinical isolates cultured from a single patient, that were determined to have the New Delhi Metallo-Beta-Lactamase-1 (NDM-1) resistance mechanism.

Background:

A clinical laboratory in MN identified two highly resistant carbapenem-resistant Enterobacteriaceae (CRE) isolates that were referred to MDH Public Health Laboratory (MDH-PHL). The bacteria were identified as *E. coli* and *Klebsiella* (species pending). These isolates tested positive for a plasmid-borne resistance mechanism known as New Delhi Metallo-Beta-Lactamase-1 (NDM-1), which confers resistance not only to carbapenems, but also multiple other antibiotic classes. NDM-1 was subsequently confirmed by the Centers for Disease Control and Prevention (CDC) in these isolates. CDC reports that these are the 10th and 11th isolates nationwide to be confirmed in their laboratory with NDM-1, and the first time NDM-1 has been detected in Minnesota. The isolates were identified in urine from an outpatient who had recently traveled to India and was hospitalized there in the two weeks prior to specimen collection. A history of healthcare exposure in India or Pakistan has been reported in other NDM-1 cases.

NDM-1 was first reported by CDC in June 2010. This resistance mechanism is thought to be highly transmissible between bacterial species within a patient and the bacteria can be transmitted among patients. Contact Precautions are indicated during any medical care, including hospitalizations. Infection prevention and laboratory personnel should collaborate to identify and respond to these highly resistant organisms. Detailed infection prevention and control recommendations for hospitals and long-term acute care hospitals, as well as clinical laboratory surveillance testing guidelines are posted at:

<http://www.health.state.mn.us/divs/idepc/dtopics/cre/cre.html>.

Important Laboratory Information:

Highly resistant Gram negative organisms that meet the definition for CRE or carbapenem-resistant Acinetobacter should be submitted to the MDH-PHL for further characterization, which may include polymerase chain reaction (PCR) testing for the presence of the *bla_{KPC}* or *bla_{NDM-1}* genes. Please see definitions at: <http://www.health.state.mn.us/divs/idepc/dtopics/cre/hcp.html#lab>.

Important Infection Prevention & Control Information:

Contact Precautions should be implemented based on antimicrobial susceptibility test results regardless of resistance mechanism.

Important Clinician Information:

Clinicians should be alert to the travel history of patients in whom a CRE is detected, especially if the patient has received medical care in India or Pakistan within the past 6 months.

Who to Contact:

Minnesota health care providers should contact **MDH epidemiology** (651-201-5414 or toll free 877-676-5414) for infection prevention and control consultation or the **MDH PHL** (651-201-5073) to consult on or submit an isolate.

Additional Information:

MDH CRE Website: <http://www.health.state.mn.us/divs/idepc/dtopics/cre/index.html>

MLS Laboratory-specific CRE website:

<http://www.health.state.mn.us/divs/phl/mls/diseaselinks.html#kpc>

CDC. Detection of Enterobacteriaceae Isolates Carrying Metallo-Beta-Lactamase — United States, 2010
MMWR 2010; 59:750.

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****Please forward this to all appropriate personnel within your institution and Health System****

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