



Nebraska Department of Health and Human Services
HEALTH ALERT NETWORK
Advisory



TO: Nebraska Healthcare Providers, Infection Preventionists, Laboratories, Public Health, Directors of Nursing, Hospital and Long Term Care Administrators

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RE: Update: Increase in Incidence of Highly Resistant Antimicrobial Organisms

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- Bacteria that develop resistance to multiple antibiotics, although still uncommon, are increasing in incidence in Nebraska. Although all multidrug resistant organisms (MDROs) are difficult to treat and need to be contained, there are some especially concerning patterns of resistance.
- Resistance to the carbapenem class of antibiotics via the production of a carbapenemase enzyme is highly concerning since it can spread from species to species via plasmids. These organisms are referred to as carbapenemase-producing carbapenem-resistant Enterobacteriaceae or CP-CRE. In both 2017 and 2018 there were 7 of these infections in Nebraska. This year we have detected 12 so far. Some of these are due to a particular type of carbapenemase referred to as NDM or New Delhi Metallo-beta-lactamase that have rarely been seen in Nebraska. Infections with this organism have a higher rate of morbidity and mortality than with less resistant organisms.
- To quickly identify these highly resistant bacteria, the Nebraska Department of Health and Human Services (NDHHS) Healthcare Associated Infection (HAI) Program performs a daily review of the approximately 275 daily susceptibility results forwarded electronically to our reportable disease surveillance system.
- This increase in incidence has been noted particularly in the southeastern corner of the state. Risk factors: These organisms are usually seen in patients that have been in a healthcare facility for a long period of time, have received many antibiotics or are immunocompromised.
- At this time we are alerting hospitals, rehabilitation centers and long term care facilities of the recent increase so that facilities can expand their surveillance efforts, detect these organisms early and forward organisms suspected of this type of resistance to the NPHL (or Alegent core lab for CHI facilities.)
- When a CP-CRE is detected:
 1. **Investigation** is immediately undertaken by the Nebraska HAI Team and facilities to determine a management plan and containment strategy.

2. Containment including isolation, contact precautions and colonization screening are necessary to minimize spread of resistance. If a highly resistant organism is detected, nearby patients who may have been in contact with a colonized or infected patient will be advised to receive colonization testing.

3. Communication between facilities upon transfer of patients with resistant organisms is essential.

- These organisms may be detected from:
 - bacterial culture of a clinical isolate
 - colonization screening
 - review of electronic laboratory reporting ELR reports of the organisms likely to harbor carbapenemases -see table below
 - admission screening of patients with risk factors as described in the table below

CP-CRE Management Plan-more detail provided in the guidance documents linked below.

<p><u>Reporting of Relevant Organisms</u></p>	<p>In accordance with Nebraska Title 173, the following organisms when detected should be reported immediately: Carbapenem resistant Enterobacteriaceae or Acinetobacter (if you suspect the presence of a carbapenemase please notify to the HAI team.)</p>
<p><u>Submission of Isolates</u></p>	<p>Submit isolates that are non-susceptible to <u>any of the carbapenems</u> or are pan resistant, in accordance with NPHL guidelines (see link below).</p>
<p><u>Reporting of Possible Resistant Organisms by ELR</u></p>	<p>For those laboratories with established electronic laboratory reporting (ELR) interfaces, reports for the following organisms (which have the ability to carry resistance to carbapenems) should be reported. <i>Acinetobacter spp, Citrobacter spp, Enterobacter spp, Escherichia coli, Klebsiella spp, Pseudomonas aeruginosa, Serratia spp., Providencia spp., Morganella spp. and Proteus spp.</i> will soon be added to this group so we ask that they be reported voluntarily at this time.</p>
<p><u>Investigation</u></p>	<p>NDHHS HAI personnel will conduct an investigation as follows:</p> <p>Epidemiologic information will be collected for all submitted CRE: History of contact with healthcare facilities, <i>esp. outside of the USA</i> Antibiotic treatment courses and durations, Procedures with reusable devices (e.g. endoscopes), and Any other information that might help determine the source</p> <p>NDHHS Staff will contact any facility where exposed patients requiring colonization screening have been transferred. Such individuals do not require isolation precautions until results of the screen are available unless they are considered at very high risk for acquisition</p>
<p><u>Containment</u></p>	<p>Place patient in Private Room and on Contact Precautions-see link to CRE Response Guidelines below.</p>

<u>Interfacility communication</u>	A written transfer communication should accompany any patient infected or colonized with a CRE <u>upon transfer so the receiving facility</u> can prepare the necessary precautions. A link to an example of a transfer form is included below.
<u>Screening for Colonization</u>	Screening of patient contacts will be considered as part of a containment strategy in the event that a highly resistant organism is identified from a patient currently admitted to a hospital, long-term care facility or similar institution. The determination of which patient contacts will need screening will be decided by the NDHHS HAI program in conjunction with infection preventionist(s) at the facility. The <i>Colonization Screen Protocol</i> below details how to obtain and submit the screening swabs.
<u>Screening on Admission</u>	<p>The CDC recommends that healthcare facilities, especially tertiary care centers consider screening upon admission patients with the following risk factors for CRE:</p> <ul style="list-style-type: none"> • Healthcare received outside of the United States • Prolonged stays in a healthcare facility (especially from area of the US with higher prevalence such as the New York or Chicago metropolitan areas) <p>Use the Colonization Screening Protocol link below</p>

Links to CDC and Nebraska DHHS tools:

HAI Antimicrobial Resistance Information for Healthcare Providers
<http://dhhs.ne.gov/Pages/Antimicrobial-Resistance.aspx>

CRE Investigation Response Guidelines
<http://dhhs.ne.gov/HAI%20Documents/CRE%20Investigation%20Response%20Guidelines.pdf>

CRE Case Investigation Form
<http://dhhs.ne.gov/HAI%20Documents/NE%20CRE%20Case%20Investigation%20Form.pdf>

Colonization Screening Protocol
<http://dhhs.ne.gov/HAI%20Documents/NE%20CRE%20Colonization%20Screen%20Protocol.pdf>

Transfer Form
<http://dhhs.ne.gov/HAI%20Documents/Interfacility%20Infection%20Control%20Transfer%20Form.pdf#search=transfer%20form>

Additional Resources

CDC. Guidance for Control of Carbapenem-Resistant *Enterobacteriaceae*. 2012 CRE Toolkit.
<https://www.cdc.gov/hai/pdfs/cre/CRE-guidance-508.pdf>

Nebraska Public Health Laboratory
<http://nphl.org/>