Multi-disciplinary model for disease response: Utilizing resources for a group A *Streptococcus* outbreak in a long-term care facility

CSTE Stories FROM THE Field

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The Montana Department of Public Health and Human Services established a new Infection Control and Prevention and Healthcare-Associated Infections section dedicated to promoting infection control and prevention efforts in healthcare facilities across the state. The section has built strong partnerships, resources, and expertise, which were essential during a group A Streptococcus outbreak response.

The "What"

In December 2021, the Montana Department of Public Health and Human Services Healthcare-Associated Infections program transitioned to its own section called the Infection Control and Prevention and Healthcare-Associated Infections (ICP/HAI) section. The creation of this section was made possible by funding from multiple Centers for Disease Control and Prevention (CDC) funding streams, including the Epidemiology and Laboratory Capacity for the Prevention and Control of Emerging Infectious Diseases (ELC) cooperative agreement. With the new ICP/HAI section, there is now a team dedicated to promoting infection control and prevention efforts in healthcare facilities across the state of Montana. The section has focused on creating relationships at both the local and state levels for disease response. The Communicable Disease Epidemiology (CD Epi) section works closely with the ICP/HAI section during communicable disease responses. The ICP/HAI section often provides infection control expertise, which complements the disease knowledge of the CD Epi staff.

In March of 2023, the ICP/HAI section was notified by a local acute care hospital regarding two patients with necrotizing fasciitis that were admitted from the same long-term care facility (LTCF). The infection preventionists at the local acute care hospital are key surveillance partners, who regularly communicate with ICP/HAI staff. The ICP/HAI section notified the local public health department (LHD) and the CD Epi section regarding the concerns of the acute care hospital. The LHD contacted their surveillance partners, including the acute care hospital and the LTCF regarding the two cases. Upon further investigation, additional cases were identified, and the pathogen of concern was identified as group A *Streptococcus* (GAS). This prompted a GAS outbreak response at the LTCF in order to control this outbreak. CDC's GAS toolkit was utilized by ICP/HAI, CD Epi, and local public health staff.

The ICP/HAI section identified additional ways to **support long-term care facilities** moving forward. These include:

- A flowchart related to **testing recommendations**.
- Establishing a **wound care collaborative**.

Part of the investigation response involved performing screening testing of all residents and healthcare personnel at the LTCF. The Montana Public Health Laboratory determined that they were unable to perform testing for GAS. The ICP/HAI section discussed the possibility of testing at the local level and the local acute care hospital agreed to perform testing on behalf of the LTCF. Additionally, CDC was looped in regarding outbreak response for guidance and specimen sequencing support.

To prevent additional infections in this facility, the ICP/HAI section provided two consultations to the LTCF, focusing on outbreak response and wound care. The GAS subject matter expert from the CD Epi section answered questions specific to GAS while the ICP/HAI section focused on implementing outbreak mitigation strategies to help prevent further transmission.

The "So What"

A total of eleven cases including three deaths were identified as part of this outbreak, and nine isolates were sent to the CDC for whole genome sequencing. Out of the nine isolates, eight were identified as the same M protein gene (*emm*) type and sequence type, meaning that they were likely related. Out of the eleven cases, three were identified by the acute care hospital, six cases were identified through screening efforts, and two cases were identified through laboratory lookback of specimens.

This outbreak response was highly dependent upon the relationships that the different sections and local public health had with key surveillance partners within the community. A flowchart related to testing recommendations based on the toolkit was created by the ICP/HAI section to share with healthcare facilities to help simplify the process.

Targeting lessons learned during the wound care consultation, the ICP/HAI section distributed a learning needs assessment related to wound care and multi-drug resistant organisms. Assessment findings were used to identify facilities that were interested in participating in a wound care collaborative, which is now under development through the ICP/ HAI section, focusing on supporting long-term care facilities in Montana.

The "Now What"

This outbreak highlighted the importance of coordinated epidemiology and infection control expertise at the state-level, which ultimately allowed Montana to identify and quickly control a deadly outbreak in a long-term care facility. Additionally, the response reinforced the importance of having multi-disciplinary teams respond to outbreaks of communicable disease, specifically in healthcare settings. To maintain this capacity, continued funding and support will allow for early detection and response during disease outbreaks. Infection control and epidemiology are complementary and necessary areas of expertise for effective disease prevention, control, and response. The ICP/HAI and CD Epi sections continue to work together to identify areas for partnership and collaboration, and they will leverage this multi-disciplinary approach for outbreaks of communicable diseases.

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