Michigan Department of Health and Human Services
Surveillance for Healthcare Associated and Resistant Pathogens (SHARP) Unit

Interim CP-CRE Case Reporting and Investigation Guidance

MDHHS continues to work with clinical laboratories to report carbapenemase producing-carbapenem resistant Enterobacteriaceae (CP-CRE) electronically to the Michigan Disease Surveillance System (MDSS). However, in the interim, we realize that most CP-CRE case reports will be entered manually by laboratory or infection prevention staff. Therefore, we suggest the following guidance for public health follow-up of reported CP-CRE cases in MDSS.

Reporting: Laboratories, Infection Prevention and Local Health Departments (LHD)

- Laboratories, infection prevention and LHDs are required to report all cases of CP-CRE according to the following criterion for *E. coli*, *Klebsiella* spp., and *Enterobacter* spp.:
  - Healthcare record contains a diagnosis of Carbapenemase-producing Carbapenem-resistant Enterobacteriaceae (CP-CRE), KPC, NDM, OXA-48, IMP or VIM or novel carbapenemase
  - Any isolate of *Enterobacter* spp., *E. coli*, or *Klebsiella* spp. demonstrating carbapenemase production by a phenotypic method (e.g., Carba NP, CIM, mCIM)
  - Any isolate of *Enterobacter* spp., E. coli, or *Klebsiella* spp. with a known carbapenemase resistance mechanism by a recognized test (e.g., PCR, Expert Carba-R)
- If laboratories are unable to detect CP-CRE, (i.e., cannot test for carbapenemase production or resistance mechanism):
  - Any isolate of *Enterobacter* spp., *E. coli*, or *Klebsiella* spp. with a minimum inhibitory concentration of ≥4 mcg/ml for meropenem, imipenem, or doripenem, or ≥ 2 mcg/ml for ertapenem

Case Investigation: LHDs and Infection Prevention

- For cases that fully meet the case definition, MDHHS is suggesting that disease investigators utilize the Case Detail Form in MDSS for documenting epidemiological information for CP-CRE Cases. The amount of information recommended to be collected is dependent on:
  - the mechanism of resistance and
  - the endemicity of CP-CRE in the region

- For Novel CP-CRE resistance mechanisms, including **NDM-1, OXA-48, VIM, and IMP:**
  - Please complete the entire case detail form as best as possible
  - Hospital IPs may consider completing the case detail form when reporting the case into MDSS
  - LHDs should first consider contacting IP of the reporting facility to determine patient epidemiological information if not already entered into MDSS
  - For novel resistance mechanisms, documentation of international travel is crucially important

- **For KPC in endemic areas (Southeast Michigan, West Michigan, Saginaw-Bay-Flint, and Alpena** geographic areas)
  - Please complete the demographics and laboratory sections of the case detail form
  - Completion of other epidemiological information in the case detail form is optional

- For **KPC** mechanisms in **all other areas of the state**:
  - Please complete the entire case detail form as best as possible
  - Hospital IPs may consider completing the case detail form when reporting the case into MDSS
  - LHDs should first consider contacting IP of the reporting facility to determine patient epidemiological information if not already entered into MDSS
  - Documentation of international travel is crucially important

- For cases that are carbapenem-resistant, but the resistance mechanism is unknown:
  - Consider sending the isolate to Bureau of Laboratories (BOL) for further testing
  - Please complete the demographics and laboratory sections of the case detail form
  - Completion of other epidemiological information in the case detail form is optional

Case Classification and De-Duplication: LHDs ONLY

- LHD investigators should use the CDC/CSTE CP-CRE Case Definition to classify cases reported to the MDSS: https://wwwn.cdc.gov/nndss/conditions/carbapenemase-producing-carbapenem-resistant-enterobacteriaceae/case-definition/2018/

- De-duplication:
  - An individual should only be counted as a CP-CRE case once in a 12 month time period for the same organism and resistance mechanism
  - All of a patient's CRE-related labs entered into MDSS can be merged into the same CP-CRE case

Questions regarding CP-CRE reporting can be directed to:
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