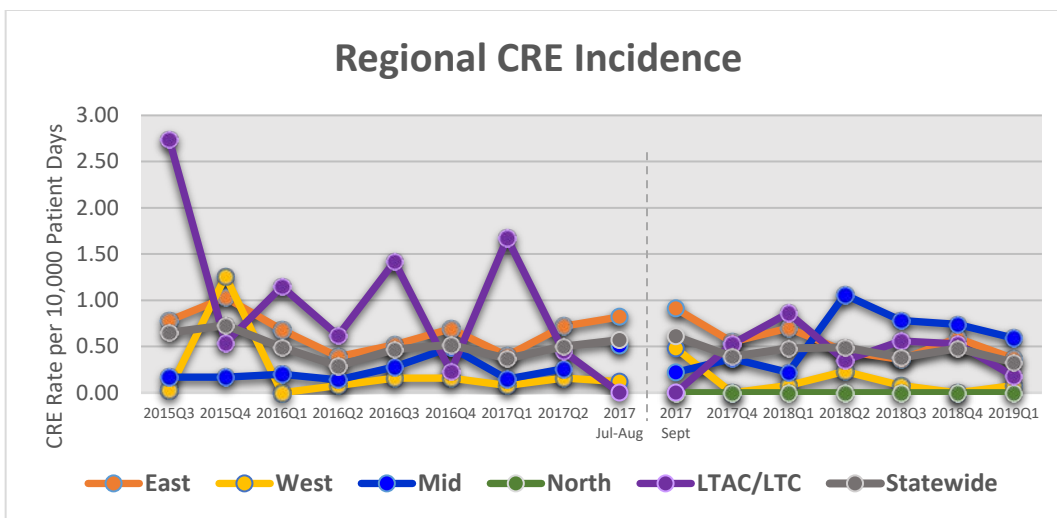


## MICHIGAN REGIONAL CRE INCIDENCE REPORT 2019 QUARTER 1 (JANUARY - MARCH)

The following data are from the Carbapenem-resistant *Enterobacteriaceae* (CRE) Surveillance and Prevention Initiative coordinated by the Michigan Department of Health and Human Services (MDHHS). The report reflects regional CRE incidence from facilities reporting cases of CRE, according to the initiative's surveillance definition. Starting in September 2017, the CRE initiative surveillance definition changed to include any *Klebsiella spp.*, *Escherichia coli*, or *Enterobacter spp.*, that were positive for carbapenemase production or positive for a known resistance mechanism (e.g., KPC, NDM-1, OXA-48, IMP, VIM), or that were resistant to one or more carbapenem antibiotics (e.g., MIC  $\geq 4$   $\mu\text{g/mL}$  for doripenem, imipenem, meropenem or  $\geq 2$   $\mu\text{g/mL}$  for ertapenem) in the absence of carbapenemase testing.

### CRE INCIDENCE IN MICHIGAN

Regional CRE incidence by reporting quarter is shown below. The vertical dashed line represents the change in the CRE initiative surveillance definition.



CRE Regions in Michigan

The number of facilities, number of CRE cases, total patient days, and overall CRE incidence rates per 10,000 patient-days, stratified by region (only acute care facilities) or long-term acute care (LTAC) or long-term care (LTC) facilities are shown below.

Region	Number of Facilities	2019 Q1		
		Number of CRE Cases	Total Patient Days	Overall Rate
East	19	15	400,297	0.37
West	7	1	132,057	0.08
Mid	9	8	136,727	0.59
North	7	0	42,169	0.00
LTAC/LTC	19	1	55,483	0.18
<b>Statewide</b>	<b>61</b>	<b>25</b>	<b>766,733</b>	<b>0.33</b>

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### NOVEL RESISTANCE ACTIVITY IN MICHIGAN

Since 2014, Michigan has tracked cases of novel resistance detected in the state. Twelve new cases of novel resistance were detected in 2019 Q1 for a total of 69 cases. Of these 69 cases, 21 (30%) were NDM-1, 17 (25%) were OXA-48, 12 (17%) were IMP, 8 (12%) were VIM, 9 (13%) were MCR-1, 1 (1%) was MCR-9, and 1 (1%) had both NDM-1 & OXA-48 (both resistance mechanisms present).

The MDHHS Bureau of Laboratories (BOL) offers carbapenemase testing and molecular testing to detect KPC, NDM, VIM, IMP, OXA-48, and MCR-1 and MCR-2 resistant mechanisms in Enterobacteriaceae, *Acinetobacter*, and *Pseudomonas aeruginosa*. Laboratories are **strongly encouraged** to send isolates to BOL for confirmatory testing of carbapenem or colistin resistance.

