

Background

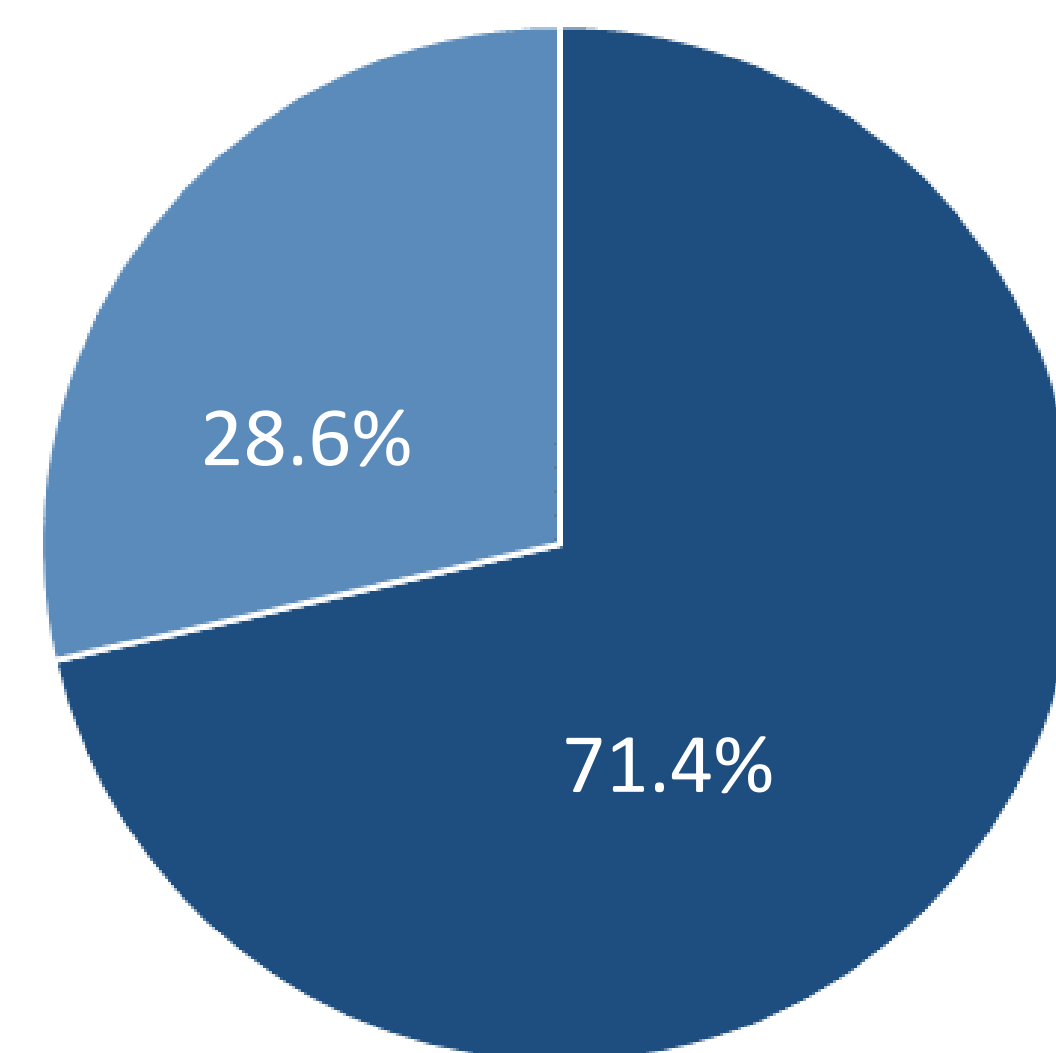
- Carbapenem-resistant Enterobacteriales (CRE) are multidrug-resistant organisms (MDRO) often spread in healthcare settings and reported as urgent public health threats by the Centers for Disease Control and Prevention (CDC).
- Antibiotic susceptibility testing (AST) is often performed, but some results get suppressed to encourage antibiotic stewardship.
- Tennessee participates in the Multi-site Gram-negative Surveillance Initiative (MuGSI) for CREs in Davidson and seven other surrounding counties.
- Little is known about the effects of suppression on CRE case identification in Tennessee. We used data from TN MuGSI to evaluate this important issue.

Methods

- We evaluated the effect of suppression of antibiotic susceptibility results on the clinical identification of CREs in Tennessee from 2016–2022.
- A CRE case was defined as *E. coli*, *Enterobacter cloacae complex*, or *Klebsiella species* resistant to one or more carbapenems and isolated from urine or a normally sterile site, from a resident of the catchment area.
- Doripenem is excluded from the susceptibility panel in most facilities, and thus not included in this analysis.
- Data analysis was performed using SAS Version 9.4.

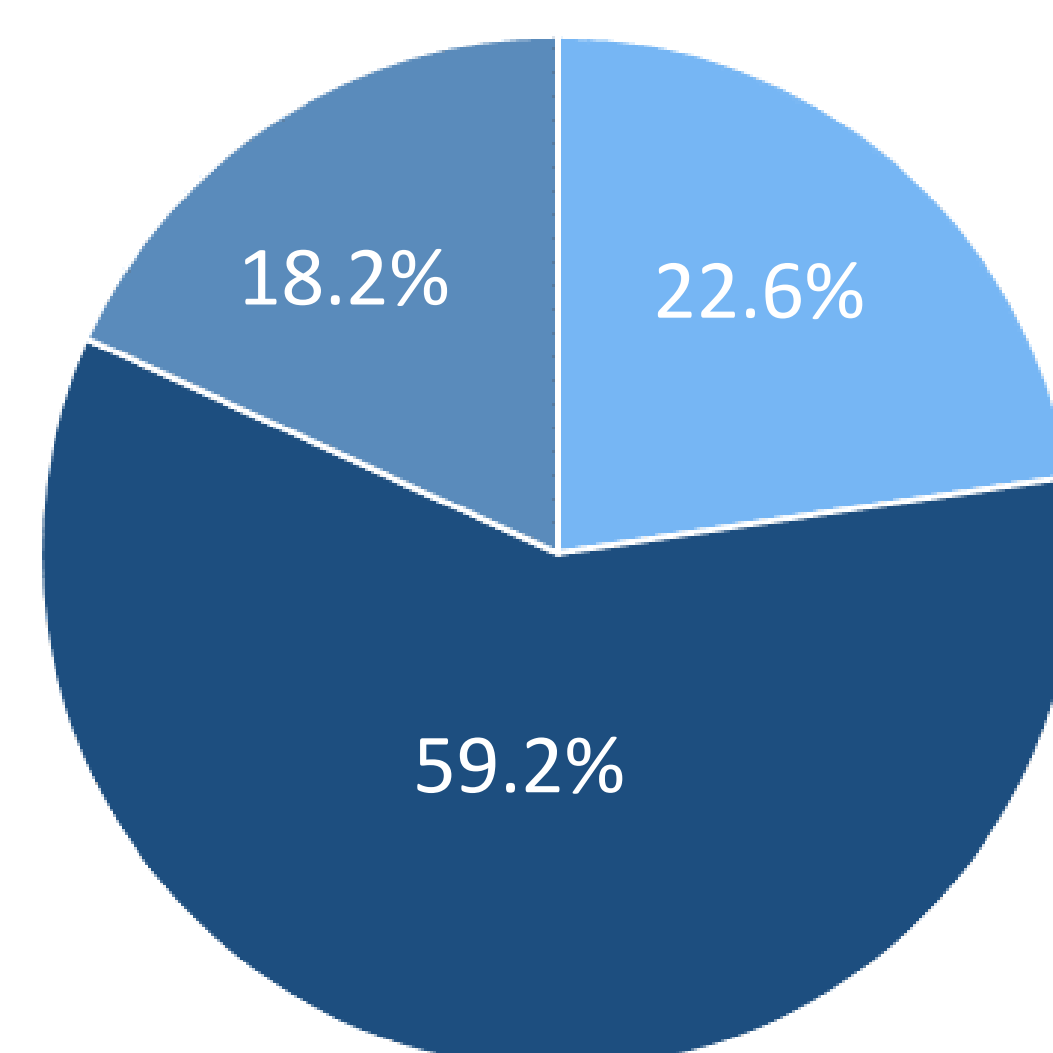
Results/Figures

Figure 1: Source of CRE Case Identification



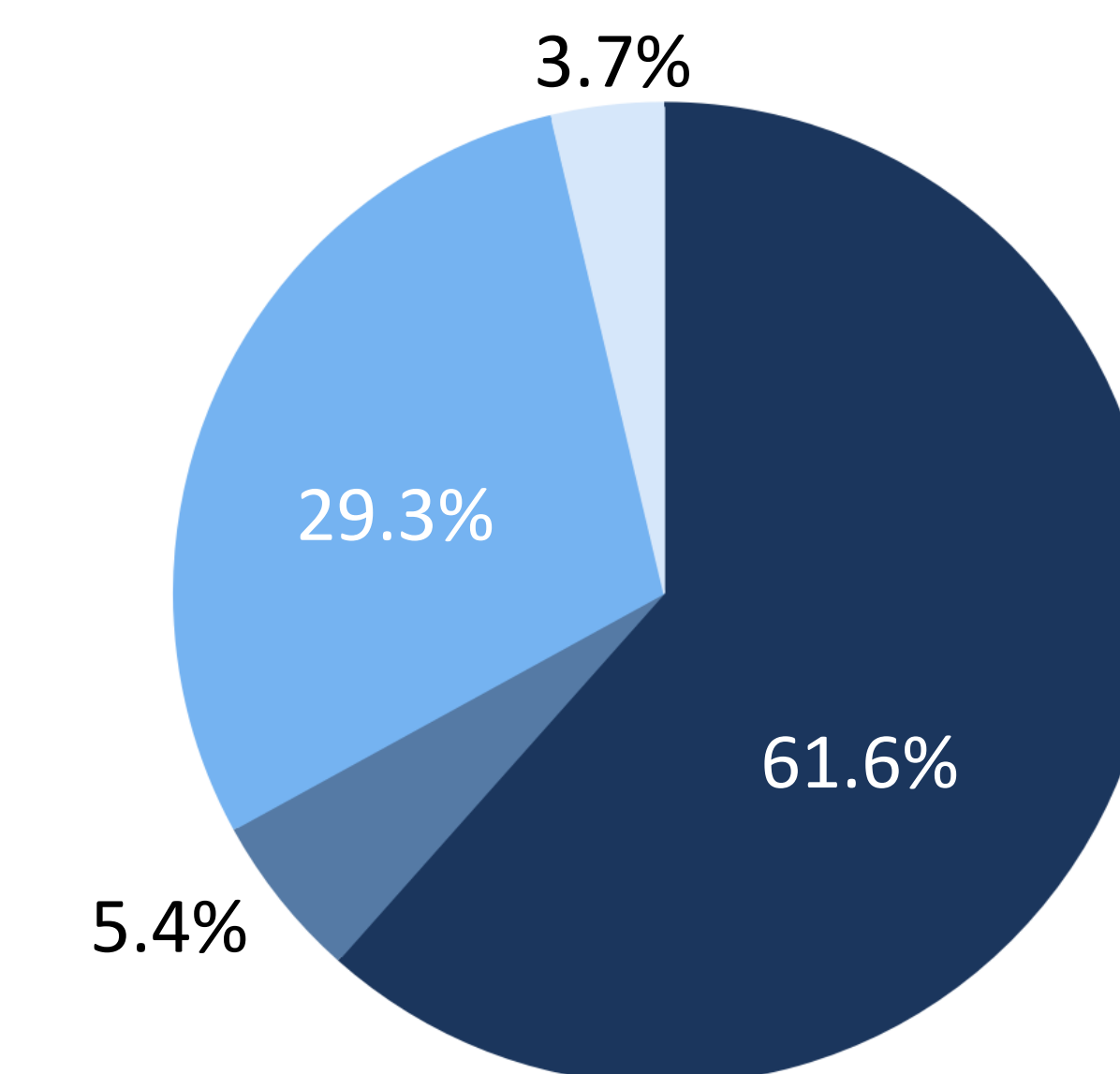
Laboratory Instrument Only
 Laboratory Instrument and Medical Record

Figure 2: Carbapenems Suppressed/Not Seen in Medical Record



Meropenem
 Ertapenem
 Imipenem

Figure 3: Provider Type



Private Practice
 Other
 Skilled Nursing facility
 Acute Care Hospital

Figure 4: Frequency of Suppressed Carbapenems by Year

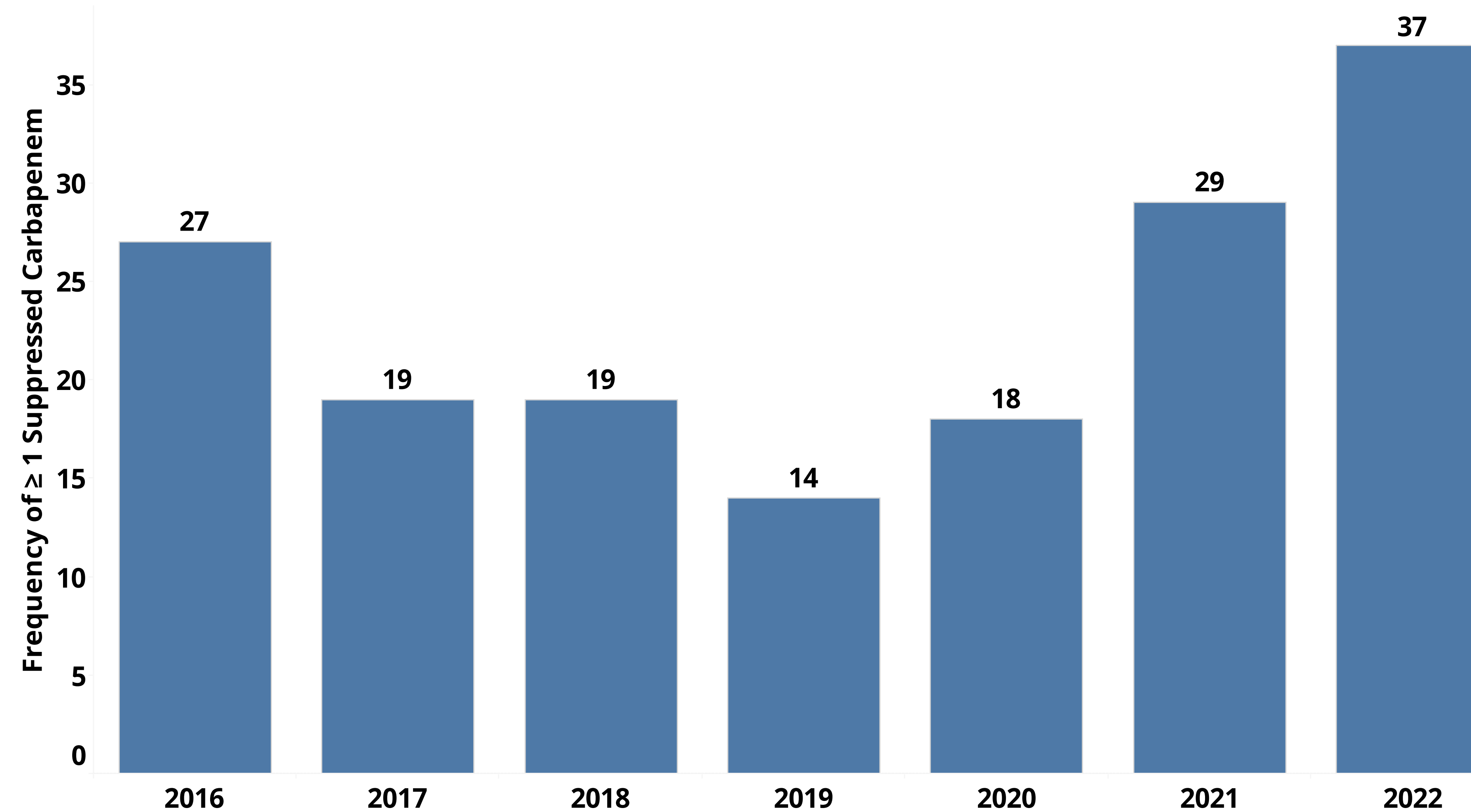


Table 1: Patient Characteristics

	Number of cases (%) N = 570
Organism isolated	
<i>Enterobacter cloacae complex</i>	246 (43.2%)
<i>Klebsiella species</i>	163 (28.6%)
<i>E. Coli</i>	161 (28.2%)
Culture Source	
Urine	530 (93.0%)
Blood	23 (4.0%)
Other*	10 (1.8%)
Bone	7 (1.2%)
Average age (years)	66
Sex	
Female	386 (67.7%)
Male	184 (32.3%)

*Other culture sources: pleural fluid, peritoneal fluid, CSF, kidney, brain, and other internal

Conclusions

- Approximately 29% of CRE cases in our data had AST results suppressed, or a lack of AST results available in the medical record.
- Lack of complete AST results may preclude the clinician and infection prevention staff being aware of CRE status and may result in additional difficulty treating a patient and preventing spread of MDROs.
- Suppression can lead to better antibiotic stewardship, but MDROs often have complex treatment requirements with high morbidity and mortality for patients.
- More research is needed to determine the impact of suppression as it relates to CRE and MDRO reporting and patient treatment.

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