

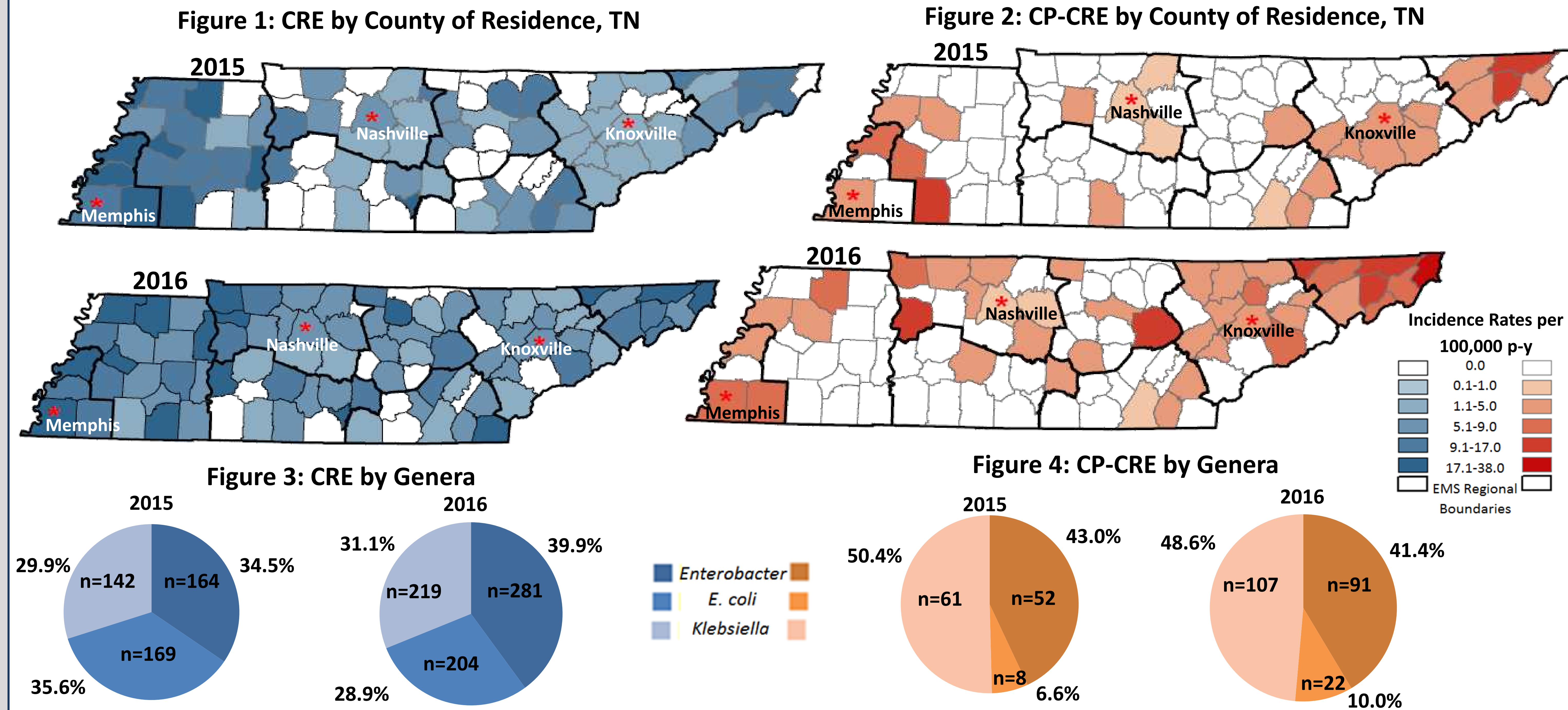
## Background

- Carbapenem-resistant *Enterobacteriaceae* (CRE) are a family of intestinal bacteria resistant to a class of antibiotics used to treat serious infections.
- CRE has been reportable in Tennessee since 2011.
- Isolates are required to be sent to the State Public Health Laboratory to confirm carbapenemase production and for resistance mechanism testing.
- Interactive dashboards have drill down capabilities which display additional CRE data, such as type of organism at a genus and species level.

## Methods

- The 2015 Council of State and Territorial Epidemiologists (CSTE) case definition was applied and defines CRE as *E.coli*, *Klebsiella*, and *Enterobacter* species isolated from any clinical specimen and resistant to doripenem, meropenem, imipenem (minimum inhibitory concentrations [MIC] of  $\geq 4 \mu\text{g/ml}$ ) or ertapenem (MIC  $\geq 2 \mu\text{g/ml}$ ), or demonstrated production of a carbapenemase.
- Cases were entered into the National Electronic Disease Surveillance System.
- County of residence aggregate data were analyzed and displayed in iDashboard.

## Figures



## Results

- 33% ↑ in CRE cases from 2015 (n=474) to 2016 (n=705). *E.coli* and *Enterobacter* were the dominant genera.
- 45% ↑ in CP-CRE from 2015 (n=121) to 2016 (n=220). *Enterobacter* and *Klebsiella* were the dominant genera.
- Hotspots of CP-CRE identified in Southwestern TN and Northeastern TN.
- Mean incidence rate of CRE was 6.4 and 9.3 cases/100,000 person-years (p-y) for 2015 and 2016; a mean ↑ of 2.9 cases/100,000 p-y (p=0.0013).
- Mean incidence rate of CP-CRE was 0.9 and 2.2 cases/100,000 p-y for 2015 and 2016; a mean ↑ of 1.3 cases/100,000 p-y (p=0.0001).

## Conclusions

- CRE and CP-CRE incidence continues to rapidly increase across Tennessee.
- Remarkable geographic variation exists.
- Interactive drill downs illustrate that CRE *Enterobacter* and CP-CRE *Klebsiella* became more common in 2016.
- Interactive maps [<https://healthwebaccess.tn.gov/idashboards/?guestuser=guest&dashID=815&c=0>] provide regional situational awareness which can improve response to this urgent threat.
- Coordinated approach to protect patients is critical.



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