Low EIEC isolate recovery rates were observed:

- Current understanding of EIEC is rather limited.
- At the Minnesota Department of Health Public Health Laboratory (MDH-PHL), 51% of Shigella/EIEC suspected specimens submitted from clinical laboratories are culture confirmed as Shigella sp.
- This retrospective study investigated if EIEC could be isolated from specimens that were positive for Shigella/EIEC by culture independent diagnostic testing (CIDT) but Shigella culture negative.

**METHODOLOGY**

Shigella/EIEC positive stools submitted by CIDT were submitted by clinical labs from January 2018 - December 2019. Mixed enteric glycerol specimens (that were Shigella culture negative) were cultured on MacConkey (MAC).

This study used a SYBR Green Real-Time PCR assay on sweeps & isolates to test for *ipaH*.

- *ipaH* is a plasmid gene located on the invasion plasmid (pIVN) in only Shigella and EIEC.
- Molecular CIDT uses *ipaH* as a detection marker.
- *ipaH* positive isolates were confirmed as *E. coli* through biochemical testing and sent to Whole Genome Sequencing (WGS) analyzed by BioNumerics.

**RESULTS**

279 specimen sweeps that were Shigella culture negative were screened by PCR.

- Eighty-one (29%) sweeps tested positive for *ipaH*.
- Twenty-nine (85%) specimen sweeps that were positive for *ipaH* were found for EIEC isolate and genetically comparable to *Shigella*.
- No additional Shigella isolates were found.
- Low EIEC isolate recovery rates were observed.
- Sweep *Ct* values were convincing for *ipaH* but no EIEC isolates were recovered.
- Experimented with media to retain pIVN and *ipaH.*

**CONCLUSIONS**

Twenty-nine EIEC positive specimens twenty-five cases were recovered during this study suggesting that EIEC is more common than previously recognized.

EIEC appears to be sensitive to sub-culturing and certain media. The low isolation rate observed may be due to plasmid instability and subsequent loss of *ipaH*.

Identification of EIEC isolates is challenging. It is vital to understand EIEC organism characteristics and genetic relatedness during outbreaks.

**REFERENCES**

4. Keeney, M. J., Prosseda, D. B., Shigellia/EIEC positive sweeps through the Minnesota Department of Health Public Health Laboratory. MDH-PHL.