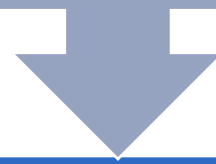


What % of third generation cephalosporin resistance in *E coli*, *K pneumo*, & *K oxytoca* is driven by CTX-M at DUHS?

Methods

SlicerDicer (*Data Model: Lab Specimens & Tests*)
“Positive Blood Culture Identification Panel” **AND** (*E coli*, *K pneumo*, & *K oxytoca*)
Further stratified by “CTXM GENE” detection



Dates: July 9, 2024 – March 31, 2025



Location: DUH, DRH, DRAH

Results (7/9/24 – 03/31/25)

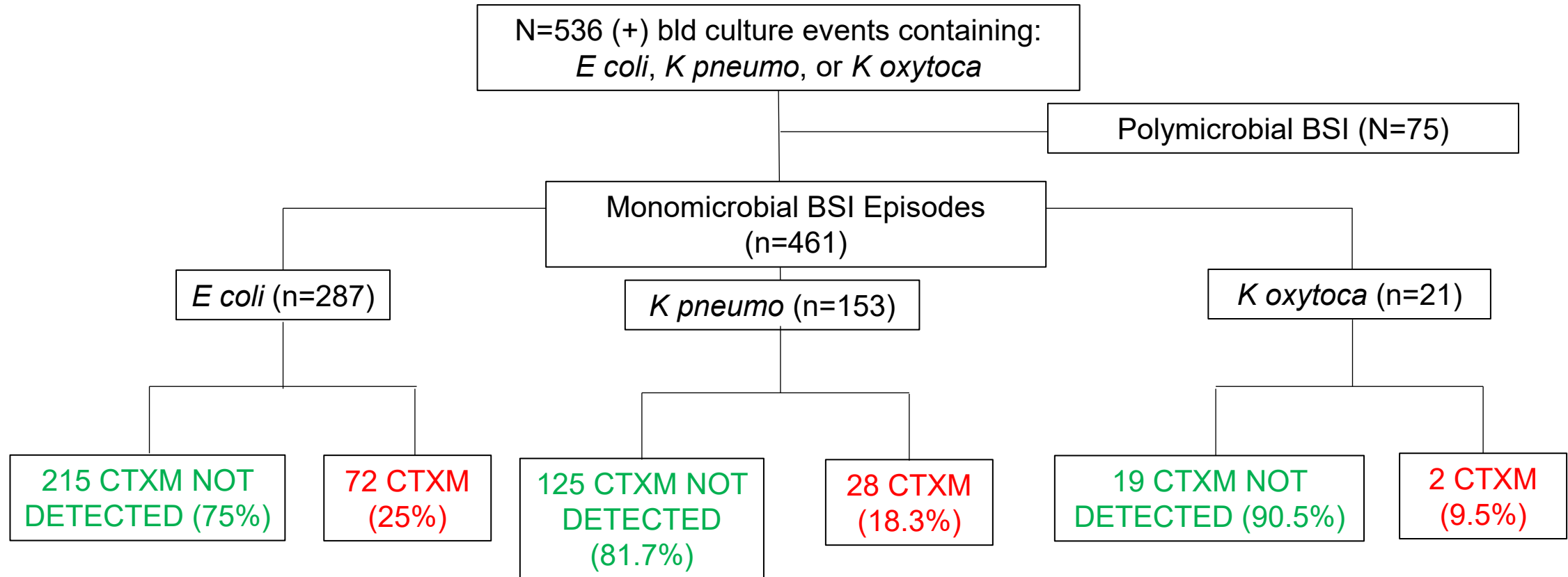


Table. BCID2 Organisms with *bla*_{CTX-M} detected sensitivity, specificity, positive, and negative predictive values

BCID2 Organism	Total Isolates, n (%)	CTX-M detected (N)	Ceftriaxone Resistance (N)	SN (%)	SP (%)	PPV (%)	NPV (%)
<i>Escherichia coli</i>	287 (62.3)	72	77	93.5	100	100	97.7
<i>Klebsiella pneumoniae</i> complex	153 (33.2)	28	27	100	99.2	96.4	100
<i>Klebsiella oxytoca</i>	21 (4.5)	2	5	40	100	100	84.2

NOTE: Only monomicrobial bloodstream infections included

DUH Adult Genotypic Gram-Negative Data

DUKE UNIVERSITY HOSPITAL Adult Gram-Negative Data July 9, 2024 – Mar 31, 2025 Inpatients only, first isolate per patient		No. of isolates	Cefazolin	Ceftriaxone	Piperacillin-tazobactam	Ertapenem	Meropenem	Levofloxacin	Ciprofloxacin
Escherichia coli		133	62	79	95	99	100	68	66
CTXM gene detected		27*	0	0	93	96	100	26	26
CTXM gene NOT detected		106	77	99	96	100	100	78	76
Klebsiella pneumoniae complex		81	68	80	86	99	100	84	77
CTXM gene detected		17*	6	6	71	94	100	47	18
CTXM gene NOT detected		64	84	100	91	100	100	94	92

*Use caution interpreting results with < 30 isolates

Proposed Changes

- Update rapid diagnostic guidance (*E coli* or *K pneumoniae*)
 - CTXM detected: meropenem
 - CTXM **NOT** detected: ceftriaxone
- Incorporate genotypic GN data into patient-specific **monomicrobial E coli and K pneumo BSI cases** and stewardship reviews
 - EXAMPLE: E coli BSI, negative CTX-M, from urinary source. Empiric therapy/streamline abx → ceftriaxone pending AST
- CTX-M comment in BCID2 – no changes
 - CTX-M gene NOT DETECTED. Alternate mechanisms of ESBL resistance cannot be excluded.