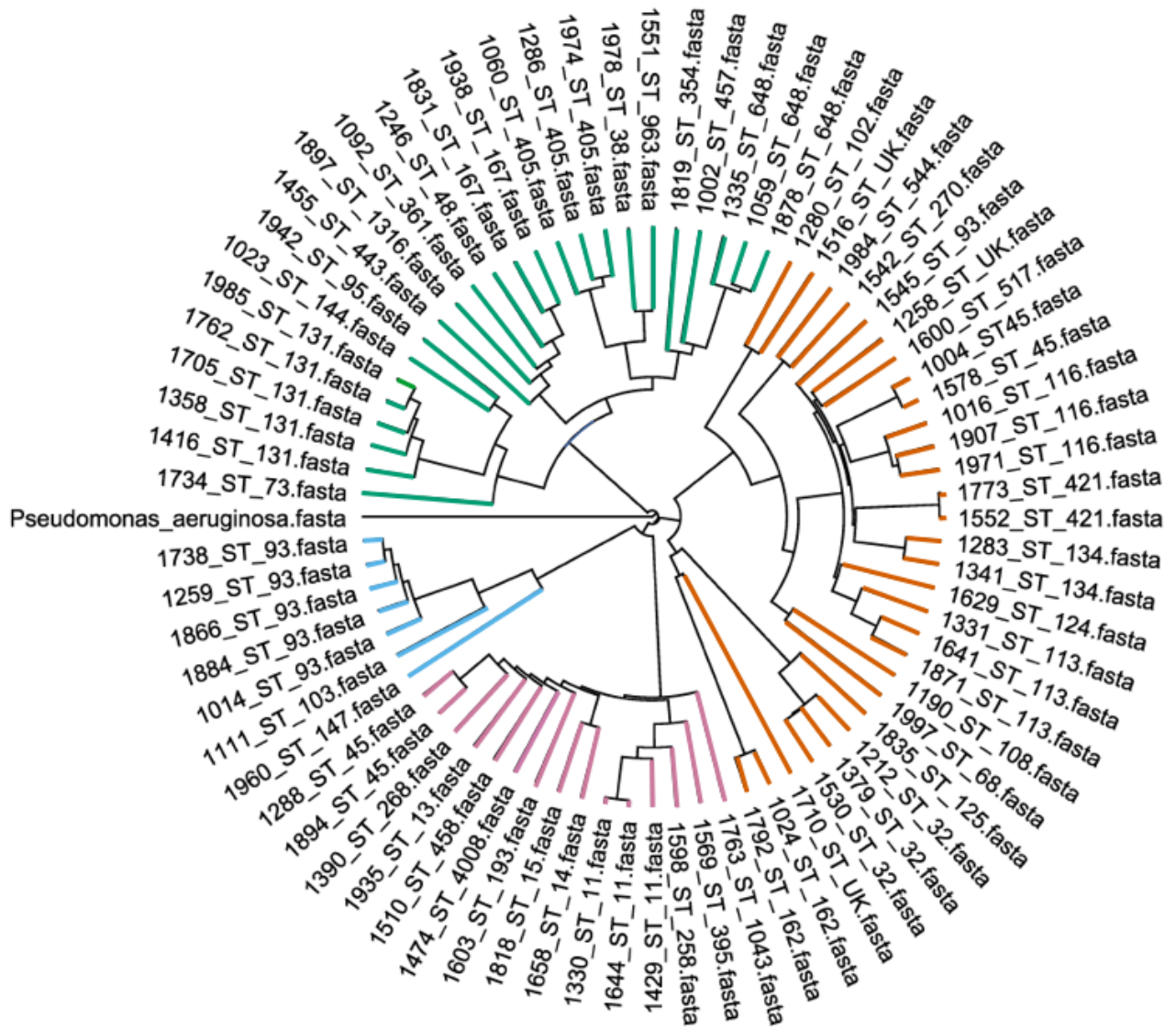


Figure S1: K-mer Distance Phylogenetic Tree



Genus & Species

- E. coli*
- E. cloacae* complex
- K. aerogenes*
- K. pneumoniae*

Table S1: Isolate Characteristics, Genes Detected, and Antimicrobial Susceptibilities

| Genus & Species | Sequence Type | I-R MIC (µg/ml) | I-R Susceptibility | mCIM Result | Genes Detected | | | | Specimen Source | AST Method | Antimicrobial Susceptibility Testing | | | | | | | | | | | | |
|----------------------|---------------|-----------------|--------------------|---------------|----------------|-------------------|-------------------|------------------------|-----------------|--------------|--------------------------------------|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|---|---|
| | | | | | Carbapenemase | ESBL | Other β-lactamase | Porin Detection | | | AMP | SAM | TZP | CFZ | FOX | CAZ | CR | FEP | ETP | IPM | MEM | | |
| <i>E. coli</i> | 405 | >32 | R | Not Tested | NDM-5 | CTX-M-15 | OXA-1; TEM-1 | Not tested | Urine | Vitek-2 | R | R | R | R | | R | R | R | R | R | | | |
| <i>E. coli</i> | 648 | >32 | R | Not Tested | NDM-5 | | TEM-1 | Not tested | Urine | Kirby-Bauer | R | | R | R | | | R | R | R | | | R | |
| <i>K. pneumoniae</i> | 11 | 16 | R | Not Tested | NDM-1 | SHV-182 | | Not tested | Rectal | Kirby-Bauer | | | S | | | R | | R | | | R | R | |
| <i>K. pneumoniae</i> | 14 | 16 | R | Not Tested | NDM-5; OXA-181 | SHV | OXA-9; TEM-1 | Not tested | Urine | Kirby-Bauer | R | R | R | R | | R | R | R | R | R | R | R | R |
| <i>E. cloacae</i> | 102 | 8 | R | Indeterminate | | | ACT-5 | Defective ompA | Wound | Vitek-2 | | | | R | R | R | R | S | R | | | S | |
| <i>E. coli</i> | 73 | 8 | R | Not Tested | NDM-5 | | TEM-1 | Not tested | Blood | Vitek-2 | R | R | R | R | | R | R | R | R | R | | R | |
| <i>E. coli</i> | 1316 | 8 | R | Not Tested | NDM-7 | | AmpC | Not tested | Rectal | Vitek-2 | R | R | R | R | R | R | R | R | | | | | R |
| <i>K. pneumoniae</i> | 11 | 8 | R | Not Tested | NDM-1 | SHV-182 | OXA-1 | Not tested | Rectal | Kirby-Bauer | R | R | R | | | R | R | R | R | R | R | R | R |
| <i>K. pneumoniae</i> | 395 | 8 | R | Not Tested | NDM-1 | CTX-M-15; SHV-182 | | Not tested | Urine | Not Reported | | | | | | | | | | | | | |
| <i>K. pneumoniae</i> | 1043 | 8 | R | Not Tested | NDM-1 | SHV-172 | | Not tested | Urine | Walkaway | | R | R | R | R | R | R | R | R | R | R | | R |
| <i>K. pneumoniae</i> | 11 | 8 | R | Not Tested | NDM-7 | CTX-M-15; SHV-12 | TEM-1 | Not tested | Urine | Not Reported | R | R | R | R | | R | R | R | R | | | | R |
| <i>E. coli</i> | 167 | 4 | R | Not Tested | NDM-5 | | TEM-1 | Not tested | Urine | Walkaway | R | R | R | R | R | R | R | R | R | R | R | R | R |
| <i>E. coli</i> | 167 | 4 | R | Not Tested | NDM-5 | CTX-M-15 | OXA-1 | Not tested | Rectal | Walkaway | | R | R | R | R | R | R | R | R | R | R | R | R |
| <i>K. pneumoniae</i> | 45 | 4 | R | Negative | | SHV-1 | CMY-2 | Defective ompA; ompK35 | Rectal | Not Reported | R | R | R | | | R | R | R | R | R | R | R | R |
| <i>K. pneumoniae</i> | 13 | 2 | I | Negative | | SHV-12 | TEM-1 | Defective ompA | Rectal | Kirby-Bauer | R | R | R | R | | R | R | R | R | R | R | R | R |
| <i>E. cloacae</i> | 113 | 1 | S | Negative | | | ACT-4 | None | Urine | Walkaway | | R | | R | R | R | | R | R | R | R | R | R |
| <i>E. cloacae</i> | 270 | 1 | S | Indeterminate | | | ACT-16; TEM-1 | None | Rectal | Walkaway | | R | R | R | R | R | R | I | R | R | R | R | R |
| <i>E. cloacae</i> | 162 | 1 | S | Negative | | | ACT-2 | None | Urine | Walkaway | | R | S | R | | I | R | S | R | R | R | R | R |
| <i>E. coli</i> | 648 | 1 | S | Negative | | | | Not tested | Urine | Vitek-2 | I | S | R | S | I | S | S | S | S | | | | R |
| <i>E. coli</i> | 48 | 1 | S | Negative | | CTX-M-15 | CMY-2 | Not tested | Urine | Vitek-2 | R | | R | R | R | R | R | R | R | R | | | S |
| <i>E. coli</i> | 648 | 1 | S | Not Tested | OXA-48 | | DHA-1 | Not tested | Other | Vitek-2 | R | R | R | R | R | S | S | S | S | R | | | I |
| <i>K. pneumoniae</i> | 4008 | 1 | S | Not Tested | | | AmpC | Not tested | Urine | Not Reported | R | R | R | R | R | R | R | R | R | R | I | | S |

| | | | | | | | | | | | | | | | | | | | | | |
|----------------------|-------------|------|---|-------------------|--|----------|---------|------------------|-----------------|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|
| <i>K. pneumoniae</i> | 45 | 1 | S | Negative | | SHV-1 | | None | Rectal | Walkaway Not Reported | R | R | R | | | R | R | R | R | R | I |
| <i>E. cloacae</i> | 421 | 0.5 | S | Negative | | | ACT-4 | Not tested | Urine | Reported | R | R | | R | | | R | R | R | | S |
| <i>E. coli</i> | 131 | 0.5 | S | Negative | | CTX-M-33 | TEM-1 | None | Urine | Not Reported | R | R | R | R | R | R | R | R | | | R |
| <i>E. coli</i> | 963 | 0.5 | S | Negative | | | CMY-2 | Not tested | Urine | Vitek-2 | R | R | R | R | R | R | R | S | R | | S |
| <i>E. coli</i> | 131 | 0.5 | S | Not Tested | | NDM-1 | | Not tested | Urine | Not Reported | | | | | | | | | | | |
| <i>K. pneumoniae</i> | 258 | 0.5 | S | Not Tested | | KPC-3 | SHV-182 | OXA-9; TEM-1 | Rectal | Walkaway | | R | R | R | R | R | R | R | R | R | R |
| <i>E. cloacae</i> | 45 | <0.5 | S | Negative | | | | ACT-15; TEM-1 | Urine | Walkaway | | R | R | R | R | R | R | S | R | S | S |
| <i>E. cloacae</i> | 116 | <0.5 | S | Negative | | | | ACT-7; TEM-1 | Urine | Vitek-2 | | | | R | R | R | R | S | R | | S |
| <i>E. cloacae</i> | 162 | <0.5 | S | Negative | | | | ACT-2 | Urine | Vitek-2 | | R | R | R | | R | R | S | R | R | |
| <i>E. cloacae</i> | 108 | <0.5 | S | Negative | | | | ACT | Urine | Vitek-2 | R | R | R | R | R | R | R | S | R | | S |
| <i>E. cloacae</i> | 32 | <0.5 | S | Positive | | | | ACT-9 | Urine | Vitek-2 | | | R | R | | R | R | S | R | I | |
| <i>E. cloacae</i> | Unkn own | <0.5 | S | Negative | | | | ACT-7 | Wound | Walkaway | | R | R | R | | R | R | R | R | S | R |
| <i>E. cloacae</i> | 134 | <0.5 | S | Negative | | | | ACT-7 | Blood | Vitek-2 | R | R | R | R | R | R | R | S | R | | S |
| <i>E. cloacae</i> | 134 | <0.5 | S | Indetermi nate | | | | ACT-7 | Urine | Vitek-2 | | | R | R | | R | R | S | R | | S |
| <i>E. cloacae</i> | 32 | <0.5 | S | Negative | | | | ACT-9 | Urine | Reported | R | R | R | S | | R | R | S | R | | I |
| <i>E. cloacae</i> | Unkn own | <0.5 | S | Indetermi nate | | | | AmpC | Urine | Vitek-2 | | | R | R | R | R | S | R | | | S |
| <i>E. cloacae</i> | 32 | <0.5 | S | Positive | | | | ACT-9 | Rectal | Walkaway | | R | I | R | R | R | R | S | R | I | S |
| <i>E. cloacae</i> | 93 | <0.5 | S | Not Tested | | | | ACT-7 | Other | Reported | | | | | | | | | | | |
| <i>E. cloacae</i> | 45 | <0.5 | S | Negative | | | | TEM-1 | Urine | Walkaway | | R | | R | | R | R | R | R | S | S |
| <i>E. cloacae</i> | 517 | <0.5 | S | Negative | | | | ACT-7 | Respirato ry | Vitek-2 | | | R | R | R | R | R | S | R | | S |
| <i>E. cloacae</i> | 124 | <0.5 | S | Negative | | | | ACT-4 | Urine | Vitek-2 | | | R | | | R | R | R | R | | S |
| <i>E. cloacae</i> | 113 | <0.5 | S | Negative | | | | ACT-4 | Urine | Vitek-2 | | | R | R | R | R | R | | R | | S |
| <i>E. cloacae</i> | Unkn own | <0.5 | S | Negative | | | | MIR-1 | Urine | Walkaway | | R | I | R | | R | R | S | R | S | S |
| <i>E. cloacae</i> | 421 | <0.5 | S | Negative | | | | ACT-7 | Urine | Vitek-2 | | | R | R | R | R | R | S | R | | S |
| <i>E. cloacae</i> | 125 | <0.5 | S | Positive | | | | ACT-9 | Urine | Walkaway | | R | I | R | R | R | R | S | R | R | I |
| <i>E. cloacae</i> | 113 | <0.5 | S | Not Tested | | KPC-2 | SHV-12 | ACT-15; TEM-1 | Urine | Walkaway | | R | R | R | R | R | R | S | R | S | S |
| <i>E. cloacae</i> | 116 | <0.5 | S | Negative | | | | ACT-7 | Urine | Reported | R | R | | R | R | R | R | S | R | | S |
| <i>E. cloacae</i> | 116 | <0.5 | S | Negative | | | | ACT-7 | Urine | Vitek-2 | | | R | R | | R | R | I | R | S | |
| <i>E. cloacae</i> | 544 | <0.5 | S | Negative | | | | ACT-16 | Urine | Vitek-2 | | | R | R | | R | R | R | R | | S |
| <i>E. cloacae</i> | 68 | <0.5 | S | Negative | | | | ACT-7 | Urine | Vitek-2 | | | R | R | | | R | S | R | I | |
| <i>E. coli</i> | 457 | <0.5 | S | Negative | | | | CMY-2 | Urine | Vitek-2 | R | R | R | R | | R | R | R | R | R | |

| | | | | | | | | | | | | | | | | | | | | |
|----------------------|-----|------|---|---------------|---------|----------|---------------|------------------------|-------------|--------------|---|---|---|---|---|---|---|---|---|---|
| <i>E. coli</i> | 144 | <0.5 | S | Negative | | | AmpC; TEM-1 | None | Urine | Vitek-2 | R | R | R | R | S | S | S | R | R | R |
| <i>E. coli</i> | 405 | <0.5 | S | Not Tested | NDM-5 | CTX-M-15 | TEM-1 | Not tested | Urine | Vitek-2 | R | R | R | R | | R | R | R | R | R |
| <i>E. coli</i> | 361 | <0.5 | S | Negative | | CTX-M-55 | TEM-1 | None | Other | Kirby-Bauer | R | | R | R | R | R | R | R | R | R |
| <i>E. coli</i> | 131 | <0.5 | S | Negative | | | | Not tested | Urine | Walkaway | | R | I | R | | R | R | R | R | S |
| <i>E. coli</i> | 443 | <0.5 | S | Positive | OXA-181 | CTX-M-15 | | Not tested | Urine | Not Reported | R | R | R | R | | R | R | R | R | I |
| <i>E. coli</i> | 131 | <0.5 | S | Negative | | CTX-M-15 | TEM-1 | Not tested | Urine | Vitek-2 | R | R | I | R | S | R | R | R | R | S |
| <i>E. coli</i> | 354 | <0.5 | S | Negative | | | CMY-2; TEM-1 | Not tested | Urine | Vitek-2 | R | R | R | R | R | R | R | S | R | S |
| <i>E. coli</i> | 95 | <0.5 | S | Negative | | | EC | None | Urine | Walkaway | | R | I | S | | S | S | S | S | R |
| <i>E. coli</i> | 405 | <0.5 | S | Negative | | CTX-M-15 | | Not tested | Urine | Vitek-2 | R | R | I | R | R | R | R | R | R | S |
| <i>E. coli</i> | 38 | <0.5 | S | Indeterminate | | | | Not tested | Urine | Vitek-2 | R | R | R | R | | R | R | R | R | I |
| <i>E. coli</i> | 131 | <0.5 | S | Not Tested | | CTX-M-15 | | Not tested | Urine | Not Reported | R | R | S | R | I | R | R | R | I | S |
| <i>K. aerogenes</i> | 93 | <0.5 | S | Negative | | | AmpC | Not tested | Urine | Vitek-2 | | | R | R | R | R | R | S | R | I |
| <i>K. aerogenes</i> | 103 | <0.5 | S | Positive | | | AmpC | Not tested | Urine | Vitek-2 | | | R | R | R | R | R | R | R | S |
| <i>K. aerogenes</i> | 93 | <0.5 | S | Negative | | | AmpC | Not tested | Urine | Vitek-2 | | | R | R | R | R | R | S | R | S |
| <i>K. aerogenes</i> | 93 | <0.5 | S | Negative | | | AmpC | Not tested | Respiratory | Vitek-2 | | | R | R | | R | R | R | R | I |
| <i>K. aerogenes</i> | 147 | <0.5 | S | Positive | | | AmpC | Not tested | Urine | Vitek-2 | | | R | R | R | R | R | S | R | S |
| <i>K. aerogenes</i> | 93 | <0.5 | S | Negative | | | | Not tested | Wound | Walkaway | | | R | I | R | R | R | R | S | R |
| <i>K. aerogenes</i> | 93 | <0.5 | S | Indeterminate | | | | Defective ompA | Urine | Kirby-Bauer | | | R | R | R | R | R | R | | R |
| <i>K. pneumoniae</i> | 15 | <0.5 | S | Negative | | SHV-12 | OXA-1; OXA-10 | Not tested | Other | Walkaway | | | R | R | R | | R | R | R | S |
| <i>K. pneumoniae</i> | 193 | <0.5 | S | Not Tested | KPC-3 | SHV-61 | OXA-9; TEM-1 | Not tested | Blood | Vitek-2 | R | R | R | R | | R | R | R | R | R |
| <i>K. pneumoniae</i> | 268 | <0.5 | S | Not Tested | KPC-2 | SHV-1 | | Not tested | Urine | Not Reported | | | | | | | | | | |
| <i>K. pneumoniae</i> | 458 | <0.5 | S | Negative | | SHV-75 | | Defective ompA; ompK35 | Urine | Vitek-2 | R | R | S | R | S | S | S | S | S | R |

*For a subset of isolates tested in triplicate, we present the median and range of MICs

**For a subset of isolates that had resistance to either imipenem and/or meropenem and did not have a carbapenemase gene, we tested for the presence of porin genes

***All antimicrobial susceptibility testing besides I-R was performed at submitting clinical laboratories.