

**Supplementary Table S1.** The proportion of antibiotic resistant Gram-negative bacterial species obtained from surface swabs, housefly, and sewage samples at a tertiary hospital in Ethiopia.

| Microorganism                    | AMP  | AMC  | AN   | CAZ  | CIP  | CTX  | CXM  | FEP  | FOX  | GM   | MEM  | MXF  | PIP  | SXT  | TM   | TZP  |
|----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <i>A. baumannii</i> (n = 7)      | 7    | 7    | 1    | -    | 7    | 7    | 7    | -    | -    | 5    | 4    | -    | IE   | 5    | 5    | IE   |
| <i>A. calcoaceticus</i> (n = 1)  | 0    | 0    | 0    | -    | 1    | 1    | 1    | -    | -    | 0    | 0    | -    | IE   | 0    | 0    | IE   |
| <i>A. johnsonii</i> (n = 2)      | -    | -    | 0    | -    | 2    | -    | 2    | -    | -    | 1    | 0    | -    | IE   | 2    | 1    | IE   |
| <i>A. nosocomialis</i> (n = 1)   | 0    | 0    | 0    | -    | 1    | 1    | 1    | -    | -    | 1    | 1    | -    | IE   | 1    | 0    | IE   |
| <i>A. pittii</i> (n = 2)         | 2    | 2    | 0    | -    | 2    | 2    | 2    | -    | -    | 0    | 1    | -    | IE   | 0    | 0    | IE   |
| <i>A. baylyi</i> (n = 3)         | 3    | -    | 0    | -    | 3    | -    | 3    | -    | -    | 1    | 0    | -    | IE   | 1    | 1    | IE   |
| <i>A. towneri</i> (n = 1)        | -    | -    | 0    |      | 1    | -    | 1    | -    | -    | 0    | 0    | -    | IE   | 0    | 0    | IE   |
| <i>A. ursingii</i> (n = 2)       | -    | -    | 0    | -    | 2    | -    | 2    | -    | -    | 2    | 0    | -    | IE   | 2    | 2    | IE   |
| <i>E. asburiae</i> (n = 3)       | 3    | 3    | 0    | 0    | 2    | 2    | -    | 0    | 3    | 2    | 0    | 2    | 0    | 0    | 0    | 0    |
| <i>E. cloacae</i> (n = 13)       | 13   | 13   | 2    | 10   | 4    | 12   | -    | 13   | 13   | 11   | 1    | 8    | 12   | 11   | 10   | 4    |
| <i>E. kobei</i> (n = 1)          | 1    | 1    | 0    | 1    | 1    | 1    | -    | 1    | 1    | 0    | 0    | 1    | 1    | 1    | 0    | 0    |
| <i>E. bugandensis</i> (n = 4)    | 4    | 4    | 0    | 2    | 1    | 1    | -    | 1    | 4    | 2    | 0    | 2    | 1    | 1    | 1    | 0    |
| <i>E. xiangfangensis</i> (n = 2) | 1    | 0    | 0    | 0    | 0    | 0    | -    | 0    | 2    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <i>E. coli</i> (n = 108)         | 73.1 | 65.7 | 30.0 | 19.4 | 100  | 34.3 | 31.5 | 34.3 | 13.9 | 24.1 | 35.2 | 30.6 | 20.4 | 16.7 | 1.9  | 43.5 |
| <i>K. oxytoca</i> (n = 10)       | 10   | 2    | 0    | 4    | 2    | 4    | 10   | 1    | 1    | 2    | 0    | 4    | 10   | 5    | 2    | 1    |
| <i>K. pneumoniae</i> (n = 21)    | 100  | 80.9 | 4.8  | 76.2 | 61.9 | 80.9 | 100  | 76.2 | 23.8 | 57.1 | 4.8  | 61.9 | 100  | 66.7 | 57.1 | 57.1 |
| <i>K. variicola</i> (n = 13)     | 13   | 0    | 0    | 1    | 3    | 1    | 13   | 1    | 0    | 0    | 0    | 0    | 13   | 2    | 0    | 0    |
| <i>P. alcalifaciens</i> (n = 5)  | 3    | 5    | 0    | 3    | 4    | 3    | -    | 3    | 2    | 1    | 0    | 4    | 3    | 3    | 1    | 0    |

|   |      |      |     |      |      |      |     |      |      |      |   |      |      |      |      |     |
|---|------|------|-----|------|------|------|-----|------|------|------|---|------|------|------|------|-----|
| <i>P. rettgeri</i> (n = 21)               | 90.5 | 100  | 0   | 47.6 | 47.6 | 61.9 | -   | 42.9 | 14.3 | 47.6 | 0 | 61.9 | 57.1 | 52.4 | 28.6 | 4.8 |
| <i>P. stuartii</i> (n = 17)               | 16   | 17   | 0   | 13   | 7    | 13   | -   | 6    | 2    | 5    | 0 | 10   | 12   | 13   | 8    | 3   |
| <i>P. vermicola</i> (n = 1)               | 0    | 1    | 0   | 0    | 0    | 0    | -   | 0    | 0    | 0    | 0 | 0    | 0    | 0    | 0    | 0   |
| <i>P. hauseri</i> (n = 4)                 | 4    | 0    | 0   | 0    | 1    | 0    | 4   | 0    | 0    | 0    | 0 | 2    | 0    | 0    | 1    | 0   |
| <i>P. mirabilis</i> (n = 31)              | 93.5 | 29.0 | 6.5 | 35.5 | 80.6 | 80.6 | 100 | 80.6 | 0    | 83.9 | 0 | 87.1 | 74.2 | 90.3 | 83.9 | 0   |
| <i>P. vulgaris</i> (n = 7)                | 1    | 0    | 0   | 0    | 2    | 2    | 7   | 2    | 0    | 2    | 0 | 3    | 2    | 2    | 1    | 0   |
| <i>Cronobacter sakazakii</i> (n = 1)      | 1    | 0    | 0   | 1    | 0    | 1    | -   | 1    | 0    | 1    | 0 | 0    | 1    | 1    | 1    | 0   |
| <i>Raoultella ornithinolytica</i> (n = 9) | 9    | 3    | 2   | 6    | 7    | 6    | 9   | 7    | 0    | 3    | 0 | 7    | 9    | 7    | 7    | 1   |
| <i>Aeromonas caviae</i> (n = 4)           | -    | 4    | -   | 1    | 0    | -    | -   | 1    | 4    | -    | - | -    | -    | 1    | -    | -   |
| <i>Aeromonas hydrophila</i> (n = 5)       | -    | 5    | -   | 0    | 0    | -    | -   | 0    | 5    | -    | - | -    | -    | 0    | -    | -   |
| <i>Aeromonas veronii</i> (n = 1)          | -    | 1    | -   | 0    | 0    | -    | -   | 0    | 1    | -    | - | -    | -    | 0    | -    | -   |
| <i>Citrobacter freundii</i> (n = 5)       | 5    | 5    | 0   | 4    | 3    | 4    | -   | 3    | 5    | 2    | 0 | 3    | 4    | 4    | 2    | 4   |
| <i>Escherichia fergusonii</i> (n = 1)     | 1    | 0    | 0   | 0    | 0    | 0    | -   | 0    | 0    | 0    | 0 | 0    | 0    | 0    | 0    | 0   |
| <i>Escherichia hermannii</i> (n = 2)      | 2    | 0    | 0   | 0    | 2    | 2    | -   | 2    | 0    | 2    | 0 | 2    | 2    | 2    | 2    | 0   |
| <i>Kluyvera ascorbata</i> (n = 4)         | 3    | 0    | 0   | 1    | 0    | 2    | -   | 2    | 0    | 1    | 0 | 1    | 2    | 3    | 1    | 0   |
| <i>Kluyvera cryocrescens</i> (n = 5)      | 4    | 2    | 0   | 2    | 1    | 3    | -   | 3    | 0    | 2    | 0 | 2    | 3    | 3    | 2    | 1   |
| <i>Leclercia adecarboxylata</i> (n = 2)   | 1    | 0    | 0   | 1    | 0    | 1    | -   | 1    | 0    | 0    | 0 | 0    | 1    | 1    | 0    | 0   |
| <i>Moellerella wisconsensis</i> (n = 1)   | 1    | 1    | 0   | 1    | 0    | 1    | -   | 0    | 1    | 0    | 0 | 0    | 1    | 1    | 0    | 0   |
| <i>Morganella morganii</i> (n = 14)       | 14   | 14   | 0   | 4    | 5    | 4    | -   | 2    | 9    | 2    | 0 | 8    | 3    | 4    | 2    | 0   |
| <i>Pseudomonas putida</i> (n = 1)         | -    | -    | 0   | 1    | 1    | -    | 1   | 1    | -    | IE   | 1 | -    | 1    | -    | 1    | 1   |
| <i>Salmonella species</i> (n = 1)         | 0    | 0    | 1   | 0    | -    | 0    | -   | 0    | 0    | 1    | 0 | 0    | 0    | 0    | 1    | 0   |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <i>Stenotrophomonas maltophilia</i> (n = 1) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Key:** AMP, ampicillin; AMC, amoxicillin/clavulanic acid; PIP, piperacillin; TZP, piperacillin-tazobactam; CXM, cefuroxime; CTX, cefotaxime; CAZ, ceftazidime; FEP, cefepime; FOX, cefoxitin; MEM, meropenem; MXF, moxifloxacin; CIP, ciprofloxacin; GM, gentamicin; TM, tobramycin; AN, amikacin; and SXT, sulfamethoxazole- trimethoprim; Percentage is not calculated if the denominators are less than 20.