**Supplementary Materials:**

Supplementary table 1: Total number of all bacteria isolates at MDS lancet laboratories Ghana from 2017 and 2021

|  |  |  |
| --- | --- | --- |
| BACTERIA | SEX | TOTAL N (%) |
| GNB | MALES N(%) | FEMALE N(%) | UNKNOWN N(%) |
| *Aeromonas hydrophila* | 1 (0.02) | 0 (0.00) | 0 (0.00) | 1 (0.00) |
| *Acinetobacter baumannii* | 20 (0.35) | 25 (0.17) | 0 (0.00) | 45 (0.22) |
| *Acinetobacter lwoffii* | 1 (0.02) | 2 (0.01) | 0 (0.00) | 3 (0.01) |
| *Citrobacter fruendii* | 99 (1.76) | 91 (0.61) | 1 (4.17) | 191 (0.93) |
| *Citrobacter brakii* | 4 (0.07) | 7 (0.05) | 0 (0.00) | 11 (0.05) |
| *Citrobacter diversus* | 8 (0.14) | 26 (0.18) | 0 (0.00) | 34 (0.17) |
| *Citrobacter farmeri* | 1 (0.02) | 2 (0.01) | 0 (0.00) | 3 (0.01) |
| *Citroacter spp* | 5 (0.09) | 9 (0.06) | 0 (0.00) | 14 (0.07) |
| *citrobacter youngae* | 12 (0.21) | 18 (0.12) | 0 (0.00) | 30 (0.15) |
| *Escherichia coli* | 3,552 (62.97) | 11,129 (74.94) | 14 (58.33) | 14,695 (71.63) |
| *Escherichia vulneris* | 1 (0.02) | 0 (0.00) | 0 (0.00) | 1 (0.00) |
| *Enterobacter aerogenes* | 52 (0.92) | 141 (0.95) | 0 (0.00) | 193 (0.94) |
| *Enterobacter amnigenus 1* | 2 (0.04) | 6 (0.04) | 0 (0.00) | 8 (0.04) |
| *Enterobacter amnigenus 2* | 0 (0.00) | 4 (0.03) | 0 (0.00) | 4 (0.02) |
| *Enterobacter asburiae* | 0 (0.00) | 2 (0.01) | 0 (0.00) | 2 (0.01) |
| *Enterobacter cloacae* | 286 (5.07) | 261 (1.76) | 0 (0.00) | 547 (2.67) |
| *Enterobacter gergoviae* | 4 (0.07) | 8 (0.05) | 0 (0.00) | 12 (0.06) |
| *Enterobacter spp* | 1 (0.02) | 0 (0.00) | 0 (0.00) | 1 (0.00) |
| *hafnia alvei* | 0 (0.00) | 6 (0.04) | 0 (0.00) | 6 (0.03) |
| *Klebsiella oxytoca* | 21 (0.37) | 46 (0.31) | 0 (0.00) | 67 (0.33) |
| *klebsiella ozaenae* | 5 (0.09) | 7 | 0 (0.00) | 12 (0.06) |
| *klebsiella pneumoniae* | 1,090 (19.32) | 1,933 (13.02) | 5 (20.83) | 3,028 (14.76) |
| *Klebsiella rhinoscleromatis* | 1 (0.02) | 0 (0.00) | 0 (0.00) | 1 (0.00) |
| *Klebsiella spp* | 1 (0.02) | 3 (0.02) | 0 (0.00) | 4 (0.02) |
| *Kluyvera ascorbata* | 0 (0.00) | 1 (0.01) | 0 (0.00) | 1 ((0.00) |
| *kluyvera spp* | 15 (0.27%) | 21 (0.14) | 0 (0.00) | 36 (0.18) |
| *Morganella morganii* | 21 (0.37) | 36 (0.24) | 0 (0.00) | 57 (0.28) |
| *Pantoea agglomerans* | 1 (0.02) | 2 (0.01) | 0 (0.00) | 3 (0.01) |
| *Pantoea spp* | 14 (0.25) | 26 (0.18) | 0 (0.00) | 40 (0.19) |
| *Proteus mirailis* | 228 (4.04) | 862 (5.8) | 3 (12.50) | 1,093 (5.33) |
| *Proteus penneri* | 5 (0.09) | 3 (0.02) | 0 (0.00) | 8 (0.4) |
| *Proteus vulgaris* | 7 (0.12) | 10 (0.07) | 0 (0.00) | 17 (0.08) |
| *Proteus spp* | 0 (0.00) | 2 (0.01) | 0 (0.00) | 2 (0.01) |
| *Providencia alcalifaciens* | 0 (0.00) | 1 (0.01) | 0 (0.00) | 1 (0.00) |
| *Providencia rettgeri* | 22 (0.39) | 0 (0.00) | 0 (0.00) | 22 (0.11) |
| *Providencia rustigianii* | 1 (0.02) | 2 (0.01) | 0 (0.00) | 3 (0.01) |
| *Providencia spp* | 1 (0.02) | 0 (0.00) | 0 (0.00) | 1 (0.00) |
| *Providencia stuartii* | 8 (0.140 | 5 (0.03) | 0 (0.00) | 13 (0.06) |
| *Pseudomonas aeruginosa* | 53 (0.94) | 36 (0.24) | 1 (4.17) | 90 (0.44) |
| *Pseudomonas fluorescens* | 4 (0.07) | 5 (0.03) | 0 (0.00) | 9 (0.04) |
| *Pseudomoas luteola* | 0 (0.00) | 1 (0.01) | 0 (0.00) | 1 (0.00) |
| *Raoultella ornithinolytica* | 17 (0.30) | 37 (0.250 | 0 (0.00) | 54 (0.26) |
| *Serratia ficaria* | 9 (0.16) | 12 (0.08) | 0 (0.00) | 21 (0.10) |
| *Serratia fonticola* | 8 (0.14) | 8 (0.05) | 0 (0.00) | 16 (0.08) |
| *Serratia liquefaciens* | 13 (0.23) | 13 (0.09) | 0 (0.00) | 26 (0.13) |
| *Serratia marcescens* | 29 (0.51) | 21 (0.14) | 0 (0.00) | 50 (0.24) |
| *Serratia odorifera* | 8 (.014) | 12 (0.08) | 0 (0.00) | 20 (0.10) |
| *Serratia plymuthica* | 5 (0.09) | 7 (0.05) | 0 (0.00) | 12 (0.06) |
| *Serratia rubidaea* | 3 (0.05) | 0 (0.00) | 0 (0.00) | 3 (0.01) |
| *Stenotrophomonas maltophilia* | 2 (0.04) | 1 (0.01) | 0 (0.00) | 3 (0.01) |
| **TOTAL N(%)** | 5,641 (100) | 14,850 (100) | 24 (100) | 20,515 (100) |
| **GPC** |  |  |  |  |
| *Enterococcus faecalis* | 40 (90.91) | 227 (90.44) | 0 (0.00) | 267 (90.51) |
| *Enterococcus faecium* | 2 (4.55) | 0 (0.00) | 0 (0.00) | 2 (0.68) |
| *Enterococcus spp* | 0 (0.00) | 1 (0.40) | 0 (0.00) | 1 (0.34) |
| *Staphylococcus aureus* | 0 (0.00) | 5 (1.99) | 0 (0.00) | 5 (1.69) |
| *Staphylococcus saprophyticus* | 2 (4.55) | 9 (3.59) | 0 (0.00) | 11 (3.73) |
| *Streptococcus group B* | 0 (0.00) | 9 (3.59) | 0 (0.00) | 9 (3.05) |
| **TOTAL N(%)**  | 44 (100) | 251 (100) | 0 (0.00) | 295 (100) |

1GPC: Gram positive cocci

2GNB: gram negative bacilli

Supplementary table 2: The susceptibility patterns of tested antibiotics against ESBL positive bacteria at the MDS-lancet laboratories Ghana from 2017 to 2021

|  |  |  |
| --- | --- | --- |
| Antibiotic | ESBL+ | Total |
| S | R | N/A |
| Amikacin | 9,273 (94.61) | 522 (5.33) |  6 (0.06) | 9,801 |
| Ciprofloxacin | 1,340 (13.67) | 8,425 (85.96) | 36 (0.37) | 9,801 |
| Cotrimoxazole | 862 (8.80) | 8,791 (89.69) | 148 (1.51) | 9,801 |
| Ertapenem | 9,591 (97.86) | 203 (2.07) | 7 (0.07) | 9,801 |
| Fosfomycin | 8,937 (91.18) | 529 (5.40) | 335 (3.42) | 9,801 |
| Gentamycin | 4,108 (41.91) | 5,693 (58.09) | 0 (0.00) | 9,801 |
| Imipenem | 9,565 (97.59) | 113 (1.15) | 123 (1.25) | 9,801 |
| Meropenem | 9,601 (97.96) | 124 (1.27) | 76 (0.78) | 9,801 |
| Nitrofurantoin | 5,648 (57.63) | 4,077 (41.60) | 76 (0.78) | 9,801 |
| Tegicyclin | 7,803 (79.61) | 462 (4.71) | 1,536 (15.67) | 9,801 |

N/A: not applicable means that antibiotic was not reported for the isolate or was not available for the isolated or is not tested at all for the isolate and as such not reported.