**Supplemental Digital Content 2.** Susceptibility pattern in Norwegian invasive (blood/CSF) isolates in children (0-18 years) and adults based on sampling from the Norwegian Surveillance System for Antimicrobial Drug Resistance (NORM) 2013-2017.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Children** | | | **Adults** | | |  |
|  | **S\*, n (%)** | **I, n (%)** | **R, n (%)** | **S, n (%)** | **I, n (%)** | **R, n (%)** | **P#** |
| ***S. pneumoniae* (n=151/2674)** |  |  |  |  |  |  |  |
| Penicillin | 133 (88.1) | 16 (10.6) | 2 (1.3) | 2512 (94.2) | 148 (5.5) | 7 (0.3) | ***0.002*** |
| Erythromycin | 134 (88.7) | 0 (0.0) | 17 (11.3) | 2537 (95.1) | 0 (0.0) | 130 (4.9) | ***0.001*** |
| Clindamycin | 137 (90.7) | - | 14 (9.3) | 2571 (96.4) | - | 96 (3.6) | ***<0.001*** |
| SXT | 120 (79.5) | 4 (2.6) | 27 (17.9) | 2421 (90.8) | 75 (2.8) | 174 (6.4) | ***<0.001*** |
| Cefotaxime | 147 (97.4) | 4 (2.6) | 0 (0.0) | 2656 (99.3) | 16 (0.6) | 2 (0.1) | 1.000 |
| ***S.pyogenes* (n=93/883)** |  |  |  |  |  |  |  |
| Penicillin | 93 (100) | - | 0 (0) | 883 (100) | 0 (0) | 0 (0) | n/a |
| Erythromycin | 88 (94.6) | 0 (0.0) | 5 (5.4) | 854 (96.7) | 0 (0) | 29 (3.3) | 0.364 |
| Clindamycin | 91 (97.8) | - | 2 (2.2) | 866 (98.1) | - | 17 (1.9) | 0.701 |
| SXT | 90 (96.8) | 0 (0) | 3 (3.2) | 863 (97.7) | 3 (0.3) | 17 (1.9) | 0.428 |
| ***S. agalactiae* (n=143/895)** |  |  |  |  |  |  |  |
| Penicillin | 143 (100) | - | 0 (0) | 895 (100) | - | 0 (0) | n/a |
| Erythromycin | 96 (67.1) | 5 (3.5) | 42 (29.4) | 702 (78.4) | 40 (4.5) | 153 (17.1) | ***<0.001*** |
| Clindamycin | 107 (74.8) | - | 36 (25.2) | 791 (88.4) | - | 104 (11.6) | ***<0.001*** |
| Vancomycin | 143 (100) | - | 0 (0) | 895 (100) | - | 0 (0) | n/a |
| ***E. faecalis* (n=64/2013)** |  |  |  |  |  |  |  |
| High level gentamicin | - | 56 (87.5) | 8 (12.5) | - | 1649 (81.9) | 364 (18.1) | 0.252 |
| Ampicillin | 64 (100) | 0 (0.0) | 0 (0.0) | 2011 (99.9) | 1 (0.0) | 1 (0.0) | 1.000 |
| Imipenem | 63 (98.4) | 1 (1.6) | 0 (0.0) | 1990 (98.9) | 19 (0.9) | 4 (0.2) | 1.000 |
| Vancomycin | 64 (100) | - | 0 (0.0) | 2011 (99.9) | - | 2 (0.1) | 1.000 |
| ***S. aureus* (n=330 / 5832)** |  |  |  |  |  |  |  |
| Beta-lactamase | 89 (27.0) | - | 241 (73.0) | 1626 (27.9) | - | 4206 (72.1) | 0.719 |
| MRSA | 329 (99.7) | - | 1 (0.3) | 5789 (99.3) | - | 43 (0.7) | 0.730 |
| Gentamicin | 327 (99.1) | - | 3 (0.9) | 5809 (99.6) | - | 23 (0.4) | 0.160 |
| Erythromycin | 315 (95.5) | - | 15 (4.5) | 5571 (95.6) | 7 (0.1) | 250 (4.3) | 0.824 |
| Clindamycin | 324 (98.2) | 4 (1.2) | 2 (0.6) | 5738 (98.4) | 24 (0.4) | 70 (1.2) | 0.592 |
| SXT | 329 (99.7) | 1 (0.3) | 0 (0.0) | 5808 (99.6) | 8 (0.1) | 16 (0.3) | 1.000 |
| Ciprofloxacin | 324 (98.2) | - | 6 (1.8) | 5609 (96.2) | - | 223 (3.8) | 0.061 |
| ***E. coli* (n=212 / 9073)** |  |  |  |  |  |  |  |
| Gentamicin | 198 (93.4) | 1 (0.5) | 13 (6.1) | 8445 (93.1) | 37 (0.4) | 591 (6.5) | 0.824 |
| Ampicillin | 116 (54.7) | - | 96 (45.3) | 5133 (56.6) | - | 3940 (43.4) | 0.590 |
| Cefotaxime | 207 (97.6) | 0 (0.0) | 5 (2.4) | 8484 (93.5) | 21 (0.2) | 568 (6.3) | ***0.020*** |
| Piperacillin/tazobactam | 205 (96.7) | 6 (2.8) | 1 (0.5) | 8548 (94.2) | 346 (3.8) | 179 (2.0) | 0.197 |
| Meropenem | 212 (100.0) | 0 (0.0) | 0 (0.0) | 9071 (100.0) | 2 (0.0) | 0 (0.0) | n/a |
| Ciprofloxacin | 191 (90.1) | 5 (2.4) | 16 (7.5) | 7723 (85.1) | 175 (1.9) | 1175 (13.0) | ***0.020*** |
| SXT | 154 (72.6) | 1 (0.5) | 57 (26.9) | 6626 (73.0) | 72 (0.8) | 2375 (26.2) | 0.816 |
| ESBL | 207 (97.6) | - | 5 (2.4) | 8521 (93.9) | - | 552 (6.1) | ***0.018*** |
| ***Klebsiella spp*. (n=71 / 3897)&** |  |  |  |  |  |  |  |
| Gentamicin | 70 (98.6) | 0 (0.0) | 1 (1.4) | 3774 (96.8) | 19 (0.5) | 104 (2.7) | 1.000 |
| Cefotaxime | 67 (94.4) | 1 (1.4) | 3 (4.2) | 3726(95.6) | 19 (0.5) | 152 (3.9) | 0.756 |
| Piperacillin/tazobactam | 66 (93.0) | 3 (4.2) | 2 (2.8) | 3461 (88.8) | 288 (7.4) | 148 (3.8) | 1.000 |
| SXT | 58 (81.7) | 1 (1.4) | 12 (16.9) | 3428 (88.0) | 43 (1.1) | 426 (10.9) | 0.112 |
| Ciprofloxacin | 64 (90.1) | 1 (1.4) | 6 (8.5) | 3503 (89.9) | 117 (3.0) | 277 (7.1) | 0.663 |
| ESBL | 67 (94.4) | - | 4 (5.6) | 3747 (96.2) | - | 150 (3.8) | 0.355 |

\* S=susceptible, I=intermediate resistant, R=resistant

# Chi squared test comparing R with SI, except for S. pneumoniae/Penicillin G were we compared S with RI. Fisher`s exact test was used if any expected frequency <5

& Children: Klebsiella pneumonia (55, 77.5%), Klebsiella oxytoca (13, 18.3%), not identified species (3, 4.2%), Adults: Klebsiella pneumonia (3071, 77.4%), Klebsiella oxytoca (746, 18.8%), not identified species (151, 3.8%)