**Supplemental Table 1**: Antibiotics grouped by class

|  |  |
| --- | --- |
| *Aminoglycosides* | *Penicillins* |
| Amikacin | Amoxicillin |
| Streptomycin | Ampicillin |
| Tobramycin | Azithromycin |
| *Carbapenems* | Benzylpenicillin |
| Doripenem | Carbenicillin |
| Ertapenem | Oxacillin |
| Imipenem | Penicillin |
| Imipenem/Cilastatin | Piperacillin |
| Meropenem | Ticarcillin |
| *1st Generation Cephalosporins* | *Penicillin combinations* |
| Cefazolin | Amoxixillin/Clavulanic Acid |
| Cefalotin | Ampicillin/Sulbactam |
| *2nd Generation Cephalosporins* | Augmentin |
| Cefaclor | Piperacillin/Tazobactam |
| Cefotetan | Ticarcillin/Clavulanic Acid |
| Cefoxitin | *Polypeptides* |
| Cefuroxime | Colistin |
| Cefuroxime-Axetil | Ofloxacin |
| Cefuroxime-Sodium | Polymixin B |
| *3rd Generation Cephalosporins* | *Quinolones* |
| Cefoperazone | Cinoxacin |
| Cefotaxime | Ciprofloxacin |
| Cefpodoxime | Gatifloxacin |
| Ceftazidime | Gemifloxacin |
| Ceftizoxime | Levofloxacin |
| Ceftriaxone | Lomefloxacin |
| *4th Generation Cephalosporins* | Moxicloxacin |
| Cefepime | Nalidixic acid |
| *Lincosamides* | Norfloxacin |
| Clindamycin | *Sulfonamides* |
| Vancomycin | Sulfamethoxazole |
| *Macrolides* | Sulfamethoxazole/Trimethoprim |
| Erythromycin | Sulfisoxazole |
| *Monobactams* | *Tetracyclines* |
| Aztreonam | Doxycycline |
| *Nitrofurans* | Minocycline |
| Nitrofurantoin | Tetracycline |
| *Oxazolidinones* | *Drugs against mycobacteria* |
| Linezolid | Rifampin |
| Mezlocillin | *Others* |
|  | Chloramphenicol |
|  | Quinupristin/Dalfopristin |
|  | Trigecycline |
|  | Trimethoprim |

**Supplemental Table 2**: Risk ratios for in-hospital mortality 30 days, 90 days, and any time post-culture for patients with a positive culture relative to patients without a positive culture

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **In-hospital 30 days** | | | | **In-hospital 90 days** | | | | **In-hospital any time** | | | |
|  |  | **95% CI** | |  |  | **95% CI** | |  |  | **95% CI** | |  |
| **Organism** | **RR** | **Lower** | **Upper** | **p-value** | **RR** | **Lower** | **Upper** | **p-value** | **RR** | **Lower** | **Upper** | **p-value** |
| MDR Gram-negative bacteria |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 1.67 | 1.51 | 1.84 | <0.0001 | 1.85 | 1.70 | 2.02 | <0.0001 | 1.97 | 1.82 | 2.14 | <0.0001 |
| Invasive | 3.19 | 2.49 | 4.09 | <0.0001 | 3.08 | 2.43 | 3.90 | <0.0001 | 2.96 | 2.34 | 3.74 | <0.0001 |
| Non-invasive | 1.48 | 1.33 | 1.64 | <0.0001 | 1.64 | 1.49 | 1.80 | <0.0001 | 1.75 | 1.60 | 1.91 | <0.0001 |
| MDR *Acinetobacter* |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 3.09 | 2.46 | 3.88 | <0.0001 | 3.12 | 2.54 | 3.83 | <0.0001 | 3.04 | 2.50 | 3.70 | <0.0001 |
| Invasive | 4.99 | 2.94 | 8.48 | <0.0001 | 4.30 | 2.53 | 7.29 | <0.0001 | 3.95 | 2.33 | 6.70 | <0.0001 |
| Non-invasive | 2.70 | 2.04 | 3.55 | <0.0001 | 2.78 | 2.18 | 3.56 | <0.0001 | 2.77 | 2.20 | 3.49 | <0.0001 |
| MDR *Pseudomonas* |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 1.96 | 1.69 | 2.27 | <0.0001 | 2.06 | 1.81 | 2.35 | <0.0001 | 2.07 | 1.83 | 2.35 | <0.0001 |
| Invasive | 3.13 | 1.83 | 5.35 | <0.0001 | 2.97 | 1.80 | 4.92 | <0.0001 | 2.74 | 1.66 | 4.52 | <0.0001 |
| Non-invasive | 1.81 | 1.54 | 2.13 | <0.0001 | 1.89 | 1.63 | 2.18 | <0.0001 | 1.93 | 1.69 | 2.21 | <0.0001 |
| MDR *Enterobacteriaceae* |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 1.30 | 1.16 | 1.45 | <0.0001 | 1.46 | 1.33 | 1.61 | <0.0001 | 1.60 | 1.47 | 1.76 | <0.0001 |
| Invasive | 2.73 | 2.11 | 3.52 | <0.0001 | 2.92 | 2.33 | 3.66 | <0.0001 | 3.18 | 2.59 | 3.90 | <0.0001 |
| Non-invasive | 1.15 | 1.01 | 1.29 | <0.0001 | 1.28 | 1.15 | 1.43 | <0.0001 | 1.41 | 1.28 | 1.56 | <0.0001 |
| MRSA |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 1.76 | 1.58 | 1.97 | <0.0001 | 1.82 | 1.64 | 2.01 | <0.0001 | 1.92 | 1.75 | 2.11 | <0.0001 |
| HAI | 3.48 | 2.94 | 4.13 | <0.0001 | 3.28 | 2.80 | 3.84 | <0.0001 | 3.16 | 2.71 | 3.69 | <0.0001 |
| Colonization | 1.49 | 1.31 | 1.68 | <0.0001 | 1.58 | 1.42 | 1.77 | <0.0001 | 1.73 | 1.56 | 1.91 | <0.0001 |

Abbreviations:

*MDR* = multi-drug resistant,

RR = risk ratio

CI = confidence interval

HAI = healthcare-associated infection

MRSA = methicillin-resistant *Staphylococcus aureus*.

Definitions:

*Gram-negative* *Invasive* = culture obtained from a typically sterile site including blood, bone, bone marrow, cerebrospinal fluid, pleural fluid, peritoneal fluid, synovial fluid, lymph node

*Gram-negative* *Non-invasive* = culture obtained from a site other than those listed for invasive

*MRSA HAI* = using algorithm developed by Branch-Elliman et al (2014), culture obtained from sterile site (blood, bone, or device) or patient was treated with MRSA-active antimicrobials in the 5 days prior to or following the positive culture

*MRSA colonization* = positive culture not classified as HAI by Branch-Elliman algorithm

**Supplemental Table 3**: Risk differences for in-hospital mortality 30 days, 90 days, and any time post-culture for patients with a positive culture relative to patients without a positive culture:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **In-hospital 30 days** | | | | **In-hospital 90 days** | | | | **In-hospital any time** | | | |
|  |  | **95% CI** | |  |  | **95% CI** | |  |  | **95% CI** | |  |
| **Organism** | **Risk difference** | **Lower** | **Upper** | **p-value** | **Risk difference** | **Lower** | **Upper** | **p-value** | **Risk difference** | **Lower** | **Upper** | **p-value** |
| MDR Gram-negative bacteria |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 4.9% | 3.9% | 0.060 | <0.0001 | 7.1% | 5.9% | 8.2% | <0.0001 | 8.5% | 7.4% | 9.7% | <0.0001 |
| Invasive | 16.2% | 10.5% | 0.219 | <0.0001 | 17.2% | 11.3% | 23.1% | <0.0001 | 17.2% | 11.3% | 23.1% | <0.0001 |
| Non-invasive | 3.6% | 2.5% | 0.046 | <0.0001 | 5.3% | 4.1% | 6.4% | <0.0001 | 6.6% | 5.4% | 7.8% | <0.0001 |
| MDR *Acinetobacter* |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 17.6% | 11.8% | 0.234 | <0.0001 | 20.8% | 14.7% | 26.9% | <0.0001 | 21.8% | 15.5% | 28.0% | <0.0001 |
| Invasive | 33.7% | 11.5% | 0.559 | 0.003 | 32.3% | 10.1% | 54.5% | 0.004 | 31.4% | 9.2% | 53.6% | 0.006 |
| Non-invasive | 14.3% | 8.1% | 0.205 | <0.0001 | 17.5% | 10.9% | 24.1% | <0.0001 | 18.9% | 12.1% | 25.6% | <0.0001 |
| MDR *Pseudomonas* |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 7.9% | 5.6% | 0.101 | <0.0001 | 10.1% | 7.6% | 12.5% | <0.0001 | 11.1% | 8.5% | 13.6% | <0.0001 |
| Invasive | 17.4% | 3.7% | 0.312 | 0.013 | 18.7% | 4.6% | 32.8% | 0.009 | 17.9% | 3.8% | 32.0% | 0.013 |
| Non-invasive | 6.7% | 4.4% | 0.089 | <0.0001 | 8.4% | 5.9% | 10.9% | <0.0001 | 9.6% | 7.0% | 12.1% | <0.0001 |
| MDR *Enterobacteriaceae* |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 2.4% | 1.3% | 3.5% | <0.0001 | 4.3% | 3.0% | 5.5% | <0.0001 | 5.9% | 4.6% | 7.2% | <0.0001 |
| Invasive | 14.1% | 8.6% | 19.7% | <0.0001 | 17.7% | 11.8% | 23.7% | <0.0001 | 21.4% | 15.1% | 27.6% | <0.0001 |
| Non-invasive | 1.2% | 0.1% | 2.3% | 0.037 | 2.6% | 1.4% | 3.9% | <0.0001 | 4.0% | 2.7% | 5.3% | <0.0001 |
| MRSA |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined | 5.3% | 4.1% | 6.5% | <0.0001 | 6.7% | 5.4% | 8.0% | <0.0001 | 8.2% | 6.9% | 9.6% | <0.0001 |
| HAI | 17.2% | 13.4% | 21.1% | <0.0001 | 18.7% | 14.7% | 22.6% | <0.0001 | 19.2% | 15.2% | 23.2% | <0.0001 |
| Colonization | 3.4% | 2.2% | 4.6% | <0.0001 | 4.8% | 3.5% | 6.1% | <0.0001 | 6.5% | 5.1% | 7.8% | <0.0001 |

Abbreviations:

*MDR* = multi-drug resistant,

RR = risk ratio

CI = confidence interval

HAI = healthcare-associated infection

MRSA = methicillin-resistant *Staphylococcus aureus*.

Definitions:

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*MRSA colonization* = positive culture not classified as HAI by Branch-Elliman algorithm