**Supplemental Table S1.** Defined optimal antibiotics by pathogen

|  |  |
| --- | --- |
| Organism | Optimal Antibiotic Therapy |
| Methicillin (or penicillin)-susceptible *Staphylococcus aureus* or coagulase-negative *Staphylococcus* | PEN, CFZ, OXA, NAF (VAN if PEN allergy) |
| Methicillin-resistant *Staphylococcus aureus* or coagulase-negative *Staphylococcus* | VAN, DAP, LZD, CPT |
| *Streptococcus* spp. | PEN, CRO (CIP or VAN if PEN allergy) |
| Ampicillin and vancomycin-susceptible *Enterococcus* spp. | AMP (VAN if PEN allergy) |
| Ampicillin and vancomycin-resistant *Enterococcus* spp. | DAP, LZD |
| *Pseudomonas* spp. | FEP, CAZ, TZP |
| Pan-S Enterobacterales – *E. coli*, *Klebsiella* spp., *P. mirabilis* | CRO, CIP/LVX, SXT |
| CRO-Resistant Enterobacterales | MEM/ETP, or potentially narrower if ‘S’ |
| *Serratia*, *Providencia*, Indole + *Proteus*, *Citrobacter*, *Enterobacter*,or *Morganella* spp. | FEP, CIP, LVX, SXT |
| *Acinetobacter* spp. | SAM if ‘S’ |
| *Stenotrophomonas* spp. | SXT if ‘S’ |

PEN – Penicillin, CFZ – Cefazolin, OXA- Oxacillin, NAF – Nafcillin, VAN – Vancomycin, DAP – Daptomycin, LZO – Linezolid, CPT – Ceftaroline, CRO – Ceftriaxone, CIP – Ciprofloxacin, AMP – Ampicillin, FEP – Cefepime, CAZ – Ceftazidime, TZP – Piperacillin-tazobactam, LVZ – Levofloxacin, SXT – Trimethoprim-sulfamethoxazole, MEM – Meropenem, ETP – Ertapenem, SAM – Ampicillin-sulbactam

**Supplemental Table S2.** Pathogen distribution among ‘preliminary AST’ and ‘no preliminary AST’ groups

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Organism | Total number of patients (%)  (n=503) | Preliminary AST 2019  (n=242) | No Preliminary AST 2020  (n=261) | P-value |
| *S. aureus* | 119 (24) | 52 (21) | 67 (26) | 0.27 |
| *E. coli* | 110 (22) | 55 (23) | 55 (21) | 0.65 |
| *K. pneumoniae* | 37 (7) | 11 (5) | 26 (10) | 0.02 |
| *S. epidermidis* | 36 (7) | 18 (7) | 18 (7) | 0.81 |
| *E. faecalis* | 26 (5) | 14 (6) | 12 (4) | 0.55 |
| Others | 175 (35) | 92 (38) | 83 (32) | 0.14 |

**Supplemental Table S3.** Rates of major and very major errors

|  |  |  |
| --- | --- | --- |
| Organism | Major error [a]  n/susceptible isolates (%) | Very Major error [b]  n/resistant isolates (%) |
| ***Escherichia coli*** |  |  |
| amikacin | 0 | 0 |
| amoxicillin/clavulanate | 0 | 0 |
| ampicillin | 0 | 0 |
| cefepime | **5/52 (9.6)** | 0 |
| ceftazidime | 1/47 (2.1) | 0 |
| ceftriaxone | 0 | 0 |
| ciprofloxacin | 1/27 (3.7) | 1/25 (4) |
| ertapenem | 0 | 0 |
| gentamicin | 0 | 0 |
| levofloxacin | 0 | 0 |
| meropenem | 0 | 0 |
| piperacillin/tazobactam | 0 | 1/3 (33.3) |
| tetracycline | 0 | 0 |
| tobramycin | 0 | 0 |
| trimethoprim/sulfamethoxazole | 0 | 0 |
| ***Staphylococcus aureus*** |  |  |
| clindamycin | 0 | **9/18 (50)** |
| erythromycin | 0 | 0 |
| gentamicin | 0 | 0 |
| levofloxacin | 0 | 0 |
| linezolid | 0 | 0 |
| oxacillin/cephalosporins | 1/42 (2.4) | 0 |
| penicillin G | 0 | 0 |
| rifampin | 0 | 0 |
| tetracycline | 0 | 0 |
| trimethoprim/sulfamethoxazole | 0 | 0 |
| **Total Isolates** | 8/1,491 (0.5) | 11/332 (3.3) |

For a given bug-drug combination,

[a] represents isolate being resistant on preliminary AST but susceptible on final AST

[b] represents isolate being susceptible on preliminary AST but resistant on final AST