**SUPPLEMENTARY MATERIAL:**

**Appendix 1: Antimicrobials tracked by the University of California, San Francisco Antimicrobial Stewardship Program**

* Amikacin
* Aztreonam
* Cefepime
* Ceftaroline
* Ceftazidime
* Ceftazidime-avibactam
* Ceftolozane-tazobactam
* Daptomycin
* Doripenem
* Ertapenem
* Gentamicin
* Imipenem
* Linezolid
* Meropenem
* Piperacillin-tazobactam
* Tigecycline
* Tobramycin
* Vancomycin

**Appendix 2: Criteria for dichotomization of variables**

|  |  |
| --- | --- |
| **Variable** | **Criteria used** |
| Fever | Maximum temperature >38ºC |
| Leukocytosis | Maximum white blood cell count >10 |
| Lactic acidosis | Lactate > 2.2 mmol/L |
| Tachycardia | Maximum heart rate >= 110 beats per minute |
| Abnormal Creatinine | Maximum creatinine >= 1.0 mL/min |
| Hypotension | Minimum systolic blood pressure <= 90 mmHg |
| Abnormal INR | International normalized ratio > 1.5 |
| High CRP | CRP >= 50 |
| Acidosis | Arterial blood pH <= 7.2 |
| Abnormal urinalysis | Urinalysis microscopic analysis WBCs > 10 |

**Appendix 3a.** Predictor variables used in stepwise logistic regression

* Length of stay
* Currently in intensive care unit
* Receiving pressors
* Positive urinalysis
* Positive blood culture
* Resistant gram negative rod (Amp-C or ESBL producing) isolated
* Prior infectious diseases consult
* Number of concurrent antibiotics
* Leukocytosis
* Tachycardia
* Abnormal creatinine
* Hypotension
* Abnormal international normalized ratio
* High C-reactive protein
* Acidosis
* Fever
* Ampicillin
* Meropenem
* Clindamycin
* Daptomycin
* Linezolid
* Metronidazole
* Piperacillin-tazobactam
* Vancomycin
* Tobramycin

**Appendix 3b.** Selected predictor variables included in boosted trees model

* Positive Culture (any type)
* Day of Course
* Department (location in hospital)
* Length of Stay
* Positive urinalysis
* Alanine transferase level
* Blood glucose
* Heart rate
* International normalized ratio
* White blood cell count
* Arterial blood gas pH
* Platelet count
* Systolic blood pressure
* Number of concurrent antibiotics
* Sputum with ampC producing organism
* Sputum with gram positive rods
* Admitting service
* Maximum daily temperature
* Minimum daily temperature
* Days since last positive C difficile test
* Days since last Infectious Diseases consultation note
* Days since last pulmonary note
* Cefdinir
* Clindamycin
* Linezolid
* Meropenem
* Minocycline
* Piperacillin-tazobactam
* Rifampin
* Tobramycin
* Vancomycin