**ONLINE SUPPLEMENT**

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**Supplement Table 1. List of included antibiotic medications**

|  |  |
| --- | --- |
| **ANTIBIOTIC NAME** | **ROUTE** |
| AMIKACIN | IV |
| AMOXICILLIN | PO |
| AMOXICILLIN\_CLAVULANATE | PO |
| AMPICILLIN | IM |
| AMPICILLIN | IV |
| AMPICILLIN | PO |
| AMPICILLIN\_SULBACTAM | IV |
| AZITHROMYCIN | IV |
| AZITHROMYCIN | PO |
| AZTREONAM | IV |
| BACITRACIN | IM |
| CEFACLOR | PO |
| CEFADROXIL | PO |
| CEFAZOLIN | IV |
| CEFDINIR | PO |
| CEFEPIME | IM |
| CEFEPIME | IV |
| CEFIDEROCOL | IV |
| CEFIXIME | PO |
| CEFOTAXIME | IV |
| CEFOTETAN | IV |
| CEFOXITIN | IM |
| CEFOXITIN | IV |
| CEFPODOXIME | PO |
| CEFTAROLINE | IV |
| CEFTAZIDIME | IM |
| CEFTAZIDIME | IV |
| CEFTAZIDIME\_AVIBACTAM | IV |
| CEFTOLOZANE\_TAZOBACTAM | IV |
| CEFTRIAXONE | IM |
| CEFTRIAXONE | IV |
| CEFUROXIME | IV |
| CEFUROXIME | PO |
| CEPHALEXIN | PO |
| CIPROFLOXACIN | IV |
| CIPROFLOXACIN | PO |
| CLARITHROMYCIN | PO |
| CLINDAMYCIN | IM |
| CLINDAMYCIN | IV |
| CLINDAMYCIN | PO |
| DALBAVANCIN | IV |
| DAPTOMYCIN | IV |
| DELAFLOXACIN | PO |
| DEMECLOCYCLINE | PO |
| DICLOXACILLIN | PO |
| DOXYCYCLINE | IV |
| DOXYCYCLINE | PO |
| ERAVACYCLINE | IV |
| ERTAPENEM | IM |
| ERTAPENEM | IV |
| FIDAXOMICIN | PO |
| FOSFOMYCIN | PO |
| GENTAMICIN | IM |
| GENTAMICIN | IV |
| IMIPENEM | IV |
| IMIPENEM\_RELEBACTAM | IV |
| LEFAMULIN | PO |
| LEVOFLOXACIN | IV |
| LEVOFLOXACIN | PO |
| LINEZOLID | IV |
| LINEZOLID | PO |
| MEROPENEM | IV |
| MEROPENEM\_VABORBACTAM | IV |
| METRONIDAZOLE | IV |
| METRONIDAZOLE | PO |
| MINOCYCLINE | IV |
| MINOCYCLINE | PO |
| MOXIFLOXACIN | IV |
| MOXIFLOXACIN | PO |
| NAFCILLIN | IV |
| NEOMYCIN\_POLYMYXIN | PO |
| NITROFURANTOIN | PO |
| OMADACYCLINE | IV |
| OMADACYCLINE | PO |
| ORITAVANCIN | IV |
| OXACILLIN | IV |
| PENICILLIN |   |
| PENICILLIN | IM |
| PENICILLIN | IV |
| PENICILLIN | PO |
| PIPERACILLIN\_TAZOBACTAM | IV |
| POLYMYXIN\_B | IV |
| POLYMYXIN\_B | PO |
| STREPTOMYCIN | IV |
| TEDIZOLID | IV |
| TEDIZOLID | PO |
| TELAVANCIN | IV |
| TETRACYCLINE | PO |
| TIGECYCLINE | IV |
| TOBRAMYCIN | IV |
| TRIMETHOPRIM | PO |
| TRIMETHOPRIM\_SULFAMETHOXAZOLE | IV |
| TRIMETHOPRIM\_SULFAMETHOXAZOLE | PO |
| VANCOMYCIN | IV |
| VANCOMYCIN | PO |

**Supplement Table 2. Full adjusted model results for trends in prolonged antibiotics**

**2a. Adjusted analyses treating quarter as a continuous variable, COVID-19 with Sepsis**

|  |  |
| --- | --- |
|  | **Prolonged Antibiotics** |
| *Predictors* | *Odds Ratios* | *95% CI* | *p* |
| (Intercept) | 0.196 | 0.052 – 0.643 | **0.010** |
| Quarter [categorical, Ref=1] | 0.947 | 0.926 – 0.968 | **<0.001** |
| Encounter age [continuous] | 0.999 | 0.994 – 1.004 | 0.649 |
| sex [Male] [binary, Ref=female] | 1.093 | 0.955 – 1.253 | 0.197 |
| Hispanic, all races [categorical, Ref=Non-Hispanic White] | 0.921 | 0.757 – 1.119 | 0.407 |
| Non-Hispanic Black | 1.081 | 0.865 – 1.351 | 0.494 |
| Non-Hispanic Other, including Asian and Multi-racial | 0.749 | 0.573 – 0.977 | **0.034** |
| Hospital Site 2 [categorical, Ref= Hospital Site 1] | 0.949 | 0.728 – 1.236 | 0.698 |
| Hospital Site 3 | 0.962 | 0.809 – 1.144 | 0.662 |
| Hospital Site 4 | 0.692 | 0.553 – 0.865 | **0.001** |
| Hospital Site 5 | 0.739 | 0.600 – 0.908 | **0.004** |
| insurancetype [Medicaid] [categorical, Ref=private] | 1.095 | 0.884 – 1.357 | 0.404 |
| insurancetype [Medicare] | 0.984 | 0.842 – 1.150 | 0.840 |
| BMI <18.5 [categorical, Ref=BMI 18.5-24.9] | 1.510 | 1.057 – 2.166 | **0.024** |
| BMI >=25 & <30 | 0.988 | 0.828 – 1.180 | 0.896 |
| BMI>=30 & <35 | 0.949 | 0.774 – 1.162 | 0.609 |
| BMI >=35 | 0.859 | 0.699 – 1.054 | 0.146 |
| Elixhauser index mortality [continuous] | 1.007 | 1.002 – 1.012 | **0.010** |
| Elixhauser cancer [binary] | 1.266 | 1.013 – 1.583 | **0.038** |
| Elixhauser diabetes [binary] | 1.168 | 1.010 – 1.351 | **0.036** |
| Elixhauser lung chronic [binary] | 1.173 | 1.010 – 1.363 | **0.037** |
| Elixhauser heart failure [binary] | 1.067 | 0.888 – 1.283 | 0.486 |
| Elixhauser hypertension [binary] | 0.947 | 0.801 – 1.121 | 0.528 |
| Elixhauser renal failure [binary] | 0.942 | 0.796 – 1.115 | 0.487 |
| Elixhauser liver disease [binary] | 1.326 | 1.047 – 1.683 | **0.020** |
| Max 24 Hour temp >=96.8 & <100.4 [categorical, REF= <96.8] | 4.056 | 1.531 – 12.847 | **0.009** |
| Max 24 Hour temp >=100.4 | 6.720 | 2.521 – 21.383 | **<0.001** |
| Max 24 Hour Heart Rate >=91 & <121 [categorical, REF= >=41 &<91] | 1.214 | 1.019 – 1.449 | **0.030** |
| Max 24 Hour Heart Rate >=121 | 1.184 | 0.960 – 1.462 | 0.115 |
| Max 24 Hour Respiratory Rate >=21 & <31 [categorical, REF=>=11 & <21] | 1.320 | 1.039 – 1.681 | **0.024** |
| Max 24 Hour Respiratory Rate >=31 | 1.322 | 1.026 – 1.706 | **0.032** |
| Max 24 Hour lactate >=2 & <3 [categorical, REF= <2] | 0.806 | 0.668 – 0.972 | **0.024** |
| Max 24 Hour lactate >=3 & <4 | 0.950 | 0.722 – 1.250 | 0.711 |
| Max 24 Hour lactate cat >=4 | 0.649 | 0.506 – 0.832 | **0.001** |
| Max 24 Hour lactate missing/lactate not obtained | 0.554 | 0.465 – 0.661 | **<0.001** |
| Max 24 Hour Oxygen Device: nasal cannula [categorical, REF= none] | 1.199 | 0.711 – 2.073 | 0.504 |
| Max 24 Hour Oxygen Device: simple mask | 1.250 | 0.724 – 2.210 | 0.431 |
| Max 24 Hour Oxygen Device: oxymizer | 1.244 | 0.627 – 2.491 | 0.534 |
| Max 24 Hour Oxygen Device: advanced mask | 0.898 | 0.523 – 1.578 | 0.701 |
| Max 24 Hour Oxygen Device: high flow nasal canula | 1.641 | 0.944 – 2.918 | 0.084 |
| Max 24 Hour Oxygen Device: BIPAP | 1.311 | 0.630 – 2.745 | 0.470 |
| Max 24 Hour Oxygen Device: ventilator | 2.005 | 1.174 – 3.510 | **0.012** |
| Max 24 Hour Oxygen Device: ECMO | 181513.566 | 0.000 – NA | 0.951 |
| Min 24 Hour Systolic Blood Pressure >=90 & <121 [categorical, REF=<=89] | 0.644 | 0.547 – 0.757 | **<0.001** |
| Min 24 Hour Systolic Blood Pressure >=121 & <161 | 0.507 | 0.397 – 0.648 | **<0.001** |
| Min 24 Hour Systolic Blood Pressure cat >=161 | 0.585 | 0.114 – 2.453 | 0.478 |
| positive culture (any site) before HD 3 [binary] | 3.569 | 2.892 – 4.427 | **<0.001** |
| Observations | 4374 |
| R2 Tjur | 0.171 |

**2b. Adjusted analyses treating quarter as a continuous variable, COVID-19 without Sepsis**

|  |  |
| --- | --- |
|  | **Prolonged Antibiotics** |
| *Predictors* | *Odds Ratios* | *95% CI* | *p* |
| (Intercept) | 0.176 | 0.040 – 0.536 | **0.007** |
| Quarter [categorical, Ref=1] | 0.957 | 0.944 – 0.970 | **<0.001** |
| Encounter age [continuous] | 0.998 | 0.995 – 1.002 | 0.314 |
| sex [Male] [binary, Ref=female] | 1.299 | 1.191 – 1.417 | **<0.001** |
| Hispanic, all races [categorical, Ref=Non-Hispanic White] | 0.751 | 0.661 – 0.851 | **<0.001** |
| Non-Hispanic Black | 0.785 | 0.679 – 0.904 | **0.001** |
| Non-Hispanic Other, including Asian and Multi-racial | 0.657 | 0.546 – 0.787 | **<0.001** |
| Hospital Site 2 [categorical, Ref= Hospital Site 1] | 0.960 | 0.822 – 1.119 | 0.605 |
| Hospital Site 3 | 1.073 | 0.954 – 1.207 | 0.236 |
| Hospital Site 4 | 0.771 | 0.668 – 0.889 | **<0.001** |
| Hospital Site 5 | 1.067 | 0.944 – 1.205 | 0.297 |
| insurancetype [Medicaid] [categorical, Ref=private] | 1.053 | 0.923 – 1.200 | 0.443 |
| insurancetype [Medicare] | 1.006 | 0.907 – 1.116 | 0.904 |
| BMI <18.5 [categorical, Ref=BMI 18.5-24.9] | 1.305 | 1.035 – 1.639 | **0.023** |
| BMI >=25 & <30 | 0.827 | 0.740 – 0.923 | **0.001** |
| BMI>=30 & <35 | 0.745 | 0.652 – 0.849 | **<0.001** |
| BMI >=35 | 0.683 | 0.600 – 0.777 | **<0.001** |
| Elixhauser index mortality [continuous] | 1.005 | 1.001 – 1.008 | **0.011** |
| Elixhauser cancer [binary] | 1.709 | 1.481 – 1.971 | **<0.001** |
| Elixhauser diabetes [binary] | 1.137 | 1.029 – 1.256 | **0.012** |
| Elixhauser lung chronic [binary] | 1.244 | 1.125 – 1.375 | **<0.001** |
| Elixhauser heart failure [binary] | 1.011 | 0.881 – 1.159 | 0.876 |
| Elixhauser hypertension [binary] | 0.961 | 0.862 – 1.072 | 0.475 |
| Elixhauser renal failure [binary] | 1.067 | 0.949 – 1.199 | 0.276 |
| Elixhauser liver disease [binary] | 1.319 | 1.130 – 1.536 | **<0.001** |
| Max 24 Hour temp >=96.8 & <100.4 [categorical, REF= <96.8] | 1.926 | 0.657 – 8.350 | 0.297 |
| Max 24 Hour temp >=100.4 | 3.318 | 1.128 – 14.409 | 0.057 |
| Max 24 Hour Heart Rate >=91 & <121 [categorical, REF= >=41 &<91] | 1.060 | 0.962 – 1.169 | 0.239 |
| Max 24 Hour Heart Rate >=121 | 0.993 | 0.855 – 1.150 | 0.921 |
| Max 24 Hour Respiratory Rate >=21 & <31 [categorical, REF=>=11 & <21] | 0.957 | 0.866 – 1.057 | 0.386 |
| Max 24 Hour Respiratory Rate >=31 | 1.138 | 0.988 – 1.310 | 0.072 |
| Max 24 Hour lactate >=2 & <3 [categorical, REF= <2] | 1.148 | 0.945 – 1.390 | 0.162 |
| Max 24 Hour lactate >=3 & <4 | 1.258 | 0.918 – 1.710 | 0.148 |
| Max 24 Hour lactate cat >=4 | 1.371 | 0.970 – 1.922 | 0.070 |
| Max 24 Hour lactate missing/lactate not obtained | 0.533 | 0.485 – 0.585 | **<0.001** |
| Max 24 Hour Oxygen Device: nasal cannula [categorical, REF= none] | 1.151 | 1.045 – 1.269 | **0.004** |
| Max 24 Hour Oxygen Device: simple mask | 3.588 | 1.221 – 11.345 | **0.022** |
| Max 24 Hour Oxygen Device: oxymizer | 2.558 | 0.100 – 65.148 | 0.508 |
| Max 24 Hour Oxygen Device: advanced mask | 3.946 | 0.372 – 85.749 | 0.266 |
| Max 24 Hour Oxygen Device: high flow nasal canula | 1.002 | 0.049 – 7.394 | 0.999 |
| Max 24 Hour Oxygen Device: BIPAP | 3.320 | 0.114 – 96.406 | 0.431 |
| Max 24 Hour Oxygen Device: ventilator | 0.000 | NA – 4143737.725 | 0.939 |
| Min 24 Hour Systolic Blood Pressure cat [2] | 1.018 | 0.876 – 1.184 | 0.820 |
| Min 24 Hour Systolic Blood Pressure cat [3] | 0.887 | 0.748 – 1.054 | 0.171 |
| Min 24 Hour Systolic Blood Pressure cat [4] | 1.088 | 0.579 – 1.926 | 0.781 |
| poscx012 cl [1] | 7.512 | 6.501 – 8.693 | **<0.001** |
| Observations | 15704 |
| R2 Tjur | 0.146 |

**2c. Adjusted analyses treating quarter as a continuous variable, COVID-19 with Sepsis, Excludes Quarter 1**

|  |  |
| --- | --- |
|  | **Prolonged Antibiotics** |
| *Predictors* | *Odds Ratios* | *95% CI* | *p* |
| (Intercept) | 0.118 | 0.029 – 0.425 | **0.002** |
| Quarter [categorical, Ref=1] | 1.023 | 0.992 – 1.054 | 0.147 |
| Encounter age [continuous] | 1.000 | 0.994 – 1.006 | 0.972 |
| sex [Male] [binary, Ref=female] | 1.171 | 1.001 – 1.370 | **0.048** |
| Hispanic, all races [categorical, Ref=Non-Hispanic White] | 0.748 | 0.591 – 0.947 | **0.016** |
| Non-Hispanic Black | 0.802 | 0.611 – 1.050 | 0.110 |
| Non-Hispanic Other, including Asian and Multi-racial | 0.718 | 0.524 – 0.981 | **0.038** |
| Hospital Site 2 [categorical, Ref= Hospital Site 1] | 1.159 | 0.854 – 1.569 | 0.342 |
| Hospital Site 3 | 1.167 | 0.957 – 1.424 | 0.127 |
| Hospital Site 4 | 0.754 | 0.582 – 0.974 | **0.031** |
| Hospital Site 5 | 0.650 | 0.510 – 0.827 | **<0.001** |
| insurancetype [Medicaid] [categorical, Ref=private] | 1.100 | 0.853 – 1.418 | 0.461 |
| insurancetype [Medicare] | 0.963 | 0.804 – 1.152 | 0.679 |
| BMI <18.5 [categorical, Ref=BMI 18.5-24.9] | 1.713 | 1.148 – 2.569 | **0.009** |
| BMI >=25 & <30 | 0.957 | 0.780 – 1.173 | 0.671 |
| BMI>=30 & <35 | 0.948 | 0.751 – 1.197 | 0.655 |
| BMI >=35 | 0.872 | 0.689 – 1.103 | 0.253 |
| Elixhauser index mortality [continuous] | 1.008 | 1.002 – 1.014 | **0.010** |
| Elixhauser cancer [binary] | 1.203 | 0.940 – 1.539 | 0.142 |
| Elixhauser diabetes [binary] | 1.172 | 0.990 – 1.389 | 0.066 |
| Elixhauser lung chronic [binary] | 1.273 | 1.073 – 1.509 | **0.006** |
| Elixhauser heart failure [binary] | 1.035 | 0.840 – 1.274 | 0.749 |
| Elixhauser hypertension [binary] | 0.925 | 0.763 – 1.121 | 0.426 |
| Elixhauser renal failure [binary] | 0.957 | 0.787 – 1.164 | 0.661 |
| Elixhauser liver disease [binary] | 1.427 | 1.094 – 1.863 | **0.009** |
| Max 24 Hour temp >=96.8 & <100.4 [categorical, REF= <96.8] | 3.824 | 1.365 – 12.627 | **0.016** |
| Max 24 Hour temp >=100.4 | 5.977 | 2.114 – 19.866 | **0.001** |
| Max 24 Hour Heart Rate >=91 & <121 [categorical, REF= >=41 &<91] | 1.072 | 0.877 – 1.311 | 0.497 |
| Max 24 Hour Heart Rate >=121 | 1.016 | 0.796 – 1.296 | 0.899 |
| Max 24 Hour Respiratory Rate >=21 & <31 [categorical, REF=>=11 & <21] | 1.340 | 1.033 – 1.743 | **0.028** |
| Max 24 Hour Respiratory Rate >=31 | 1.503 | 1.137 – 1.991 | **0.004** |
| Max 24 Hour lactate >=2 & <3 [categorical, REF= <2] | 0.871 | 0.698 – 1.088 | 0.224 |
| Max 24 Hour lactate >=3 & <4 | 1.237 | 0.903 – 1.697 | 0.186 |
| Max 24 Hour lactate cat >=4 | 0.926 | 0.697 – 1.232 | 0.599 |
| Max 24 Hour lactate missing/lactate not obtained | 0.561 | 0.459 – 0.686 | **<0.001** |
| Max 24 Hour Oxygen Device: nasal cannula [categorical, REF= none] | 0.965 | 0.546 – 1.763 | 0.905 |
| Max 24 Hour Oxygen Device: simple mask | 1.140 | 0.634 – 2.118 | 0.669 |
| Max 24 Hour Oxygen Device: oxymizer | 0.944 | 0.436 – 2.055 | 0.883 |
| Max 24 Hour Oxygen Device: advanced mask | 0.921 | 0.509 – 1.719 | 0.790 |
| Max 24 Hour Oxygen Device: high flow nasal canula | 1.560 | 0.858 – 2.926 | 0.154 |
| Max 24 Hour Oxygen Device: BIPAP | 1.303 | 0.606 – 2.838 | 0.501 |
| Max 24 Hour Oxygen Device: ventilator | 1.391 | 0.774 – 2.577 | 0.281 |
| Max 24 Hour Oxygen Device: ECMO | 115499.025 | 0.000 – NA | 0.953 |
| Min 24 Hour Systolic Blood Pressure >=90 & <121 [categorical, REF=<=89] | 0.663 | 0.549 – 0.800 | **<0.001** |
| Min 24 Hour Systolic Blood Pressure >=121 & <161 | 0.540 | 0.408 – 0.713 | **<0.001** |
| Min 24 Hour Systolic Blood Pressure cat >=161 | 0.666 | 0.133 – 2.697 | 0.583 |
| positive culture (any site) before HD 3 [binary] | 4.245 | 3.342 – 5.430 | **<0.001** |
| Observations | 3339 |
| R2 Tjur | 0.169 |

**2d. Adjusted analyses treating quarter as a continuous variable, COVID-19 without Sepsis, excludes Quarter 1**

|  |  |
| --- | --- |
|  | **Prolonged Antibiotics** |
| *Predictors* | *Odds Ratios* | *95% CI* | *p* |
| (Intercept) | 0.133 | 0.030 – 0.409 | **0.002** |
| Quarter [categorical, Ref=1] | 1.014 | 0.996 – 1.032 | 0.118 |
| Encounter age [continuous] | 0.997 | 0.994 – 1.001 | 0.123 |
| sex [Male] [binary, Ref=female] | 1.318 | 1.195 – 1.453 | **<0.001** |
| Hispanic, all races [categorical, Ref=Non-Hispanic White] | 0.706 | 0.609 – 0.818 | **<0.001** |
| Non-Hispanic Black | 0.754 | 0.637 – 0.889 | **0.001** |
| Non-Hispanic Other, including Asian and Multi-racial | 0.634 | 0.513 – 0.778 | **<0.001** |
| Hospital Site 2 [categorical, Ref= Hospital Site 1] | 1.070 | 0.902 – 1.266 | 0.434 |
| Hospital Site 3 | 1.162 | 1.020 – 1.323 | **0.023** |
| Hospital Site 4 | 0.714 | 0.605 – 0.839 | **<0.001** |
| Hospital Site 5 | 0.958 | 0.832 – 1.103 | 0.551 |
| insurancetype [Medicaid] [categorical, Ref=private] | 1.071 | 0.921 – 1.243 | 0.371 |
| insurancetype [Medicare] | 1.004 | 0.893 – 1.127 | 0.953 |
| BMI <18.5 [categorical, Ref=BMI 18.5-24.9] | 1.386 | 1.079 – 1.771 | **0.010** |
| BMI >=25 & <30 | 0.784 | 0.692 – 0.887 | **<0.001** |
| BMI>=30 & <35 | 0.663 | 0.570 – 0.770 | **<0.001** |
| BMI >=35 | 0.636 | 0.551 – 0.733 | **<0.001** |
| Elixhauser index mortality [continuous] | 1.003 | 0.999 – 1.007 | 0.145 |
| Elixhauser cancer [binary] | 1.793 | 1.537 – 2.090 | **<0.001** |
| Elixhauser diabetes [binary] | 1.159 | 1.035 – 1.298 | **0.011** |
| Elixhauser lung chronic [binary] | 1.287 | 1.150 – 1.438 | **<0.001** |
| Elixhauser heart failure [binary] | 1.057 | 0.908 – 1.229 | 0.472 |
| Elixhauser hypertension [binary] | 0.961 | 0.850 – 1.086 | 0.521 |
| Elixhauser renal failure [binary] | 1.094 | 0.961 – 1.246 | 0.174 |
| Elixhauser liver disease [binary] | 1.410 | 1.190 – 1.666 | **<0.001** |
| Max 24 Hour temp >=96.8 & <100.4 [categorical, REF= <96.8] | 1.832 | 0.626 – 7.897 | 0.334 |
| Max 24 Hour temp >=100.4 | 2.850 | 0.969 – 12.325 | 0.096 |
| Max 24 Hour Heart Rate >=91 & <121 [categorical, REF= >=41 &<91] | 1.058 | 0.950 – 1.179 | 0.306 |
| Max 24 Hour Heart Rate >=121 | 1.032 | 0.874 – 1.217 | 0.706 |
| Max 24 Hour Respiratory Rate >=21 & <31 [categorical, REF=>=11 & <21] | 0.958 | 0.858 – 1.069 | 0.442 |
| Max 24 Hour Respiratory Rate >=31 | 1.025 | 0.868 – 1.207 | 0.772 |
| Max 24 Hour lactate >=2 & <3 [categorical, REF= <2] | 1.218 | 0.980 – 1.510 | 0.073 |
| Max 24 Hour lactate >=3 & <4 | 1.500 | 1.062 – 2.101 | **0.020** |
| Max 24 Hour lactate cat >=4 | 1.355 | 0.926 – 1.961 | 0.112 |
| Max 24 Hour lactate missing/lactate not obtained | 0.544 | 0.489 – 0.605 | **<0.001** |
| Max 24 Hour Oxygen Device: nasal cannula [categorical, REF= none] | 1.098 | 0.982 – 1.226 | 0.101 |
| Max 24 Hour Oxygen Device: simple mask | 3.237 | 0.998 – 10.828 | **0.050** |
| Max 24 Hour Oxygen Device: oxymizer | 0.000 | NA – 6094966089435.234 | 0.957 |
| Max 24 Hour Oxygen Device: advanced mask | 386381.830 | 0.000 – NA | 0.948 |
| Max 24 Hour Oxygen Device: high flow nasal canula | 1.067 | 0.053 – 7.858 | 0.955 |
| Max 24 Hour Oxygen Device: BIPAP | 3.445 | 0.110 – 108.200 | 0.436 |
| Max 24 Hour Oxygen Device: ventilator | 0.000 | NA – 13564024706261.348 | 0.960 |
| Min 24 Hour Systolic Blood Pressure >=90 & <121 [categorical, REF=<=89] | 1.012 | 0.858 – 1.196 | 0.892 |
| Min 24 Hour Systolic Blood Pressure >=121 & <161 | 0.885 | 0.733 – 1.070 | 0.204 |
| Min 24 Hour Systolic Blood Pressure cat >=161 | 0.985 | 0.477 – 1.860 | 0.965 |
| positive culture (any site) before HD 3 [binary] | 8.139 | 6.956 – 9.538 | **<0.001** |
| Observations | 13470 |
| R2 Tjur | 0.149 |

**Supplement Table 3. Summary of results of models for receipt of any initial antibiotics**

|  |  |  |
| --- | --- | --- |
|  | **With Sepsis** | **Without Sepsis** |
| **Entire Study Period (Q1-11)** |
|  | Crude model, IRR (95%CI) | 0.976 (0.965-0.986)\* | 0.972 (0.965-0.980)\* |
|  | Adjusted model, OR (95%CI) | 0.932 (0.910-0.955)\* | 0.968 (0.956-0.979)\* |
| **Excluding Quarter 1 (Q2-11)** |
|  | Crude model, IRR (95%CI) | 1.016 (1.000-1.033) | 1.008 (0.997-1.019) |
|  | Adjusted model, OR (95%CI) | 1.030 (0.997-1.063) | 1.015 (1.000-1.031) |

**\*Indicates statistical significance p<0.001**

**Supplement Figure 1. Adjusted Rates of Initial Antibiotics in Hospitalized COVID-19 Patients Presenting With (A) vs. Without (B) Signs of Sepsis**  ****

**Supplement Figure 2. Crude and Adjusted Rates of Early (hospital day -1 to 2) Microbiologic Culture including Blood, Sputum, or Urine in Hospitalized COVID-19 Patients Presenting With vs Without Signs of Sepsis**

