Background. Concerns about antibiotic resistance are exacerbated in COVID-19 patients due to frequent co-morbidities, increased mechanical ventilation and reusable equipment, conservation of PPE, and strain on hospital staff. We described cases with co-infection of carbapenem-resistant organisms (CRO) and SARS-CoV-2 and compared rates in the Massachusetts population.

Methods. All providers and hospitals are required to report CROs and SARS-CoV-2 to the Massachusetts Virtual Epidemiologic Network (MAVEN). We selected cases with both a positive SARS-CoV-2 test and a laboratory confirmed CRO from January through July 2020. We classified by which result occurred first and described demographic and clinical characteristics. We standardized the CRO case definition by excluding CR-Pseudomonas aeruginosa and calculated rates per 100,000 to assess the impact of SARS-CoV-2 on the population-based frequency of CROs. Analyses were conducted in SAS 9.4.

Results. 28 confirmed cases of SARS-CoV-2 infection were also diagnosed with a CRO. They were an average age of 71.8, 60.7% male, 67.9% white, and 64.3% were in congestive care prior to their diagnoses. Mortality was 5/28 (17.9%). The CR (82.1%) with a positive SARS-CoV-2 resulted first were all hospitalized at least one quarter to 40% in the CRO first group (p=0.003). 11 (47.8%) of the SARS-CoV-2 first were already admitted when they tested CRO positive; 7 (30.4%) were admitted for the CRO separately from COVID-19 treatment. None of the CRO first group were admitted for CRO infection. Average length of stay for the SARS-CoV-2 first group was higher than the CRO first group (62.3 days vs 11.0 days; p=0.049). Cases positive for CRO first were all infected with CR-Escherichia coli whereas those positive for SARS-CoV-2 first were infected with CRAB, CRPA, or a CRE (Klebsiella oxytoca or Klebsiella pneumoniae) (p< 0.0001).

Conclusions. Characteristics of individuals co-infected with CRO and SARS-CoV-2 differed by which diagnosis was made earlier. The SARS-CoV-2 pandemic did not impact the CRO population rate during the time frame studied.

Disclosures. All Authors: No reported disclosures

285. Outcomes and Antibiotic Use in Patients with COVID-19 Admitted to an Intensive Care Unit
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Session: P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

Background. The 2019 coronavirus SARS-CoV-2 continues to affect global population health. Patients with severe disease that require hospitalization due to COVID-19 pneumonia remain at further risk of bacterial co-infections. There is limited evidence suggesting up to 3.5% bacterial co-infection upon admission and up to 13.5% of secondary infections after hospitalization for pneumonia yet antibacterial therapy continues to be frequently used in both indications but it appears that it is often unnecessary.

Methods. A single-center retrospective chart review was conducted in a community-based health system. A total of 65 patients were included with 35.4% being CxP. ABX were discontinued within 24 hours in 20.8% of patients; however, the rate of ABX overuse is concerning.

Results. A total of 175 patients were included in the influenza group while 1411 were included in the COVID-19 group. The percent of inpatients with positive bacterial respiratory cultures were 12% in both influenza and COVID-19 group. Although not significantly different, the highest rate of adverse events occurred in the CxN group (62.3% vs 11.0%; p=0.049). Cases positive for CRO first were all infected with CR-Escherichia coli whereas those positive for SARS-CoV-2 first were infected with CRAB, CRPA, or a CRE (Klebsiella oxytoca or Klebsiella pneumoniae) (p< 0.0001). The rate of CRO/COVID coinfection was 0.203 per 100.000 population; the rates for January through July of CRO alone were 2.5 per 100,000 in 2020 and 2.4 per 100,000 in 2019.

Conclusions. Characteristics of individuals co-infected with CRO and SARS-CoV-2 differed by which diagnosis was made earlier. The SARS-CoV-2 pandemic did not impact the CRO population rate during the time frame studied.

Disclosures. All Authors: No reported disclosures
In ICU patients with COVID-19, empiric broad-spectrum ABX compared to those without a co-infection, respectively.

Results. A total of 238 patients met eligibility criteria during the observation period, of which 25.6% (n = 61) developed a bacterial, fungal, or viral co-infection. Culture-positive bacterial complications were seen in 21.8% (n = 52) with 32.8% (n = 20) having a multidrug resistant organism (MDRO). There was a statistically significant difference between COVID-19 patients with co-infection and those without for intubation (p < 0.001), vasopressor use (p < 0.001), and renal replacement therapy (p = 0.001). COVID-19 patients with co-infections had a longer mean length of stay (21.9 days vs 13.5 days, p < 0.001) and greater mortality (32.8% vs 20.6%, p = 0.006) compared to those without a co-infection, respectively.

Mean antimicrobial utilization for the entire hospital population was 790.6 DOT during the COVID surge compared to 928.7 DOT during a 6-month period preceding the COVID surge (p < 0.001). For all COVID-19 patients, antimicrobial utilization was 846.9 DOT; however, this increased to 1236.4 DOT for COVID-19 patients with co-infections.

Table 1. Demographics

| Complications, n (%) | Sample (n=238) | Co-infection (n=61) | P-value |
|----------------------|----------------|-------------------|---------|
| Respiratory Support  | 193 (81.8)     | 53 (86.9)         | 0.180   |
| Intubation           | 66 (27.7)      | 34 (55.7)         | < 0.001*|
| Vasopressors         | 58 (24.4)      | 32 (52.5)         | < 0.001*|
| Renal Replacement Therapy | 48 (20.2) | 21 (34.4) | 0.001* |
| Length of hospital stay, mean (± SD) | 13.53 ± 12.9 | 21.92 ± 18.2 | <0.001* |
| Deceased             | 49 (20.6)      | 20 (32.8)         | 0.006*  |

Table 2. Clinical Outcomes and Adverse Events in ICU Patients with COVID-19

| Clinical Outcome, n (%) or median (IQR) | Sample (n=20) | Co-infection (n=5) | P-value |
|----------------------------------------|---------------|-------------------|---------|
| Antibiotics ≤ 72 h                     | 10 (50.0)     | 4 (80.0)          | 0.053   |
| Antibiotics ≥ 72 h                     | 10 (50.0)     | 1 (20.0)          |         |
| ICU mortality                          | 5 (25.0)      | 3 (60.0)          |         |
| Time from Antibiotic Start (days)      | 7 (5-18)      | 9 (5-18)          | 0.14    |
| Time to ICU Discharge from Antibiotic Start (days) | 8.5 (4-15) | 11.5 (5-21) | 0.45 |
| Time to Hospital Discharge or Death from Antibiotic Start (days) | 12.5 (10-14) | 18.5 (5-23-5) | 0.29 |

Table 2. Antimicrobial Utilization in COVID-19 Patients

| Antibiotics | Sample (n=238) | Co-infection (n=61) | P-value |
|-------------|----------------|---------------------|---------|
| DOT per 1000-patient-days | 946.9 | 1226.4 | 570.4 |
| Mean Days of Antimicrobial Use | 6.8 | 9.75 | 5.91 |
| Median Days of Antimicrobial Use | 5 | 6 | 4 |

Conclusion. Although hospital-wide antimicrobial utilization had decreased during the COVID surge, COVID-19 patients with co-infections demonstrated a disproportionate use of antimicrobials as well as ICU resources. As MDRO infections were relatively common, antimicrobial stewardship should be prioritized in the COVID-19 population.

287. Characteristics and Outcomes of COVID-19 Patients with Candidemia

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Session: P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

Background. Hospitalized patients with COVID-19 have created increased demands on health care infrastructure and resources. Bacterial and fungal infections have been reported and have increased the need for antimicrobial utilization. We performed a retrospective chart review to characterize bacterial infections and antibiotic utilization during the COVID-19 surge at our tertiary care center.

Methods. All patients diagnosed with COVID-19 using SARS-CoV-2 PCR admitted to MedStar Georgetown University Hospital from 01Mar2020 through 31Aug2020 were included in the analysis. Data was collected on hospital-wide antimicrobial utilization [mean days of therapy per 1000-patient-days (DOT)] during the 6-month surge and was compared to antimicrobial utilization during a 6-month period preceding the COVID-19 surge. Clinical and microbiological data and patient outcomes were also collected and analyzed.

Results. A total of 238 patients met eligibility criteria during the observation period, of which 25.6% (n = 61) developed a bacterial, fungal, or viral co-infection. Culture-positive bacterial complications were seen in 21.8% (n = 52) with 32.8% (n = 20) having a multidrug resistant organism (MDRO). There was a statistically significant difference between COVID-19 patients with co-infection and those without for intubation (p < 0.001), vasopressor use (p < 0.001), and renal replacement therapy (p = 0.001). COVID-19 patients with co-infections had a longer mean length of stay (21.9 days vs 13.5 days, p < 0.001) and greater mortality (32.8% vs 20.6%, p = 0.006) compared to those without a co-infection, respectively.

Mean antimicrobial utilization for the entire hospital population was 790.6 DOT during the COVID surge compared to 928.7 DOT during a 6-month period preceding the COVID surge (p < 0.001). For all COVID-19 patients, antimicrobial utilization was 846.9 DOT; however, this increased to 1236.4 DOT for COVID-19 patients with co-infections.