P=0.28). Mortality was nonsignificantly higher in patients with (15/43, 34.9%) vs. without (108/426, 25.4%) bacteremia (P=0.20). Length of stay was the strongest predictor of bacteremia, with risk increasing by 7% (95%CI 6%-9%, P< 0.001) per additional day.

Cohort Characteristics of Patients with Severe COVID-19 Pneumonia on High-Flow O2 (N= 469)

Table 1: Patient Characteristics (N=469)

Characteristic	Value
Age, years	61 (50-73)
Female	166 (35.4%)
White	249 (53.1%)
Black	31 (6.6%)
Asian	29 (6.2%)
Hispanic	158 (33.7%)
Body mass index, kg/m^2	29.3 (26.1, 33.9)
Duration of symptoms, days	7.0 (3.5, 9.0)
O_2 saturation, %	91 (87, 93)
Temperature, °C	38.1 (37.5, 39.0)
Hypertension	265 (56.5%)
Diabetes	155 (33.1%)
Coronary artery disease	71 (15.1%)
Atrial fibrillation	58 (12.4%)
Chronic lung disease	49 (10.4%)
Chronic kidney disease	48 (10.2%)
Congestive heart failure	45 (9.6%)
Asthma	36 (7.7%)
Immunocompromised	35 (7.5%)
Statins	180 (38.4%)
Angiotensin-converting enzyme inhibitors	74 (15.8%)
Angiotensin receptor blockers	73 (15.6%)
NT-proBNP pg/mL	205 (56, 991)
Troponin, ng/mL	0.01 (0.01, 0.01)
Creatine phosphokinase, IU/L	163 (80, 375)
Erythrocyte sedimentation rate, mm/h	54 (31, 80)
C-reactive protein, mg/dL	11.9 (6.4, 19.3)
D-Dimer, ng/mL	362 (241, 747)
Procalcitonin, ng/mL	0.21 (0.13, 0.49)
Ferritin, ng/ml	919 (489, 1534)
Lactate dehydrogenase, IU/L	407 (305, 538)
Interleukin-6, pg/mL	63 (30, 112)
Lymphocyte count, K/uL	0.8 (0.6, 1.1)
Creatinine, mg/dL	1.0 (0.8, 1.3)
Alanine transaminase, IU/L	34 (21, 55)
Aspartate aminotransferase, IU/L	46 (32, 70)
International normalized ratio	1.2 (1.1, 1.3)
Corrected QT interval on ECG, ms	437 (418, 460)

Values are N (%) or median (25th, 75th percentile)

All Microorganisms Isolated from Blood Cultures

Table 2. Distribution of Microorganisms in Positive Blood Cultures

True pathogens		Possible contaminants	
Enterococcus faecalis	8	*Coagulase negative Staphylococci*	
Moraxella osloensis	1	*Staphylococcus epidermidis*	40
Escherichia coli MDR	1	*Staphylococcus hominis*	19
Candida albicans	3	*Staphylococcus pettenkoferi*	3
Staphylococcus aureus (MSSA)	2	*Staphylococcus simulans*	1
Candida parapsilosis	2	*Staphylococcus warneri*	1
Candida tropicalis	1	*Staphylococcus caprae*	1
Klebsiella pneumoniae MDR	2	*Staphylococcus cohnii*	1
Staph lugdunensis	2	*Staphylococcus haemolyticus*	1
Strep pneumoniae	1	*Staphylococcus capitis*	3
Klebsiella (enterobacter) aerogenes	1	*Corynobacterium spp*	2
Pseudomonas oryzihabitans	1	*Dermabacter hominis*	1
Eggerthella lenta *	1	*Actinomyces oris*	1
Peptoniphilus harei *	1	*Bacillus spp, not anthracis*	2
*Bacteroides vulgatus group**	1	*Micrococcus*	1

* All isolated from an 81-year old female with intrabdominal abscess

Conclusion: The incidence of bacteremia was relatively low and IE was uncommon in this study of severe COVID-19 patients. Risk of bacteremia increased with longer hospital stay and with steroids use, but not with tocilizumab.

Disclosures: **All Authors**: No reported disclosures

54. Microbiologic Characterization and Antibacterial Use in Hospitalized Adults with covid-19 Infection

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Session: O-11. COVID-19 Clinical Calls and Indicators 1

Background: Coronavirus disease 2019 (CoVID-19) admissions, oft complicated by an uncertain trajectory, lent to treatment influenced by supposition. Respiratory bacterial co-infection frequently was invoked. The purpose of this study was to determine the respiratory pathogen distribution and antibiotic prescribing patterns in hospitalized patients with CoVID-19.

Methods: Patients with a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) ICD-10 code and/or positive polymerase chain reaction (PCR) hospitalized between March 1 and May 31, 2020 were included. Antibiotic utilization (patient days of therapy-pDOT) was collected for the institution during this period and two years prior. Respiratory microbiologic cultures were reviewed to examine the frequency of co-infection on presentation, categorized as within 3 calendar days from admission or afterward. The relationship of antibiotic utilization to positive cultures was also categorized.

Results: Of the 7,969 encounters, 829 were ICD-10 coded and/or confirmed SARS-CoV-2 PCR positive and 196 (23.6%) had positive respiratory cultures. 89.8% of patients had endotracheal samples, the rest were isolated from sputum or bronchoalveolar lavage (17.4% and 6.6%, respectively). Patients were more likely to isolate commensal respiratory flora (108 versus 78 patients within the first 3 days of presentation. Notable isolates such as *Staphylococcus aureus* and *Pseudomonas aeruginosa*, were more often isolated after 3 days of hospitalization. While the CoVID-19 average hospital census was only 14.7% of the total, antibiotic utilization, (pDOT/1000) was 2.3 times higher, 831.9 versus 368.3 across the institution. During similar periods in 2018 and 2019, days of therapy overall were lower. For CoVID-19 infected patients, the frequency of antibiotic initiation was 73.2%. The length of therapy was on average 8 days with a high rate of observed restarts.

Table 1: Patient characteristics for CoVID-19 infected patients admitted during March 1 to May 31, 2020

	N=829
Sex, male n (%)	410 (49.5)
Age, years (SD)	64.9 (17.9)
PCR positive, n (%)	819 (98.8)
Race	
• White	314 (37.9)
• Black	208 (25.1)
• Hispanic	151 (18.2)
• Asian/Pacific Islander	41 (4.9)
• Other	38 (4.6)
• Unknown	77 (9.3)
Hospital admission in last 90 days, n (%)	112 (13.5)
Comorbid conditions, n (%)	
• Hypertension	330 (39.8)
• Diabetes Mellitus	341 (41.1)
• Congestive Heart Failure	159 (19.2)
• Chronic Obstructive Pulmonary Disorder	84 (10.1)
• Obese	161 (19.4)
• End Stage Renal Disease	54 (6.5)
• HIV	2 (0.2)
Events after admission	
Length of stay, days median (IQR)	6 (2-13)
C diff PCR + during hospital stay	29 (3.5)
Inpatient mortality/discharge to hospice	171 (20.6)

Figure 1: Positive respiratory pathogen culture results for CoVID-19 encounters (March 1-May 31, 2020)

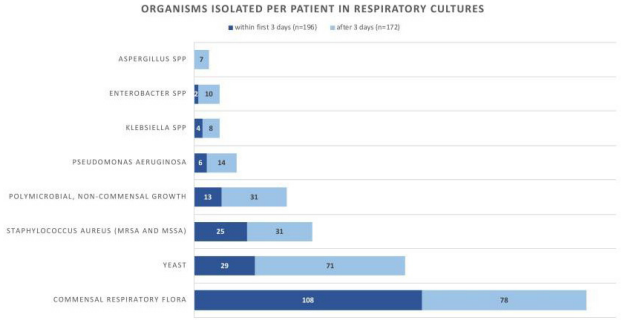

Table 2: Prevalence and select types of antibiotics administered to CoVID-19 patients. (March 1-May 31, 2020)

Receipt of antibiotic during hospitalization, n (%)	N=829
Any below antibiotic	607 (73.2)
Ceftriaxone	415 (50)
Vancomycin/linezolid	273 (32.9)
Anti-pseudomonal beta-lactam	262 (31.6)
Macrolide	262 (31.6)
Levofloxacin	40 (4.8)

Conclusion: Bacterial co-infection in an acute viral process is generally low. In this examination of CoVID-19 infected patients, the rate of any positive respiratory culture was 23.6%. A disproportionate effect on the volume of antibiotics and total days of therapy prompted an interest in early stewardship efforts and education.

Table 3: Antibiotic consumption (patient days of therapy) for CoVID-19 encounters (March 1-May 31, 2020) compared to total consumption during identical time periods in 2018, 2019, and 2020

		2020	2019	2018
Total hospital days*	--	54394	63507	62641
	Covid-19 DOT/1000	Average DOT/1000 patient days		
Total Antibiotic	831.9	368.3	281.7	274.7
Vancomycin	190.8	74.9	50.9	57.5
Ceftriaxone	184.1	102.7	72.8	67.5
Cefepime	170.2	79.0	62.7	58.0
Azithromycin	97.5	18.4	13.8	15.0
Ceftazidime	67.5	21.5	14.2	15.9
Meropenem	64.4	28.7	22.4	17.7
Levofloxacin	23.1	7.9	9.6	8.4
Piperacillin-tazobactam	22.9	30.3	32.2	31.5
Linezolid	11.4	4.8	3.1	3.1

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55. Diabetes, Obesity and COVID-19 Disease: An Observational Study of Outcomes Among Hospitalized Patients in Boston, Massachusetts

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Background: In the United States, diabetes mellitus (DM) is among the most common chronic diseases, with approximately 34.2 million people affected. DM has also emerged as a commonly reported risk factor among people hospitalized with coronavirus disease 2019 (COVID-19). In this study, we sought to evaluate whether people with DM who are hospitalized with COVID-19 were more likely to experience poor early outcomes and whether this association remained after adjustment for obesity status.

Methods: We analyzed data from the Massachusetts General Hospital (MGH) COVID-19 Data Registry. The sample included 450 people with PCR-confirmed SARS-CoV-2 infection who were hospitalized at MGH between March 11, 2020 and April 30, 2020. The primary outcomes were (1) admission to the intensive care unit (ICU) and (2) need for mechanical ventilation or death, both within 14 days of presentation to care. Data were obtained by manual chart review and via an EMR-associated database. Logistic regression was used to evaluate the relationship between diabetes and these outcomes. All models were adjusted for age, sex, race, BMI category and key comorbidities.

Results: In this study, 178 (39.6%) of 450 participants had DM and 346 (76.9%) were overweight or obese. People with DM were on average older and had a higher BMI than those without DM. A higher percentage of patients with DM were admitted to the ICU (42.1% vs 29.8%, p=0.007) and required mechanical ventilation or died (46.6% vs 27.7%, p< 0.001), compared with patients without DM (Figure 1). In adjusted models, DM was associated with a greater odds of ICU admission (aOR: 1.58 [95% CI: 1.01–2.46]) and mechanical ventilation or death (2.15 [1.38–3.34). Obesity was associated with a greater odds of ICU admission (2.15 [1.20–3.86]) but not with mechanical ventilation or death (1.52 [0.87–2.67]). Table 1 provides the model results in full.

Figure 1. ICU Admission and mechanical ventilation or death within 14-days by diabetes status among 450 people hospitalized with COVID-19

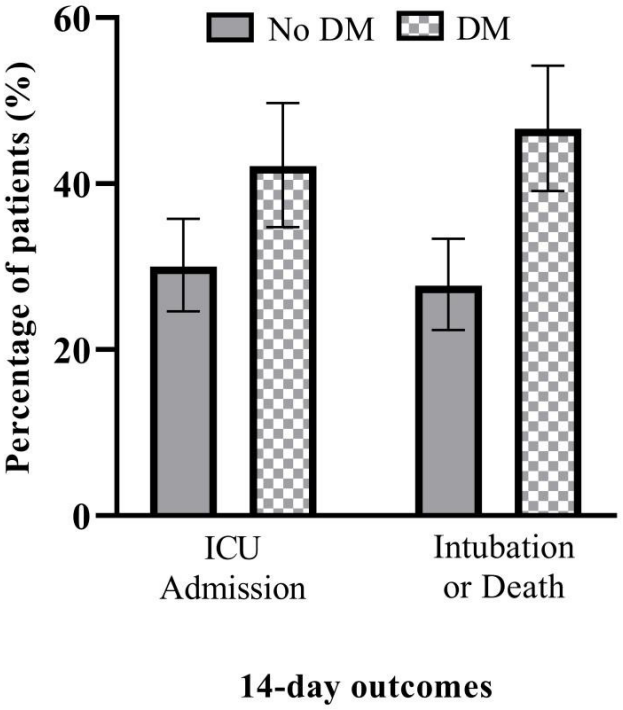

Table 1. Multivariable logistic regression analysis of 14-day outcomes among 450 hospitalized people with COVID-19.

	ICU Admission	Mechanical Ventilation or Death
N	436	436
Characteristic	OR (95% CI)	OR (95% CI)
Diabetes	1.58 (1.01-2.46)	2.15 (1.38-3.34)
BMI Category		
Overweight	1.42 (0.78-2.58)	0.96 (0.54-1.70)
Obese	2.15 (1.20-3.86)	1.52 (0.87-2.67)
Age		
50-59	1.12 (0.57-2.19)	0.95 (0.48-1.90)
60-69	1.20 (0.60-2.40)	1.01 (0.50-2.04)
≥70	1.38 (0.71-2.66)	2.00 (1.03-3.89)
Male	1.37 (0.88-2.12)	1.61 (1.04-2.50)
Race/ethnicity		
Hispanic	1.56 (0.93-2.76)	1.40 (0.81-2.42)
African American	1.35 (0.62-2.94)	0.98 (0.44-2.17)
Other	2.29 (0.76-6.92)	1.07 (0.33-3.46)
Unknown/missing	2.74 (1.38-5.46)	1.53 (0.77-3.06)
CAD or MI	0.62 (0.33-1.17)	0.61 (0.33-1.12)
CHF	1.65 (0.77-3.50)	1.40 (0.67-2.92)
COPD/Asthma	0.70 (0.39-1.11)	0.58 (0.35-0.97)
Cancer (active)	0.60 (0.18-1.93)	0.84 (0.30-2.36)
Liver disease	1.13 (0.57-2.23)	0.91 (0.45-1.82)
Renal disease	0.89 (0.49-1.62)	1.09 (0.61-1.93)

Reference groups: "No disease" for diabetes and all comorbidities, normal weight for BMI category, age <50, female sex, Non-Hispanic White for race/ethnicity. Events per outcome: 156 people were admitted to the ICU, 129 people were mechanically ventilated, 49 people died within 14 days of presentation to care. BMI categorization (kg/m^2): <18.5 kg/m^2 for underweight, >18.5– 24.9 kg/m^2 for normal weight, >25.0 – 29.9 kg/m^2 for overweight and >30.0 kg/m^2 for obese.

Conclusion: Diabetes was associated with poor outcomes within 14-days of presentation to care for COVID-19. These findings remained after adjustment for obesity. Our findings can help guide risk mitigation efforts and patient-centered care decision making for people with DM and obesity, particularly in areas of the US that have a high prevalence of DM and obesity and are in early phases of the SARS-CoV-2 outbreak.

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