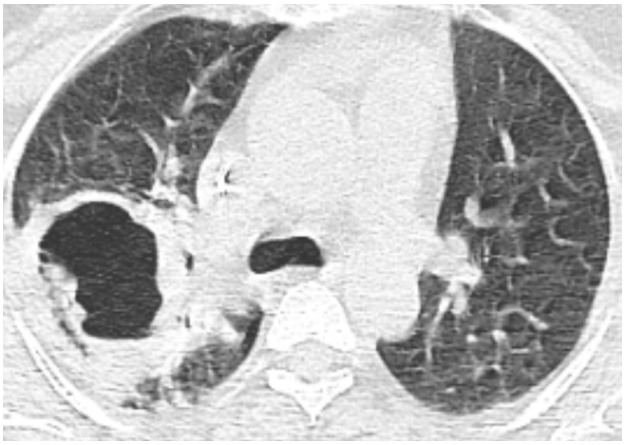
Figure 5. Bird's nest



Axial CT chest image in lung window shows necrotic right upper lobe cavity with internal septations and debris on a background of surrounding COVID-19 changes.

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

327. Assessment of Bacterial Co-infection Rates and Antibiotic Exposure in COVID-19 Patients

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

Background. COVID-19 pandemic data suggest risk for bacterial co-infection upon hospital presentation remain extremely low. Despite low co-infection rates, antibiotics are prescribed for most patients. Current data are limited regarding institutional-specific change in antibiotic use over the course of the pandemic. Given the low rates of co-infections, Saint Luke's Health System's COVID-19 Treatment Taskforce developed a COVID-19 evaluation and treatment order set which included procalcitonin (PCT) . As co-infection literature emerged, active education was provided, and order sets were modified to provide passive education regarding co-infection rates. We aimed to assess antibiotic practice changes as data and strategies to influence use evolved during the pandemic.

Methods. This was a multi-center, single health-system retrospective cohort study. Ten community hospitals and 1 academic medical center were included in analysis. Inclusion criteria were age ≥18 years, admitted during April or September 2020 and had a positive COVID-19 result on admission. Patients were excluded if they were readmitted for COVID-19 related issues. Both primary and secondary outcomes were analyzed from the first 7 days after admission. The primary outcome was rate of respiratory bacterial co-infections. This was determined through sputum and blood cultures, urinary antigens including *Streptococcus pneumoniae* and Legionella, and PCT. Secondary outcomes included rate of antibiotic use, antibiotic days of therapy (DOT), length of therapy, and antibiotic use trends.

Baseline Characteristics

Table 1-Baseline Characteristics and Inpatient Laboratory Results

	Total	Month		
	n = 294	April n = 69	September n = 225	P-Value
Age	65.4 ± 17.6	66.4 ± 15.7	65.1 ± 18.2	0.587
Sex Female	131 (44.6%)	26 (37.7%)	105 (46.7%)	0.188
BMI (kg/m^2)	31.3 ± 12.0	29.8 ± 8.2	31.8 ± 13.0	0.236
Charlson Co-morbidity Index	4.0 (2.0, 6.0)	4.0 (2.0, 5.0)	4.0 (2.0, 6.0)	0.622 W
Hospital Length of Stay (days)	6.0 (3.0, 9.0)	7.0 (4.0, 13.0)	5.0 (3.0, 8.0)	0.010 W
Average Serum Creatinine (mg/dL)	0.9 (0.7, 1.3)	1.0 (0.8, 1.5)	0.9 (0.7, 1.3)	0.047 W
Creatine Clearance (mL/min)	72.4 (41.3, 107.5)	72.4 (34.1, 89.8)	72.3 (41.8, 111.8)	0.192 W
White blood cells	8.1 (6.0, 10.9)	7.3 (5.4, 10.2)	8.4 (6.1, 11.1)	0.067 W
Admission Procalcitonin	0.1 (0.0, 0.3)	0.2 (0.1, 0.8)	0.1 (0.0, 0.2)	0.014 W
Streptococcus Pneumoniae Urine Antigen	4 (2.1%)	1 (2.2%)	3 (2.0%)	0.955
Legionella Urine Antigen Positive Negative Not Tested	2 (0.7%) 282 (99.3%)	0 (0.0%) 69 (100.0%)	2 (0.9%) 223 (99.1%)	0.431
Clostridioides difficile Positive Negative Not Tested	5 (19.2%) 21 (80.8%) 268	1 (7.1%) 13 (92.9%) 55	4 (33.3%) 8 (66.7%) 213	0.091
Gastrointestinal Panel Positive Negative Not Tested	2 (8.3%) 22 (91.7%) 270	0 (0.0%) 11 (100.0%) 58	2 (15.4%) 11 (84.6%) 212	0.174
Sputum Culture Positive Negative Not Tested	10 (55.6%) 8 (44.4%) 276	5 (55.6%) 4 (44.4%) 60	5 (55.6%) 4 (44.4%) 216	1.000
Urine Culture Positive Negative Not Tested	28 (39.4%) 43 (60.6%) 223	4 (21.1%) 15 (78.9%) 50	24 (46.2%) 28 (53.8%) 173	0.055
Wound Culture Positive Negative Not Tested	1 (33.3%) 2 (66.7%) 291	1 (100.0%) 0 (0.0%) 68	0 (0.0%) 2 (100.0%) 223	0.083
Blood Cultures Positive Negative Not Tested	26 (14.2%) 157 (85.8%) 111	7 (13.7%) 44 (86.3%) 18	19 (14.4%) 113 (85.6%) 93	0.907
Continuous variables compared using Student's T-test. Categorical variables compared using chi-square test. (Except as noted: W = Wilcoxon rank-sum test)				

Results. A total of 294 patients were included with 69 patients in April 2020 and 225 in September 2020. Primary and secondary results are shown in Table 2. Rate of culture-confirmed bacterial co-infection when examining April 2020 was 4.38% and 4.44 % in September 2020. Antibiotic uses, antibiotic DOT, and length of therapy were all significantly lower in September 2020 compared to April 2020.

Table 2- Primary and Secondary Outcomes

	Total	Month		
	n = 294	April n = 69	September n = 225	P-Value
Culture Confirmed Co-infection Overall Suspected Co-infection	13 (4.42%) 31 (10.5%)	3 (4.38%) 9 (13.0%)	10 (4.44%) 22 (9.8%)	0.439
Antibiotic Administered	224 (76.2%)	63 (91.3%)	161 (71.6%)	< 0.001
Length of therapy (max of 7 days)	3.0 (1.0, 5.0)	4.0 (2.0, 6.0)	3.0 (0.0, 5.0)	0.001 W
Antibiotic Days of Therapy	5.0 (1.0, 8.0)	6.0 (4.0, 9.0)	4.0 (0.0, 7.0)	< 0.001 W
Continuous variables compared using Student's T-test. Categorical variables compared using chi-square test. (Except as noted: W = Wilcoxon rank-sum test)				

Conclusion. Our results show bacterial co-infections were extremely low in our health system. Despite positive trends in antibiotic use, prescribing remained high. More targeted interventions to decrease antibiotic exposure in COVID-19 patients are needed.

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

328. Bacteremia in Patients Hospitalized with Covid-19 Disease, Risk Factors, Impact of immunomodulator Therapy, Role of Inflammatory Markers, Antibiotic Use, and Outcomes: A Single Center Retrospective Study

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

Background. Novel coronavirus 2019 (Covid19) caused by SARS-CoV2 can lead to significant morbidity and mortality. There is unclear association between Covid19 and bacteremia. Patient characteristics and outcomes are not well defined. This retrospective cohort study assessed this in patients with Covid19 and bacteremia.

Methods. Patients with Covid-19 admitted to a tertiary care suburban academic medical center (UH) were assessed retrospectively by EMR chart review for co-morbidities, pre and in hospital factors, and outcomes as defined below. Bacteremias grouped into gram-negative or gram-positive with collation of each unique bacterial species (Table 1).

Table 1. Blood Cultures, Isolated Organisms.

Total Blood Cultures	**264**		
Gram Positives		**Gram Negatives**	
STAPHYLOCOCCUS AUREUS	8	KLEBSIELLA VARIICOLA	1
STAPHYLOCOCCUS AUREUS, MRSA	5	KLEBSIELLA (ENTEROBACTER) AEROGENES	1
STAPHYLOCOCCUS HOMINIS* *denotes coagulase negative Staphyloccocus species (CoNS)	53	KLEBSIELLA OXYTOCA	1
STAPHYLOCOCCUS CAPITIS*	19	KLEBSIELLA PNEUMONIAE	6
ENTEROCOCCUS FAECALIS GROUP D	22	BACTEROIDES FRAGILIS	1
STAPHYLOCOCCUS EPIDERMIDIS*	98	PSEUDOMONAS AERUGINOSA	1
CORYNEBACTERIUM SPECIES	3	ESCHERICHIA COLI	3
EGGERTHELLA LENTA	1	PSEUDOMONAS ORYZIHABITANS	1
STAPHYLOCOCCUS PETTENKOFERI*	6	ENTEROBACTER CLOACAE COMPLEX	1
DERMABACTER HOMINIS	1	MORAXELLA OSLOENSIS	1
STAPHYLOCOCCUS LUGDUNENSIS	1	BACTEROIDES VULGATUS GROUP	1
STREPTOCOCCUS SALIVARIUS	2	BACTEROIDES THETAIOTAOMICRON	1
STAPHYLOCOCCUS SIMULANS*	2	BURKHOLDERIA CEPACIA COMPLEX	1
STAPHYLOCOCCUS AURICULARIS*	2	**TOTAL GRAM NEGATIVES (BLOOD)**	**20**
STREPTOCOCCUS GALLOLYTICUS (S.BOVIS)	1		
STREPTOCOCCUS AGALACTIAE (GROUP B) BETA HEMOLYTIC	1		
STREPTOCOCCUS PARASANGUINIS	1		
STREPTOCOCCUS PNEUMONIAE	1		
ACTINOMYCES ORIS	1		
STAPHYLOCOCCUS CAPRAE*	1		
STREPTOCOCCUS SALIVARIUS VESTIBULARIS GROUP	1		
STAPHYLOCOCCUS WARNERI*	4		
MICROCOCCUS SPECIES	1		
MICROCOCCUS LUTEUS	1		
CORYNEBACTERIUM AURIMUCOSUM GROUP	1		
CORYNEBACTERIUM MINUTISSIMUM	1		
ENTEROCOCCUS AVIUM GROUP D	1		
STAPHYLOCOCCUS HAEMOLYTICUS*	5		
TOTAL GRAM POSITIVES (BLOOD)	**244**		

Results. Total 1398 patients with Covid19 hospitalized at UH during local peak of pandemic of whom 238 (17.02%) developed 264 bacteremias with gram-positive (244, 92.4%) and gram-negative organisms (20, 7.57%). Relevant characteristics (Table 2) 53% with immunomodulator therapy (steroids/Tocilizumab), mean length of stay 21.04 days (SEM ± 1.67) with day SARS-CoV2 PCR positivity -1.15 days from