Table 1. Comparison of basic characteristics of patients in the two operated / unoperated cohorts.

Variable		Underwent surgery (n=30)	Not underwent surgery (n=60)	p
Age	Mean+/-sd (years)	53.9+/-14.7	56.08+/-16.81	0.083
	Female	13	18	0.243
Cardiac risk factors	Rheumatic heart disease	2	2	0.598
	Congenital heart disease	3	3	0.396
	Heart valve replacement	5	17	0.301
	Pacemaker	2	3	1
Non-cardiac	Central IV lines	2	8	0.486
	Hemodialysis	2	8	0.486
	IV drug use	1	2	1
Complaints	Fever	26	56	0.433
	Weight-loss	11	14	0.216
	Dyspnea	9	14	0.609
	Tachycardia	5	13	0.780
Heart murmur		20	24	0.024
Laboratory findings (Mean+/-sd)	Blood leukocyte count	12620 +/-7417	12190 +/- 6229	0.772
	C-reactive protein	12.28 +/-8.3	11.12 +/-8.46	0.538
	Erythrocyte sedimentation rate	66 +/-31.1	59.3 +/- 34.6	0.373
Surgical indication	Heart failure	3 (10%)	0 (0%)	0.034
	Uncontrolled infection	11 (36.6%)	24 (40%)	0.821
	Prevention of embolism	16 (53.3%)	36 (60%)	0.651
Microorganism	Blood culture positive	23	50	0.568
	S.viridans	9	9	0.103
	S.aureus	7	13	1
	E.faecalis	3	6	1
	Fungi	1 (Aspergillus spp)	4 (One mold, 3 *C.albicans*)	0.260
Septic embolisms	Intracranial	4	5	0.474
	Splenic	1	5	0.658
	Pulmonary	0	3	0.548
	Renal	0	1	1
Mortality		4/30 (13.3%)	21/60 (35%)	0.0447

(IV= intravenous)

Conclusion. These data support the importance of the guidelines' criteria for cardiac surgery in the management of IE. Assuming that only 1/3 of the surgery needing cases received surgery, more interventions are needed to decrease the barriers against surgery.

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692. *Coccidioides sp.* Infective Endocarditis: A Review of the Literature

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Session: P-32. Endocarditis

Background. Despite the endemic nature of *Coccidioides* sp. to the American Southwest, the incidence *Coccidioides sp.* infective endocarditis (CIE) is rare. Following successful treatment of a patient with CIE at our institution, we reviewed the literature to identify trends in disease presentation, patient characteristics, and outcomes.

Methods. We reviewed all cases of CIE reported since 1938. Details including patient demographics, underlying immunodeficiency, time to diagnosis, treatment, and outcome were collected for analysis of diagnostic challenges and survival.

Results. Including ours, we identified 11 published cases of CIE. The majority (7) occurred in men. 5 patients were of either African American or Hispanic descent. Of the 10 patients with reported ages, the median age was 35.5 years (range 3 weeks – 61 years). 5 patients had a previous diagnosis of coccidioidomycosis and only 3 had an immunocompromising condition. These comprised pregnancy, heart transplant, and juvenile inflammatory arthritis. Three cases had multi-valvular involvement, but the majority affected the mitral (5) and the aortic (4) valves. Only 2 of the 11 cases involved a prosthetic valve. Of the 8 cases with reported blood cultures, only 2 were positive. Ten of the 11 cases had extra-cardiac disease. Complement fixation (CF) titers were heterogenous with a median of 1:32 and a range of 1:1 to 1:2048. There was no obvious correlation between a patient's CF titer and their survival. Average time to diagnosis was 3.5 months (range 2.5 – 36 months). Diagnosis was made post-mortem in 4 of the 11 cases. 6 patients (54%) did not survive. Notably, 2 of the fatal cases preceded the discovery of amphotericin B (1969) and 4 occurred prior to the discovery of fluconazole (1990). Of the five patients that survived, four required surgical intervention in addition to azole therapy.

Conclusion. CIE is a diagnostic and therapeutic challenge. The diagnosis itself is rare, culture incubation times are long, and the symptoms are often non-specific thus delaying definitive therapy. The introduction of azole therapy appears to have had significant impact on rates of survival. Despite this, successful management of CIE still requires concurrent surgical intervention with aggressive, indefinite anti-fungal therapy.

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693. Performance of ICD Code Versus Discharge Summary based Query for Endocarditis Cohort Identification

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Session: P-32. Endocarditis

Background. Studies on infective endocarditis (IE) have relied on International Classification of Diseases (ICD) codes to identify cases but few have validated this method which may be prone to misclassification. Examination of clinical narrative data could offer greater accuracy and richness.

Methods. We evaluated two algorithms for IE identification from 7/1/2015 to 7/31/2019: (1) a standard query of ICD codes for IE (ICD-9: 424.9, 424.91, 424.99, 421.0, 421.1, 421.9, 112.81, 036.42 and ICD-10: I38, I39, I33, I33.9, B37.6 and A39.51) with or without procedure codes for echocardiogram (93303-93356) and (2) a key word, pattern-based text query of discharge summaries (DS) that selected on the term "endocarditis" in fields headed by "Discharge Diagnosis" or "Admission Diagnosis" or similar. Further coding extracted the nature and type of valve and the organism responsible for the IE if present in DS. All identified cases were chart reviewed using pre-specified criteria for true IE. Positive predictive value (PPV) was calculated as the total number of verified cases over the algorithm-selected cases. Sensitivity was the total number of algorithm-matched cases over a final list of 166 independently identified true IE cases from ID and Cardiology services. Specificity was defined using 119 pre-adjudicated non-cases minus the number of algorithm-matched cases over 119.

Results. The ICD-based query identified 612 individuals from July 2015 to July 2019 who had a hospital billing code for infective endocarditis; of these, 534 also had an echocardiogram. The DS query identified 387 cases. PPV for the DS query was 84.5% (95% confidence interval [CI] 80.6%, 87.8%) compared with 72.4% (95% CI 68.7%, 75.8%) for ICD only and 75.8% (95% CI 72.0%, 79.3%) for ICD + echo queries. Sensitivity was 75.9% for the DS query and 86.8-93.4% for the ICD queries. Specificity was high for all queries >94%. The DS query also yielded valve data (prosthetic, tricuspid, pulmonic, aortic or mitral) in 60% and microbiologic data in 73% of identified cases with an accuracy of 94% and 90% respectively when assessed by chart review.

Table 1. Test Characteristics of Three Electronic Health Record Queries for Infective Endocarditis

	Positive Predictive Value 95% CI	Sensitivity 95% CI	Specificity 95% CI
ICD code only	**72.4%** (443/612) 68.7%, 75.8%	**93.4%** (155/166) 88.5%, 96.3%	**94.1%** (112/119) 88.4%, 97.1%
ICD code + ECHO	**75.8%** (405/534) 72.0%, 79.3%	**86.8%** (144/166) 80.8%, 91.1%	**94.1%** (112/119) 88.4%, 97.1%
Discharge Summary	**84.5%** (327/387) 80.6%, 87.8%	**75.9%** (126/166) 68.9%, 81.8%	**98.3%** (117/119) 94.1%, 99.5%

CI, confidence interval.

Conclusion. Compared to traditional ICD-based queries, text-based queries of discharge summaries have the potential to improve precision of IE case ascertainment and extract key clinical variables.

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694. Prediction Tool for Infective Endocarditis in Beta-hemolytic Streptococcal Bacteremia

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Session: P-32. Endocarditis

Background. Although beta-hemolytic streptococci (BHS) is a rare causative pathogen of infective endocarditis (IE), IE is a serious condition and it is important to predict IE in BHS bacteremia (BHS-IE). The purpose of this study was to develop a predictive score for BHS-IE.

Methods. We conducted a retrospective study comparing the clinical features of BHS-IE and BHS-non infective endocarditis (BHS-nIE) in adult patients with BHS bacteremia at a 520-bed tertiary hospital in Tokyo, Japan from 2004 to 2020. IE was diagnosed according to modified Duke's criteria, and both "Definite" and "Possible" were included. Univariate and multivariable analyses were conducted using logistic regression.

Results. Among 250 patients with BHS bacteremia, 47 (19%) were diagnosed with BHS-IE. The median (IQR) patient age was 71 (59, 84) years and 121 (68%) were male. The proportions of A, B, C/G groups were 14%, 38.4%, and 47.6%, respectively. Five predictors, either independently associated with BHS-IE or clinically relevant, were used to develop the prediction score: C-reactive protein ≥ 10 mg/dl (2 points); Group B Streptococci (1 point); Auscultation of heart murmur (1 point); Platelet count < 150 /μl (1 point); and Hypotension (systolic blood pressure < 90 mmHg or on vasopressor) (1 point). In a receiver operating characteristic analysis, the area under the curve was

0.74 (95% confidence interval [CI]: 0.66 - 0.82). The cut-point was 2. A score ≥2 had a sensitivity of 87% (95%CI: 0.743 - 0.952), a specificity of 37% (95%CI: 0.308 - 0.445), a positive predictive value of 24%, and a negative predictive value of 93%, respectively.

Conclusion. We developed the score to help clinicians rule out IE in BHS bacteremia. Further research is warranted for validation.

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695. Antipseudomonal Versus Narrow-spectrum Agents for the Treatment of Community-onset Intra-abdominal Infections

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Session: P-33. Enteric Infection

Background. Antipseudomonal antibiotic regiments are often used to treat community-acquired intra-abdominal infections (CA-IAI) despite common causative pathogens being susceptible to more narrow-spectrum agents. The purpose of this study was to compare post-infection complications in adult patients treated for CA-IAI with antipseudomonal or narrow-spectrum regimens

Methods. This retrospective cohort study included patients ≥18 years admitted for CA-IAI treated with antibiotics between January 1, 2013, and December 31, 2019. Patients who had bacteremia or peritonitis were excluded. The primary objective of this study was to compare post-infection complications within 90 days between patients treated empirically with antipseudomonal versus narrow-spectrum regimens. Post-infection complication was defined as post-operative infection, recurrence of diverticulitis, or mortality. Secondary objectives were to compare infection and treatment characteristics along with patient outcomes. Sub-group analyses were planned to compare outcomes of patients with low-risk and high-risk CA-IAI and patients who required surgical intervention versus who were medically managed

Results. A total of 350 patients were included: Antipseudomonal, n=204; Narrow-spectrum, n=146. There were no differences in 90-day post-infection complications between groups (Antipseudomonal 15.1% vs Narrow-spectrum 11.3%, p=0.296). Additionally, no differences were observed in hospital LOS, 90-day readmission, *C. difficile*, or mortality. Patients treated with Antipseudomonal regimens received longer durations of therapy (median 11 days [IQR 8-14] vs 9 days [IQR 5-12], p< 0.001). No differences were observed in 90-day post-infection complications for patient with low-risk (Antipseudomonal 15% vs Narrow-spectrum 9.6%, p=0.154) or high-risk CA-IAI (Antipseudomonal 15.8% vs Narrow-spectrum 22.2%, p=0.588), or those who were surgically (Antipseudomonal 8.5% vs Narrow-spectrum 9.2%, p=0.877) or medically managed (Antipseudomonal 17.5% vs Narrow-spectrum 13.1%, p=0.463).

Conclusion. Post-infection complication rates were similar among patients treated with antipseudomonal and narrow-spectrum antibiotics. Antipseudomonal therapy is likely unnecessary for most patients with CA-IAI

Disclosures. **Lisa E. Dumkow, PharmD, BCIDP**, Nothing to disclose

696. Optimal Duration of Prophylactic Antibiotics in Patients with Cirrhosis and Upper Gastrointestinal Bleeding

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Session: P-33. Enteric Infection

Background. Spontaneous bacterial peritonitis (SBP) is a serious complication of variceal hemorrhage. Guidelines recommend a maximum of seven days of antibiotics after variceal hemorrhage to prevent SBP and reduce rates of rebleeding and mortality. However, studies supporting these guidelines used varied durations of therapy including those with less than seven days. The objective of this study was to determine if less than seven days of antibiotic prophylaxis was noninferior to seven or more days in patients with cirrhosis and variceal hemorrhage.

Methods. This was a single-center, retrospective cohort conducted from August 2019 to August 2020 including adult patients who received treatment for variceal hemorrhage and antibiotics for prevention of SBP during hospitalization. Patients were excluded if they were diagnosed with non-variceal hemorrhage, received treatment with antibiotics within 72 hours prior to the variceal hemorrhage, or expired or transitioned to end of life care within 48 hours of hospital admission. The primary outcome was in-hospital mortality. Secondary outcomes included SBP within the first 30 days after variceal hemorrhage, 30-day mortality, 30-day readmission rate, incidence of rebleeding at seven and 30 days, incidence of *Clostridioides difficile* infection, and intensive care unit and hospital length of stay.

Results. 64 patients were included with 45 patients in the less than seven days group and 19 patients in the seven or more days of antibiotic prophylaxis group. In each group, patients were primarily male with a median age of approximately 60 years. There was no difference in the primary outcome of in-hospital mortality between the less than seven days group as compared to the seven or more days group (22.2% vs 0%, p=1). No difference was identified between the less than seven days group as compared to the seven or more days group for any of the secondary outcomes.

Conclusion. This study identified no difference in patient-centered outcomes when comparing less than seven days of prophylactic antibiotics to seven or more days in patients with variceal hemorrhage. Less than seven days of prophylactic antibiotics may be a reasonable duration for prevention of SBP.

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697. Outcomes of Tigecycline Use for *Clostridioides difficile* Infection: A Case Series of 28 Patients

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Session: P-33. Enteric Infection

Background. *Clostridioides difficile* infection remains a highly morbid or lethal condition in an unacceptably large proportion of patients. To date, there are limited and conflicting data to support the use of tigecycline for *C. difficile* infection and the optimal stratification approach, timing (i.e., initial vs. salvage therapy), and duration are unclear.

Methods. We describe in detail a retrospective cohort of 28 *C. difficile* inpatients treated with tigecycline at UVA Medical Center. We stratify each patient by the Infectious Diseases Society of America's guidelines on severity of infection and detail the timing and duration of tigecycline therapy in each case. We further characterize the effect of tigecycline on 90-day mortality and recurrence.

Results. 9/28 (32.1%) patients were treated with tigecycline for fulminant (presence of hypotension, shock, ileus, or megacolon), and 12/28 (42.9%) for severe (white blood cell count over $15x10^9$/L or creatinine over 1.5mg/dL) *C. difficile* infection. Tigecycline was used in all cases in combination with oral vancomycin +/- metronidazole. The average duration of therapy was 7.6 days, with tigecycline as initial therapy (use within the first 72 hours of the start of directed antimicrobial therapy) in 7/28 (25%) cases. 90-day mortality occurred in 10/26 (35.7%) patients (two did not reach 90-day follow-up), all 10 of which were in-hospital mortalities and 5/10 (50%) occurred in patients with fulminant infection. 7 of the 16 (43.8%) surviving patients that reached 90-day follow-up had recurrent *C. difficile* infection.

Conclusion. Patients selected for treatment with tigecycline for *C. difficile* infection suffered a high rate of in-hospital mortality, especially among the significant proportion with fulminant disease. The rate of recurrent infection was substantial, contrary to some reports of reduced recurrence with tigecycline from the literature. The outcomes of tigecycline (as adjunct or monotherapy) for treatment of severe/fulminant and refractory infection versus standard treatments warrant further retrospective analysis and the benefit of tigecycline in these settings remains to be proven in well-controlled clinical trials.

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698. Contemporary Clinical Epidemiology of Pediatric *Shigella* and *Campylobacter* Infections in Houston, TX, 2019 and 2020.

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Session: P-33. Enteric Infection

Background. Infections due to Gram-negative, diarrheal pathogens are a significant cause of morbidity in children. Clinical features of pediatric *Shigella* and *Campylobacter* infections in urban cities in the United States are not well described.

Methods. We used a retrospective chart review of records (0-18 years of age) from a network of hospitals in Houston, TX. Only patients with *Shigella* spp. or *Campylobacter* spp. isolated from clinical samples in 2019 and 2020 were included. Demographic, clinical, and microbiological data were extracted from the medical record.

Results. We identified a total of 59 and 16 pediatric patients with *Shigella* spp. and *Campylobacter* spp. infections, respectively. Hospital admission occurred in 27.1% (16/59) of *Shigella* and 25% (4/16) of *Campylobacter.* Length of stay ranged between 1 and 2 days for both pathogens (Table 1). Of cases with available clinical data, *Shigella* infections were more likely to report fever during their illness compared to *Campylobacter* (80% versus 45.4%) (Table 2). Seizures were observed in 4 *Shigella* infected patients. No episodes of *Shigella* or *Campylobacter* bacteremia were identified. Among patients with an identified exposure, daycare attendance and contact with individuals experiencing similar symptoms were most common (Table 2). The vast majority of *Shigella* species were *S. sonnei* (96.6%) and all *Campylobacter* were *C. jejuni* (Table 3). Resistance to trimethoprim-sulfamethoxazole (TMP-SMX) was common (40/55, 72.7%) among *Shigella* isolates tested. No resistance to fluoroquinolones or third generation cephalosporins in any of the *Shigella* spp. isolates was observed. Susceptibility testing was not performed in *Campylobacter* due to lack of isolates. The most frequent antibiotic used was azithromycin (in 73.3% and 75% of patients with *Shigella* and *Campylobacter,* respectively). Major complications included urinary tract infection (n=1), rectal prolapse (n=1) and splenomegaly (n=1).