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

| Variable                          | Operated surgery (n=35) | Non-operated surgery (n=45) | p  
|----------------------------------|-------------------------|-----------------------------|------
| Age (years)                      | 55.3 (11.7)             | 56.36 (15.51)               | 0.68 |
| Female                           | 19                      | 22                          | 0.49 |
| Cardiac risk factors             |                         |                             |      
| Rheumatic heart disease          | 2                       | 2                           | 0.56 |
| Congenital heart disease         | 3                       | 2                           | 0.39 |
| Heart valve replacement          | 5                       | 17                          | 0.33 |
| Pacemaker                        | 2                       | 2                           | 1    |
| Central lines                    | 2                       | 8                           | 0.46 |
| Heartburn                        | 2                       | 6                           | 0.46 |
| N-acetylglucosaminuria           | 1                       | 2                           | 1    |
| Comorbidities                    |                         |                             |      
| Fever                            | 28                      | 34                          | 0.43 |
| Weight loss                      | 11                      | 16                          | 0.21 |
| Diabetes                         | 9                       | 14                          | 0.09 |
| Psychotics                       | 5                       | 10                          | 0.18 |
| Heart failure                    | 28                      | 24                          | 0.02 |
| Laboratory indices (mmol/L)      | 150.2 (67.1)            | 121.9 (62.8)                | 0.72 |
| Creatinine                       | 13.8 (19.3)             | 11.1 (6.4)                  | 0.56 |
| Erythrocyte survival rate density| 56.4 (21.7)             | 56.3 (34.1)                 | 0.37 |
| Surgical infection               | 3.5 (19.8)              | 8.3 (29.6)                  | 0.41 |
| Unilateral infection             | 13 (38.8)               | 24 (49.0%)                  | 0.21 |
| Right ventricle                   | 10.15 (7.4)             | 26 (82.0%)                  | 0.01 |
| Microorganisms                   | 25                      | 50                          | 0.08 |
| S-peptide                        | 9                       | 0                           | 0.10 |
| Hemolytic                        | 7                       | 12                          | 0.001|
| E-septum                        | 5                       | 0                           | 1    |
| Kang                              | 4                       | 0                           | 0.47 |
| Septic emboli                     | 6                       | 0                           | 0.66 |
| Pulmonary                        | 0                       | 2                           | 0.68 |
| Racial                            | 0                       | 1                           | 1    |
| Mortality                        | 4/5 (15.5%)             | 21/58 (35.0%)               | 0.64 |

Results. The 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 patients 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-vascular 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 heterogeneous 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 5 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, 421.2, 119.81, 036.42 and ICD-10: I38, I39, 133, 133.9, 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 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 94.5% (95% confidence interval [CI] 86.0%, 87.8%) compared with 72.4% (95% CI 67.8%, 75.8%) for ICD only and 75.8% (95% CI 72.0%, 79.3%) for IE + echo queries. Sensitivity was 75.9% for the DS query and 68.8-93.4% 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.

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%, and 47%, 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 × 10^9 /l (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: 0.74 - 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 regimens 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 among patients with low-risk and high-risk CA-IAI and patients who required surgical intervention versus those 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 and patients who required surgical intervention versus those who were medically managed.

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

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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 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 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 patients treated with tigecycline at UVA Medical Center. We stratify each patient by the Infectious Diseases Society of America (IDSA) guidelines 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 21/28 (75.0%) for a single dose of 750mg (IV/PO). Tigecycline was in use 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 14/28 (50%) cases. 90 days following discharge, 10/28 (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. Contemporaneous 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 4 Shigella 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).

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